

FLOW SIMULATION OF BRAHMAPUTRA RIVER USING 1D-MODELING APPROACH

A DISSERTATION

*Submitted in partial fulfillment of the
requirements for the award of the degree*

of

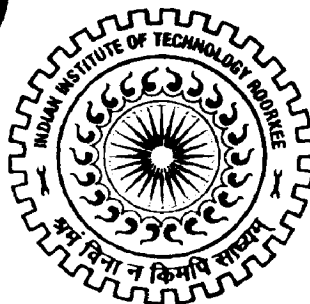
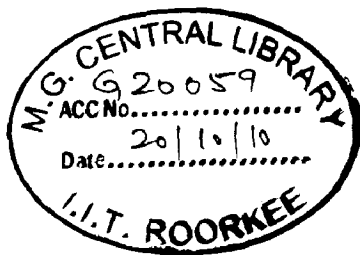
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in

**WATER RESOURCES DEVELOPMENT
(CIVIL)**

By

DEEPAK SWAMI



DEPARTMENT OF WATER RESOURCES DEVELOPMENT AND MANAGEMENT
INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE -247 667 (INDIA)
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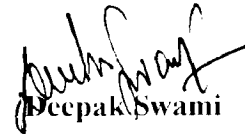
CANDIDATE'S DECLARATION

I, Deepak Swami, hereby solemnly affirm that the work presented in the dissertation entitled "**Flow Simulation of Brahmaputra river using 1D-modeling approach**", being submitted by me in partial fulfilment of the requirement for the award of degree of **Master of Technology in Water resources** with specialisation in **Civil Engineering**, to the Water Resources Development & Management, Indian Institute of Technology, Roorkee, is a record of bonafide work carried out by me under the supervision of **Dr. Nayan Sharma**, Professor, WRD&M, Indian Institute of Technology, Roorkee.

The work reported in this dissertation work in full or in part has not been submitted to any University or Institute for the award of any degree or diploma.

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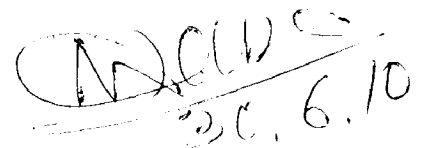
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CERTIFICATE

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.



20.6.10

Dr. Nayan Sharma
PROFESSOR
DEPT. OF WRD&M
I.I.T. ROORKEE (INDIA)

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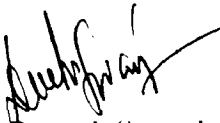
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Finally, I offer my hearty respect to my parents for their blessings on me and acknowledge the coordination & support shown by my younger brother Sujeet Swami throughout the study.

Date: June 2010

Place: Roorkee



Deepak Swami

ABSTRACT

The flow resistance characteristics of an alluvial stream are highly complex, which warrant considerable research efforts. The dynamics of flow is further complicated in a natural stream due to wide differences in hydraulic properties and resistances of flow in the main channel and the subsidiary channels. The position of the free surface is likely to change with respect to time and space and also by the fact that the depth of flow, the discharge and the slopes of the channel bottom and of the free surface are interdependent

An integrated study in Fluvial Hydraulics and Sediments Transport involves the analysis of the capacity of the river or channel to carry water and sediment, and the corresponding morphological changes in both the main channel and floodplain. Sediment transport in concise, replicates the various aspects of the dynamics of solid particle movement, properties of the transported materials, and characteristics of the transporting medium, which in turn, may be affected by the solids transported.

The morphological changes of rivers are deeply interrelated with bed deformation and bank erosion because of the mutual relationship between water flow and sediment transport. A better understanding of these processes is very important in river engineering to prevent disasters due to flooding, to design and manage hydraulic structures, like bridges and water intake towers, and to maintain river ecosystems and the landscape for environmental engineering purposes.

Reliable and quantitative estimate of the bed aggradation or degradation are very important in river engineering and management projects as well as accurately predicting the water surface elevations during floods in estimating flood related damage. Thus, engineers are greatly interested in accurately predicting the behavior of river under various flows and sediment loads so that better information can be obtained for the planning and design of river control structures, flood protection measures and other water diversion structures.

Present study is to investigate the flow propagation behavior of the Brahmaputra river at different flow stages with varying sediment transport capacity and sediment concentration and thereby predict time variant bed profile using 1-D flow simulation model HEC-RAS 4.0.

Hydrological and Hydraulic data of Brahmaputra River have been adopted for the purpose of the study to facilitate the modelling endeavor with real life situation. The study area stretch over the length of 622.73 km of the river Brahmaputra in the Assam valley of India. The study is based on the hydrographic data (river cross sections) collected over the span of 5 years from 1993 to 1997 comprising two discrete data years.

The observed variations of the thalweg levels with the model predicted data base have quantified the aggradations and degradations in the reach between the cross sections and has shown that aggradation

phenomena is the most pronounced trend in the Brahmaputra during study period. In the three segments of the total length, the middle reach is observed to be more susceptible to degradations due to relatively high stream power feedback and negative feedback from sediment inflow during low flow season of the river Brahmaputra in this reach.

The slope of the longitudinal profile has been varying from flatter in lower reaches to steeper in upper reach.

Present study also seems to suggest that sediment supply is most fundamental parameter controlling aggradations whereas unit stream power is more responsive to degradations.

The calibrated mathematical model based on HEC-RAS 4.0 software can be conveniently deployed for various river analysis works such as flood propagation, channel behavior and improvement at temporal and spatial point for interventions.

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NOTATIONS & ABBREVIATIONS

Symbol	Explaiontion
γ_w	specific weight of water;
γ	unit weight of fluid
g	acceleration due to gravity;
q	water discharge per unit width;
Q	water discharge;
Q_b	bank full discharge;
R	correlation co-efficient;
S	longitudinal bed slope;
Ω	unit stream power;
w	water surface width of stream / channel;
Y_o	observed value;
Y_p	predicted value;

γ_w	specific weight of water;
γ	unit weight of fluid
g	acceleration due to gravity;
q	water discharge per unit width;
Q	water discharge;
Q_b	bank full discharge;
R	correlation co-efficient;
F	FroudeNo.
v	velocity
CWC	Central Water Commission
E	Determinant Coefficient (Nash Sutcliffe-Coeff)
WAPCOS	Water and Power Consultancy Services
HEC	Hydrological Engineering Center
RAS	River Analysis System
R	Correlation coefficient
HEC	Hydrologic Engineering Center
RMSE	Root Mean Square Error
DHI	Delft Hydraulics Institute
WRD&M	Water Resources Development And Management
USCE	United States Corps of Engineers
ASCE	American Society of Civil Engineering

INTRODUCTION

1.1 INTRODUCTION

The flow resistance characteristics of an alluvial stream are highly complex which warrant considerable research efforts. Due to this reason water surface level, velocity and discharge computations in alluvial streams have great deal of uncertainties. The art of modelling an alluvial river is still in developing stage and lot of ground yet remain to be uncovered. The dynamics of flow is further complicated in a natural stream due to wide differences in hydraulic properties and resistances of flow in the main channel and the subsidiary channels.

The position of the free surface is likely to change with respect to time and space and also by the fact that the depth of flow, the discharge and the slopes of the channel bottom and of the free surface are interdependent. To add to the intensity of parameters, a more profound problem defines the flow behavior and attributes i.e., the fact that rivers and other watercourses, in most cases, run through loose material and the water carries/transport some of this material along with it. Generally the loose non-cohesive material through which a river flows is generally termed as “sediment”.

An integrated study in Fluvial Hydraulics and Sediments Transport involves the analysis of the capacity of the river or channel to carry water and sediment, and the corresponding morphological changes in both the main channel and floodplain. Sediment transport in concise, replicates the various aspects of the dynamics of solid particle movement, properties of the transported materials, and characteristics of the transporting medium, which in turn, may be affected by the solids transported.

The morphological changes of rivers are deeply interrelated with bed deformation and bank erosion because of the mutual relationship between water flow and sediment transport. A better understanding of these processes is very important in river engineering to prevent disasters due to flooding, to design and manage hydraulic structures, like bridges and water intake towers, and to maintain river ecosystems and the landscape for environmental Engineering purposes.

Reliable and quantitative estimate of the bed aggradation or degradation are very important in river engineering and management projects as well as accurately predicting the water surface elevations during floods in estimating flood related damage. Thus, engineers are greatly interested in accurately predicting the behavior of river under various flows and sediment loads so that better information can be obtained for the planning and design of river control structures, flood protection measures and other water diversion structures.

In the present study, it will be endeavor to investigate the flow propagation behavior at different flow stages with varying sediment transport capacity and sediment concentration and thereby predicting time variant bed profile using recently launched flow simulation model HEC-RAS for **622.73 km** reach of Brahamputra.

1.2 EARLIER RESEARCH

To date, there are many empirical formulas for the calculation of sediment discharge in alluvial channels, but few have gained general applications to estuaries and coastal waters. For sediment transport in rivers, Yang and Wan (1991) provided a good summary of the well-cited equations, such as those proposed by Einstein (1950), Meyer-Peter and Muller (1948), Bagnold (1966), Yalin (1977), Engelund and Hansen (1972), and Ackers and White(1973) transport and local flow characteristics to numerical modelers.

A number of sediment transport studies have been conducted in channels and flumes to develop analytical solutions for simplifying the governing equations describing complex phenomenon of the aggradation and degradation processes (Sinnakaudan, 2006). Researchers have separately treated the suspended load and the bed load calculation. However recent literature shows that total sediment load (or bed material load) equations are much preferred and researchers are now moving toward employing more complex analytical methods. Good appraisals of available total sediment load equations and their performance were given by Acker and White (1973), Garde and Raju(2000), Yang and Wan (1991), Chen (1973), Chang(1984). Some of the available total bed material load equations are developed by Graf (1971), Ackers and White (1973), Rijn (1996), and Yang (1973). The existing equations are mostly developed based on flume data in western countries including America and Western Europe. However not all of these equations are widely used or evaluated in other parts of the world (Karamisheva, 2006). Several equations

such as Ackers–White (1973) have been incorporated into current loose boundary models such as *HEC-6* (USACE 1993) and the Graf (1971) equation is available in *Fluvial-12* (Chang 1993) to simulate the sediment transporting capability of rivers.

The prediction of open channel flows using numerical models is of great interest to hydraulic researchers and engineers. Most open channel flows are well described by the Saint Venant equations. Although the Saint Venant equations are derived based on the shallow water hypothesis, many studies have revealed that the equations are also applicable to the rapidly varied flows such as dam-break flows. So far, many numerical schemes for the Saint Venant equations have been developed. However, most conventional schemes are incapable of encompassing the diverse and complex open channel flows. For example, the four-point implicit scheme was found to have numerical stability problems with Tran critical flow (Cao and Carling 2002).

One-dimensional (1-D) modelling of sediment transport in streams has seen extensive development over the past decades. Chen (1973), for the first time formulated a model that included sediment transport for generalized use. Dass (1975) developed multi-stream flow and compound stream flow models by adopting the uncoupled solution procedure to route water and sediment in non uniform channels. Steady and step wise quasi-unsteady 1-D models, such as *HEC-6* (HEC 1990a) model, Chang's(1984) model, and others, have been widely tested and applied to sedimentation studies in reservoirs and rivers in which the long wave assumption is valid and the long-term results are mainly considered. Many unsteady flow models (Cunge et al. 1980) have been developed and applied to river estuaries and other situations where the unsteadiness of flow prevails. With a lot of enhancement and refinement, 1-D models continue to have their place in engineering applications. The majority of the early 1-D sediment transport models decoupled the flow and sediment calculations, which resulted in simpler computer codes. This strategy was justified because of the different time scales of flow and sediment transport and the inherent inaccuracies introduced by the use of empirical formulas for bed roughness and sediment transport capacity. Recently, much effort has been made toward relaxing the limit in time and space steps and extending the applicability of the fully decoupled model. One effective approach is to couple the equations of flow and sediment movement, which was done by Cao et al. (2002), who compared the numerical stability of coupled and decoupled models and found out that the coupled model is more stable. However, the implementation of a coupled model for non

uniform sediment transport is rather complicated, which is one of the reasons the decoupled models are still used by many scientists. Another approach, which has substantially improved sediment transport modeling, is the non equilibrium (also referred as non saturated) sediment transport model (Cao and Carling, 2002). In the traditional equilibrium (or saturated) transport model, the actual sediment transport rate is assumed equal to the sediment transport capacity at every cross section (i.e., locally at equilibrium state, and the bed change is calculated by the sediment continuity equation (Cao and Carling, 2002). However, in many cases, such as sediment strongly overloading or under loading, the inflow sediment discharge imposed at the inlet is significantly different from the transport capacity, which might lead to difficulties in the calculation of bed changes near the inlet, thus requiring a small time step. The non equilibrium transport model adopts the mass transport equation to determine the actual sediment transport rate, which should be more suitable for the simulation of sediment transport in natural rivers that are mostly in non equilibrium state.

1.3 OBJECTIVE

The study is aimed to:

- Application of flow simulation model HEC-RAS to investigate flow characteristics and behavior at different flow stages with varying sediment inflows and prediction of longitudinal different bed profiles.
- Assessment of Froude's coefficient with spatial variation as well as year wise changes in the mean value, assessing the interdependencies among hydraulic properties & channels stability.
- Investigation of the suitability of available sediment predictor for assessing the sediment transport capacity for the study reach.
- Estimation of stream power for justifying aggradation and degradation in the study reach.

1.4 STUDY AREA

The area under the consideration for the present study encloses a **622.73 km** river stretch of Brahmaputra encompassing 65 no. of different cross-sections, 7 reaches with Kobo on the

northern most (65 no.) to Dhubri on the south (2 no.). The prime data, the study utilizes is the survey data of the cross sections taken in the years 1993 and 1997. The other hydrologic data of the river at different locations (Pandu, Jogighopa etc.) for the years 1993 to 2002 sourced from Central Water Commission and Brahmaputra Board). Photographic images derived from different digital satellites imageries processing in the earlier works are incorporated to draw the idea of the area at a glance.

1.5 THE METHODOLOGY

The methodology for this work is to first assess Froude's no. "F" in all segments(all 7 reaches) of the whole study area (**622.73 K.M.**) through simulating the flow and comparing the computed water surface profiles at down stream with observed water surface profiles using 1-D hydraulic model namely HEC-RAS 4.0. Secondly, the sediment transport module in HEC-RAS 4.0 proposed to be performed for the study reach to estimate long term aggradation and degradation to predict the longitudinal bed profile through appropriately feeding inflowing sediment concentration, sediment inflow from tributaries, bed material sampling and selection of appropriate sediment transport function along with flow data and calibrated resistance parameter. For the model constituted in this work, several available sediment discharge predictors will be experimented and to adopt the method which yield best possible results.

LITERATURE REVIEW

2.1 INTRODUCTION

Sediment transport problems related to the identification and mitigation of flood hazard on alluvial fans in arid and semiarid environments is a current and critical concern of the engineering profession. In particular, estimating the length and maximum depth of deposition or erosion that occurs during a flow event when there is a change in the longitudinal slope of the channel is an important problem. Deposition occurs when the slope changes from steep to mild and erosion occurs when the slope changes from mild to steep. Once, a flood is over, or in a gradual time span, large changes on the river bed are observed with banks or piers eroded, while other locations get covered or aggraded. It might be impacted that when extremely large floods with limited sediment supplies and high sediment carrying capacities occur in rivers with erodible bed and bank materials, scour will continue to take place within the erosive capacity of the stream till it approaches the minimum/optimum value required to transport the available material.

Traditional approaches have investigated the ways in which stream flows, sediment loads and channel forms vary along a river from headwaters to mouth and with time over periods ranging from hours to years. Represented in their most simple form, rivers have been viewed a unidirectional systems that change progressively from headwaters to mouth. The river continuum concept takes the physical structure of a stream, coupled with the hydrological regime and energy inputs to produce a series of responses (in form as stream flow hydrographs, etc.)

2.2 HISTORY

An exemplary representation of history of river channel evolution may be envisioned through Fig: 2.1 (Schumm 2000).

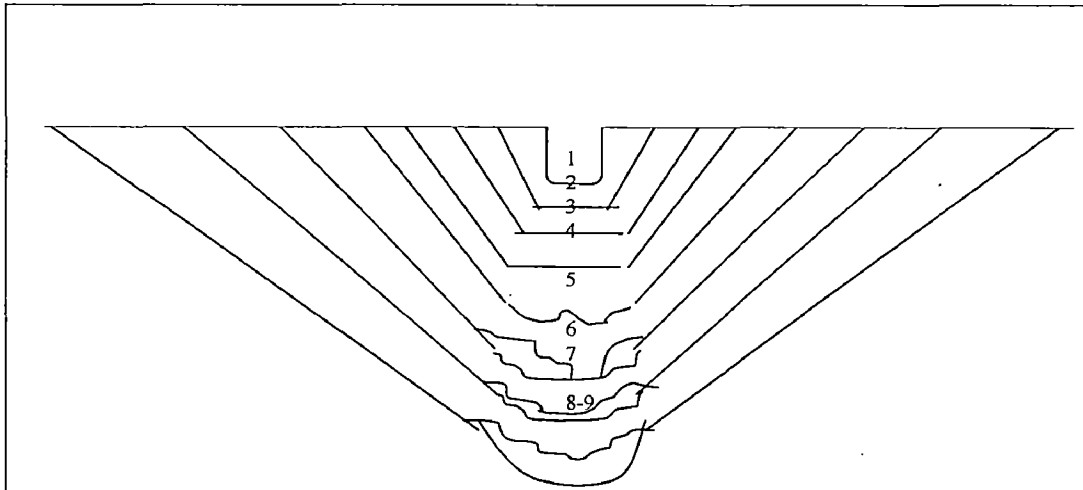


Fig: 2.1 Cross Section of Valley and Incising Stream at time

The historical background of a river is based on how the channel evolved through the passage of time. In the Fig: 2.1, the evolutionary transient phases of a channel in the vertical plane are presented. From 1-4 the channel is confined by the bed rock valley walls. During stages 5-7 the channel is constrained by bedrock valley wall and terraces of older alluvium. Finally, at the stage of 8-9 the channel has reached to regime (Schumm; 2000).

High floods are usually accompanied by high sediment charge, it could be speculated that the oldest streams were wide, shallow, steep, braided bed-load channel (Fig: 2.2a) The decrease in the sediment load perhaps were more rapid than the discharge a meander-braided transition pattern developed with a well defined single thalweg (Fig: 2.2b). The thalweg, in turn, became the channel as a new floodplain formed and the channel further narrowed with further reduction of sediment load (Fig: 2.2c). Finally, as bed load became a fraction of its former volume, a meandering mixed load channel with large meanders formed (Fig: 2.2 d).

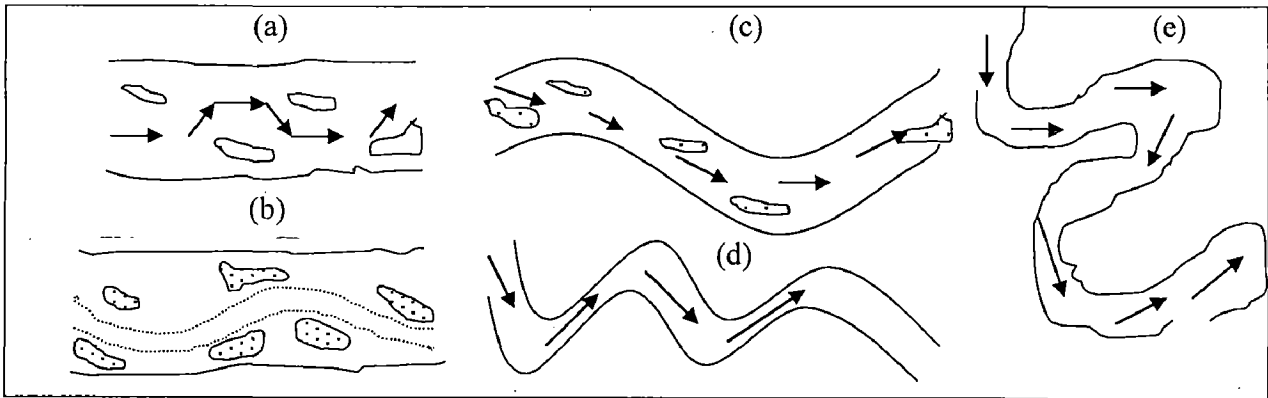


Fig: 2.2 Sequence of Channel Changes with Decrease in Discharge and Sediment

Primarily concerning to the Longitudinal bed profile it is found customary to mention the hydraulic characteristics of river flow dynamics with sediment discharge which constitutes and imparts dynamism to river streambed and other river morphological parameters. It is spontaneous to understand that a river originates from its watershed at higher altitudes of mountainous slopes which relatively receive high intensity rainfalls. Mainly, large river streams all around the world starts its voyages from higher mountainous elevation towards the sea. In the beginning the path of the flow is so steep that it has enormous potential to erode the bed in the vertical direction by virtue of which it develops V-shaped river section deep gorge or canyons. It has no flood plains and covers full width of its valley at all stages. A river at its young stage is characterized by presence of rapids, water falls, steep and varying gradients and presence of lakes.

At this stage the river is said to become mature after its youth stage. The slope at this stage is so reduced that it can no more cut the bed but starts widening. The sediment transportation capacity is just adequate to transport the sediments in the flow from upstream and the sediment material is derived from bank widening.

If the sediment content in the flow is above the transporting capacity heavier sediments are settled on the bed upstream the profile slope. Conversely, if the transporting rate capacity is yet to be satisfied, the bed material picked up and the stream slope is reduced. Hence, matured streams adjust its profile slope delicately. It is in the stage of maturity that the stream flows sinusoidal or meandering path in plan.

2.3 STREAM SLOPE

In general the longitudinal slope of a stream shows a continual decrease along its length. Examination of stream profiles would show that the slope is greatest near the source, decreasing more or less regularly as the river follows its course. Such reduction in slopes corresponds to a longitudinal profile which is concave upwards (Garde and Raju 2000). Several factors are responsible for this. The reasons put forward by different scientists and engineers have been summarized in the following lines.

Firstly, size of bed material being transported decreases in downstream direction due to abrasion (Garde and Raju 2000). Hack (1962) found slope varied as $d^{0.60}$ for stream in Virginia and Maryland (USA). Shulits (1941) assumed that the stream slope is proportional to the size of the bed material and accordingly proposed a slope reduction equation (Eq: 2.1)

$$S = S_0 e^{-\alpha x} \quad (2.1)$$

S_0 and S are the slopes at $x=0$ and at any distance x being measured in downstream direction and α a slope reduction coefficient. Brushi (1961) and Hack (1962) have shown that the stream slope is proportional to a negative power of the length of the stream up to that point indicating there by a decrease in slope along the length in conformity with the equation.

Low water profiles of the river Mississippi between Fort Jackson and Cairo of the Ohio between Cairo- Pittsburg (USA) and of several rivers in Europe are found to confirm the Eq: (2.1) (Garde and Raju 2000).

Secondly, in humid regions, the discharge in a stream increases in the downstream direction due to inflow from the tributaries. Unless there is a corresponding increase in the sediment inflow, the stream would necessarily flatten to the extent required by the increased sediment and water discharge (Garde and Raju 2000).

Thirdly, the sediment contribution of the upper region of a drainage basin is large compared to the run-off contribution to the stream flow. Which mean higher sediment contribution necessitating higher slope. While the lower region of the same drainage basin contributes smaller sediment quantity compared to its run-off discharge contribution signifying flatter slope requirement (Garde and Raju 2000).

Fourthly, on lower part of river sediments are usually finer and the streams are narrow with greater depth to width ratio leading to higher hydraulic efficiency requiring flatter slope (Garde and Raju 2000).

Garde (1982) presented an analysis considering the change in the bed material size, discharge and sediment load in the direction of flow.

He gave following relationships.

$$d = d_0 e^{\alpha_1 x} \quad [\text{Variation in sediment size in the downstream direction}] \quad (2.2)$$

$$Q = Q_0 e^{\alpha_2 x} \quad [\text{Variation in discharge } \alpha_2 \text{ between } 0.001 \text{ to } 0.0078/\text{ km}] \quad (2.3)$$

For Indian rivers]

$$Q_T = Q_{T0} e^{\alpha_3 x} \quad [\text{Variation in Total sediment load discharge } \alpha_3 \text{ between } 0.0006 \text{ to } 0.002/\text{ km for Indian rivers}] \quad (2.4)$$

Where d =sediment size; d_0 =Sediment size at $x=0$; x =Distance measured in flow direction; Q =Discharge; Q_0 =Discharge at $x=0$; Q_T =Total sediment load discharge; $Q_{T0} = Q_T$ at $x=0$; $\alpha_1, \alpha_2, \alpha_3$ are coefficients.

Combining the Eqs. 2.2), (2.3) and (2.4) with Kondap's relation for width & depth and a sediment transport law, Garde (1982) showed that;

$$S = S_0 e^{(0.178\alpha_3 - 0.426\alpha_2 - 0.713\alpha_1)x} \quad (2.5)$$

Where S_0 and S are slopes at x equal to zero and at any value x .

Thus, depending on the relative values of α_1, α_2 and α_3 it is possible to get a decreasing, increasing, or constant slope in a long reach. The fact has been observed by investigators such as Hack (1962).

2.4 STREAM BED CHANGES DURING THE FLOODS

On several alluvial streams, the stream bed elevation was seen to rise during flood while the bed was lower after the flood receded. On few other streams exactly opposite happenings have been recorded. These changes can be very rapid for example on the Missouri river at Omaha,

Nebraska (USA), the bed was found to be scouring at a rate of 0.3 m per minute during a flood. (Garde and Raju 2000).

In the simplest form to understand the process of bed profile variation one has to assess the inflow out flow of sediment discharge in the reach under the consideration.

a) If the incoming amount or the rate of the sediment upstream of the reach is higher than outgoing from the reach downstream it is obvious that the difference of the two quantities must have been dropped within the length of the reach. This process of rising of the bed level is called Aggradation.

b) Conversely, if the incoming amount or the rate of the sediment upstream of the reach is lower than outgoing from the reach downstream then the difference of the two quantities must have been fulfilled by picking up the bed materials from within the length of the reach. This process of lowering of the bed level is called Degradation.

2.5 OCCURRENCES OF AGGERADATIONS AND DEGRADATION

2.5.1 AGGRADATION

2.5.1.1 Occurrence of Aggradation

Occurrence of aggradation is the most often observed phenomena on the upstream side of Dams, Barrages and any other disturbances caused by man made features or natural activities like barricade due to land slide. Because of disturbance in the equilibrium state of sediment flow in the stream causing reduction in the bed profile slope the sediment carrying capacity of the flow is weakened, which leads to settling of the sediment contained in the flow (Basically bed load) is retained in the zone upstream to such features.

Other instance of aggradation of river bed is rising of the water level in the Lake or the sea which causes to reduce the slope of the water surface of river leading to a drop in the sediment transporting capacity and the result is aggradation. The situation of aggradation involves lower rate of sediment outflow than the inflow so that temporal gradient of bed level is positive.

In the sediment continuity equation

$$\frac{\partial z}{\partial t} + \frac{1}{(1-\lambda)} \frac{\partial q_t}{\partial x} = 0 \quad (2.6)$$

Where λ = Porosity of the bed; q_t = Rate of sediment inflow per unit width; z = Bed elevation.

The consequences of aggradation more often reduce the conveyance capacity of the channel due to reduction in the flow area.

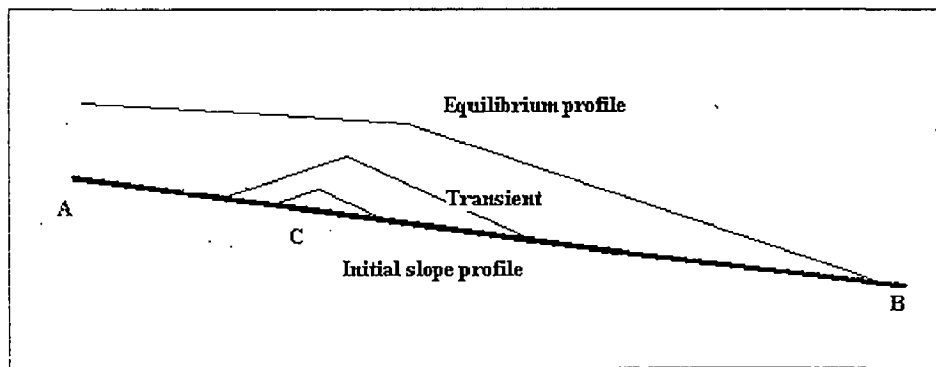


Fig: 2.3 Aggradation and Equilibrium L-Profile

Figure: 2.3 shows how the process of aggradation reaches to final equilibrium condition. Where the aggradation takes place because of increase in the sediment load in the flow above its transport capacity part of the sediment of the bed load is disposed on the bed of the channel which gradually extends upstream and downstream (as shown in the figure continues) till new profile is attained. This new profile is the equilibrium state of the profile adequate to transport the incoming sediment discharge.

2.5.1.2 Effects of Aggradation

- a) Firstly, aggradation shrinks the active flow area of the river. Consequently, the flow is pushed to spread to wider coverage extending the flood affected area.
- b) In the reservoirs behind the storage dams, the filling up of the reservoir leads to decrease in the depth of the usable water. This necessitates fixing a dead level in the design of such structures.
- c) Bank erosion and river migration problems are more pronounced in the aggrading rivers like lower reaches of the river Brahmaputra.

- d) Aggradation of the river bed restricts the navigational opportunities of the river courses.
- e) The effect of aggradation extends the flood detention period over the flood plain during wet season causing water table to raise causing water logging (Garde and Raju 2000).

2.5.2 DEGRADATION

2.5.2.1 Occurrence of Degradation

Most often degradation of streambed is observed to be lowered downstream of Large Capacity Reservoirs and Pools. Such degradation was observed in Cherry Creek USA where the extent of lowering being measured was 4.9m. But wherever sound rock exposures are encountered the process of degradation have found retarded (Garde and Raju 2000).

Another prominent location of occurrence of degradation is confluence of two or more rivers. Tributaries, generally steeper than the main stream but carry less run-off cause to lower the bed. At the instances, where the water discharges in the stream increases due to mixing of tributaries with relatively sediment free water discharge enhances the sediment transport capacity degradation occurs subsequently. And one another cause of degradation is because of increase in water surface profile slope as the result of fall in level of a lake. This type of degradation was noted in White river in California USA (Garde and Raju 2000).

Another location of degradation is where river has been started to flow along the cut-off developed in the meandered river (Fig: 2.4). The cut-off shortens the length of the river. In the beginning the cut-off has narrow width which gradually opens to accommodate the discharge through the channel.

In the meandered rivers, the meandering process advances to a stage that the river no more can negotiate a long serpentine path which impose more resistance and take a shortest channel route at an incidence of high flow.

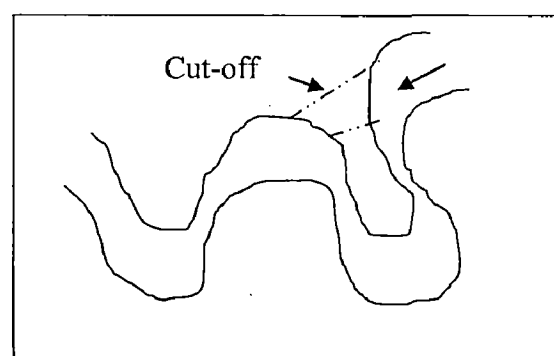


Fig: 2.4 Shortening of the River Flow Path due to Cut-off Development

2.5.2.2 Effect of Degradation

Followings are some of the much pronounced effects both harmful as well as beneficial in the study of River Engineering.

- a) Formation of Hydraulic Jump is apparently pushed downstream in spillways and Barrages due to downstream bed level lowering jeopardizing the stability of the structure. This situation was faced in the Wisconsin River at downstream of Praire Du San Dam (USA).
- b) Dams constructed in pervious strata exhibit increase seepage head due to increase in level difference between upstream and downstream water. The effect of this could be more uplift and seepage.
- c) While in case of lowering of tail water level downstream of a Power Generation point due to degradation leads to increase in available effective heads for more power generation. This has occurred at Paraire Du Sac Dam in the Wisconsin river USA. And also at Upperborn power house at Munich on the Saalach River.
- d) Lowering of river bed by degradation process increases the capacity of the river channel to carry the flood flow, by lowering the high flood level of the river. Creating an artificial degradation by construction of a big reservoir was a method that had been suggested as a possible solution to the flood problem of the Yellow river in China and Kosi River in the Indian Territory. Lowering of water level due to degradation reduces the height of the ground water table in the adjoining areas.
- e) Lowering of water level may expose pile foundation of bridges abutments and other structures to air and this may lead to deterioration of piling & stability endangering the whole structure. This problem has also been observed in many of the river bridges around on their downstream due to increased flow intensities aggravated by the construction of the bridges.
- f) Degradation also causes lowering of water level at the existing irrigation intakes and thus makes the diversion of water for irrigation more difficult.
- g) Degradation may cause substantial lowering of bed in navigable rivers and in extreme cases locks may become inoperative. Such difficulties have been encountered on a lock at the Wisconsin River (USA) and on the Mause River (Holland) (Garde and Raju 2000).

2.6 MATHEMATICAL MODELLING OF ALLUVIAL RIVERS

Mathematical modelling of fluvial flow, sediment transport and morphological evolution started half a century ago and, to date, a variety of mathematical models have been developed and are in widespread use. However, the quality of mathematical river modelling remains uncertain because of: (a) poor assumptions in model formulations; (b) simplified numerical solution procedure; (c) the implementation of sediment relationships of questionable validity; and (d) the problematic use of model calibration and verification as assertions of model veracity.

The ability to make accurate calculations of fluvial flow, sediment transport, the associated morphological evolution processes and water quality is vital in a period when the concern over the river environment and the influence of human intervention is increasing. The interaction between sediment and turbulent flow is of fundamental interest in the field of two-phase flow, and modelling the strongly coupled flow– sediment–morphology system provides a problem of considerable interest in computational fluid dynamics. Fluvial sediment transport process has been an increasingly important subject in the fields of water resources engineering, hydrology, geographical, geological, and environmental sciences, and more fundamentally fluid dynamics.

Fluvial sediment transport poses great challenges for river scientists and engineers. The essence of the discipline is the interaction between the fluid (water) and the solid (dispersed sediment particles) phases. The exposure of the fluvial systems to the natural and variable environment (climatic, geological, ecological and social, etc.) adds to the complexity of the process of sediment transport and the resulting morphological evolution of rivers.

The earlier efforts in mathematical river modelling were almost exclusively built on traditional fluvial hydraulics—that is, one-dimensional (1D) and two-dimensional (2D) Saint-Venant equations. The 1D and 2D models are at present widely used in engineering practice; yet the future of mathematical river modelling will undoubtedly be the more advanced full 3D computational fluid dynamics (Cao and Carling 2002).

2.6.1 MAJOR ISSUES OF MATHEMATICAL MODELS FOR ALLUVIAL RIVERS

Mathematical models of alluvial rivers can be categorized into two types: academic and applied. Academic models often deal with ‘how and why’ problems, being devoted to the

conceptualization, mathematical formulation, solution (analytical or numerical) and interpretation of the flow, sediment transport, and morphological reaction. Improving the understanding of the mechanism of interaction among water, sediment and morphology is the major purpose of academic models. On the other hand, applied models are entirely concerned with quantitative modelling of the river systems in response to natural changes and human activities (e.g. construction of dams, bridges and flood control works). Currently, the most extensively used fluvial models are either 1D or depth-averaged (shallow) 2D, which are built upon traditional hydraulics principles—that is, Saint-Venant equations (Cao and Carling 2002).

2.6.2 1D AND 2D COMPUTATIONAL HYDRAULICS MODELS

This section mainly focuses on 1D hydraulic model, while most aspects examined here are pertinent to depth-averaged 2D cases. Based on cross-section-averaged variables, 1D numerical modelling of alluvial rivers has been most widely used in the fields of river training, hydropower generation, flood control and disaster alleviation, water supply, navigation improvement, as well as environment enhancement. HEC-6, ISIS-Sediment, GSTAR3D, CCHED, HEC-RAS and Mikel1 are examples of a number of mathematical river models developed for fluvial water–sediment–morphology systems. The outputs of these models usually include sediment transport rates, changes in bed elevation and amounts of erosion and deposition throughout the river system considered. It has been recognized that 1D models are appropriate primarily for long-term and long-reach situations, whereas these models have been less successful for local flow–sediment–morphology problems as can be anticipated. Prior studies in this connection have focused on such aspects as flow resistance relations (including parameter identification and optimization), grain sorting, non-equilibrium modules, numerical techniques, and effects of vertical distributions. In the present state of the art, it is a common practice to tune the friction factor and sediment transport formulae to reconcile the computational results with measurements. In this section the fundamental components of 1D model are examined. In particular the effects of simplified continuity equations and the asynchronous solution procedure are addressed, which have rarely been studied before except for a formative comparison by Krishnappan (Cao and Carling 2002).

2.6.3 SIMPLIFIED CONTINUITY EQUATION FOR WATER-SEDIMENT MIXTURE

Alluvial flows over erodible beds can be distinguished from those over fixed beds in that the flow may entrain sediment from the bed or in contrast render the sediment carried by the flow to be deposited on the bed, which usually causes riverbed degradation or aggradation. This aspect is referred to as the bottom mobile (free) boundary problem. At the same time, the water-sediment mixture may have properties (density, etc.) different from clear water. In spite of these apparently known features of erodible-bed alluvial flows, it is often assumed that the rate of bed morphological evolution is of a lower order of magnitude than flow changes with adequately low sediment concentration. Accordingly, in existing 1D and 2D models, the water-sediment mixture continuity equation is almost exclusively assumed to be identical to that for a clear-water flow over a fixed bed without considering the alluvial riverbed mobility. This simplified mixture continuity equation is, in its form, the same as that in the traditional Saint-Venant equations. The effect of this treatment appears to have been quantitatively addressed only by Correia et al(1992) and discussed by Rahuel(1993) Stevens(1988) claimed that bed mobility is important for complete coupling of water and sediment in discussing Lyn's(1987) analysis. Worm leaton and Ghumman(1994) compared the performance of several simplified models, but exclusive of a fully coupled model on a rigorous basis. Therefore the effect of bed mobility on model performance has not been apparent (Cao and Carling 2002).

2.6.4 SIMPLIFIED EQUATIONS IN ANALYTICAL MODELS

It is interesting to note that there have been several analytical models for channel aggradation and degradation. Whereas providing an easy-to-use approach to evaluating the response of channels to the changing of a simple water and sediment hydrograph or base lowering, these models are based heavily on assumptions. First, the flow is assumed to be quasi-steady, leading to the elimination of local derivatives in the water-sediment mixture continuity and momentum equations. Second, in the momentum equation the nonlinear convective acceleration term is ignored, yielding a diffusion model for bed elevation evolution. A slightly modified type of models, namely hyperbolic models have been developed by partly including the non-linear convective effect using a perturbation technique. Finally in the sediment continuity equation the temporal concentration term is almost exclusively not taken into account in order to make the

analytical solution tractable. One of the major difficulties in using these analytical models is the determination of the model coefficients involved. Additionally, it appears not encouraging to use these analytical models with highly variable hydrographs (complicated boundary conditions). More comments on these analytical models can be found in Zanre and Needham (1996). It is necessary to recognize that the momentum equation for the mixture flow over erodible bed differs from that of fixed-bed clear water flow. However, it seems a common practice to reduce it to a clear water flow momentum equation, recognizing the uncertainty inherent in the resistance relationship that must be incorporated to close the momentum equation (Cao and Carling, 2002).

2.6.5 SEDIMENT TRANSPORT FUNCTIONS

A function is necessary to determine sediment transport rate and, for heterogeneous sediments, the size distribution of bed material being transported. A large number of functions have been developed. However, most, if not all, of these functions have been confirmed using specific laboratory and/or field measurement datasets, and none has been proved to be universally correct. Also it cannot be stated which function is the 'best' to use for a given situation. Distinct sediment transport functions will yield different answers, and normally the sediment rates/discharges are more sensitive to the choice of sediment function than the changes of river morphology. The latter concurs with the known feature that the time-scale of changes in flow variables (velocity, depth and sediment discharge, etc.) is normally significantly less than that of bed evolution. This aspect will be recalled later with respect to the asynchronous solution procedure commonly used in current mathematical river modeling practice. Therefore model developers and end-users have to judge the computational results based on their experience and their understanding of the basis on which existing sediment transport functions were derived and validated. Undoubtedly the modelling output is still subject to model developers and end-users—the lack of objectiveness is apparent. Using both laboratory and river datasets, Yang and Wan(1991) compared the performance of several sediment transport functions that are popularly used, and showed that, for river datasets considered, the accuracy in ascending order was Engelund–Hansen(1967), Laursen(1958), Colby(1964), Ackers–White(1973), Einstein(1950), Toffaletti(1969), and Yang(1973). At the same time Yang and Wan (1991) claimed that the rating does not guarantee that any specific function is better than others under all hydraulic and sediment cases. For gravel-bed rivers, the formulae of Einstein, Parker, and Ackers– White were

shown to perform reasonably well(Gomez and Church,1989).To measure the applicability of sand transport functions, an ‘applicability index’ was proposed by Williams and Julien(1989) on the basis of river characteristics. These authors argue that developing a universal (at least to a certain extent) procedure to help choose the ‘optimum’ sediment transport function among the large pool of candidates will be one of the most realistic strategies to cope with the uncertainty due to sediment transport functions (Cao and Carling ,2002).

2.6.6 MODEL CALIBRATION AND VERIFICATION/VALIDATION

2.6.6.1 Model calibration

A mathematical river model encompasses a number of parameters to be determined. One primary question is whether there is a unique combination of these parameters. From time to time the same (or similar) results are produced using different sets or combinations of model parameters. Usually there is no way to choose between these sets of parameters, other than to invoke extra-evidential considerations such as symmetry, simplicity, flexibility, personal, political or metaphysical preferences as well as prejudices and financial considerations. A secondary question arises as to how the overall performance of modeling can be objectively judged in comparison with measurement. This is especially critical for 3D modeling as normally there are many megabytes of numbers (typically with over 50 000 nodes for a real river problem), and it is almost impossible for model developers and end-users to view, assimilate, interpret and present even a small fraction of the output. That way, the judgment of acceptable agreement with measured data is virtually on a basis of a limited portion of information, for example some selected verticals and cross-sections, etc. Known too many model developers and end-users is the fact that it is fairly feasible to reconcile the computed results to measurements within a local area by tuning the various parameters. Thirdly, it is hard to specify the initial conditions, whereas the computation can be sensitively influenced by the initial status in the non-linear systems; therefore the agreement between computed and measured results in general is largely not unbiased but subjective (Cao and Carling, 2002).



2.6.6.2 Model verification and validation

A verified model is useful as a prediction tool because of its demonstrated truth, and implies its reliability as a basis for decision-making. Equally correct is the term 'validation', which usually connotes legitimacy. It can, but does not necessarily denote an establishment of truth. Instead, it indicates the establishment of legitimacy, generally in terms of contracts, arguments, and methods. Validation means making legally valid, granting official sanction to or confirming the validity of something. A valid model contains no known errors or detectable flaws and is internally consistent. Verification is only possible in closed, rather than open systems, in which all components of the system are established independently, and are correct. Its application to natural systems is misleading. Alluvial river models are never closed systems, and therefore it is incorrect to use the term 'verification' for such models. Below are two specific reasons that make alluvial river models open. First, the model requires a number of input parameters that are not completely known. These input parameters are often embedded in turbulent closure modules, boundary conditions, sediment transport and entrainment functions as well as numerical discretization schemes, etc. Second, the observation and measurement of both independent and dependent quantities are laden with inferences and assumptions. Although many inferences and assumptions can, in some cases, be justified with experience, the degree to which the assumptions hold in new and complicated studies can never be established a priori. Alluvial river systems are complicated in that turbulence is one of the last problems in classic physics, which remains to be solved, and this is further aggravated due to the presence of sediments. It is essential to recognize the restricted sense of the term 'validation'. Legitimacy, official sanction, or being free of apparent errors and inconsistency does not necessarily mean truth or correctness, although truth or correctness is not precluded. It is misleading if the term validation is used to refer to actual modeling results in any particular realization. It is fairly popular for river modelers to use interchangeably the terms verification and validation. Thus they misleadingly imply that validation establishes model veracity. Even more critically, the term validation is used to suggest that the physical river phenomenon is accurately represented by numerical models. As stated above, there exist a lot of critical problems with the model calibration–verification/validation phases, both logically and practically. The most significant problem comes with the verification/validation phase, where the model is claimed a success. This is, as a matter of fact, committing the basic logic error of affirming the model output. Oreskes et al. describe this as

follows 'To claim that a proposition (or model) is verified because empirical data match a predicted outcome is to commit the fallacy of affirming the consequent. If a model fails to reproduce observed data, then we know that the model is faulty in some way, but the reverse is never the case. Confirming observations do not demonstrate the veracity of a model or a hypothesis, they only support its probability.' The misuse of the terms verification and validation in mathematical river modeling can be risky with respect to public interests. Often the decision-makers may not be experts in river hydraulics. It is the responsibility of model developers and end-users to correctly inform the decision-makers of what mathematical Models can realistically reflect, and more essentially the degree to which the modeling results can be relied upon (Cao and Carling, 2002).

2.7 REVIEW OF THE EXISTING MODELS PERTAINING TO ALLUVIAL STREAMS

2.7.1 DELFT HYDRAULIC LABORATORY MODEL

DE Varies (1973) developed a mathematical model combining continuity and momentum equations along with Chezy's equations for alluvial streams. In this model, the two dependent variables $U(x, t)$ and $Z(x, t)$ are computed in two separate steps. In this model, Cunge et al (1980) commented that computational time step cannot be chosen arbitrarily. This model is true for coarse sediment only.

2.7.2 CHEN'S MODEL

Chen (1973) formulated a model based on Saint Venant's continuity and momentum equations of unsteady flow of sediment-laden water. This model is capable of flood and sediment routing in a gradually varied flow channel. He used sediment load functions from Einstein's Bed load function as well as Toffaleti's function. Chen for the first time formulated a mathematical model that included sediment transport for generalized use. His works have proved to be a landmark in the field of open channel modeling for sediment-laden flow (Chen, 1973).

2.7.3 DASS MODEL

Dass (1975) developed multi-stream flow and compound stream flow models by adopting the uncoupled solution procedure to rout water and sediment in non-uniform channels with the capability to simulate bed level changes. The governing equations adopted by Dass are:

$$\frac{\partial Q}{\partial x} + \frac{\partial A}{\partial t} + \frac{\partial A_d}{\partial t} - q_l = 0 \quad (2.7)$$

$$\frac{\partial Q_s}{\partial x} + p \frac{\partial A_d}{\partial t} + \frac{\partial A_s}{\partial t} - q_s = 0 \quad (2.8)$$

$$\frac{\partial Q}{\partial t} + \frac{\partial(\rho QV)}{\partial x} + gA \frac{\partial y}{\partial x} + gAS_f - M_c = 0 \quad (2.9)$$

Where; x=Horizontal distance along the channel; t= Time; Q=Total discharge of sediment laden water; A= Area of available flow; A_d = Area of deposit; q_l = lateral inflow; A_s =Volume of sediment concentration in flow; ρ = Density of sediment laden water; p= Porosity of bed material; q_s = Lateral inflow of sediment; Q_s = Sediment Discharge. S_f = Energy slope; M_c=Factor dependent on bed slope; V= Mean velocity of flow;

However, the validation of the model has been done in a hypothetical channel case (Dass, 1975).

2.7.4 FLUVIAL MODELS (1978 and 1984)

Chang and Hill (1976) developed this model in 1976. The same equations of St. Venant are solved. In the case of aggradation, the deposition is made starting from the lowest point in horizontal layers. A four point implicit finite difference schemes with uncoupled solution procedure is used to solve the equations. Channel width adjustments are used to reflect lateral migration. Manning's equation is used to represent resistance to flow.

He also developed FLUVIAL 11 Model in 1984 which employs a space-time domain in which space domain is represented by the discrete cross-sections along the river reach and the time domain is represented by discrete time steps. The model uses the concept enunciated by Langbein and Leopold that the equilibrium channel represents a state of balance with a minimum

rate of energy expenditure along the channel. Chang has considered the bank erodibility or coefficient of bank erosion to predict the bank changes. Fluvial 11 is undoubtedly a promising model for channel changes prediction. However the adoption of empirical bank erodibility factor appears to have constrained its universal applicability and may require considerable calibration efforts. This model cannot be applicable for a river of multi-channel configuration.

2.7.5 HEC-6 MODEL

This model has been developed by W.A.Thomas at Hydrologic Engineering Centre, U.S.A. in 1977. There are five different options provided for the transport of sediment, viz Lausen's equation, Toffaleti's equation, Yang's stream power function, Duboy's equation and $Q_t = f(Q,S)$. The flow equation is the Manning's equation. For numerical solution, uncoupled explicit finite difference scheme is used. Simulation of reservoir sedimentation using HEC-6 was reported to be successful (HEC 2004).

2.7.6 WATER RESOURCES MODELLING FROM DHI WATER AND ENVIRONMENT

MIKE 11 - River and Channel Hydraulics

MIKE 11 is a one-dimensional hydrodynamic software package including a full solution of the St. Venant equations, plus many process modules for advection-dispersion, water quality and ecology, sediment transport, rainfall-runoff, flood forecasting, real-time operations, and dam break modelling.

The software can simulate flow and water level, water quality and sediment transport in rivers, irrigation canals, reservoirs and other inland water bodies. It is an engineering tool with capabilities provided in a modular framework. It can be applied on numerous applications - from simple design tasks to large forecasting projects including complex structure operation policies. It allows you to integrate your river and floodplain modelling with watershed processes, detailed floodplain representation, sewer systems and coastal processes. MIKE 11 offers links to groundwater codes (Mike 11 User Guide, 1993).

2.7.7 HEC-RAS - (Version-4.0, 2006)

This is the latest version developed by US Army Corps of Engineers at Hydrologic Engineering Center. This is Next Generation of hydrologic engineering software which encompasses several aspects of hydrologic engineering including; river hydraulics; reservoir system simulation; flood damage analysis; and real time river forecasting for reservoir operations. The system is comprised of a graphical user interface (GUI), separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The HEC-RAS system will ultimately contain three one dimensional hydraulic analysis components (i) Steady flow water surface profile (ii) Unsteady flow simulations (iii) movable boundary sediment transport computations. Apart from this software contains several hydraulic design features. This is capable of importing GIS data or HEC-2 data (Brunner, 2002; HEC-RAS Manual, 2006).

It is an integrated system of software, designed for interactive use in a multi-tasking environment. The system is comprised of a graphical user interface, separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities.

The HEC-RAS system will ultimately contain three one-dimensional hydraulic analysis components for:

- Steady flow water surface profile computations
- Unsteady flow simulation
- Movable boundary sediment transport computations

A key element is that all three components will use a common geometric data representation and common geometric and hydraulic computation routines. In addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once the basic water surface profiles are computed (HEC-RAS Manual, 2006).

The review of existing models indicates that several models are available with different features. All the models use St. Venant's equations and have different sediment predictors, energy slope relations and distribution of aggradation/degradation equations. A natural river has many complexities due to its size, flow variations, concentration of sediment and its properties, engineering works carried out on the river and other geographical, meteorological, social factors.

Due to these reasons, no model can claim to have considered all the factors. Therefore, the models cannot have universal applicability. Hence, for modelling a particular river one should be very careful to choose a model, which is applicable according to the characteristics of that river.

Hec-Ras (version 4.0) is latest in the family of the existing models for sediment transport & mobile bed modeling, so in this dissertation it has been envisaged to initiate work on this model to figure out the suitability for the specific purpose as well for specific applicability.

2.8 GENERAL PHILOSOPHY OF THE MODELLING SYSTEMS IN HEC-RAS

HEC-RAS is an integrated system of software, designed for interactive use in a multi-tasking, multi-user network environment. The system is comprised of a graphical user interface (GUI), separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The system contains three one-dimensional hydraulic analysis components for: (1) steady flow water surface profile computations; (2) unsteady flow simulation; and (3) movable boundary sediment transport computations. A key element is that all three components use a common geometric data representation and common geometric and hydraulic computation routines. In addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once the basic water surface profiles are computed (Brunner, 2002; Warner, 2002).

2.8.1 OVERVIEW OF HYDRAULIC CAPABILITIES

HEC-RAS is designed to perform one-dimensional hydraulic calculations for a full network of natural and constructed channels. The following is a description of the major hydraulic capabilities of HEC-RAS.

Steady Flow Water Surface Profiles: This component of the modeling system is intended for calculating water surface profiles for steady gradually varied flow. The system can handle a single river reach, a dendritic system, or a full network of channels. The steady flow component is capable of modeling subcritical, supercritical, and mixed flow regime water surface profiles.

The basic computational procedure is based on the solution of the one-dimensional energy equation. Energy losses are evaluated by friction (Manning's equation) and

contraction/expansion (coefficient multiplied by the change in velocity head). The momentum equation is utilized in situations where the water surface profile is rapidly varied. These situations include mixed flow regime calculations (i.e., hydraulic jumps), hydraulics of bridges, and evaluating profiles at river confluences (stream junctions).

The effects of various obstructions such as bridges, culverts, weirs, spillways and other structures in the flood plain may be considered in the computations. The steady flow system is designed for application in flood plain management and flood insurance studies to evaluate floodway encroachments. Also, capabilities are available for assessing the change in water surface profiles due to channel improvements, and levees.

Unsteady Flow Simulation: This component of the HEC-RAS modelling system is capable of simulating one-dimensional unsteady flow through a full network of open channels. The unsteady flow equation solver was adapted from Dr. Robert L. Barkau's UNET model (HEC, 2004). This unsteady flow component was developed primarily for subcritical flow regime calculations.

The hydraulic calculations for cross-sections, bridges, culverts, and other hydraulic structures that were developed for the steady flow component were incorporated into the unsteady flow module. Additionally, the unsteady flow component has the ability to model storage areas and hydraulic connections between storage areas, as well as between stream reaches.

Sediment Transport/Movable Boundary Computations: This component of the modeling system is intended for the simulation of one-dimensional sediment transport/movable boundary calculations resulting from scour and deposition over moderate time periods (typically years, although applications to single flood events will be possible).

The sediment transport potential is computed by grain size fraction, thereby allowing the simulation of hydraulic sorting and armoring. Major features include the ability to model a full network of streams, channel dredging, various levee and encroachment alternatives, and the use of several different equations for the computation of sediment transport.

The model will be designed to simulate long-term trends of scour and deposition in a stream channel that might result from modifying the frequency and duration of the water discharge and stage, or modifying the channel geometry. This system can be used to evaluate deposition in

reservoirs, design channel contractions required to maintain navigation depths, predict the influence of dredging on the rate of deposition, estimate maximum possible scour during large flood events, and evaluate sedimentation in fixed channels (Brunner, 2002 ; Warner 2002; Manual HEC-RAS,2006).

2.8.2 THEORITICAL BASIS FOR ONE- DIMENSIONAL FLOW CALCULATION

HEC-RAS is currently capable of performing one-dimensional water surface profile calculations for steady gradually varied flow in natural or constructed channels. Subcritical, supercritical, and mixed flow regime water surface profiles can be calculated.

Equations for Basic Profile Calculations

Water surface profiles are computed from one cross section to the next by solving the Energy equation with an iterative procedure called the standard step method. The Energy equation is written as follows:

$$Y_2 + Z_2 + \frac{\alpha_2 V_2^2}{2g} = Y_1 + Z_1 + \frac{\alpha_1 V_1^2}{2g} + h_e \quad (2.10)$$

Where: Y_1, Y_2 = depth of water at cross sections; Z_1, Z_2 = elevation of the main channel inverts; V_1, V_2 = average velocities (total discharge/ total flow area); α_1, α_2 = velocity weighting coefficients; g = gravitational acceleration; h_e = energy head loss; a diagram showing the terms of the energy equation is shown in Fig: 2.5.

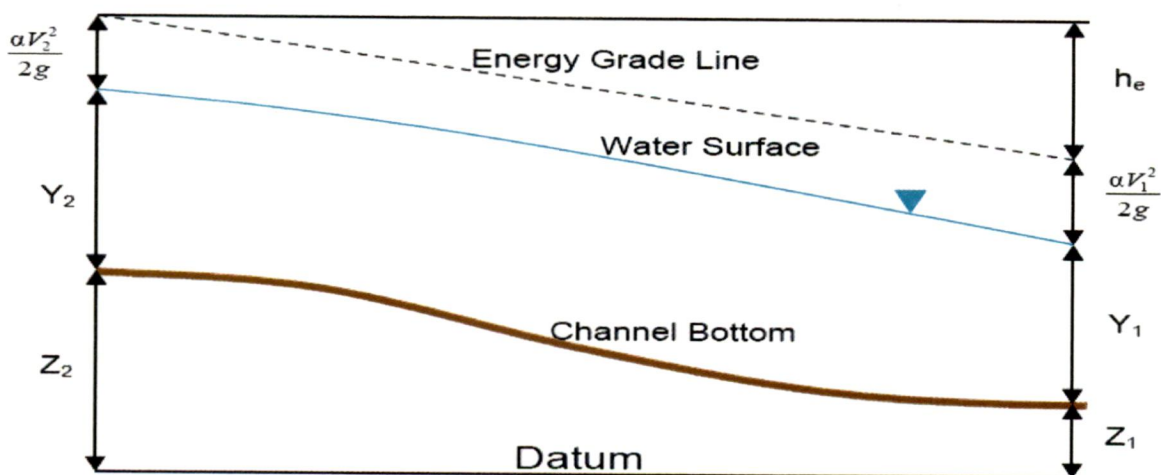


Fig: 2.5 Representations of Terms in the Energy Equation

The energy head loss (h_e) between two cross sections is comprised of friction losses and contraction or expansion losses: The equation for the energy head loss is as follows:

$$h_e = L\overline{S_f} + C \left| \frac{\alpha_2 V_2^2}{2g} - \frac{\alpha_1 V_1^2}{2g} \right| \quad (2.11)$$

The distance weighted reach length, L , is calculated as:

$$L = \frac{L_{lob} \overline{Q_{lob}} + L_{ch} \overline{Q_{ch}} + L_{rob} \overline{Q_{rob}}}{\overline{Q_{lob}} + \overline{Q_{ch}} + \overline{Q_{rob}}} \quad (2.12)$$

Where: L_{lob} , L_{ch} , L_{rob} = cross section reach lengths specified for flow in the left overbank, main channel, and right overbank, respectively ; $\overline{Q_{lob}}$, $\overline{Q_{ch}}$, $\overline{Q_{rob}}$ = arithmetic average of the flows between sections for the left overbank, main channel, and right overbank, respectively

Cross Section Subdivision for Conveyance Calculations

The determination of total conveyance and the velocity coefficient for a cross section requires that flow be subdivided into units for which the velocity is uniformly distributed. The approach used in HEC-RAS is to subdivide flow in the overbank areas using the input cross section n-value break points (locations where n-values change) as the basis for subdivision. Conveyance is calculated within each subdivision from the following form of Manning's equation (based on English units):

$$Q = KS_f^{1/2} \quad (2.13)$$

$$K = \frac{1.486}{n} AR^{2/3} \quad (2.14)$$

Where: K = conveyance for subdivision; n = Manning's roughness coefficient for subdivision

A = flow area for subdivision; R = hydraulic radius for subdivision (area / wetted perimeter)

The program sums up all the incremental conveyances in the overbanks to obtain a conveyance for the left overbank and the right overbank. The main channel conveyance is normally computed as a single conveyance element. The total conveyance for the cross section is obtained by summing the three subdivision conveyances (left, channel, and right).

In general, it is felt that the HECRAS default method is more commensurate with the Manning equation and the concept of separate flow elements (Brunner, 2002).

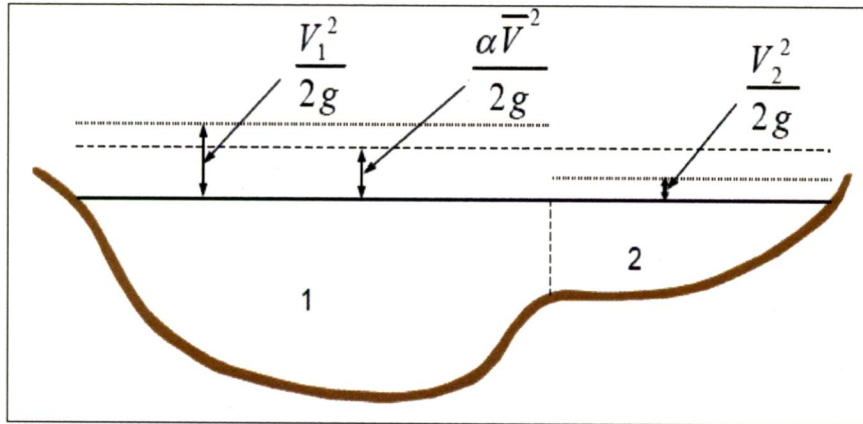
Composite Manning's n for the Main Channel

Flow in the main channel is not subdivided, except when the roughness coefficient is changed within the channel area. HEC-RAS tests the applicability of subdivision of roughness within the main channel portion of a cross section, and if it is not applicable, the program will compute a single composite n value for the entire main channel. The program determines if the main channel portion of the cross section can be subdivided or if a composite main channel n value is utilized.

The computed composite n_c should be checked for reasonableness. The computed value is the composite main channel n value in the output and summary tables.

Evaluation of the Mean Kinetic Energy Head

Because the HEC-RAS software is a one-dimensional water surface profiles program, only a single water surface and therefore a single mean energy are computed at each cross section. For a given water surface elevation, the mean energy is obtained by computing a flow weighted energy from the three subsections of a cross section (left overbank, main channel, and right overbank). Figure 2.6 below shows how the mean energy would be obtained for a cross section with a main channel and a right overbank (no left overbank area).



V_1 = mean velocity for sub area 1, V_2 = mean velocity for sub area 2
Fig: 2.6 Example of How Mean Energy is Obtained

To compute the mean kinetic energy it is necessary to obtain the velocity head weighting coefficient alpha. Alpha is calculated as follows:

Mean Kinetic Energy Head = Discharge-Weighted Velocity Head

$$\alpha \frac{\bar{V}^2}{2g} = \frac{Q_1 \frac{V_1^2}{2g} + Q_2 \frac{V_2^2}{2g}}{Q_1 + Q_2} = \alpha = \frac{2g \left[Q_1 \frac{V_1^2}{2g} + Q_2 \frac{V_2^2}{2g} \right]}{(Q_1 + Q_2) \bar{V}^2}$$

$$\alpha = \frac{[Q_1 V_1^2 + Q_2 V_2^2]}{(Q_1 + Q_2) \bar{V}^2}$$

In general:
$$\alpha = \frac{[Q_1 V_1^2 + Q_2 V_2^2 + \dots + Q_N V_N^2]}{Q \bar{V}^2} \quad (2.15)$$

The velocity coefficient, α , is computed based on the conveyance in the three flow elements: left overbank, right overbank, and channel. It can also be written in terms of conveyance and area as in the following equation:

$$\alpha = \frac{(A_t)^2 \left[\frac{K_{lob}^3}{A_{lob}^2} + \frac{K_{ch}^3}{A_{ch}^2} + \frac{K_{rob}^3}{A_{rob}^2} \right]}{K_t^3} \quad (2.16)$$

Where: A_t = total flow area of cross section; A_{lob} , A_{ch} , A_{rob} = flow areas of left overbank, main channel and right overbank, respectively; K_t = total conveyance of cross section; K_{lob} , K_{ch} , K_{rob} = conveyances of left overbank, main channel and right overbank, respectively.

Friction Loss Evaluation

Friction loss is evaluated in HEC-RAS as the product of S_f and L (Eq: 2.11), where S_f is the representative friction slope for a reach and L is defined by Eq: (2.12). The friction slope (Slope of the energy grade line) at each cross section is computed from Manning's equation as follows:

$$S_f = \left[\frac{Q}{K} \right]^2 \quad (2.17)$$

Alternative expressions for the representative reach friction slope (S_f) in HEC-RAS are as follows:

Average Conveyance Equation

$$\overline{S_f} = \left[\frac{Q_1 + Q_2}{K_1 + K_2} \right]^2 \quad (2.18)$$

Average Friction Slope Equation

$$\overline{S_f} = \frac{S_{f1} + S_{f2}}{2} \quad (2.19)$$

Geometric Mean Friction Slope Equation

$$\overline{S_f} = \sqrt{S_{f1} \times S_{f2}} \quad (2.20)$$

Harmonic Mean Friction Slope Equation

$$\overline{S_f} = \frac{2(S_{f1} \times S_{f2})}{S_{f1} + S_{f2}} \quad (2.21)$$

Equation (2.21) is the “default” equation used by the program; that is, it is used automatically unless a different equation is requested by input. The program also contains an option to select equations, depending on flow regime and profile type (e.g., S1, M1, etc)

Contraction and Expansion Loss Evaluation

Contraction and expansion losses in HEC-RAS are evaluated by the following equation:

$$h_{ce} = C \left| \frac{\alpha_1 V_1^2}{2g} + \frac{\alpha_2 V_2^2}{2g} \right| \quad (2.22)$$

Where: C = the contraction or expansion coefficient

The program assumes that a contraction is occurring whenever the velocity head downstream is greater than the velocity head upstream. Likewise, when the velocity head upstream is greater than the velocity head downstream, the program assumes that a flow expansion is occurring.

Steady Flow Program Limitations

The following assumptions are implicit in the analytical expressions used in the current version of the program:

1. Flow is steady.
2. Flow is gradually varied. (Except at hydraulic structures such as: bridges; culverts; and weirs. At these locations, where the flow can be rapidly varied, the momentum equation or other empirical equations are used.)
3. Flow is one dimensional (i.e., velocity components in directions other than the direction of flow are not accounted for).
4. River channels have “small” slopes; say less than 1:10.

Flow is assumed to be steady because time-dependent terms are not included in the energy equation (Eq: 2.10). Flow is assumed to be gradually varied because Eq: (2.10) is based on the premise that a hydrostatic pressure distribution exists at each cross section. At locations where the flow is rapidly varied, the program switches to the momentum equation or other empirical equations. Flow is assumed to be one-dimensional because Eq: (2.11) is based on the premise that the total energy head is the same for all points in a cross section. Small channel slopes are

assumed because the pressure head, which is a component of Y in Eq: (2.10), is represented by the water depth measured vertically.

The program has the capability to deal with movable boundaries (i.e., sediment transport) and requires that energy losses be definable with the terms contained in Eq: (2.11).

Uniform Flow Computations

For preliminary channel sizing and analysis for a given cross section, a uniform flow editor is available in HEC-RAS. The uniform flow editor solves the steady-state, Manning's equation for uniform flow. The five parameters that make up the Manning's equation are channel depth, width, slope, discharge, and roughness.

$$Q = f(A, R, S, n) \quad (2.23)$$

Where: Q = Discharge; A = Cross sectional area; R = Hydraulic radius; S = Energy slope

n = Manning's n value

When an irregularly shaped cross section is subdivided into a number of sub areas, a unique solution for depth can be found. And further, when a regular trapezoidal shaped section is used, a unique solution for the bottom width of the channel can be found if the channel side slopes are provided. The dependant variables A, and R, can then be expressed in the Manning equation in terms of depth, width and side slope as follows:

$$Q = f(Y, W, z, S, n) \quad (2.24)$$

Where: Y = Depth; W= Bottom width; z = Channel side slope

By providing four of the five parameters, HEC-RAS will solve the fifth for a given cross section. When solving for width, some normalization must be applied to a cross section to obtain a unique solution, therefore a trapezoidal or compound trapezoidal section with up to three templates must be used for this situation.

Cross Section Subdivision for Conveyance Calculations

In the uniform flow computations, the HEC-RAS default Conveyance Subdivision Method is used to determine total conveyance. Sub areas are broken up by roughness value break points and then each sub area's conveyance is calculated using Manning's equation. Conveyances are

then combined for the left overbank, the right overbank, and the main channel and then further summed to obtain the total cross section conveyance.

Bed Roughness Functions

Because Manning's n values are typically used in HEC-RAS, the uniform flow feature allows for the use of a number of different roughness equations to solve for n. HEC-RAS allows the user to apply any of these equations at any area within a cross section; however, the applicability of each equation should be noted prior to selection. Manning equation method, one n value or a range of n values is prescribed across the cross section and then the Manning's equation is used to solve for the desired parameter.

Sediment Transport Capacity

The sediment transport capacity function in HEC-RAS has the capability of predicting transport capacity for non-cohesive sediment at one or more cross sections based on existing hydraulic parameters and known bed sediment properties. It does not take into account sediment inflow, erosion, or deposition in the computations. Classically, the sediment transport capacity is comprised of both bed load and suspended load, both of which can be accounted for in the various sediment transport predictors available in HEC-RAS. Results can be used to develop sediment discharge rating curves, which help to understand and predict the fluvial processes found in natural rivers and streams.

Sediment Gradation

Sediment transport rates are computed for the prescribed hydraulic and sediment parameters for each representative grain size. Transport capacity is determined for each grain size as if that particular grain size made up 100% of the bed material. The transport capacity for that size group is then multiplied by the fraction of the total sediment that that size represents. The fractional transport capacities for all sizes are summed for the total sediment transport capacity.

$$g_s = \sum_{i=1}^n g_{si} p_i \quad (2.25)$$

Where: g_s = Total sediment transport; g_{si} = Sediment transport for size class i ; P_i = Fraction of size class i in the sediment; n = Number of size classes represented in the gradation.

Because different sediment transport functions were developed differently with a wide range of independent variables, HEC-RAS gives the user the option to select how depth and width are to be computed. The HEC-6 method converts everything to an effective depth and width. However, many of the sediment transport functions were developed using hydraulic radius and top width, or an average depth and top width. For this reason, HEC-RAS allows the user to designate which depth/width method to use. If the default selection is chosen, then the method consistent with the development of the chosen function will be used. For irregular cross section shapes, HEC-RAS uses the effective depth/effective width or hydraulic radius/top width as the default. Also available for use is the hydraulic depth, which is used to represent the average depth and is simply the total area of the section divided by the top width.

Sediment Transport Functions

Because different sediment transport functions were developed under different conditions, a wide range of results can be expected from one function to the other. Therefore it is important to verify the accuracy of sediment prediction to an appreciable amount of measured data from either the study stream or a stream with similar characteristics. It is very important to understand the processes used in the development of the functions in order to be confident of its applicability to a given stream.

Typically, sediment transport functions predict rates of sediment transport from a given set of steady-state hydraulic parameters and sediment properties. Some functions compute bed-load transport, and some compute bed-material load, which is the total load minus the wash load (total transport of particles found in the bed). In sand-bed streams with high transport rates, it is common for the suspended load to be orders of magnitude higher than that found in gravel-bed or cobbled streams. It is therefore important to use a transport predictor that includes suspended sediment for such a case.

The following sediment transport functions which are also available in HEC-RAS:

- Ackers-White (1973)
- Engelund-Hansen (1967)

- Laursen (1958)
- Meyer-Peter Müller (1948)
- Toffaleti (1969)
- Yang (1973)

These functions were selected based on their validity and collective range of applicability. All of these functions, except for Meyer-Peter Müller(1948), are compared extensively by Yang and Wan (1991) over a wide range of sediment and hydraulic conditions. Results varied, depending on the conditions applied. The Meyer-Peter Müller(1948) and the bed-load portion of the Toffaleti(1969) function were compared with each other by Amin and Murphy (1981). They concluded that Toffaleti(1969) bed-load procedure was sufficiently accurate for their test stream, whereby, Meyer-Peter Müller(1948) was not useful for sand-bed channels at or near incipient. A short description three main sediment predictors is summarized below. (Brunner, 2002; Karamisheva(2006).

Ackers-White(1973): The Ackers-White transport function is a total load function developed under the assumption that fine sediment transport is best related to the turbulent fluctuations in the water column and coarse sediment transport is best related to the net grain shear with the mean velocity used as the representative variable. The transport function was developed in terms of particle size, mobility, and transport.

A dimensionless size parameter is used to distinguish between the fine, transitional, and coarse sediment sizes. Under typical conditions, fine sediments are silts less than 0.04 mm, and coarse sediments are sands greater than 2.5 mm. Since the relationships developed by Ackers-White are applicable only to non-cohesive sands greater than 0.04 mm, only transitional and coarse sediments apply. Original experiments were conducted with coarse grains up to 4 mm; however the applicability range was extended to 7 mm.

This function is based on over 1000 flume experiments using uniform or near-uniform sediments with flume depths up to 0.4 m. A range of bed configurations was used, including plane, rippled, and dune forms, however the equations do not apply to upper phase transport (e.g. anti-dunes) with Froude numbers in excess of 0.8. The general transport equation for the Ackers-White function for a single grain size is represented by:

$$X = \frac{G_{gr} s d_s}{D \left(\frac{u^*}{V} \right)^n} \quad \text{and} \quad G_{gr} = C \left(\frac{F_{gr}}{A} - 1 \right) \quad (2.26)$$

Where: X = Sediment concentration, in parts per part; G_{gr} = Sediment transport parameter ; s = Specific gravity of sediments ; d_s = Mean particle diameter ; D = Effective depth ; u^* = Shear velocity ; V = Average channel velocity ; n = Transition exponent, depending on sediment size ; C = Coefficient ; F_{gr} = Sediment mobility parameter ; A = Critical sediment mobility parameter

A hiding adjustment factor was developed for the Ackers-White method by Profitt and Sutherland (1983), and is included in RAS as an option. The hiding factor is an adjustment to include the effects of a masking of the fluid properties felt by smaller particles due to shielding by larger particles. This is typically a factor when the gradation has a relatively large range of particle sizes and would tend to reduce the rate of sediment transport in the smaller grade classes (Brunner, 2002).

Engelund-Hansen(1967): The-Engelund-Hansen function is a total load predictor which gives adequate results for sandy rivers with substantial suspended load. It is based on flume data with sediment sizes between 0.19 and 0.93 mm. It has been extensively tested, and found to be fairly consistent with field data.

The general transport equation for the Engelund-Hansen function is represented by:

$$g_s = 0.05 \gamma_s V^2 \sqrt[3]{\frac{d_{50}}{g \left(\frac{\gamma_s}{\gamma} - 1 \right)} \left[\frac{\tau_0}{(\gamma_s - \gamma) d_{50}} \right]} \quad (2.27)$$

Where: g_s = Unit sediment transport; γ = Unit wt of water; γ_s = Unit wt of solid particles; V = Average channel velocity; τ_0 = Bed level shear stress; d_{50} = Particle size of which 50% is smaller

Yang(1973): Yang's method (1973) is developed under the premise that unit stream power is the dominant factor in the determination of total sediment concentration. The research is supported by data obtained in both flume experiments and field data under a wide range conditions found in alluvial channels. Principally, the sediment size range is between 0.062 and 7.0 mm with total

sediment concentration ranging from 10 ppm to 585,000 ppm. Channel widths range from 0.44 to 1746 ft, depths from 0.037 to 49.4 ft, water temperature from 0o to 34.3°Celsius, average channel velocity from 0.75 to 6.45 fps, and slopes from 0.000043 to 0.029 (Yang and Wan, 1991).

Yang (1984) expanded the applicability of his function to include gravel-sized sediments. The general transport equations for sand and gravel using the Yang function for a single grain size is represented by: (Garde and Raju, 2000; Brunner, 2002)

$$\log C_t = 5.435 - 0.286 \log \frac{\omega d_m}{\nu} - 0.457 \log \frac{u^*}{\omega} + \left(1.799 - 0.409 \log \frac{\omega d_m}{\nu} - 0.314 \log \frac{u^*}{\omega} \right) \log \left(\frac{VS}{\omega} - \frac{V_{cr}}{\omega} \right) \quad (2.28)$$

For sand $d_m < 2mm$

$$\log C_t = 6.681 - 0.633 \log \frac{\omega d_m}{\nu} - 4.816 \log \frac{u^*}{\omega} + \left(2.784 - 0.305 \log \frac{\omega d_m}{\nu} - 0.282 \log \frac{u^*}{\omega} \right) \log \left(\frac{VS}{\omega} - \frac{V_{cr} S}{\omega} \right) \quad (2.29)$$

For gravel $d_m \geq 2mm$

Where: C_t = Total sediment concentration, ω = Particle fall velocity, d_m = Med. particle diameter
 ν = Kinematic viscosity, u^* = Shear velocity, V = Average channel velocity, S = Energy gradient

2.8.3 THEORETICAL BASIS FOR SEDIMENT CALCULATIONS (HEC, 1981)

Sediment transport rates are calculated for each flow in the hydrograph for each grain size. The transport potential is calculated for each grain size class in the bed as though that size comprised 100% of the bed material. Transport potential is then multiplied by the fraction of each size class present in the bed at that time to yield the transport capacity for that size class. These fractions often change significantly during a time step; therefore an iteration technique is used to permit

these changes to affect the transport capacity. The basis for adjusting bed elevations for scour or deposition is the Exner equation.

2.8.3.1 Equation for Continuity of Sediment Material Control Volume

Each cross section represents a control volume. The control volume width is usually equal to the movable bed width and its depth extends from the water surface to the top of bedrock or other geological control beneath the bed surface. In areas where no bedrock exists, an arbitrary limit (called the "model bottom") is assigned (Fig: 2.7). The control volume for cross section 2 is represented by the heavy dashed lines. The control volumes for cross sections 1 and 3 join that for cross section 2, etc.

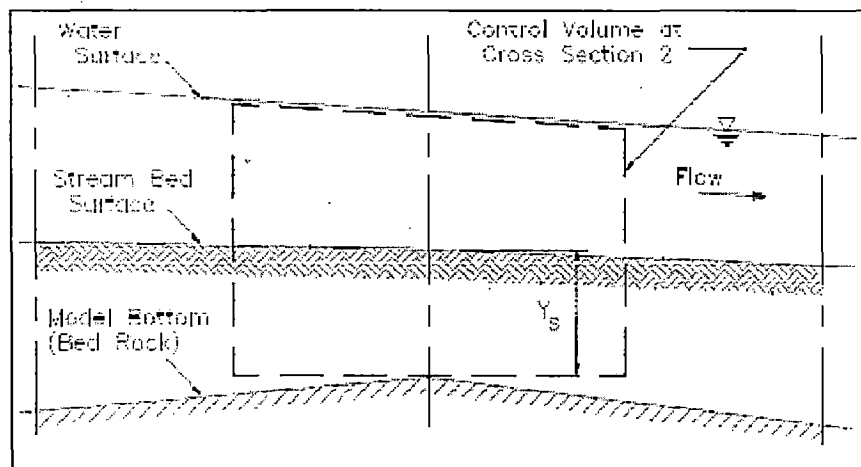


Fig: 2.7 Control Volume for Bed Material

2.8.3.2 Exner Equation

The above description of the processes of scour and deposition must be converted into numerical algorithms for computer simulation. The basis for simulating vertical movement of the bed is the continuity equation for sediment material (Eq: 2.30)

$$\frac{\partial G}{\partial x} + B_0 \frac{\partial Y_s}{\partial t} = 0 \quad (2.30)$$

Where: B_o = width of movable bed; t = time; G = average sediment discharge rate during time step Δt ; x = distance along the channel; Y_s = depth of sediment in control volume

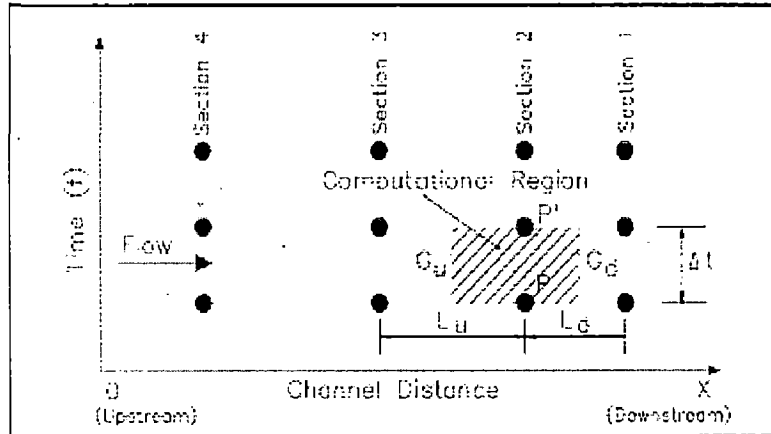


Fig: 2.8 Computation Grid

Equations (2.31) and (2.32) represent the Exner Equation expressed in finite difference form for point P using the terms shown in Fig: 2.8.

$$\frac{G_d - G_u}{0.5(L_d - L_u)} + \frac{B_{sp}(Y'_{sp} - Y_{sp})}{\Delta t} = 0 \quad (2.31)$$

$$Y'_{sp} = Y_{sp} - \frac{\Delta t}{(0.5)B_{sp}} \cdot \frac{G_d - G_u}{L_d + L_u} \quad (2.32)$$

Where: B_{sp} = width of movable bed at point P; G_u , G_d = sediment loads at the upstream and downstream cross sections, respectively; L_u , L_d = upstream and downstream reach lengths, respectively, between; cross sections Y_{sp} , Y'_{sp} = depth of sediment before and after time step, respectively, at point P; 0.5 = the "volume shape factor" which weights the upstream and downstream reach lengths; Δt = computational time step.

The initial depth of bed material at point P defines the initial value of Y_{sp} . The sediment load, G_u , is the amount of sediment, by grain size, entering the control volume from the upstream control volume. For the upstream-most reach, this is the inflowing load boundary condition provided by

the user. The sediment leaving the control volume, G_d , becomes the G_u for the next downstream control volume. The sediment load, G_d , is calculated by considering the transport capacity at point P, the sediment inflow, availability of material in the bed, and armoring. The difference between G_d and G_u is the amount of material deposited or scoured in the reach labeled as "computational region" on Fig: 2.8, and is converted to a change in bed elevation using Eq: 2.32.

The transport potential of each grain size is calculated for the hydraulic conditions at the beginning of the time interval and is not recalculated during that interval. Therefore, it is important that each time interval be short enough so that changes in bed elevation due to scour or deposition during that time interval do not significantly influence the transport potential by the end of the time interval. Fractions of a day are typical time steps for large water discharges and several days or even months may be satisfactory for low flows. The amount of change in bed elevation that is acceptable in one time step is a matter of judgment. Good results have been achieved by using 10% of the water depth, whichever is less, as the allowable bed change in a computational time interval. The gradation of the bed material, however, is recalculated during the time interval because the amount of material transported is very sensitive to the gradation of bed material. If transport capacity is greater than the load entering the control volume, available sediment is removed from the bed to satisfy continuity (HEC, 1981).

DESCRIPTION OF STUDY AREA

3.1 INTRODUCTION

Stretching within the basin periphery of 82°E to 97° 50' E longitudes and 25° 10' to 31° 30' N latitudes the river Brahmaputra envelopes a drainage area of 580,000 sq.km and recognized to be one of the most braided channel river. The hugeness of the river system in terms of the drainage area and the lengths it encompasses may be realised from its aerial extent as under.

Table: 3.1 The Aerial Distribution of the Total Drainage Basin.

Country	Basin area (Km ²)	Channel Length (Km)
1. Tibet (China)	293,000	1,625
2. Bhutan	45,000	-
3. India	194,413	918
(a) Arunachal Pradesh	81,424	278
(b) Assam	70,634	640
(c) Nagaland	10,803	-
(d) Meghalaya	11,667	-
(e) Sikkim	7,300	-
(f) West Bengal	12,585	-
4. Bangladesh	47,000	337

Originating in a great glacier mass at an altitude of 5,300-m just south of the lake Konggyu Tso in the Kailas range, about 63 km southeast of Mansarovar lake in southern Tibet at an elevation of 5300m, the Brahmaputra flows through China (Tibet), India and Bangladesh for a total distance of 2880 km, before emptying itself into the Bay of Bengal through a joint channel with the Ganga. It is known as the Tsangpo in Tibet (China), the Siang or Dihang in Arunachal Pradesh (India), the Brahmaputra in Assam (India) and the Jamuna, Padma, and Meghana in

Bangladesh.

Before entering India, the river flows in a series of big cascades as it rounds the Namcha-Barwa peak. The river forms almost trough receiving the flows of its tributaries both from North and South. The river, with its Tibetan name Tsangpo in the uppermost reach, flows through

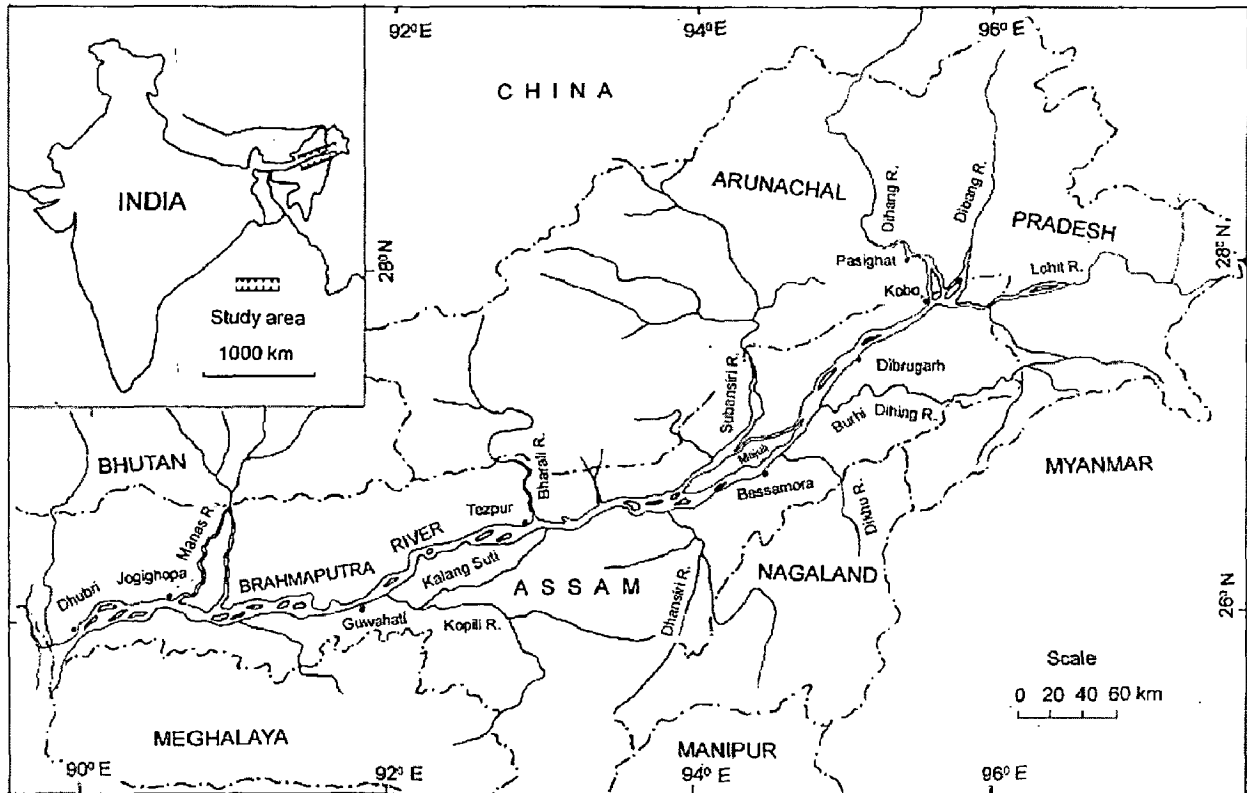


Fig: 3.1 Location Map of the Brahmaputra River in Assam, India (Sarma, 2005)

southern Tibet for about 1,625 km eastward and parallel to tributaries, viz., the Nau Chhu, the Tsa Chhu, the Men Chhu, the Charta Tsangpo, the Raga Tsangpo, the Tong Chhu, the Shang Chhu, the Gya Chhu, the Giamda Chhu, the Po Tsangpo and the Chindru Chhu and the right bank tributaries, viz. the Kubi, the Kyang, the Sakya Trom Chhu, the Rhe Chhu, the Rang Chhu, the Nyang Chhu, the Yarlang Chhu, and the Trulung Chhu join the river along its uppermost reach. At the extreme eastern end of its course in Tibet the Tsangpo suddenly enters a deep narrow gorge at Pe, where in the gorge section the river has a gradient ranging from about 4.3 to 16.8 m/km (Figure 3.2).

The river enters in India near Tuning in Arunachal Pradesh. After travelling for a distance of 278 km up to Kobo, it meets with two rivers the Dibang and the Lohit in Assam near Kobo. Below

this confluence point, the river is known by the name of the Brahmaputra. It passes through Assam into Bangladesh and at last it meets with the Ganga near Goalundo in Bangladesh before joining the Bay of Bengal. Its total length is 2,880 km comprising of 1,625 km in Tibet, 918 km in India and 337 km in Bangladesh. It is also one of the most braided rivers in the world with width variation from 1.2 km at Pandu near Guwahati to about 18.13 km near Gumi few km distances downstream to this point.

Traversing through deep narrow gorges of the Himalayan terrain the Tsangpo takes a southward turn and enters Indian Territory at an elevation of 660 m. The river then enters the State of Assam (India) taking two important tributaries the Dibang and the Lohit. At the exit of the gorge the slope of the river is only 0.27 m/km. At the head of the valley near Dibrugarh the river has a gradient of 0.09-0.17 m/km, which is further reduced to about 0.1 m/km near Pandu (Fig: 3.1). The mighty Brahmaputra rolls down the Assam valley from east to west for a distance of 640 km up to Bangladesh border (Table 3.1).

3.2 LONGITUDINAL SECTION SECTION OF THE BRAHAMPUTRA RIVER

The longitudinal section of the Brahmaputra River from its origin to the outfall point is depicted in Fig: 3.2.

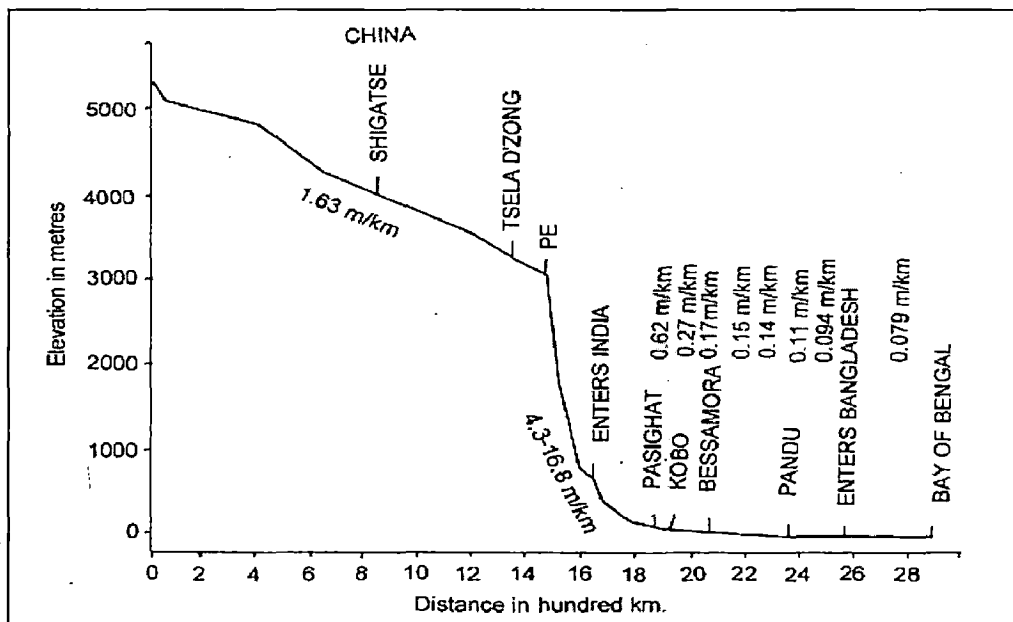


Fig: 3.2 longitudinal profile of the Brahmaputra River (Sarma, 2005)

3.3 THE BRAHMAPUTRA RIVER SYSTEM

The Brahmaputra River, termed as a moving ocean (Wapcos, 1993), is an antecedent snow-fed large Trans-Himalayan river which flows across the rising young Himalayan range. Considerable variations in width, gradient, discharge and channel pattern occur throughout its course. Geologically, the Brahmaputra is the youngest of the major rivers of the world and unique in many respects. It happens to be a major river for three countries, viz., China, India and Bangladesh. The river basin of the Brahmaputra is bounded on the north by the Kailas and Nyen-Chen-Tanghla ranges of mountains; on the east by the Salween river basin and the Patkai range running along the Indo-Myanmar border; on the south by the Nepal Himalayas, the Naga and Barail ranges and the Meghalaya Plateau; and on the west by the Ganga river basin (Sarma, 2005).

The maximum meridional extent of the basin is 1,540 km along 29°30' N latitude and maximum latitudinal extent is 780 km along 90° E longitude. The total length of the river is 2,880 km (Table 3.1). Several tributaries join the river all along its length. The average annual runoff of the Brahmaputra at Pasighat, Pandu and Bahadurabad in Bangladesh is 186,290,494,357 and 589,000 million cubic metre respectively. The monsoon flow of the Brahmaputra at Tesla Dzong in Tibet is 36.27% of the flow at Pasighat (Wapcos, 1993).

Throughout its course within India, the Brahmaputra is braided with some well defined nodal points where the river width is narrow and restricted within stable banks. All along its course in the valley, abandoned wetlands and back swamps are common. The river carries about 735 million metric tons of suspended sediment loads annually.

The Indian section of the Brahmaputra River receives innumerable tributaries flowing down the northern, north-eastern and southern hill ranges. The mighty Brahmaputra along with the well-knit network of its tributaries controls the geomorphic regime of the entire region, especially the Brahmaputra valley. In the north, the principal tributaries are the Subansiri, the Jia Bhareli, the Dhansiri, the Puthimari, the Pagladiya, the Manas and the Champamati. Amongst these, the Subansiri, the Jia Bhareli and the Manas are the Trans-Himalayan Rivers. The principal south bank tributaries are the Burhi Dehing, the Disang, the Dikhow, the Dhansiri (south), the Kopili and the Krishnai.

It is observed that three Trans-Himalayan tributaries, the Subansiri, the Jia Bhareli and the

Manas on the north have a basin more than 10,000 km², i.e., only two south bank tributaries namely the Dhansiri and the Kopili form a basin area more than 10,000 km². The Manas River combined with the Aie and the Beki rivers drains biggest area of 41,350 km². The 442 km long Subansiri River and the 360 km long Burhi Dehing River are considered longest, respectively, among the north-bank and south bank tributaries (Water Year book, CWC, 2002). In terms of the average annual discharge, the Subansiri carries a discharge of 755-771 m³/sec, which ranks first among all the important tributaries. The Jia Bhareli and the Manas in the north carrying an average annual suspended sediment load of 2,013 ha.m and 2,166 ha.m, respectively, are the leading rivers in the case of sediment discharge (11). Of all the north and south bank tributaries, as many as fourteen have sediment yields in excess of 500 tons/ km²/year, the highest being 4,721 tons/km² /year (Sankhua,2006).

3.4 HYDROLOGIC AND PHYSIOGRAPHIC CHARACTERISTICS OF THE BRAHAMPUTRA RIVER

The statistical details of the river are described below (Sankhua, 2006):

(a) Total basin area from its source to its confluence with Ganga at Goalundo	
in Bangladesh	580,000 km ²
(i) Basin area within Tibet	293,000 km ²
(ii) Basin area in Bhutan and India	240,000 km ²
(iii) Basin area in Bangladesh	47,000 km ²
(b) Length from its source to outfall in Bay of Bengal	2,880 km
(c) Gradient	
(i) Reach within Tibet	1 in 385
(ii) Reach between Indo-China border and Kobo in India	1 in 515
(iii) Reach between Kobo and Dhubri	1 in 6,990
(iv) Reach within Bangladesh	
First 60 km from Indian Border	1 in 11,340
Next 100 km stretch	1 in 12,360
Next 90 km stretch	1 in 37,700
(d) Observed discharge	

(i) Maximum observed discharge at Pandu (on 23.8.1962)	72,727 m ³ /sec
(ii) Minimum observed discharge at Pandu (on 20.2.1968)	1,757 m ³ /sec
(iii) Average dry season discharge at Pandu	4,420 m ³ /sec
(iv) Normal annual rainfall within basin ranges between 2,125 mm in Kamrup District of Assam and 4,142 mm in Tirap district of Arunachal Pradesh.	

3.5 GEOLOGY AND GEOMORPHOLOGY

The Brahmaputra basin in India, comprising of varying geologic and geomorphic characteristics, represents its peculiar physiographic make-up. The basin is bounded by the eastern Himalayas on the north and east, the Naga-Patkai ranges on the northeast and Meghalaya Plateau and Mikir hills on the south. The region can be geologically and tectonically divided into four major zones, viz. the Himalayan folded and Tertiary hills and mountains, the Naga-Patkai ranges, the Meghalaya Plateau and Mikir hills and the Brahmaputra valley in Assam.

The Himalayan zone comprises of three topographic units that rise progressively to the north. The lowermost ranges, called sub-Himalayas with an average elevation of 1,000 m, consist mainly of Tertiary sand stones, and are conspicuous by the presence of many raised, relatively young terraces (Goswami and Das, 2000). The middle Himalayas, having an average elevation of 4,000 m are underlain by lower Gondwana (Palaeozoic) deposits comprising shales, slates, and phyllites overlain by a thick horizon of basaltic rocks. The greater Himalayas with an average elevation of 6,000 m consist primarily of granites and gneisses (Goswami and Das, 2000). The Himalayan Mountains with their syntaxial N-E bends originated out of the Tethyan Geo-synclin) and are essentially composed of loose sedimentary rocks. The sub Himalayas and the lower Himalayas are characterized by piedmont zones, low discontinuous ridges, low linear ridges, high rugged hills and upland valley depressions.

The Patkai-Naga ranges stand on the eastern and south-eastern border of the Brahmaputra valley in Assam. These ranges, with an average elevation of 1,000 m, are composed of Tertiary sediments and characterized by the presence of a large number of active faults. This zone consists of piedmont plains, anticlinal ridges and synclinal valleys with terraced alluvial fills, undifferentiated sharp ridges and narrow valleys, upland valley depressions and plateau remnants. The Meghalaya plateau and the Mikir hills attaining an elevation ranging from 600 m to 1,800 m are made up primarily of gneisses and schist. This part, being a rigid mass, belongs to

the Deccan plateau of the stable Indian peninsular block of Pre-Cambrian age. It is characterized by plateau remnants, inselbergs, deeply dissected uplands with faulted monoclines of Tertiary cover, denuded hills, basement controlled structural ridges covered with Tertiary rocks and upland valley depressions (Sankhua, 2000).

The Brahmaputra valley in Assam, on the other hand, is underlain by recent alluvium approximately 200-300 m thick, consisting of clay, silt, sand, and pebbles. The valley is developed over the fore deep in between the peninsular mass and the Tethyan geosynclines. The fore deep is characterized by some complicated tectonic features represents a series of faults and thrust extending in the NE-SW direction from the eastern margin of the Meghalaya plateau across the North Cachar Hills to Tirap District of Arunachal Pradesh. These thrusts are originated at the time of the late Himalayan-Patkai-Naga Hills orogeny and pushed the tertiary deposits into folds and faults. The fore deep is believed to be under the sea till the sub-recent period received deposits during all the periods of the tertiary and quaternary ages. The tertiary deposits consist mainly of sand stones, shale, grit, conglomerate and lime stones (Sankhua, 2000).

Towards the close of the Pleistocene period, alluvium began to be deposited in the form of sand, pebbles and gravels especially along the northern foothills of the Brahmaputra valley. These valley deposits of reddish brown sandy clay with some pockets of unasserted pebble, cobble, sand and silt have been identified as older alluvium. The tertiary beds of the valley are overlain by a thick layer of newer alluvium composed of sand, silt and clay, which are being brought down from the rising Himalayas in the north, the Patkai Naga ranges in the east and south-east and the Meghalaya plateau in the south by numerous tributaries of the Brahmaputra. The characteristic geological and tectonic framework coupled with structural complexities has rendered the Brahmaputra basin geo-morphologically a most complicated one. A variety of landform under varied climatic conditions has formed over the geologic and tectonic base of the region. The peri-glacial, glacio-fluvial, and fluvial processes are dominantly operative in the basin at varying altitudes (Sankhua, 2006).

The higher elevations of the Himalayas experience peri-glacial and glacio-fluvial erosion and deposition. The bare relief of the sub-Himalayas and greater Himalayas suffer from immense sheet erosion owing to peri-glacial solifluction. The low hill ranges with hot and humid climate and heavy rainfall concentrated to a few months of the year experience solifluction, sheet erosion

and landslides.

The incidence of landslides is high in the Himalayan foothills, where heavy rainfall, high seismicity and toe cutting of hill slopes by the streams are most frequent. Heavy rains often loosen soil and the soft rocks of the young Himalayan ranges. Rainwater percolates through joints, fractures, foliations, and pores of rocks and soils and finally makes them loose and heavy, which cause heavy slope failure. Fluvial processes are, on the other hand, significantly dominant on the valley bottoms and plains where alluvial deposition takes place due to erosion of the higher surface by rivers and flooding in the valleys. The Erosional and depositional processes conspicuously intensified by copious rainfall and frequent seismic movements, however, play a dominant role in creating various fluvial-geomorphic environments in the basin (Sankhua, 2006).

3.6 CHANNEL PROCESS

The Brahmaputra River in India forms a complex river system characterized by the most dynamic and unique water and sediment transport pattern. The Brahmaputra is the fourth largest river in the world (Goswami and Das, 2000). The water yield from per unit basin area is among the highest of the major rivers of the world. The Jia Bhareli, a major tributary, carries a mean annual water discharge in the order of $0.0891 \text{ m}^3/\text{sec}/\text{km}^2$. As estimated by Goswami (1982), the Brahmaputra yields $0.0306 \text{ m}^3/\text{sec}/\text{km}^2$ at Pandu. As regards sediment transport, the river has also set records in carrying large volumes of sediment. The high intensity of monsoon rains, easily erodible rocks, steep slopes, and high seismicity contribute a lot by rendering the river a heavily sediment-laden one. Thus, the Brahmaputra becomes one of the leading sediment carrying rivers of the world. Amongst the large rivers of the world, it is second only to the Yellow river in China in the amount of sediment transport per unit of basin area (Goswami and Das, 2000).

The Brahmaputra is a uniquely braided river of the world. Although braiding seems to be best developed in rivers flowing over glacier outwash plains or alluvial fans, perfect braiding is also found to occur in large alluvial rivers having low slope, such as the Brahmaputra in Assam (India) and Bangladesh or the Yellow River in China. The Assam section of the Brahmaputra River is in fact, highly braided and characterized by the presence of numerous lateral as well as mid channel bars and islands (Goswami and Das, 2000).

The high degree of braiding of the Brahmaputra channel near Dibrugarh and downstream of Guwahati is indicated by the calculated braiding indices of 5.3 and 6.7 respectively for the two reaches, following the method suggested by Brice (1964). A braiding Index of 4.8 for the entire Assam section of the river calculated on the basis of satellite data of 1993 also suggests a high degree of braiding of the Brahmaputra River (Sankhua, 2006).

The basin with varied terrain characteristics and being an integral part of the monsoonal regime of south-east Asia shows a marked spatial variation in the distribution of precipitation. The rainfall in the Teesta valley varies from 164 cm in the south to 395 cm in the north. The average annual rainfall in the lower Brahmaputra valley is 213 cm while the same in the north-eastern foothill belt is 414 cm. The basin as a whole has the average annual rainfall of 230 cm with a variability of 15-20%. The Himalayan sector receives 500 cm of rainfall per year, the lower ranges receiving more than the higher areas (Goswami and Das, 2000). During the monsoon, months of May to October receive about 12% of the annual total.

In the sub-Himalayan belt soils with little depth developed over the Tertiary sand stones generally belong to red loam, laterite, and brown hill soil type with admixtures of cobbles and boulders. The greater part of the Brahmaputra valley is made up of new alluvium of recent deposition overlying Tertiary, Mesozoic and Archaean bedrocks. Along the piedmont zone, there occur some patches of older alluvium extending along the interfluvies of the tributaries flowing from the Himalayan foothills. The soils of the Meghalaya plateau and the Mikir Hills in the south are of laterite and loamy silt and fine silt types.

In general, braiding in the Brahmaputra follows the mechanism of central bar type of braid formation. During high flow, a central bar is deposited in the channel and gradually the bar accretes vertically to the level of the floodplain. It also builds on the downstream end through deposition of bed load material due to the slack water occurring behind the bar. The bar growth causes a decrease in total cross-sectional area leading, thereby, to the instability of the channel. Lateral erosion then follows on one or both the banks. Through repetition of this process in the divided reach, a well developed braided reach with multiple sandbars and islands is produced.

In the Assam section of the river, the presence of such nodes of stable banks is found to effect the formation and location of the bars. There are nine nodal reaches of narrow constriction at various locations along the Brahmaputra, which are at Murkongselek (4.8 km), Disangmukh (5.10 km), downstream of Jhanjimukh (3.75), upstream of Dhansiri north (4.0 km), downstream

of Dhansirimukh (4.4 km), upstream of Tezpur (3.6 km), Pandu, Guwahati (1.2 km), Sualkuchi (2.4 km) and Pancharatna (2.4 km). Since banks are relatively stable in these reaches, the river scours deeper to accommodate the flood discharge. The scoured debris is then deposited in the channel immediately downstream from the narrow section. As a result, the channel becomes wider and bars and islands are produced. Formation of bars causes reduction in cross sectional area and the river, therefore, cuts its banks laterally to accommodate the discharge. Thus, the downstream of the nodes intense braiding develops resulting in channel widening through continuous migration of both banks of the Brahmaputra (Sankhua, 2006).

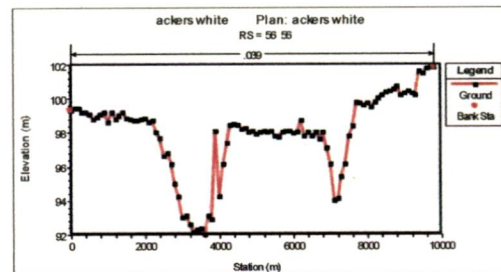
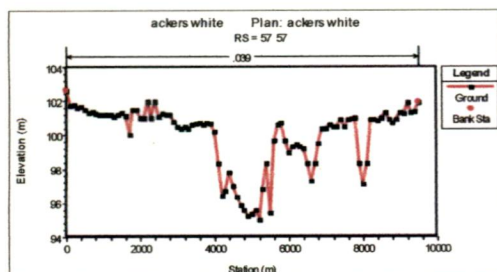
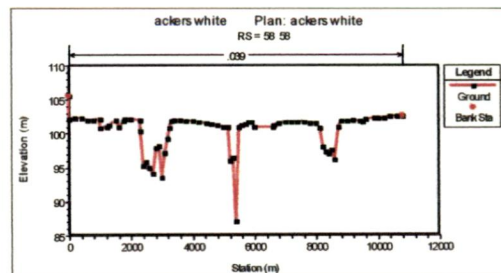
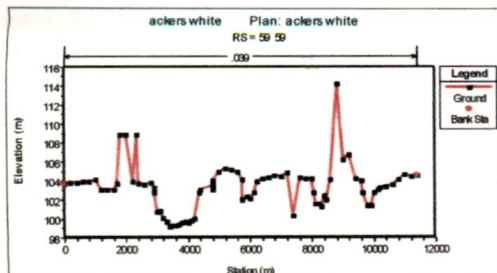
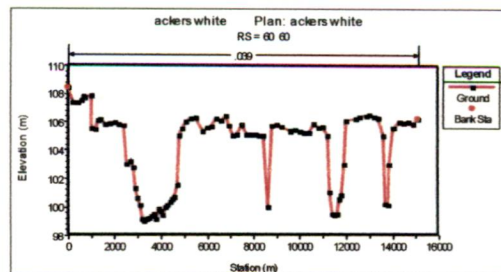
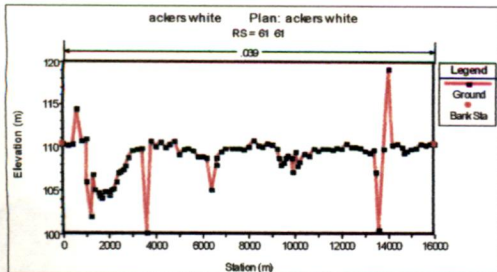
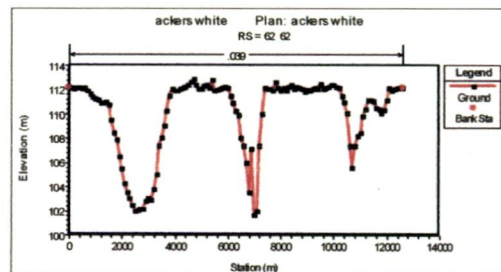
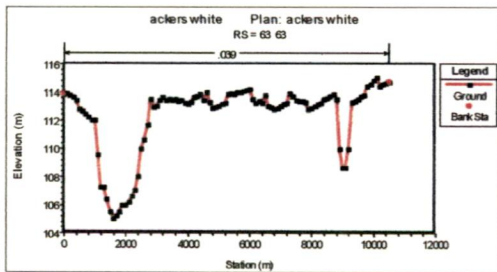
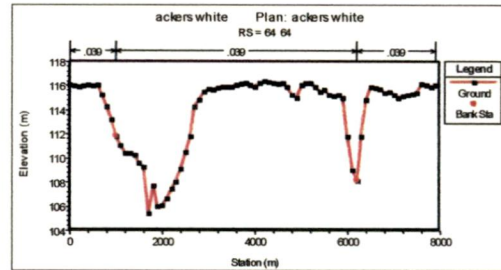
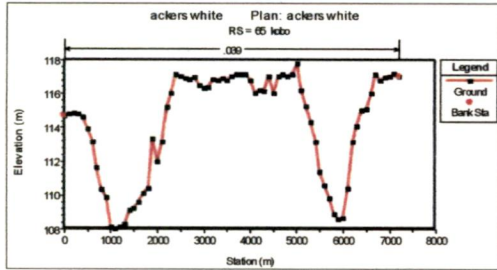
As reported from the studies carried out on braided rivers of the world, the major factors thought to be responsible for braiding and bar formation are steep channel gradient, high erodibility of bank materials, great variability in discharge, overabundance of load, and aggradation of the channel bed. In case of the Brahmaputra River in Assam bar formation and channel division are owing to a combination of factors like high variability in discharge, excessive sediment transport, easily erodible bank materials and aggradation of the channel. Being the fourth largest river in the world with an average discharge of 19,830 m³/sec at its mouth, the Brahmaputra carries 82% of its annual flow at Pandu (Assam) only during the rainy season from May to October. The maximum and minimum mean monthly flows in the river during 1990-2002 are 48,160 m³/sec and 3,072 m³/sec, respectively. On an average, therefore, the maximum flow is more than fifteen times the minimum (Goswami and Das, 2000).

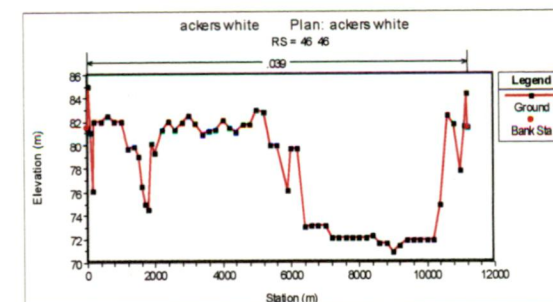
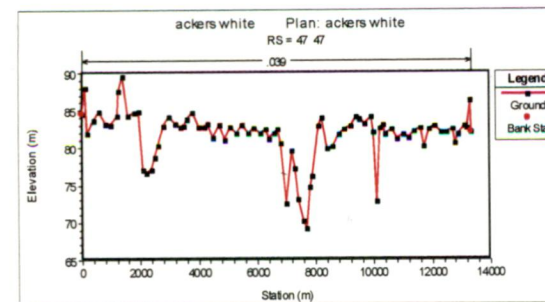
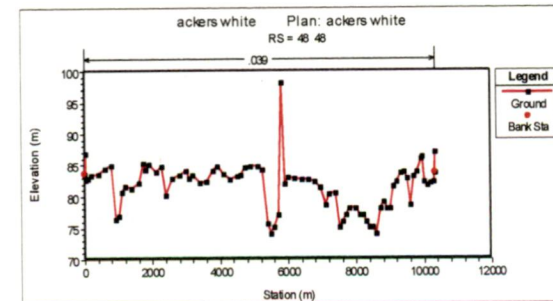
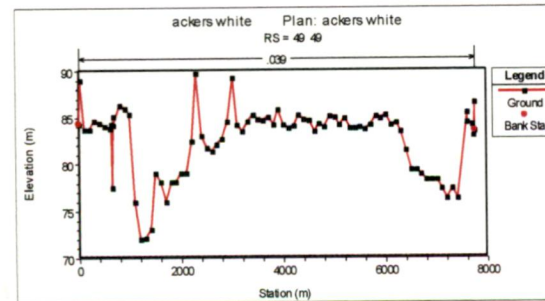
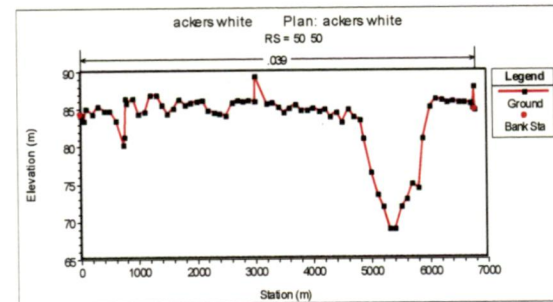
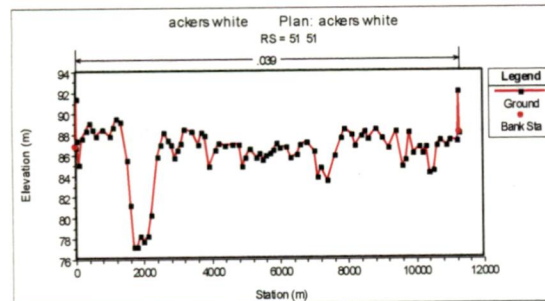
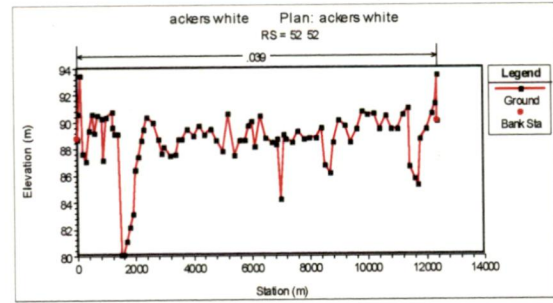
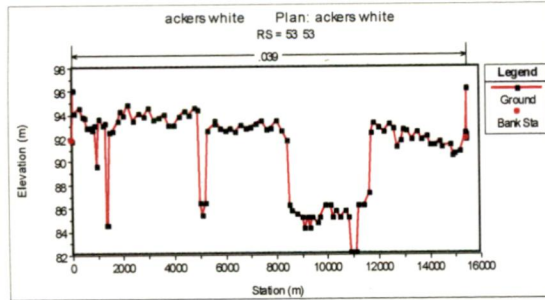
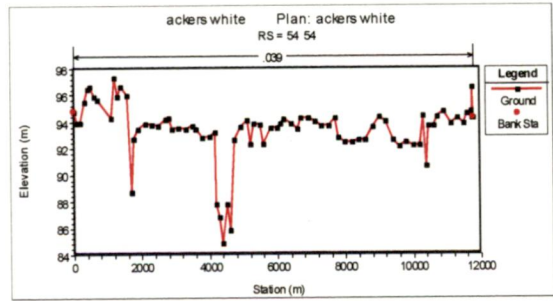
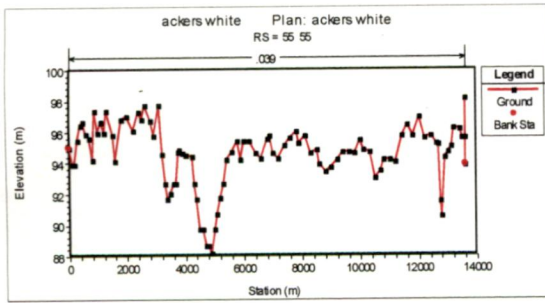
High variability in discharge of the river is mainly caused by seasonal rhythm of the monsoon and the freeze-thaw cycle of the Himalayan snow. As regards the pattern of sediment transport, the river has the record of carrying excessive sediment load which is believed to be one of the important factors responsible for braiding.

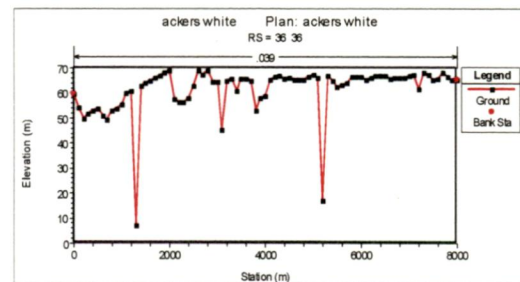
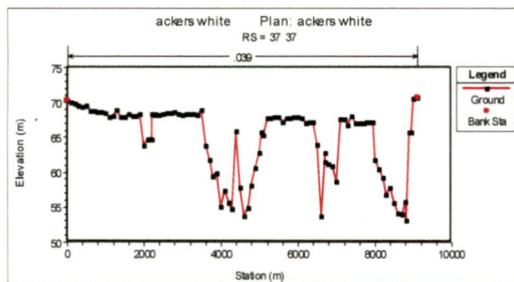
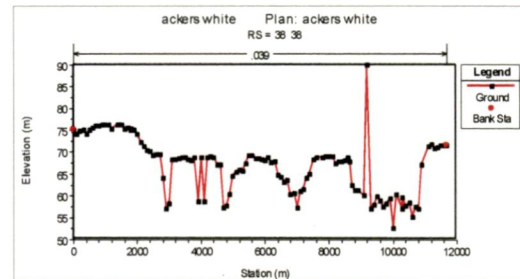
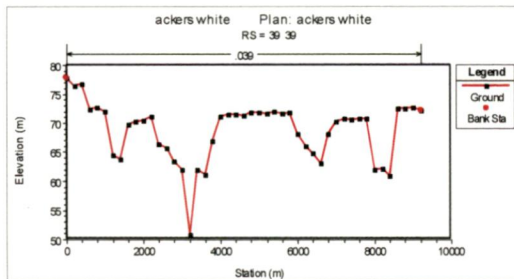
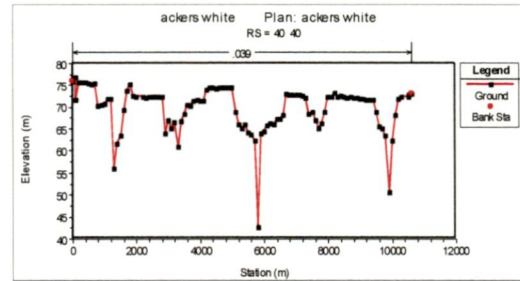
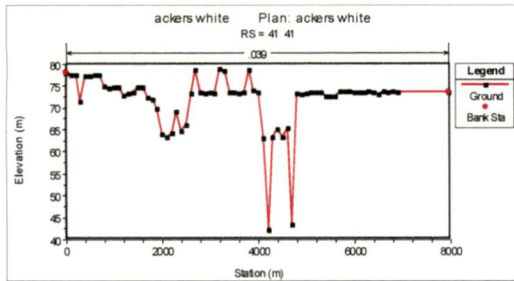
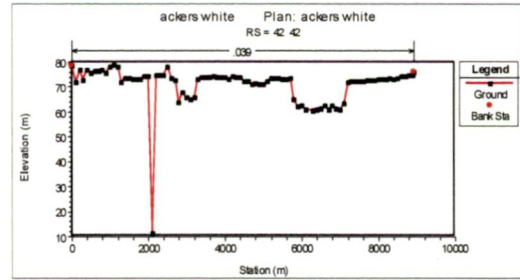
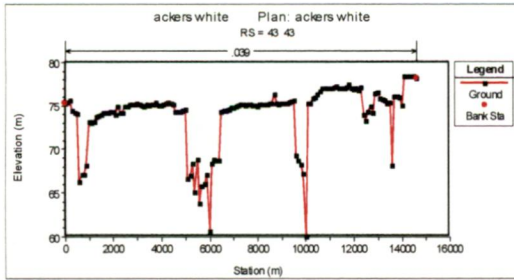
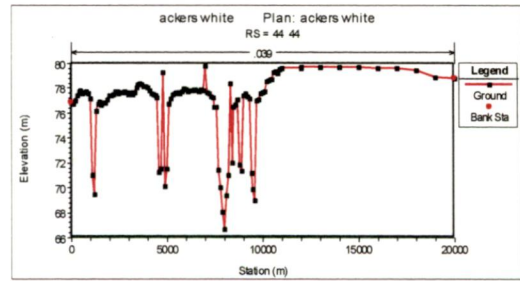
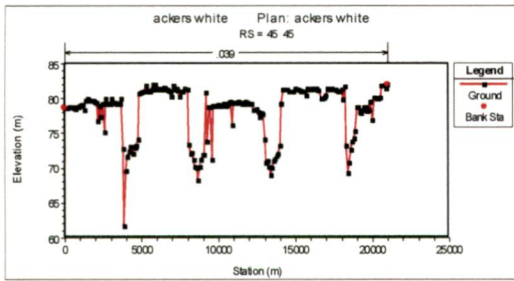
3.7 STUDY AREA

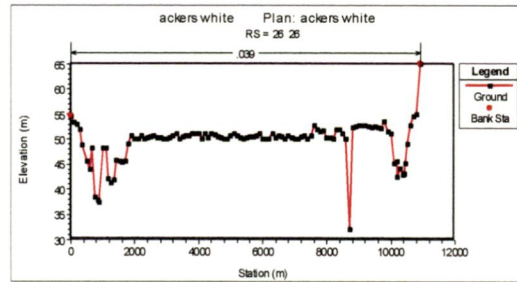
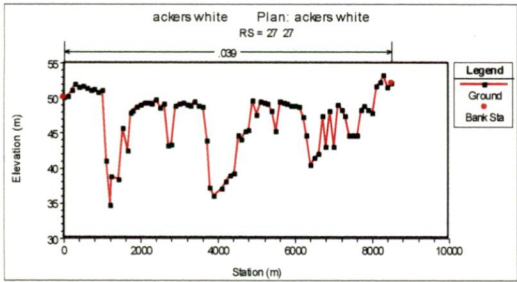
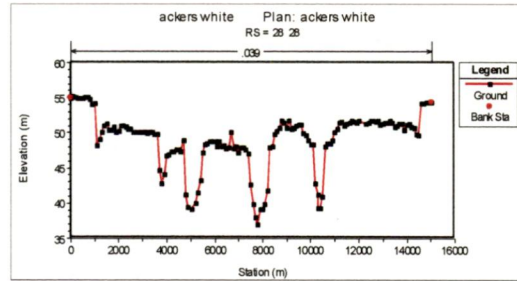
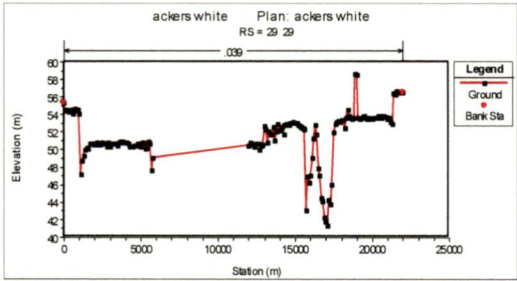
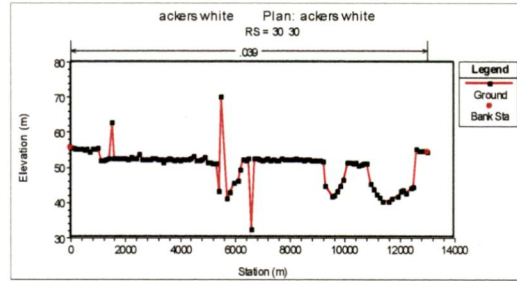
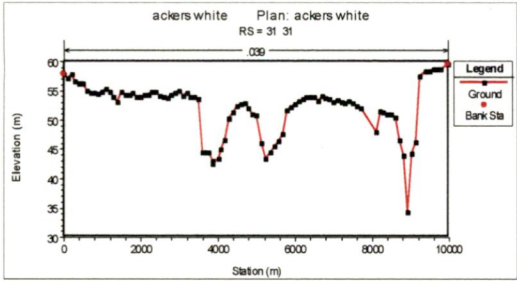
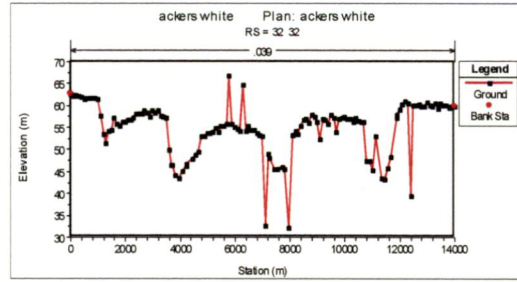
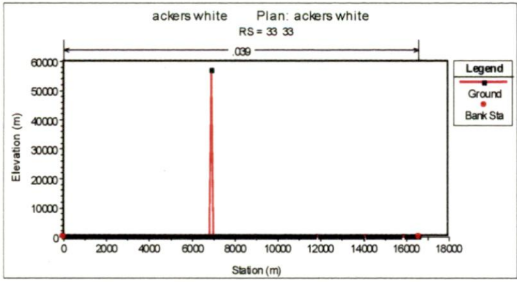
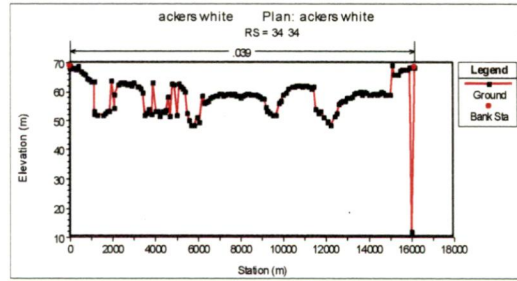
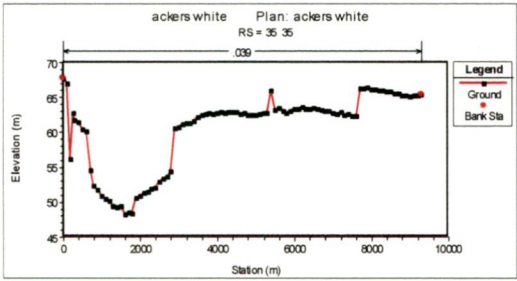
The area under Indian Territory encloses a 622.73 km river stretch encompassing 64 no. Of different cross section with kobo on the northern **most (65no.)** To Dhubri on the south (2no.). The cross-section no 1. In the series lies in the territory of Bangladesh. The area under the consideration for the present study encloses a 623.730 km river stretch of Brahmaputra encompassing 65 no. Of different cross section with Kobo on the northern most (65no.) to

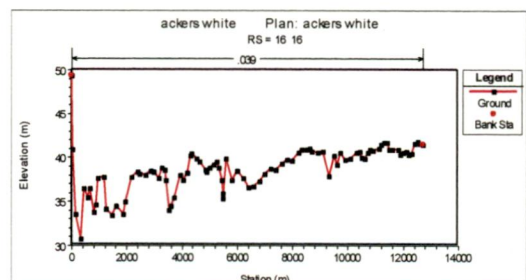
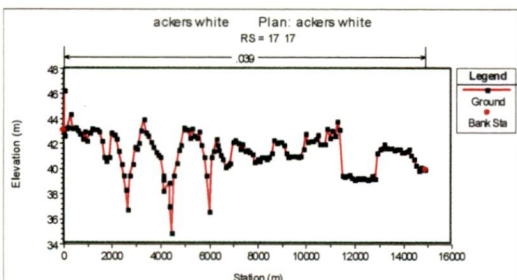
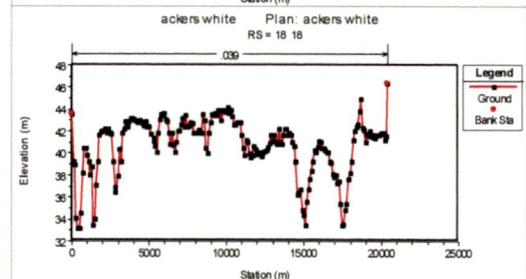
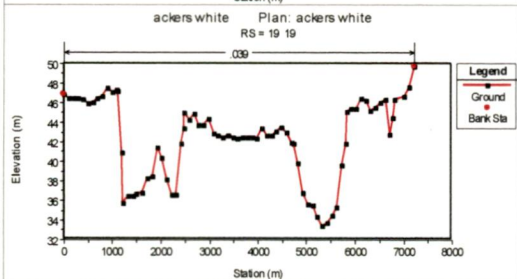
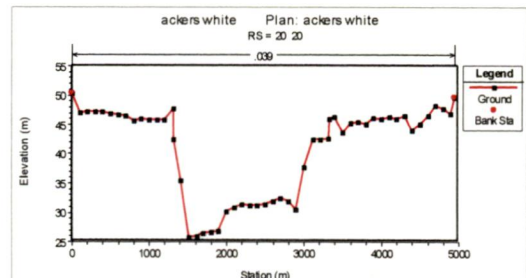
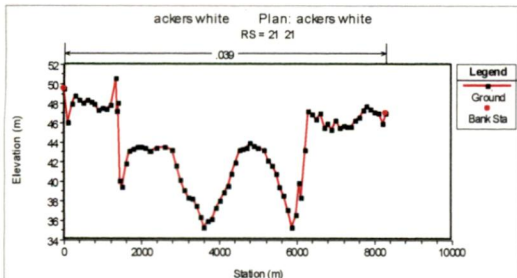
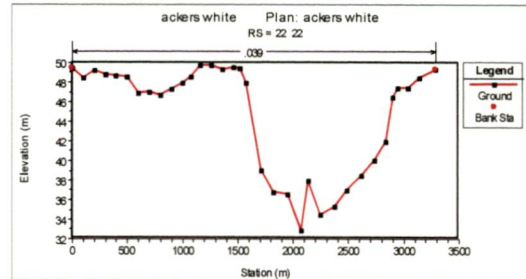
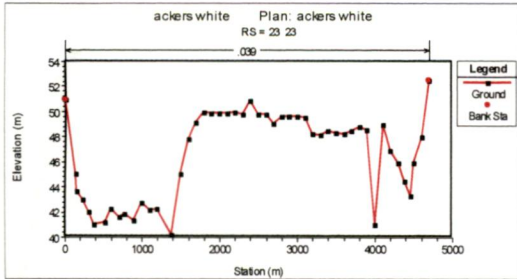
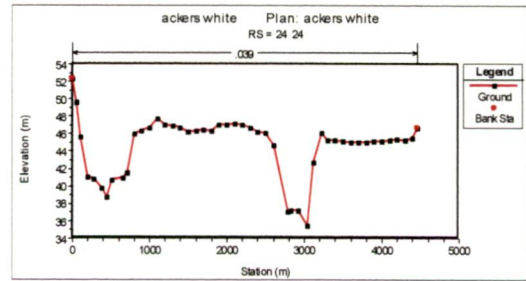
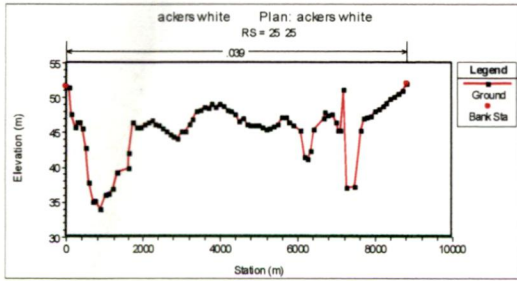
Jogighopa on the south (2 no.). The plan of River Brahmaputra with depiction of study reach has been shown in Fig: 3.4.

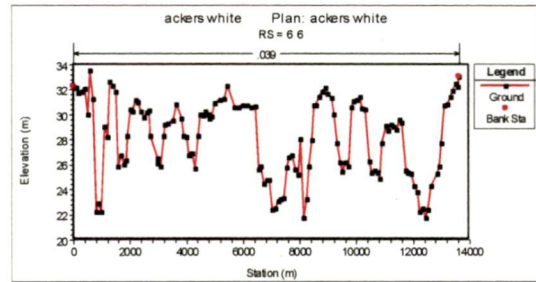
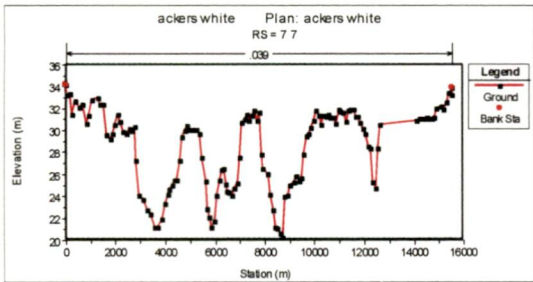
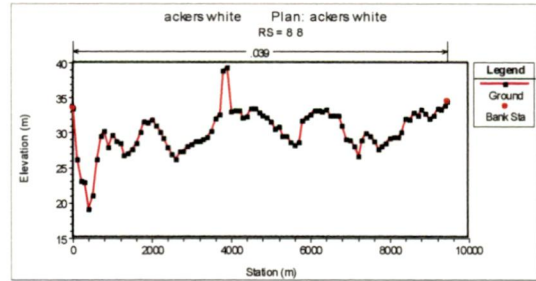
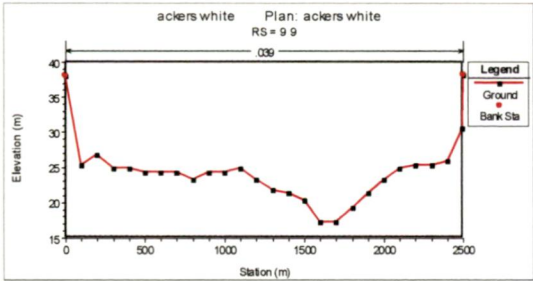
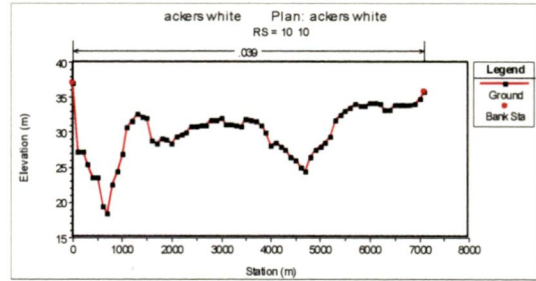
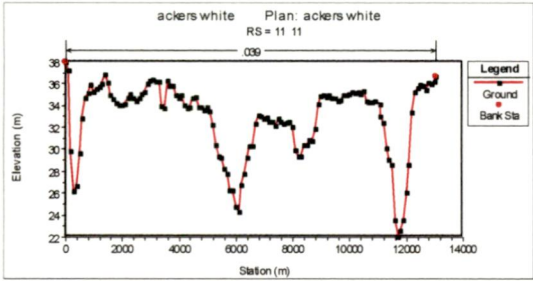
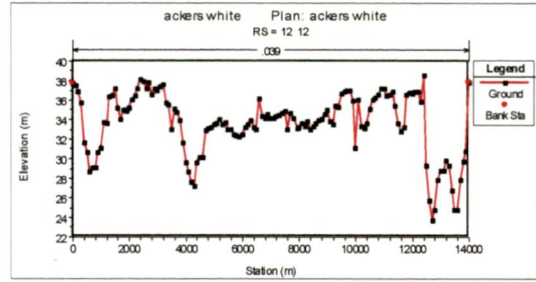
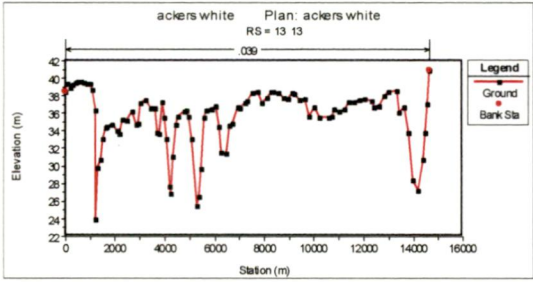
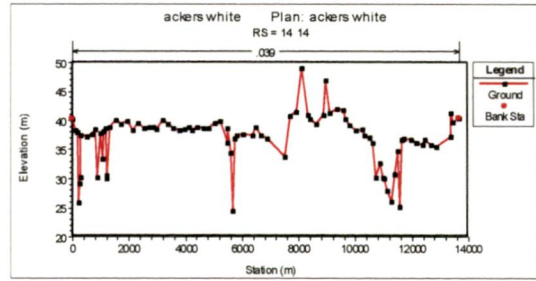
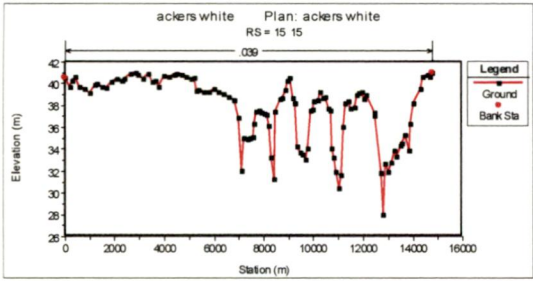












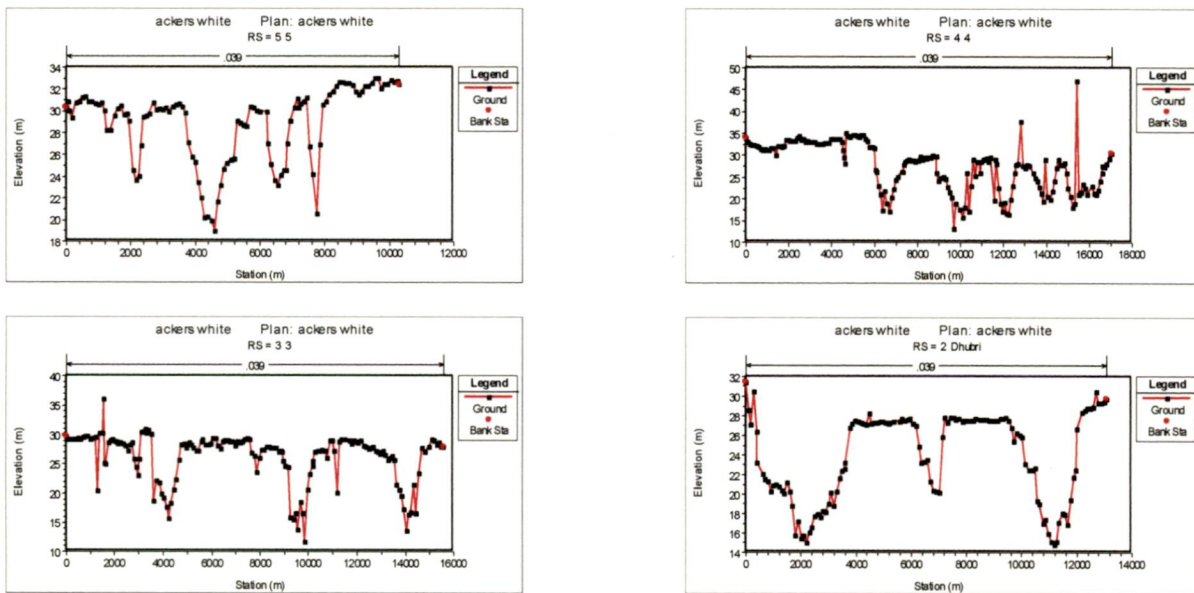


Fig: 3.3 Observed profile of Cross-Section No. 2 to 65 in Years 1993 and 1997

One can easily figure out the significant variations in width as well as bed configuration in general. Widths of the channel vary ranging from 3 km to 15 km. In an average width is around 6 km in the study reach. Visualizing the cross-sections in Fig: 3.3 , it is evident that some cross-sections are exhibiting incised channel forms whereas some showing wide shallow river pattern indicating that bed configurations of the study reach are highly irregular ranging from rock outcrops to fine alluvial bed. The hydraulic geometry data of 65 number of cross section for the seven data years (1993 and 1997) were plotted to view the general tendencies of variation of the cross section profile in the temporal increments.

The plotting reveal a very drastic changes in the cross profiles for some of the sections. Since, the successive stations along a cross section are very widely apart compared to the vertical variation of the ground levels the non submergible banks are not easily discernible. The longitudinal profile (Thalweg) for the study reach gives the idea that the reach is by a large aggrading in nature. The bed level variations from Year-1993 to Year -1997 are highly irregular which suggests that 1 D hydraulic modelling should be applied only for relatively long stretch of the river. In this case it should be at least above 100 km to predict longitudinal thalweg profiles.

At Pandu, the river carries an average suspended load of 402 million metric tons. A river with such gigantic water and sediment discharge magnitudes represents its most dynamic fluvial regime. Its large alluvial channel having a width of 6 to 17 km is, therefore, marked by braiding, rapid aggradation and bank line changes (Sankhua, 2006). The longitudinal slope of reach Pandu to Jogighopa is 0.11m/km (Sarma, 2006)

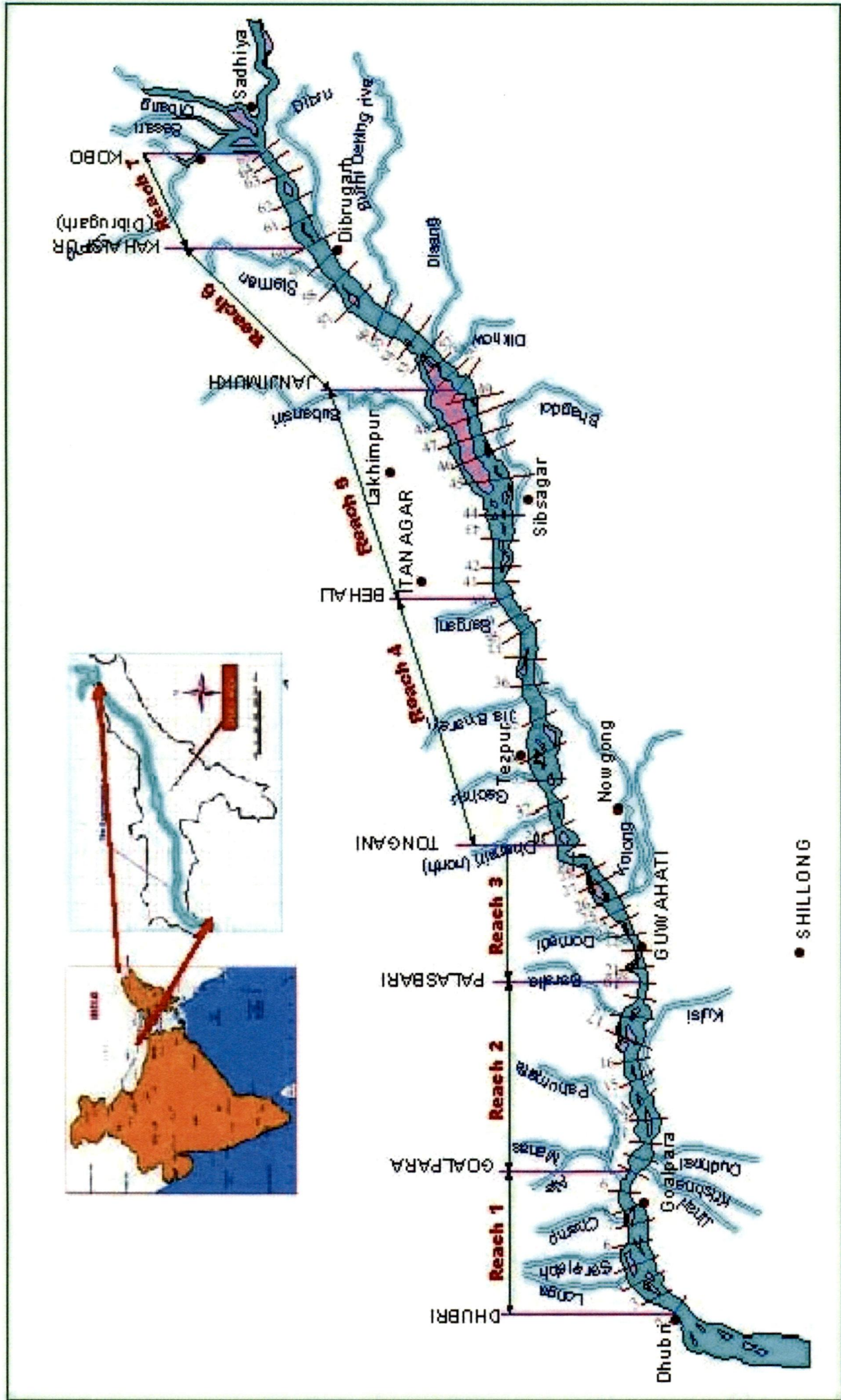


Fig: 3.4 Plan of River Brahmaputra with depiction of study reaches

FORMULATION AND DEVELOPMENT OF FLOW SIMULATION MODEL

4.1 INTRODUCTION

The global hierarchal rank of the river Brahmaputra is recognized to be third in sediment discharge, fifth in fluvial discharge and eleventh in size of the total drainage area (Sarma, 2005). Being one of the youngest river system with varied nature of drainage areas from snow peak mountains to lower flood valley of the Assam and the complexity exuberated by high sediment yielding geological surfaces it has been a very formidable task to quantify all the embodied “fluvial-river-morphological characteristics” to explain the ever changing characteristics of the river. The high degree of braiding (Goswami and Das, 2000) of the parent channel, more emphatically, when it open to the Assam valley because of still a steep valley gradient the fall in the hydraulic competency due to braiding is reflected to sediment transportation and downstream aggradation. Very unstable hydraulic geometry and hence the river channel morphology in the spatial and temporal space hinders the formulation of an idealised hydraulic models. Moreover, the researches and the literatures on braided channels are less compared to single channel in alluvium region. Due to high non linearity involved in the interdependencies of the hydrological – morphological and hydraulic parameters, majority of relationships developed relating hydrological and hydraulic parameters are empirical.

The river Brahmaputra is one of the rivers which are well under the observation of different stake holders. The sediment discharges and flood discharges at certain locations have been continuingly recorded and the river cross sections surveyed. Still, the limitation in the human capacity, instrumentation, the ambience of the measurement and the risk involved, the actual data acquisition often remain off-set by errors. The importance of the information that could be derived from the analysis of the data is very high in the design, management and future risk and hazard strategies.

Taking in to account the situation as described above, the present study is a formative attempt to implement a flow simulation model HEC-RAS for the study reach. The algorithms established by the researchers /modellers in the various literatures advocate success of flow simulation

model application depends on the size of the data covering wide patterns of phenomena .More the data sets better is the results' reliability. In the assessment of the available data, data sorting, data generation supporting further analysis, modelling and deriving inferences HEC-RAS has been known to be robust. As the technique is a data driven model requiring gamut of data patterns representing the actual phenomena to accommodate all the possibilities within the patterns of independent and dependent variables.

In the near future, more work with more expertise on this line would be enhancing the dependability on the strength of the technique in the more complex analysis.

The study has been carried out on the following data sets and the area.

- a) Study Stretch of the river channel (from Kobo to Dhubri) 622.73 km
- b) No. of the river cross sections (year 1993 and1997) 65.no
- c) Hydrological Data(Jogighopa-Pandu) 1993 to 1997

4.2 DATA SOURCES AND DATA TYPES

4.2.1 HYDROGRAPHIC DATA

Morpho-metric data: the reduced levels of the river cross-sections of post-monsoon period for the years 1993 and 1997 have been collected in respect of all the 65 pre-defined river cross-sections from the Brahmaputra Board, Government of India.

4.2.2 DISCHARGE AND STAGE DATA

Discharge and stage data of the river Brahmaputra collected for various cross-sections from Central Water Commission (CWC), Assam Flood Control Department and Brahmaputra Board have constituted main data resource to the model implementation. The length of data record was from year 1993 to 1997.

4.2.3 SEDIMENT DATA

Sediment data obtained from the monthly suspended sediment data in respect of Jogighopa and Pandu for the years from 1993 to 1997 and average monthly discharge (cumecs) and monthly average suspended sediment yield of major tributaries processed for all the years from 1993 to 1997 have been used in the study. Characteristic sediment particle size distribution at the cross-sections was collected from CWC.

4.3 PRE- PROCESSING OF HYDRO GRAPHIC DATA

As a certain degree of uncertainty is associated with hydrologic frequency distributions on relative time scales, the sensitive response function of the river / stream as Stage - Discharge (G-Q) relationships, Sediment discharge Rating ($Q_s - Q$) curves, Stream flow Hydrographs, etc needs to adequately represented from the observed field data. The Brahmaputra River Basin in terms of its complexity calls for well-defined response models. In the study, some of the significant steps followed are outlined as:

- (i) The first step is the abstraction of outliers and errors in the data sets. Conceptual or statistical tools as regression and curve fitting were implemented on the variables pertaining to specific river / stream to identify the irrational points; they were either discarded or rectified based on the earlier trends or pattern of the data.
- (ii) The datasets are then sorted strictly on a base time scale. Monthly average record data sets pertaining to the main river are chosen for the study, the period between November 1993 and October 1997 has been adopted as the base time scale for the framing of the channel response parameters and the model formulation.

4.4 DEVELOPMENT OF FLOW SIMULATION MODEL IN 'HEC-RAS'

The system contains three one-dimensional hydraulic analysis components for: (1) steady flow water surface profile computations; (2) unsteady flow simulation; and (3) movable boundary sediment transport computations. A key element is that all three components will use a common geometric data representation and common geometric and hydraulic computation routines. In

addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once the basic water surface profiles are computed.

HEC-RAS is designed to perform one-dimensional hydraulic calculations for a full network of natural and constructed channels. Theoretical basis for one-dimensional calculation in HECRAS is briefed in chapter-2.

4.4.1 DATA REQUIREMENTS AND INPUT

The basic input data required for sedimentation analysis by HEC-RAS model can be grouped into four categories as below.

4.4.1.1 Geometric Data

Geometry of the physical system is represented by cross sections, specified by coordinate points (stations and elevations), and the distance between cross sections. Hydraulic roughness is measured by Manning's n-values and can vary from cross section to cross section. At each cross section n-values may vary vertically and horizontally. The program raises or lowers cross-section elevations to reflect deposition or scour and thus generates data during the course of its execution.

The River System Schematic

The river system schematic is required for any geometric data set within the HEC-RAS system. The schematic defines how the various river reaches are connected, as well as establishing a naming convention for referencing all the other data. The river system schematic is developed by drawing and connecting the various reaches of the system within the geometric data editor (Fig: 4.1). It is required to develop the river system schematic before any other data can be entered.

Each river reach on the schematic is given a unique identifier. As other data are entered, the data are referenced to a specific reach of the schematic. For example, each cross section must have a "River", "Reach" and "River Station" identifier. The river and reach identifiers defines which reach the cross section lives in, while the river station identifier defines where that cross section is located within the reach, with respect to the other cross sections for that reach.

Brahmaputra River Schematic plot(c/s2-c/s65)

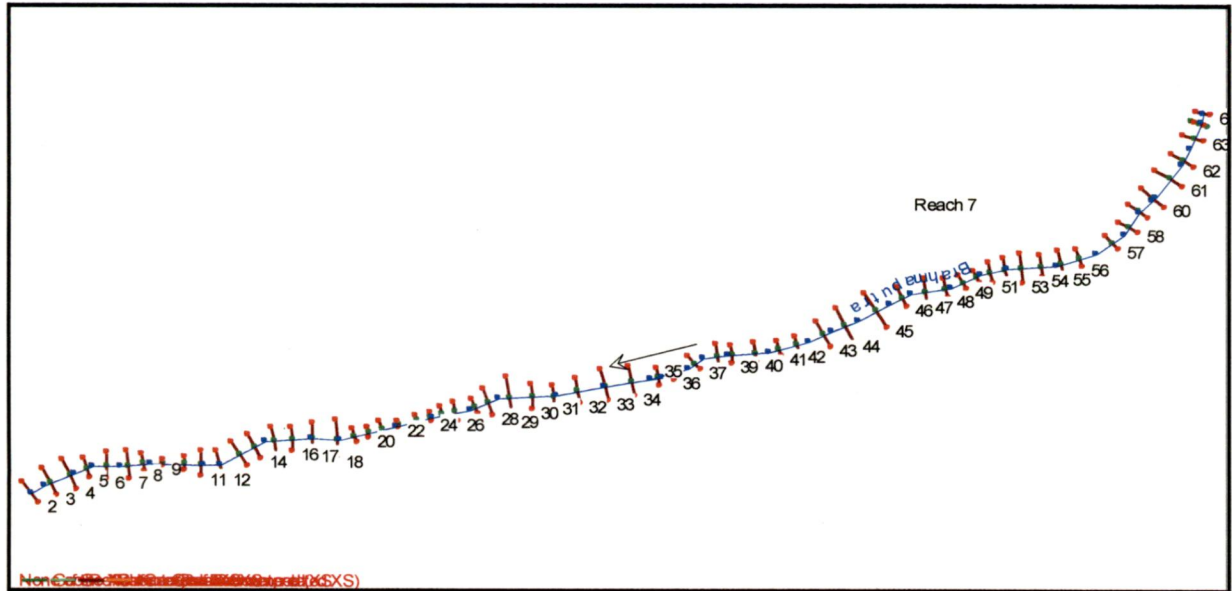


Fig: 4.1 Schematic Plot of the Study Reach of Brahmaputra River in the Program Module.

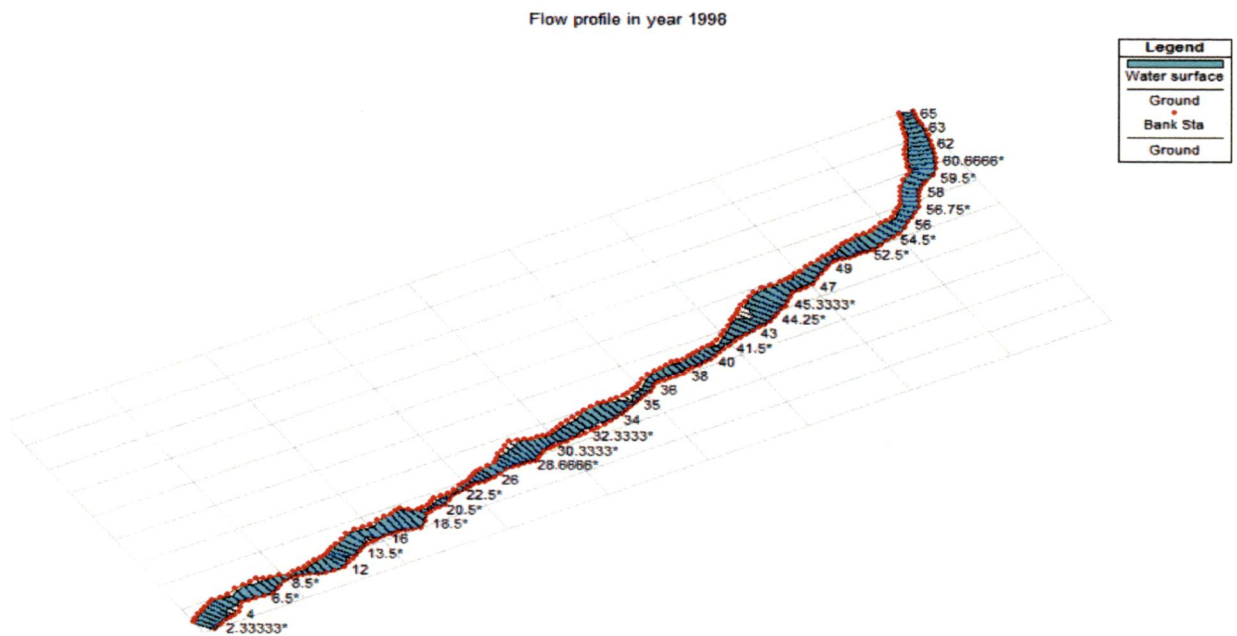


Fig: 4.2 Perspective plot of the reach

The connectivity of reaches is very important in order for the model to understand how the computations should proceed from one reach to the next. It is required to draw each reach from upstream to downstream, in what is considered to be the positive flow direction.

Cross Section Geometry

Boundary geometry for the analysis of flow in natural streams is specified in terms of ground surface profiles (cross sections) and the measured distances between them (reach lengths). Cross sections are located at intervals along a stream to characterize the flow carrying capability of the stream and its adjacent floodplain. They should extend across the entire floodplain and should be perpendicular to the anticipated flow lines. Occasionally it is necessary to layout cross-sections in a curved or dog-leg alignment to meet this requirement. Every effort should be made to obtain cross sections that accurately represent the stream and floodplain geometry.

Cross sections are required at representative locations throughout a stream reach and at locations where changes occur in discharge, slope, shape, or roughness, at locations where levees begin or end and at bridges or control structures such as weirs. Where abrupt changes occur, several cross sections should be used to describe the change regardless of the distance. Cross section spacing is also a function of stream size, slope, and the uniformity of cross section shape. In general, large uniform rivers of flat slope normally require the fewest number of cross sections per km. The purpose of the study also affects spacing of cross sections. For instance, navigation studies on large relatively flat streams may require closely spaced (e.g., 200 feet) cross sections to analyze the effect of local conditions on low flow depths, whereas cross sections for sedimentation studies, to determine deposition in reservoirs, may be spaced at intervals on the order of km.

The choice of friction loss equation may also influence the spacing of cross sections. For instance, cross section spacing may be maximized when calculating an M1 profile (backwater profile) with the average friction slope equation or when the harmonic mean friction slope equation is used to compute M2 profiles (draw down profile). The HEC-RAS software provides the option to let the program select the averaging equation.

Each cross section in an HEC-RAS data set is identified by a River, Reach, and River Station label. The cross section is described by entering the station and elevation (X-Y data) from left to right, with respect to looking in the downstream direction. The River Station identifier may correspond to stationing along the channel, mile points, or any fictitious numbering system. The

numbering system must be consistent, in that the program assumes that higher numbers are upstream and lower numbers are downstream.

Each data point in the cross section is given a station number corresponding to the horizontal distance from a starting point on the left. Up to 500 data points may be used to describe each cross section. Cross section data are traditionally defined looking in the downstream direction. The program considers the left side of the stream to have the lowest station numbers and the right side to have the highest. Cross section data are allowed to have negative stationing values. Stationing must be entered from left to right in increasing order. However, more than one point can have the same stationing value. The left and right stations separating the main channel from the over bank areas must be specified on the cross section data editor. End points of a cross section that are too low (below the computed water surface elevation) will automatically be extended vertically and a note indicating that the cross section had to be extended will show up in the output for that section. The program adds additional wetted perimeter for any water that comes into contact with the extended walls.

Other data that are required for each cross section consist of: downstream reach lengths; roughness coefficients; and contraction and expansion coefficients. These data will be discussed in detail later in this chapter. Numerous program options are available to allow easily adding or modifying cross section data.

Reach Lengths

The measured distances between cross sections are referred to as reach lengths. The reach lengths for the left over bank, right over bank and channel are specified on the cross section data editor. Channel reach lengths are typically measured along the thalweg. Over bank reach lengths should be measured along the anticipated path of the center of mass of the over bank flow. Often, these three lengths will be of similar value. There are, however, conditions where they will differ significantly, such as at river bends, or where the channel meanders and the over banks are straight. Where the distances between cross sections for channel and over banks are different, a discharge-weighted reach length is determined based on the discharges in the main channel and left and right over bank segments of the reach. In the selected reach of Brahmaputra, all three lengths were taken similar values. Downstream reach lengths as well as reach length with respect to extreme downstream station (Jogighopa) are given in Table: 4.1

Cross-sectional Data of 1997 & 1993 has been taken as in geometry data for estimation Froude No. for those particular years to see the variation.

Table 4.1 Reach Length of Study All Reaches

S.no.	Channel name	D/S reach length (m)	Distance from base station (m)
1	dhubri 2	0	0
2	3	10717.01	10717.01
3	4	10199.98	20917.08
4	5	8669.99	29587.04
5	6	9690.02	39277.09
6	7	9690.02	48967.11
7	8	7140	56107.11
8	9	9180	65287.11
9	10	10199.98	75487.09
10	11	8160	83647.09
11	12	8669.99	92317.08
12	13	10199.98	102517.1
13	14	8160	110677.1
14	15	9690.02	120367.1
15	16	8669.99	129037.1
16	17	9690.02	138727.1
17	18	11219.99	149947.1
18	19	8669.99	158617.1
19	20	6550.01	165167.1
20	21	6551.01	171718.1

21	22	8160	179878.1
22	23	9180	189058.1
23	24	6630.01	195688.1
24	25	5610	201298.1
25	26	6120	207418.1
26	27	9690.02	217108.1
27	28	6630.01	223738.1
28	29	10719.98	234458.1
29	30	10199.98	244658.1
30	31	10199.98	254858.1
31	32	11729.99	266588.1
32	33	12750	279338.1
33	34	13270	292608.1
34	35	15800	308408.1
35	36	15309.96	323718
36	37	11729	335447
37	38	12240	347687
38	39	6630.	354317
39	40	11219.99	365537
40	41	11219.99	376757
41	42	8669.99	385427
42	43	13759.99	399187
43	44	11219.99	410407
44	45	16320.09	426727.1
45	46	14280	441007.1
46	47	11219.99	452227.1

47	48	9690.02	461917.1
48	49	8669.99	470587.1
49	50	7140	477727.1
50	51	7140	484867.1
51	52	7140	492007.1
52	53	7140	499147.1
53	54	9690	508837.1
54	55	9180	518017.1
55	56	9180	527197.1
56	57	17850	545047.1
57	58	11219.99	556267.1
58	59	9690.02	565957.1
59	60	8906.8	574863.12
60	61	11966.6	587613.92
61	62	10436.59	598833.52
62	63	12476.61	612093.11
63	64	7376.6	620253.72
64	Kobo 65	5610	626647.1

Energy Loss Coefficients

Several types of loss coefficients are utilized by the program to evaluate energy losses: (1) Manning's n values or equivalent roughness "k" values for friction loss, (2) contraction and expansion coefficients to evaluate transition (shock) losses.

Manning's n: Selection of an appropriate value for Manning's n is very significant to the accuracy of the computed water surface profiles. The value of Manning's n is highly variable and depends on a number of factors including: surface roughness; vegetation; channel

irregularities; channel alignment; scour and deposition; obstructions; size and shape of the channel; stage and discharge; seasonal changes; temperature; and suspended material and bed load.

In general, Manning's n values should be calibrated whenever observed water surface profile information (gage data, as well as high water marks) is available. As water surface profile information is adequately available for the study reach, so Manning's n values were calibrated in fixed bed module with spatial as well as based on discharge variation and values fed into sediment module of flow simulation for further analysis.

There is a difference in Manning's n between fixed and movable bed situations. Fixed bed n's are values which do not depend on the characteristics of the movable boundary, movable bed n's are values which may depend on the rate of sediment transport and, hence, the discharge. Appropriate values for Manning's n were initially determined by executing HEC-RAS in fixed bed mode, i.e., as a step-backwater program. This is necessary to properly compare calculated water surface elevations with observed water surface profiles, with established rating curves, during the analysis of geometric data and calibration of n values, many program executions were required. Study reach has been subdivided into separate segments, cross-section were interpolated to appropriate numbers and program is executed for different value of n until computed water surface profiles at approximately matched with observed ones. Finally, calibrated n with discharge variation and spatial variation obtained.

Changing n values with distance should be justified based on changes in vegetation, channel form, structures, or sediment size. The technique assumes that the entire bed of the river is stationary and does not move or change roughness during a flood event. Before focusing on sediment transport, however, Manning's n value for the channel is appropriate for a movable boundary analyzed and whatever required minor adjustments, were made to ensure that the n value for the movable portion of the cross section is in reasonable agreement with that obtained from bed roughness predictors.

Selection of Contraction and Expansion Coefficients

Information for contraction and expansion losses is sparser than that for n values. King and Brater (1963) give values of 0.5 and 1.0 respectively for a sudden change in area accompanied

by sharp corners, and values of 0.05 and 0.10 for the most efficient transitions. Design values of 0.1 and 0.2 are suggested. They cite Hinds (1928) as their reference. Values often cited by the Corps of Engineers (HEC, 1990a) are 0.1 and 0.3, contraction and expansion respectively, for gradual transitions. So in the present study, contraction and expansion coefficient are by default taken as 0.1 and 0.30.

4.4.1.2 Hydrologic Data

The hydrologic data consist of water discharges, temperatures and flow durations. The discharge hydrograph is approximated by a sequence of steady inflow discharges each of which occurs for a specified number of days. Water surface profiles are calculated by using the standard step method to solve the energy equation. Friction loss is calculated by Manning's equation, and expansion and contraction losses will be included if the representative loss coefficients are specified.

The monthly discharges at the site for the period Nov. 1993 to Nov. 1997 are used to obtain a discharge frequency hydrographs and the gauges respective.

Steady Flow Data

Steady flow data were required in order to perform a steady water surface profile calculation and consequently calibration of 'n' worked out. Steady flow data consist of flow regime, boundary conditions and discharge information.

Boundary conditions are necessary to establish the water surface at the ends of the river system (upstream and downstream). A starting water surface is necessary in order for the program to begin the calculations. In a sub critical flow regime, boundary conditions are only necessary at the downstream ends of the river system. If a supercritical flow regime is going to be calculated, boundary conditions are only necessary at the upstream ends of the river system. If a mixed flow regime calculation is going to be made, then boundary conditions must be entered at all ends of the river system. Observed monthly flow profile were fed as input in different cross-section segmental reach and program were run separately to compute water surface elevation at d/s and compared with observed one to estimate n .

Quasi-unsteady Flow Data

Current sediment capabilities in HEC-RAS are based on quasi-unsteady hydraulics. The quasi-unsteady approach approximates a flow hydrograph by a series of steady flow profiles associated with corresponding flow durations. Boundary conditions were flow series (flow hydrograph) at upstream boundary(c/s-65). At downstream boundary(c/s-9 at Jogighopa site), stage time series /rating curve applied. The stage -time series boundary condition allows inputting a time series of stages at the downstream boundary.

As sensitive inputs to the Model boundary values, the Stage-Discharge relations, the G-Q relations of the major rivers/ streams under consideration needs to sufficiently dictate the hydraulic behavior,.

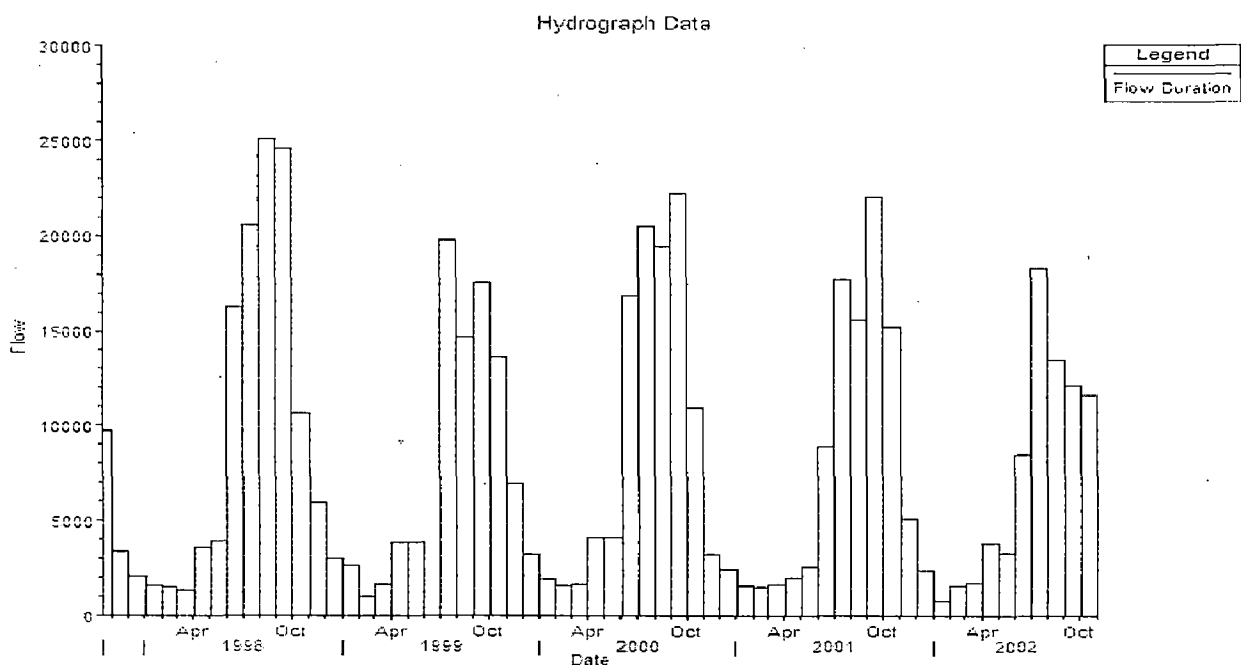


Fig: 4.3 Simulation Hydrograph at c/s-65 (Kobo Site)

Stage-Discharge Relation at extreme d/s boundary of reach is plotted in Fig: 4.4, similarly Discharge hydrograph at extreme u/s boundary is also plotted in Fig 4.3 which has also been taken as inputs for simulating flow for specific period. Lateral flow series at Jogighopa site shown in Fig 4.4.

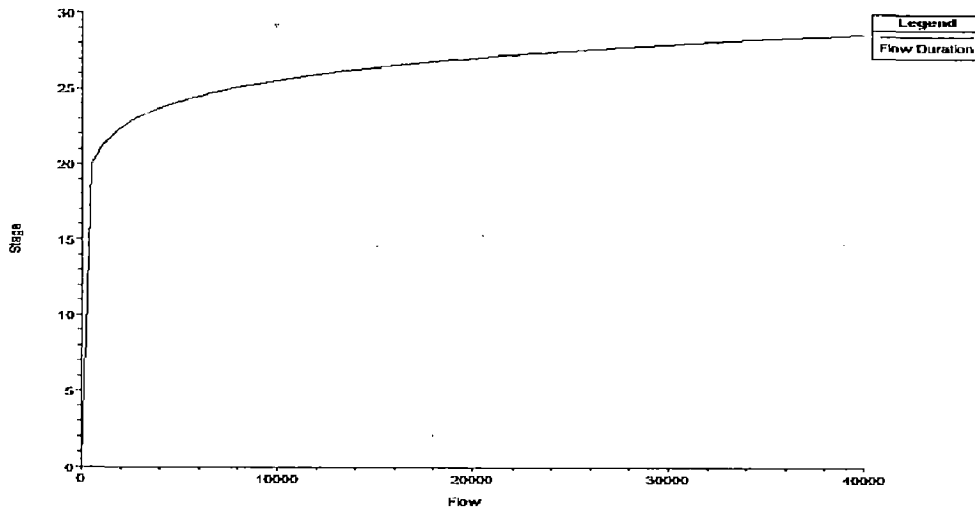


Fig: 4.4 Stage – Discharge Relation at c/s-9(Jogighopa site)

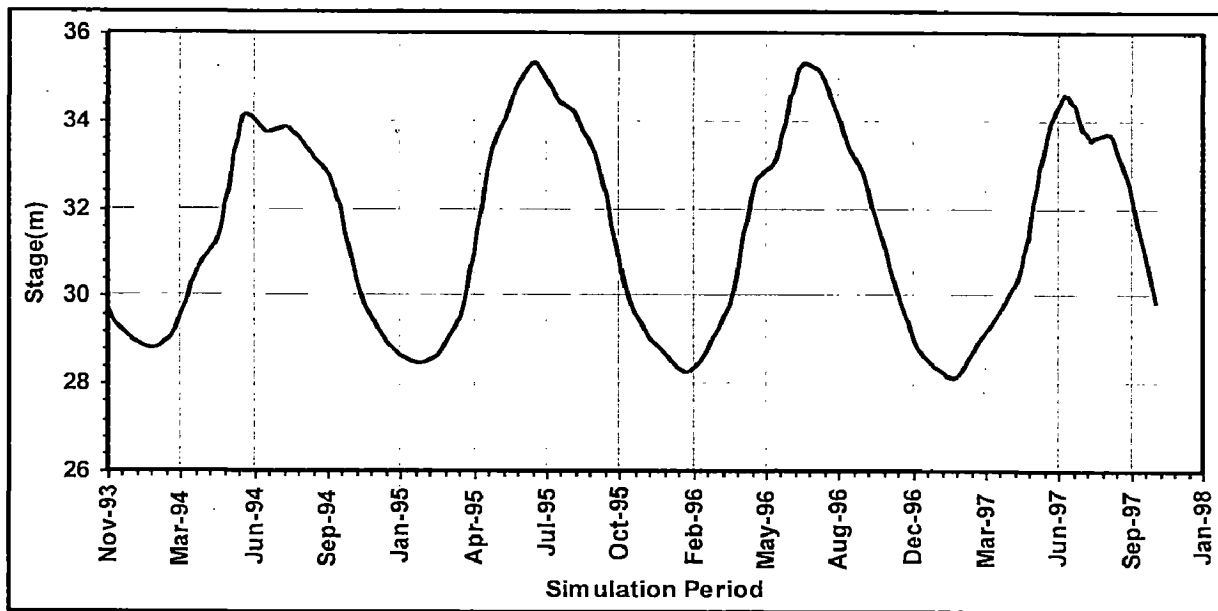


Fig: 4.5 Stage Series at c/s-9(Jogighopa site)

4.4.1.3 Sediment Data

The sediment data consist of inflowing sediment load data, gradation of material in the stream bed and information about sediment properties. The inflowing sediment load is related to water discharge by a rating table at the upstream end of the model.

Sediment mixtures are classified by grain size using the American Geophysical union scale. The program accommodates clay (up to 0.004 mm), four classes of silt (0.004 – 0.0625 mm), five classes of sand (very fine sand 0.0625 mm to very course sand 0.2 mm) and five classes of gravel (very fine gravel 0.2mm to very coarse gravel 0.64mm).Sediment transport capacity is calculated at each cross section by using hydraulic data obtained during the calculation of water surface profiles and the gradation of bed material for that cross section.

The variations in the sediment load discharge with the flow is calibrated from the Sediment Discharge Rating Curves and entered to the model input.

Each cross-section must have an associated bed gradation. Possession of data in regard to bed material for all cross section couldn't be done. But character of bed material within the study reach can presumed to be similar in nature so far sediment transport is concerned. Bed material gradation at cross section -2 (Dhubri) is taken as representative bed gradation (Fig: 4.5) through out the alluvial study reach except where outcrops were present.

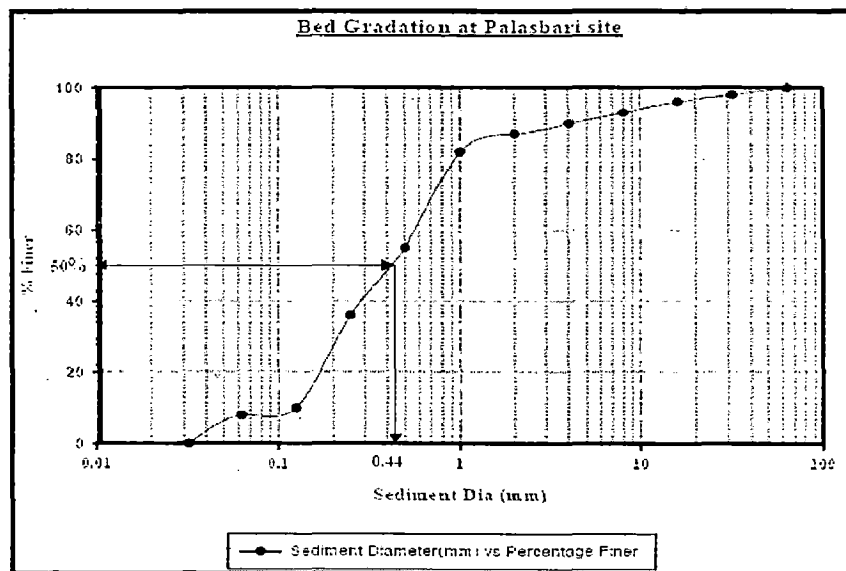


Fig: 4.6 Representative Bed Gradation (semi-log) Plot of the Study Reach

Sediment Boundary Conditions

For sediment transport analysis sediment boundary conditions must be applied. Usually boundary conditions are applied at extreme u/s and d/s cross sections .Internal boundary conditions were applied where flow change is occurring i.e. where tributaries are meeting the

main stream. In model formulated sediment rating curves were applied for simulating sediment transport. Sediment rating curve at c/s-65 were plotted and depicted in Figs. 4.6. A rating curve determines a sediment inflow based on water flow.

Besides the hydrologic data, sediment data and roughness coefficients, other bound values accorded are the depth of sediment bed control volume (adopted as 5.0 meter wherever necessary) and the water temperature. The sensitivity of the variation in water temperature ($^{\circ}\text{C}$) over the sediment transport rates and water surface is also simulated as presented in the result summary tables. Average monthly variation of temperature as per field data (Based on average. Temperature record in the period 1931 -1960 at Guwahati) is adopted (Table 4.2).

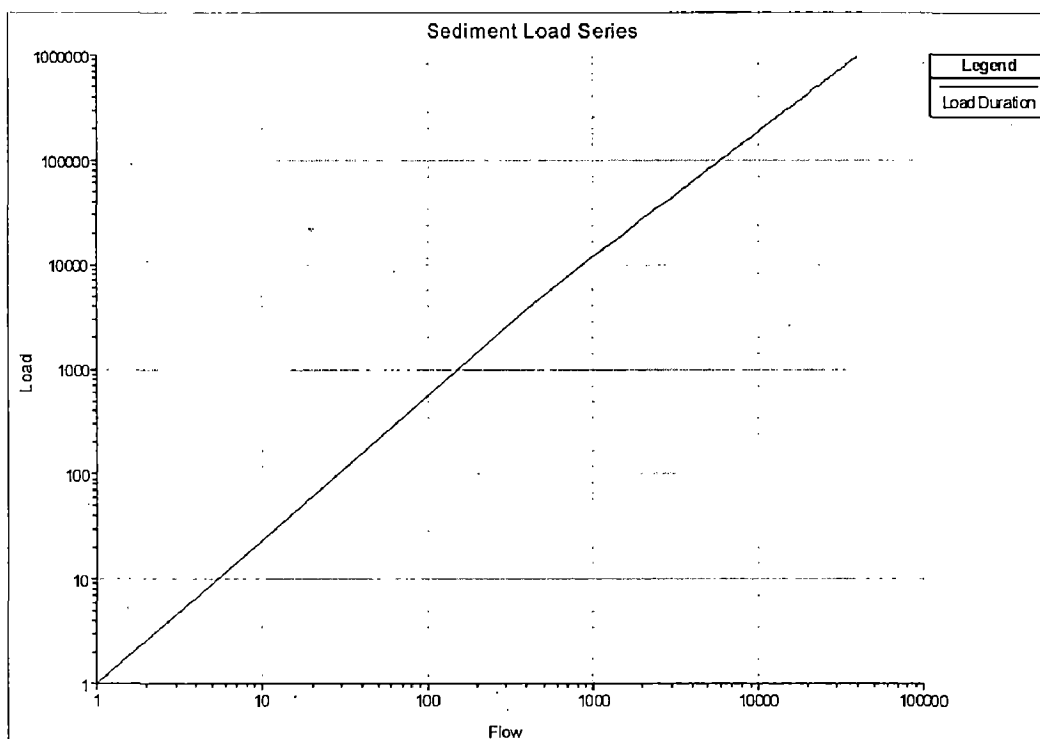


Fig: 4.7 Sediment Rating Curve at c/s-22 (Pandu Site)

Table: 4.2 Average Monthly Temperature Variations

S.N.	Month	Average Temperature(°C)
1	January	17.5
2	February	19.55
3	March	23.35
4	April	25.95
5	May	26.9
6	June	28.1
7	July	28.95
8	August	29
9	September	28.65
10	October	26.25
11	November	22.3
12	December	18.7

4.4.2 PROGRAM ORGANISATION

The HEC-RAS program in its present form has been organized into two major modules. Modules run with various sub-programs where data have been transferred for specific output generation. The functional flowchart of the program is shown in Fig. 4.8

4.4.2.1 Hydrodynamic modeling and calibration of 'n'. (Steady flow analysis)[First Module]

Roughness Coefficients

Roughness coefficients are one of the main variables used in calibrating a hydraulic model. Generally, for a free flowing river, roughness decreases with increased stage and flow. However, if the banks of a river are rougher than the channel bottom (due to trees and brushes), then the composite n value will increase with increased stage. Sediment and debris can also play an important role in changing the roughness. More sediment and debris in a river will require the modeler to use higher n values in order to match observed water surfaces.

4.4.2.2 Sediment Transport Analysis (Quasi-unsteady flow analysis) [Second Module]

The outputs obtained from first module were to be applied in this module for calibration and testing of the model. Calibrated value of roughness parameter n from first module gave the idea of n and its relation with discharge and also its variation with distance. With slight processing the

calibrated set of Manning's n were fed into sediment module. In this module the whole study reach were taken as geometric data i.e. Cross-section-65 (Kobo) to cross-section -2 (Dhubri). Some intermediate cross-sections were linearly interpolated to assure stability to running of the module.

Other sediment data like representative bed gradation at each cross-section /sediment inflow at u/s locations as well as flow change locations were fed into the module. Flow series at u/s boundary and lateral flow series at internal boundaries as well as stage series at d/s is fed into the module. Simulation plans for varying sediment predictors as well as different time series were designated and executed and outputs were obtained. A detailed discussion on outputs will be done in the consecutive chapter.

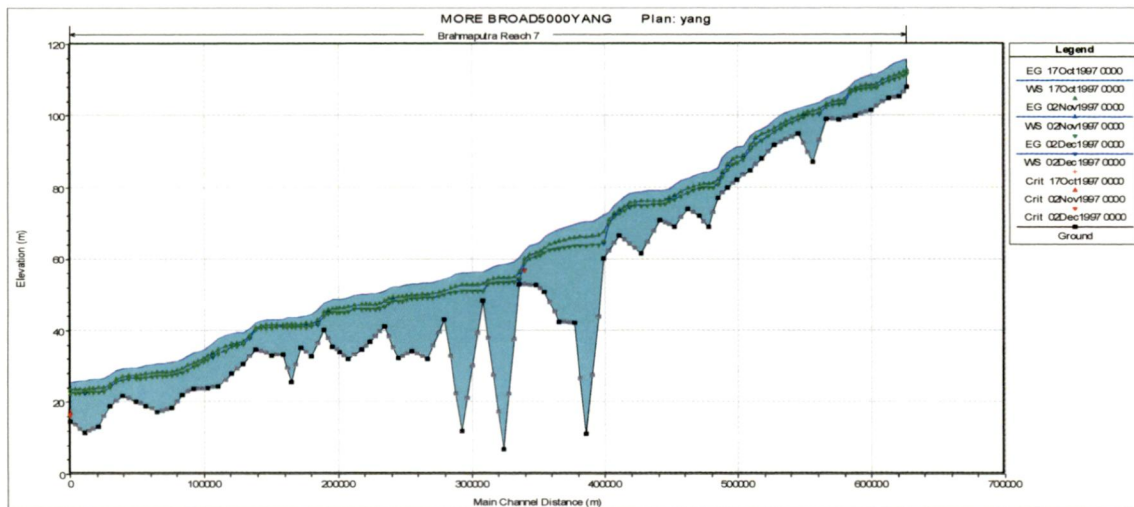


Fig: 4.8 Sediment Transport Analyses and Prediction of Bed Profile for October 1997 (C/s-2 to C/s-65)

A typical output of sediment transport module has been shown in Fig: 4.11. Where thalweg profile of October, November & December 1997 has been predicted with 1993 base hydrographic data, using Yang sediment predictor and calibrated roughness parameter. Schematic Diagram of the methodology adopted is shown in Fig 4.8

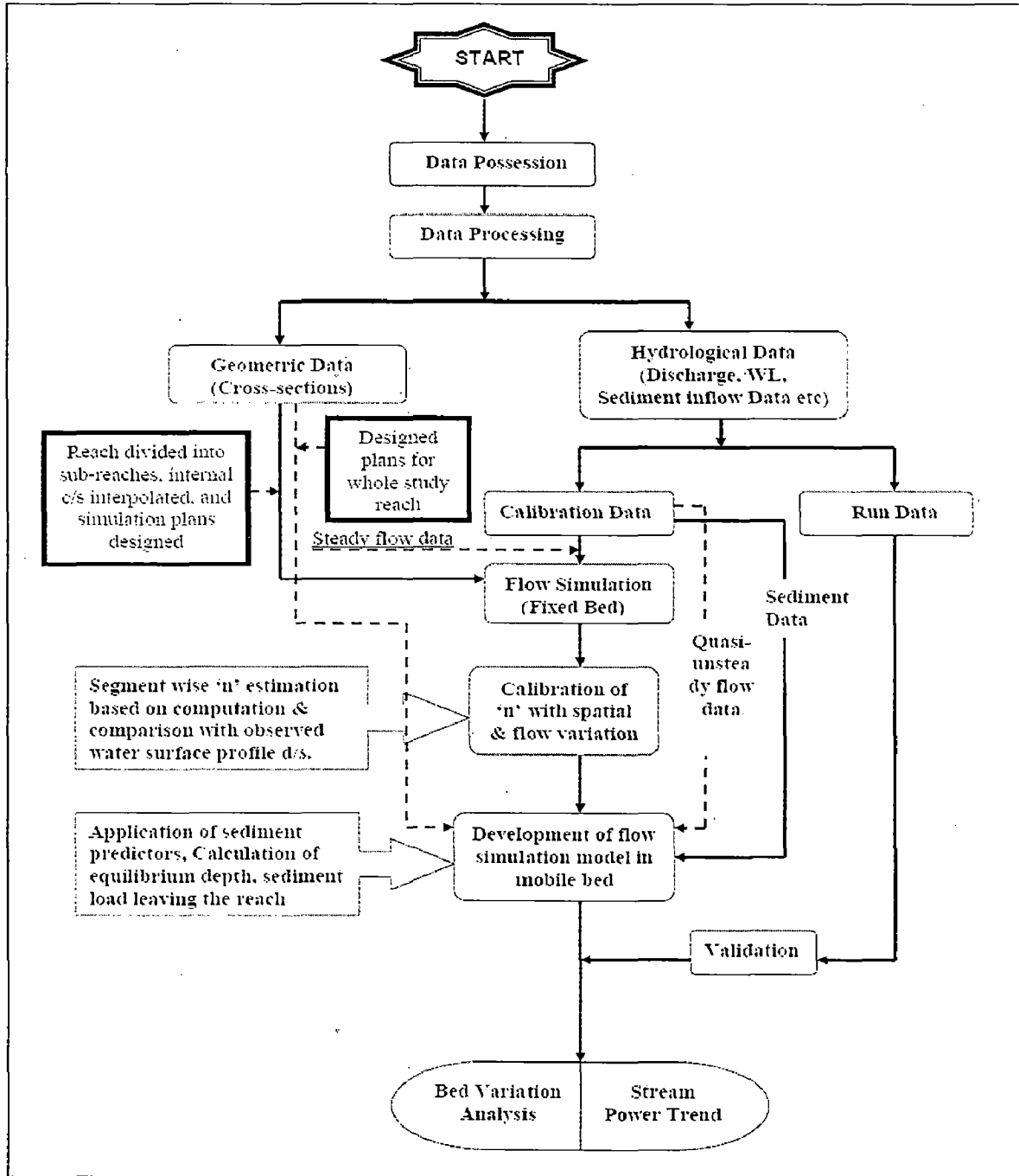


Fig: 4.8 Schematic Flow Chart of Adopted Methodology

CHAPTER-5

RESULTS AND DISCUSSIONS

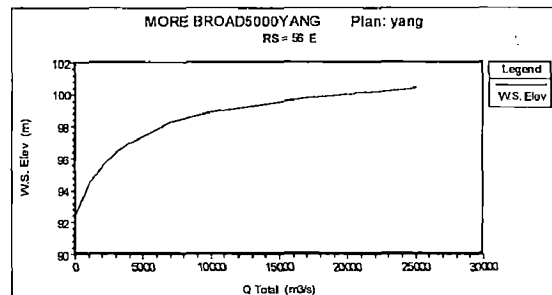
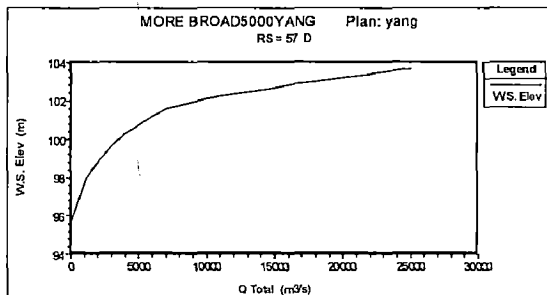
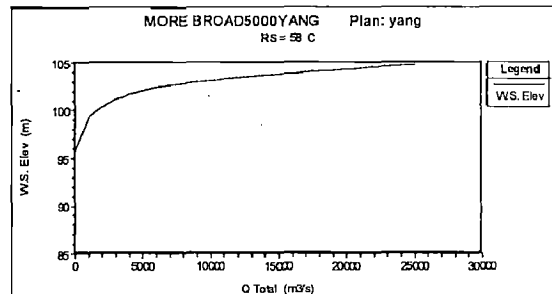
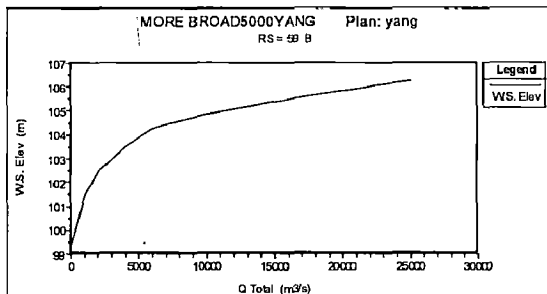
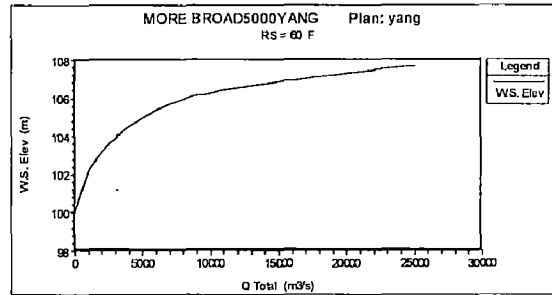
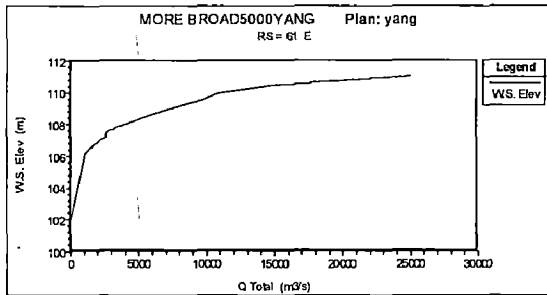
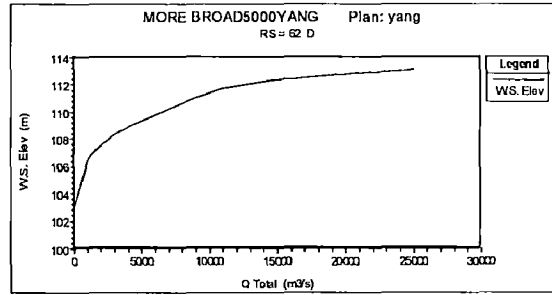
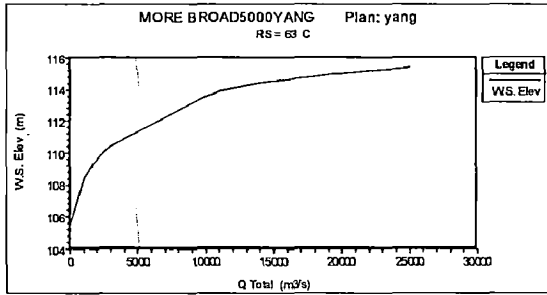
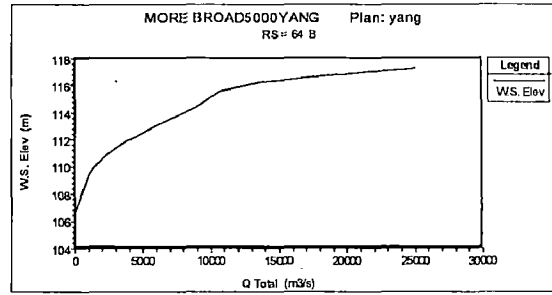
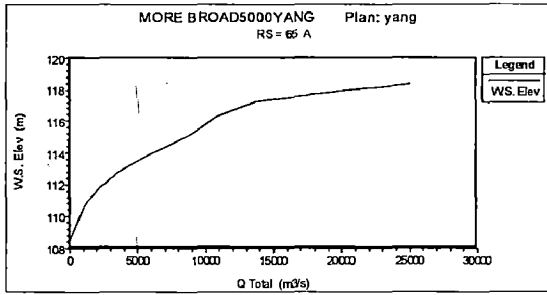
5.1 INTRODUCTION

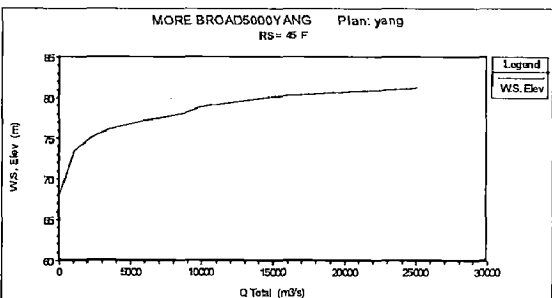
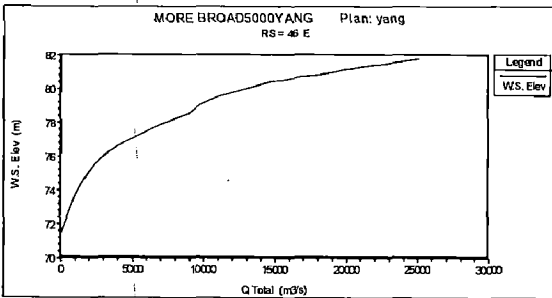
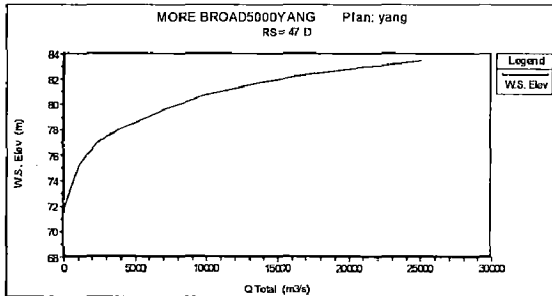
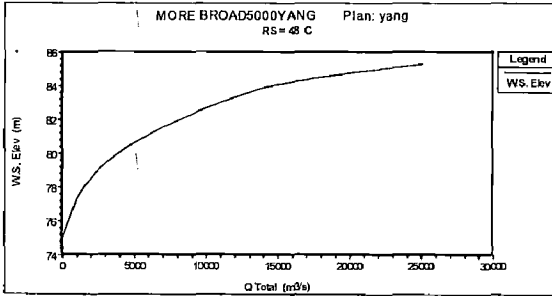
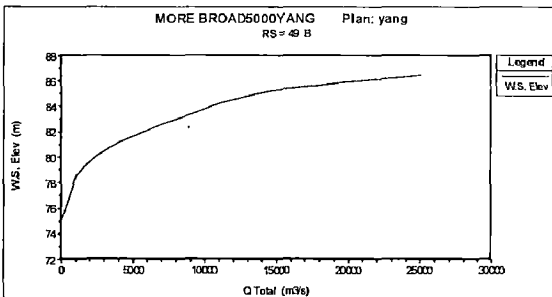
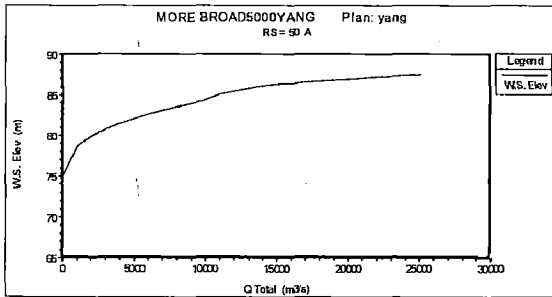
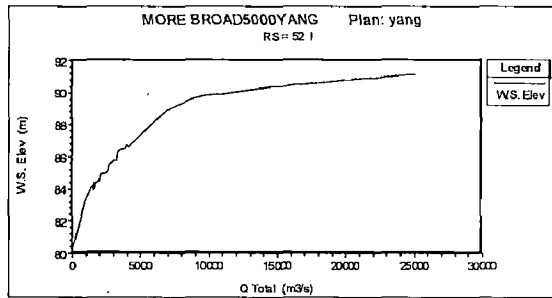
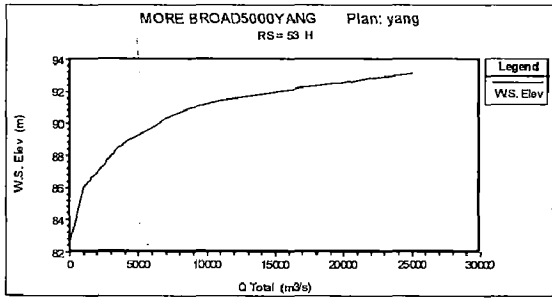
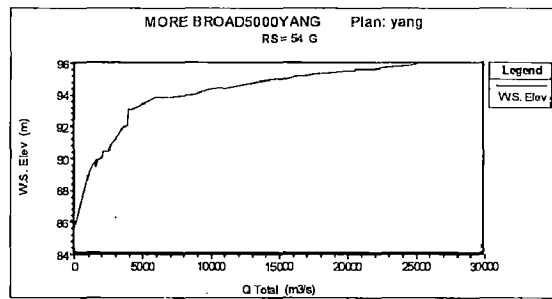
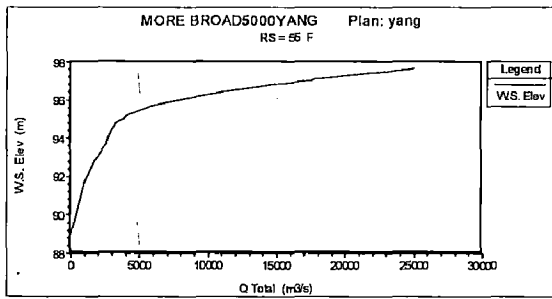
Flow simulation is done on the 1D mathematical model namely HEC-RAS in the study reach of Brahmaputra River to assess stream power, rating curves and consequently sediment transport analysis is done with application of various available sediment predictors to assess aggradations/degradations within the reach. Temporal unit stream power variations with correlation to slope variation are also dealt. The results obtained are discussed in detail herein after.

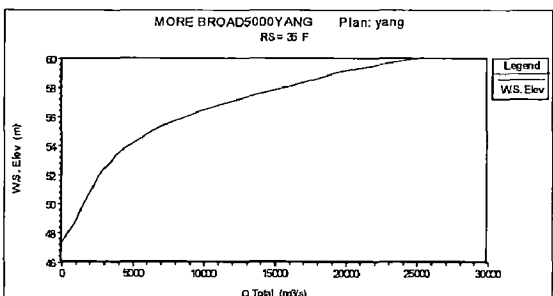
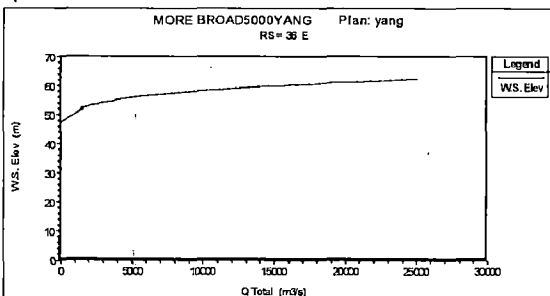
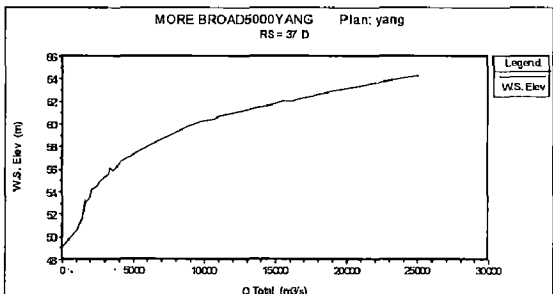
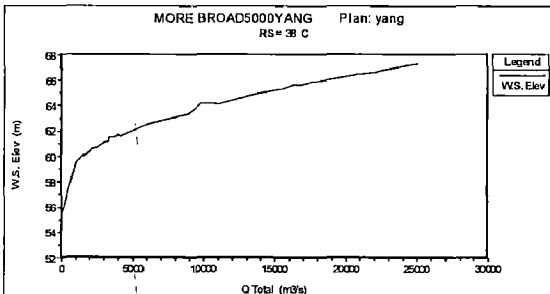
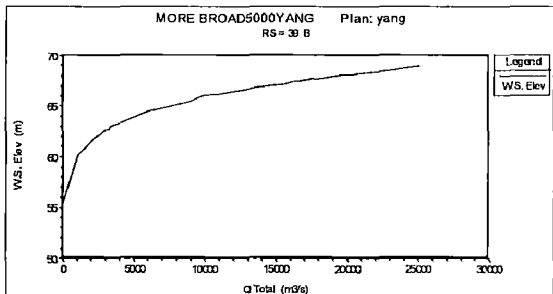
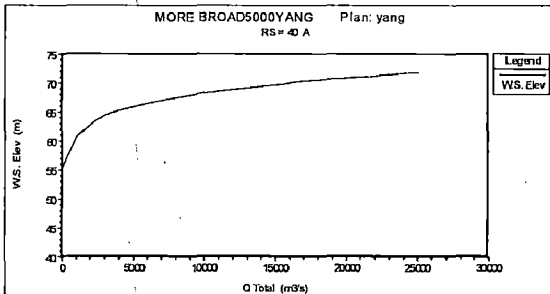
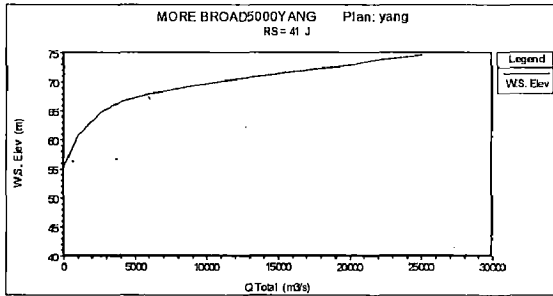
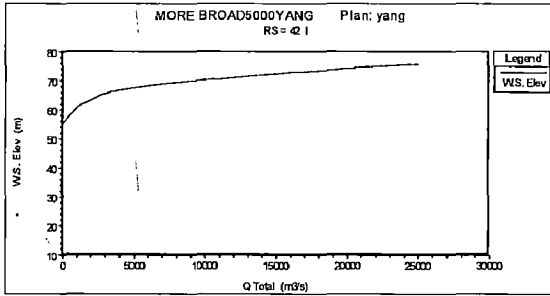
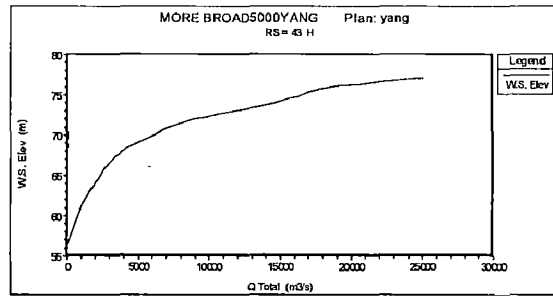
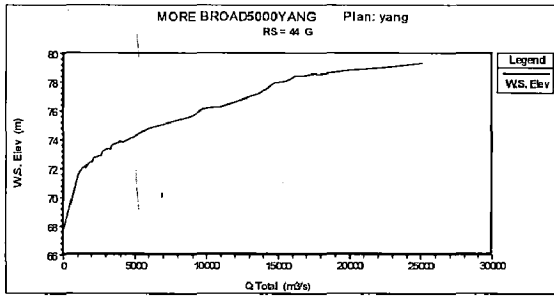
For channel stability Froude No. has been taken as the measure function. It is clear from the study that in alluvial stream, gravitational and inertial forces are more responsible for channel stability. The variation of Froude No. is discussed in the detail in following chapters.

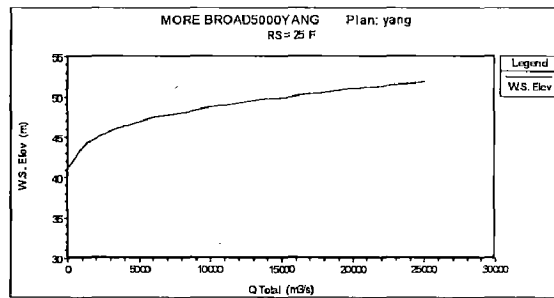
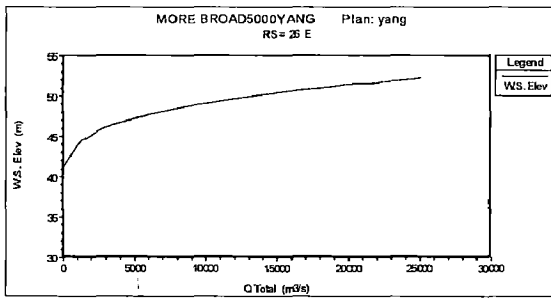
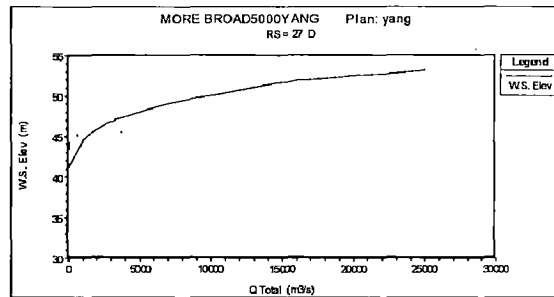
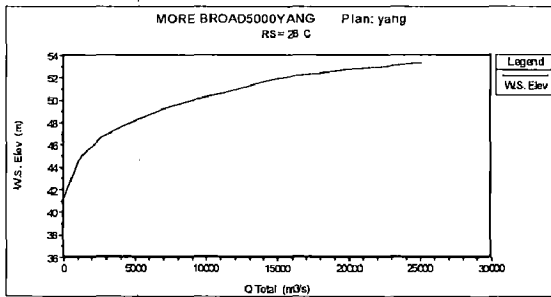
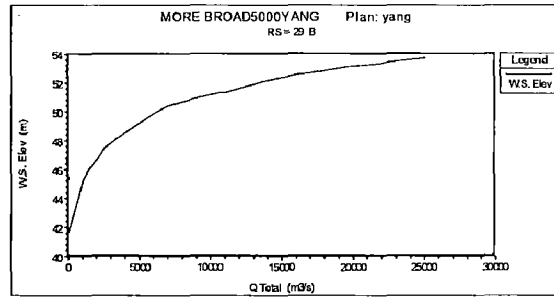
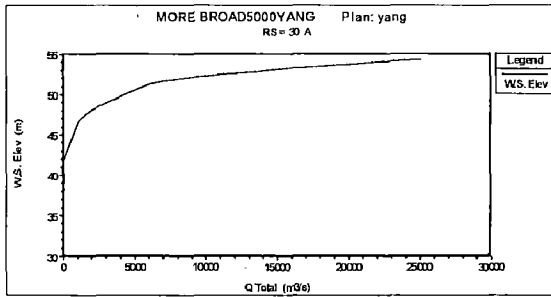
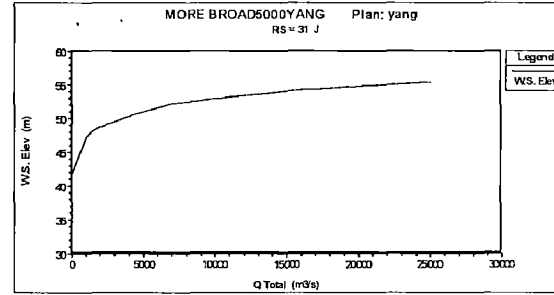
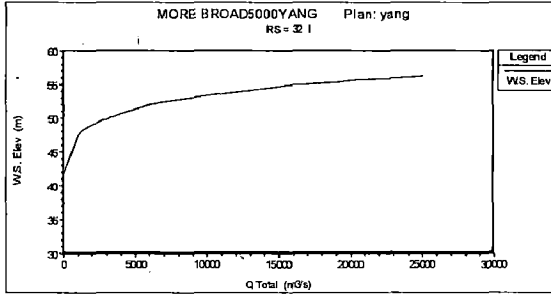
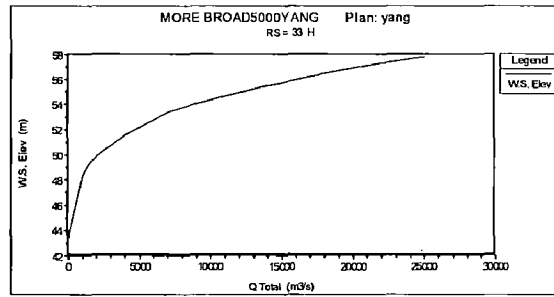
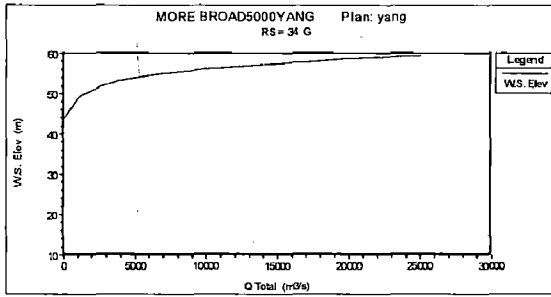
5.2 RATING CURVES

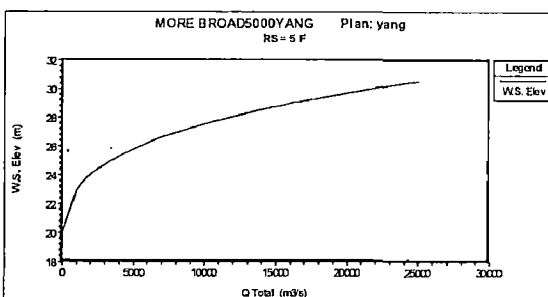
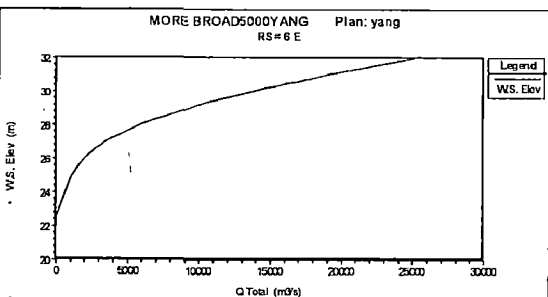
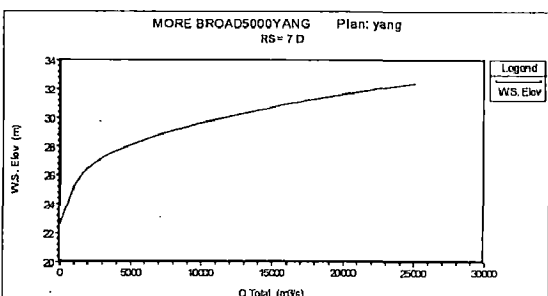
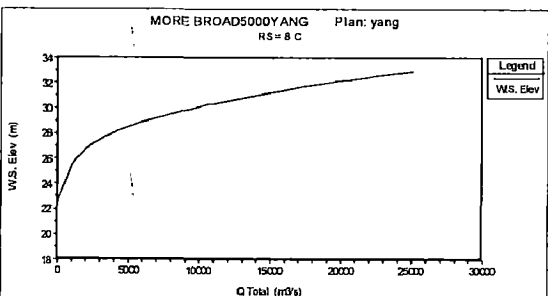
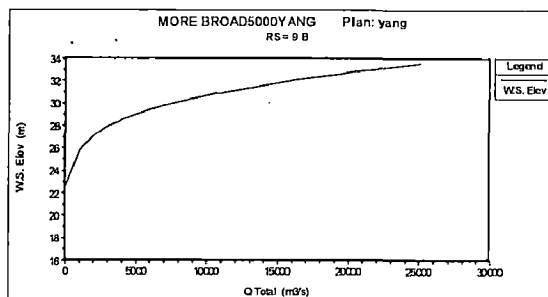
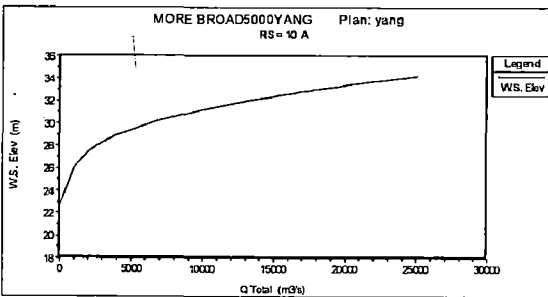
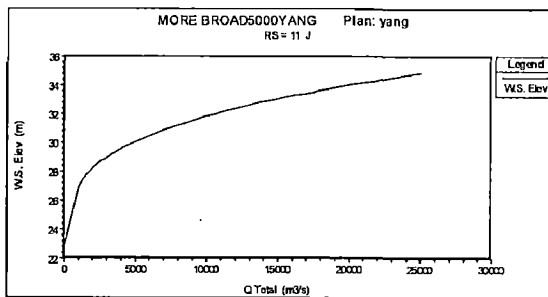
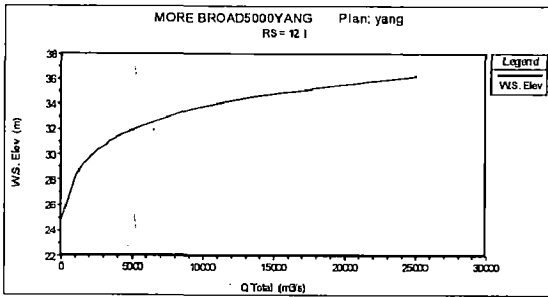
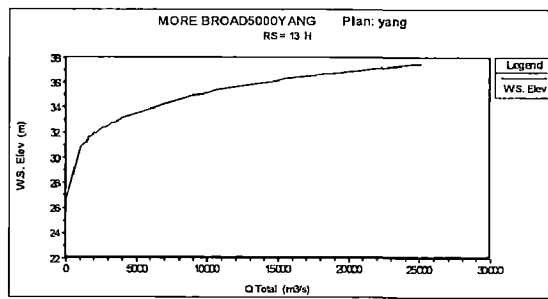
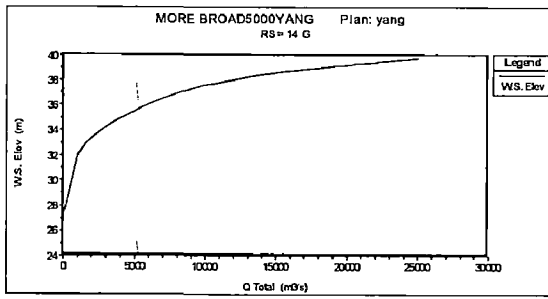
The rating curves are combined to get a total flow verses energy curve for the entire crossing. A new upstream energy guess is based on entering this curve with the total flow and interpolating energy. The mean computed energy in to the upstream cross section and computes a corresponding water surface for the entire cross section. This mean energy and water surface are reported as the final solution at the upstream section. Here obtained plots show computed energies and water surfaces for each opening through the cross section. Basically the rating curve plotted here are single valued rating curves which is a monotonic function of stage and flow, Example of such type curve is steady, uniform flow rating curve. The single valued rating curve can be used to accurately describe the stage-flow relationship. Rating curves at each cross section are simulated as follows; these are having ordinates as water surface elevation (y-axis) & total discharge in channel (x- axis (m^3/sec)). These rating curves show the variation of discharge and change in probable w/s profile within the reach in the simulated period from October 1997 to September 2001.











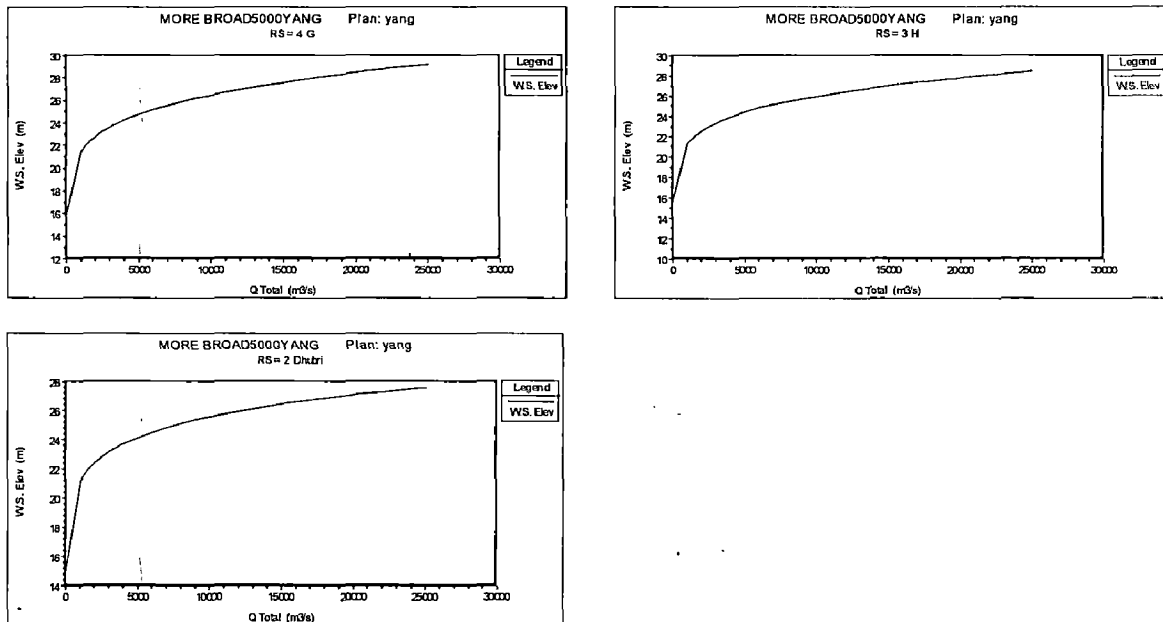


Fig: 5.1 showing variations total flow v/s water surface elevation

5.3 Variation of Froude No. & channels stability

Rivers adjust towards an equilibrium condition, the stability of which depends upon a set of controlling factors expressed by the Froude number. As alluvial river channels approach stable conditions, the Froude number of the channel flow will tend to attain a minimum value which reflects minimum bed material motion and maximum channel stability, under the constraints imposed by water discharge, sediment load, and particle size. Computer simulations for sand bed rivers show that the Froude number of the flow tends to a minimum value when the equilibrium river tends to a certain hydraulic geometry. Evidence from alluvial sand material rivers and stable canals shows that this simulated hydraulic geometry with minimum Froude number corresponds to the natural equilibrium state.

The morphology of alluvial channels reflects a complex interaction among flow hydraulics, channel geometry, energy dissipation, and sediment transport. This relationship is at the heart of Mackin's [1948, p. 471] famous dictum that "a graded stream is one in which, over a period of years, slope is delicately adjusted to provide, with available discharge and prevailing channel characteristics, just the velocity required for the transportation of the load supplied by the drainage basin." The many mutually dependent variables range over wide spatial and temporal scales in fluvial systems, however, and this variability has forestalled

any comprehensive or deterministic predictions of how hydraulics, sediment transport, and channel morphology adjust to changes in driving variables [Schumm and Licity, 1965; Slingerland, 1981]. For example, as flow velocity increases, bed forms in sand channels typically undergo a transition from plane bed to dunes to antidunes, with concurrent changes in the free surface from flat to ripples to standing waves. Much less understood is the relation among flow hydraulics, bed forms, and channel morphology in steeper, coarser-grained channels, such as mountain streams, which commonly display a diverse array of bed forms (e.g., transverse ribs in gravel channels, step-pools in boulder-bed streams) and complex hydraulic phenomena (e.g., breaking standing waves, hydraulic jumps). Differences in the abundance of these hydraulic and bed form features form the basis for many of the proposed channel classification schemes for steep channels [i.e., Grant et al. 1990; Richards and Clifford, 1991; Montgomery and Buffington, 1993]. But no comprehensive theory yet exists to link flow hydraulics and bed forms across a range of channel types, bed material, and slopes.

Interactions between the water surface and bed forms are proposed to maintain competent flows in mobile channels to $F \leq 1$. Competent, high-gradient streams with beds ranging from sand to boulders typically achieve an equilibrium adjustment between the flow, sediment transport, and channel morphology at or near critical flow. Under this unique hydraulic condition the maximum amount of water can be transmitted downstream for the available energy, and the tendency for flow acceleration is balanced by development of bed forms and flow structures that offset that tendency by dissipating flow energy. The adjustment to a critical flow threshold is a dynamic one, involving feedbacks between the free surface, bed configuration, flow resistance, and the sediment transport rate. In sand bed channels this dynamic equilibrium generates pulsating flow with a concomitant non uniform and unsteady flow field. In coarser-grained systems this oscillatory flow pattern is suppressed somewhat by the lower bed load transport rates, more chaotic structure of both the bed and the flow, and the importance of particle interactions; that is, collisions, imbrication, and lodging of very large particles influence the bed forms. The hypothesis that high-gradient streams adjust their hydraulics according to a common principle deserves further empirical and laboratory testing. If validated, it offers a simple, useful means of predicting flow hydraulics in mountain streams.

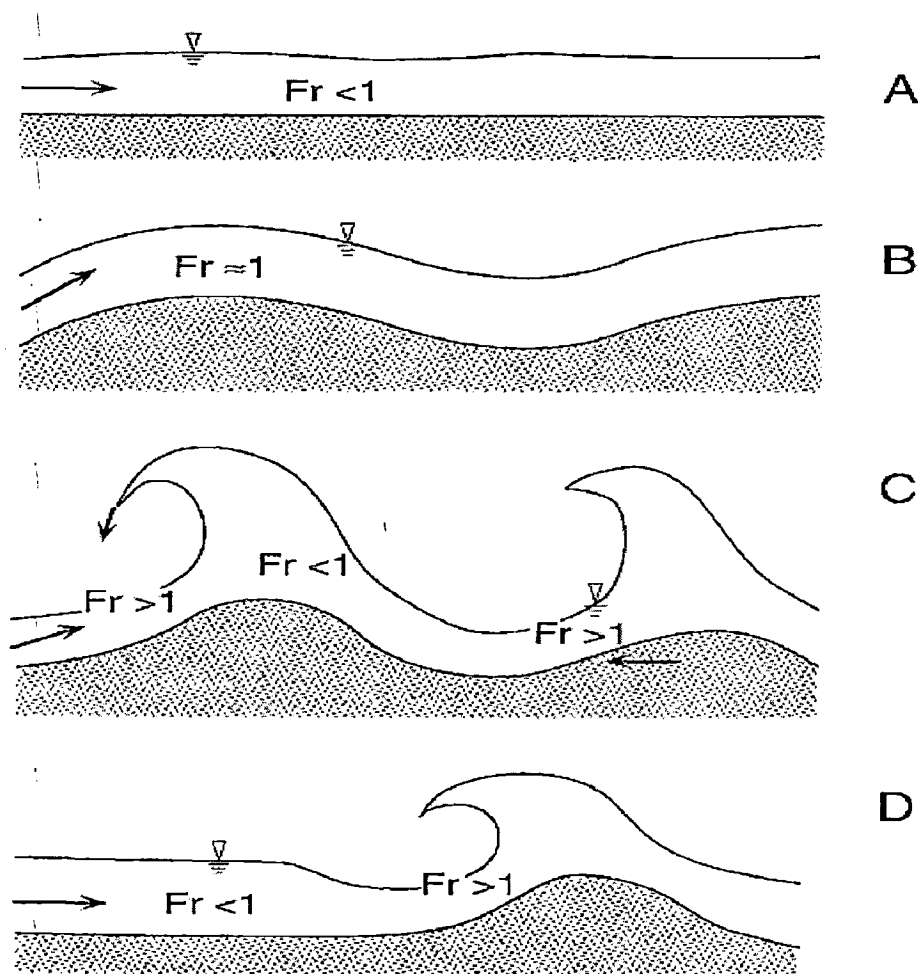
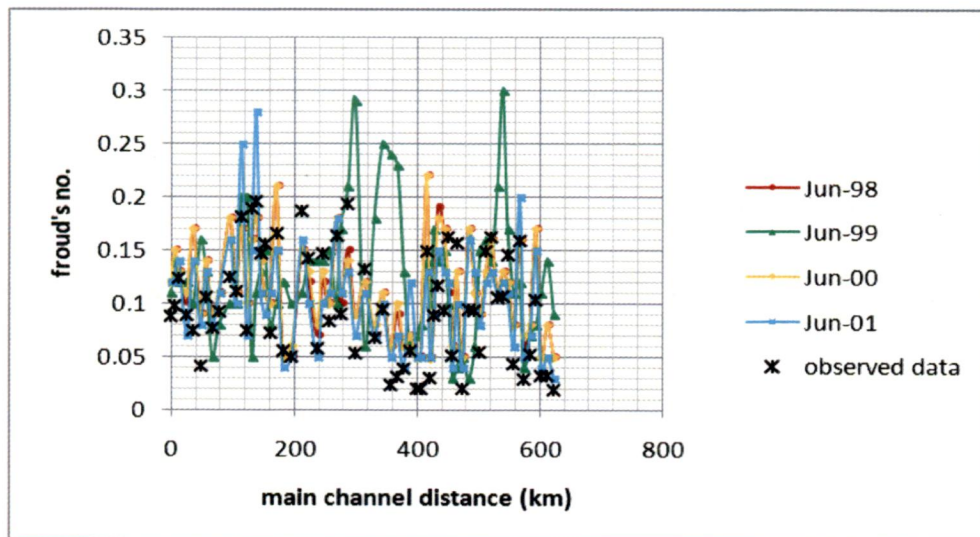
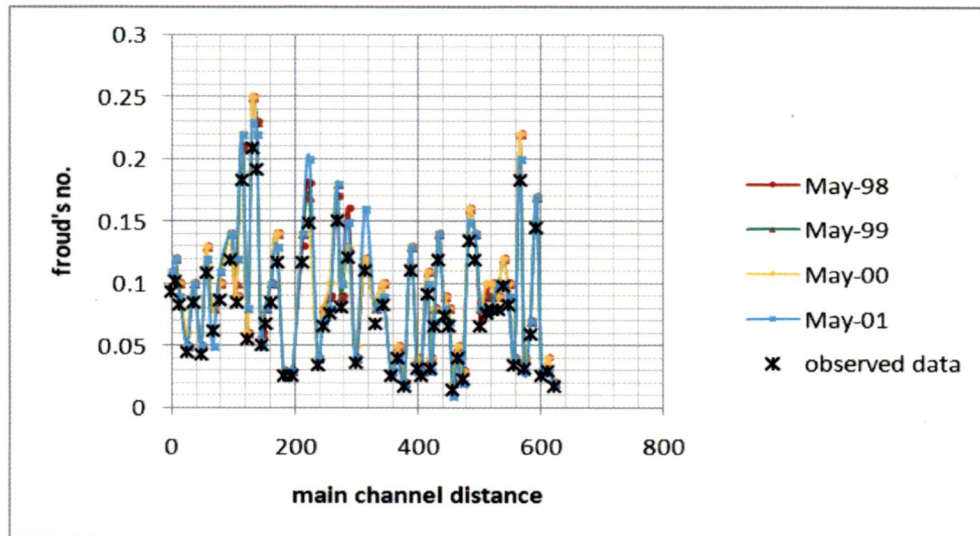


Fig: 5.2 cyclic sequences of surface wave and bed form deformation in sand-bed channels near critical flow. (a) Plane bed, subcritical flow. (b) Building antidunes, approximately critical flow. (c) Breaking antidunes flow both subcritical and supercritical. Note that upstream migration of antidunes into wave trough induces hydraulic jump formation, causing standing wave to break. (d) Upstream wave has broken, downstream wave is about to break.

Following plots show the variations of Froude No. With respect to the main channel distance, literatures also give the validation to the hypothesis that the stability of the alluvial streams varies with variation in Froude No. Theoretically it is also true that if $F \geq 1$ the flow will be more turbulent, more sediment movement will cause more instability to the channel & it will be highly unstable. Above figure clearly certifies that if the value of Froude No. is in between 0 & 1 the sediment starts settling down, aggradation process starts rapidly & channel reaches to the stable condition.

Following figure are plot between spatially varied Froude No. With main channel distance in May, June, July, August & September as the process of aggradation and degradation are more critical to these months. A comparison is also made between plots simulated by two different sediment functions Yang & Ackers-White. The simulated plots are shown as follows:



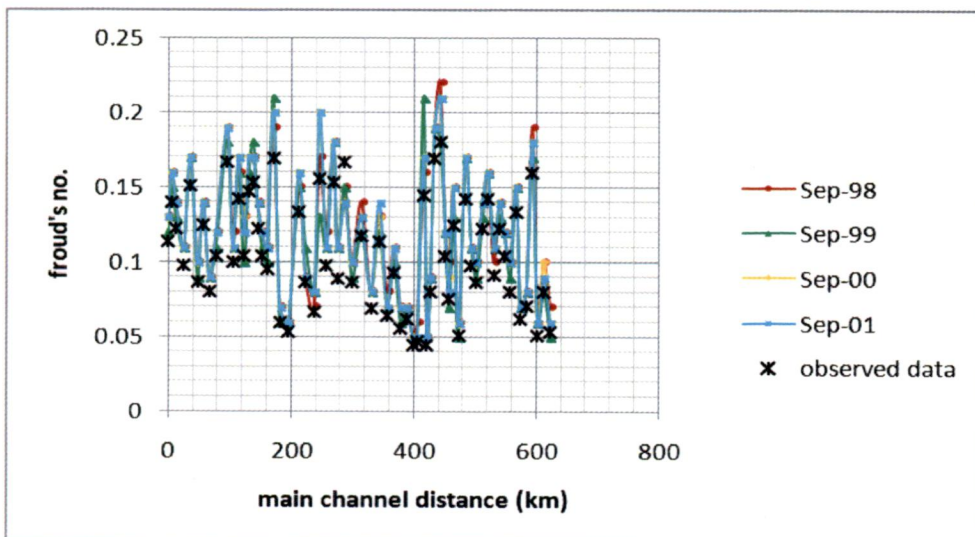
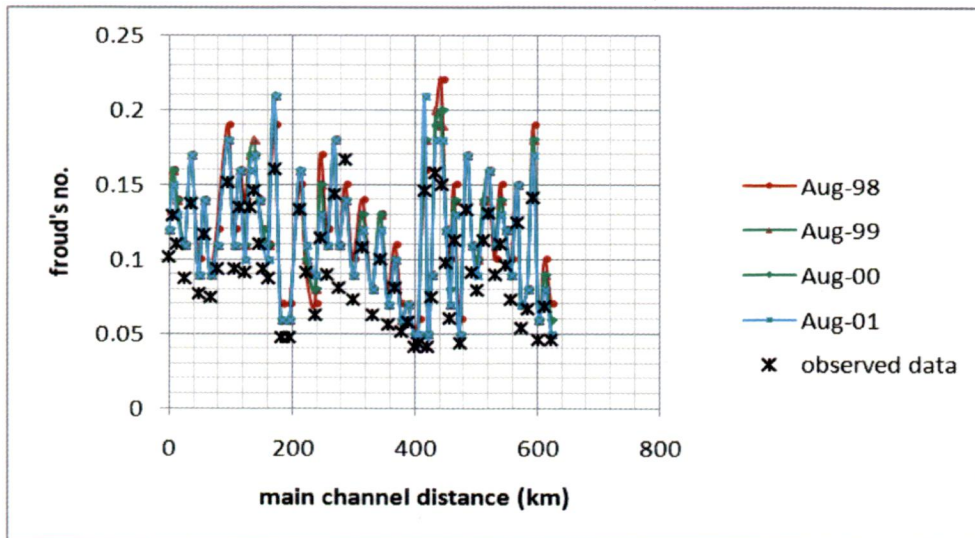
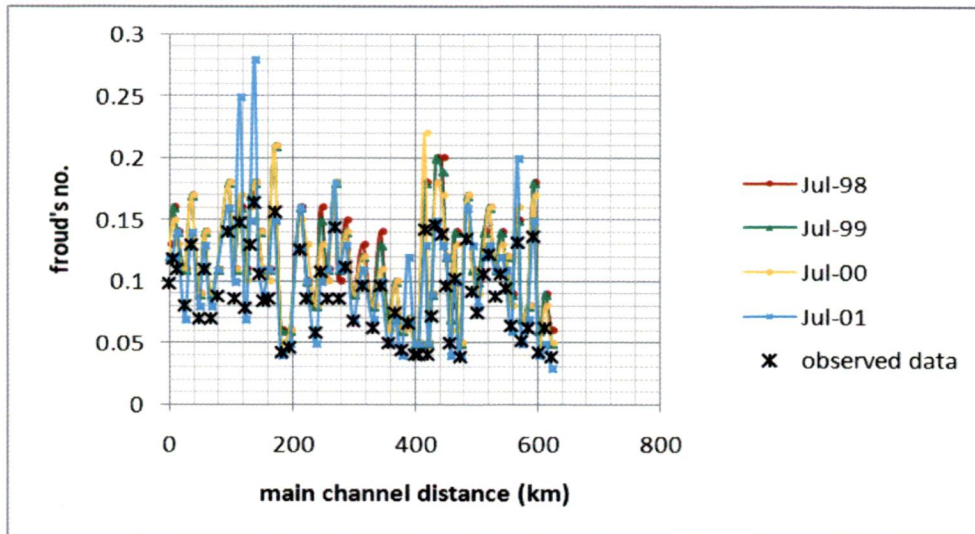
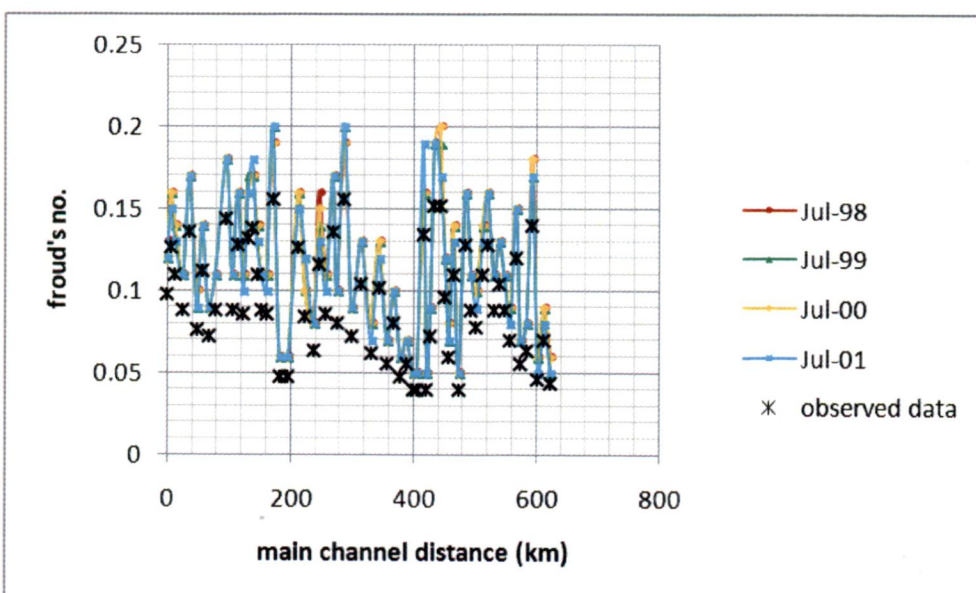
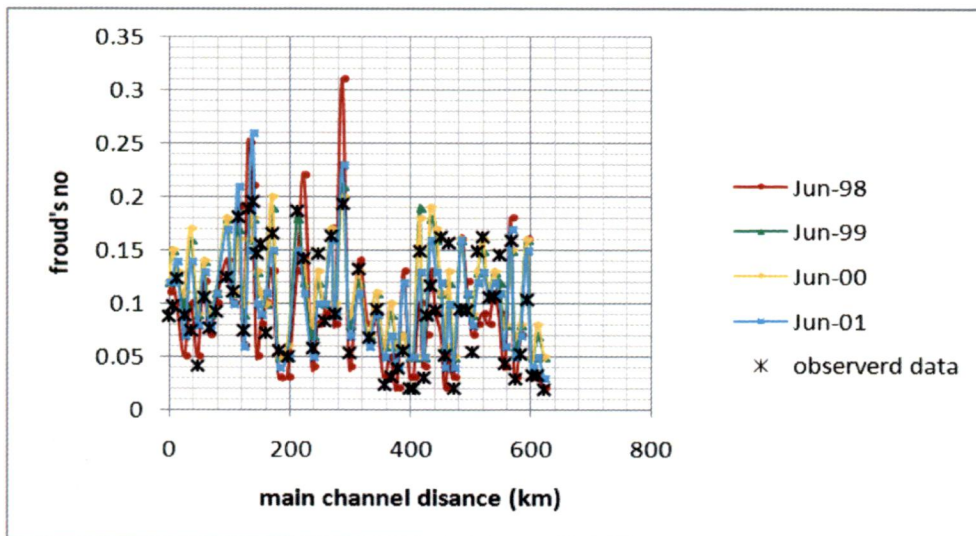
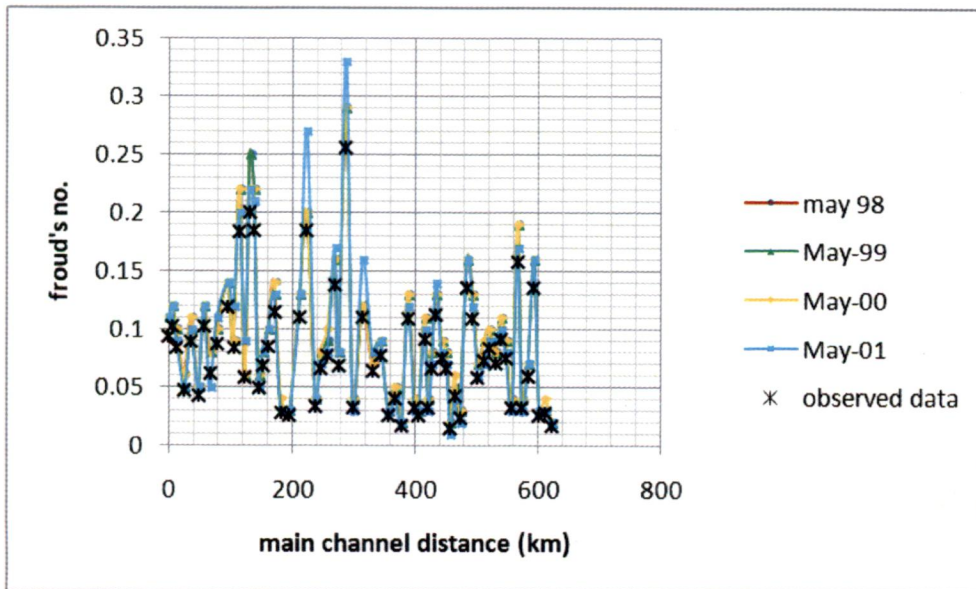


Fig: 5.3 Froude No v/s main channel distance for all reaches using Yang sediment function



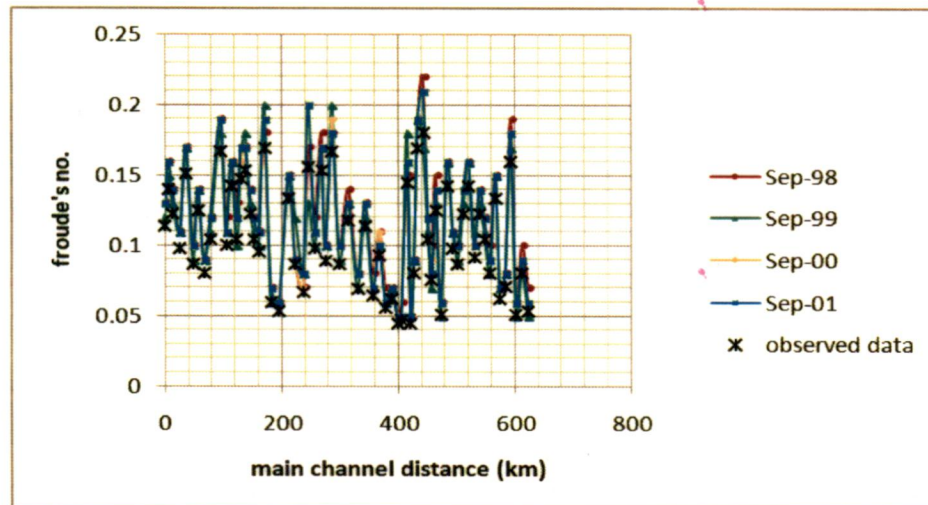
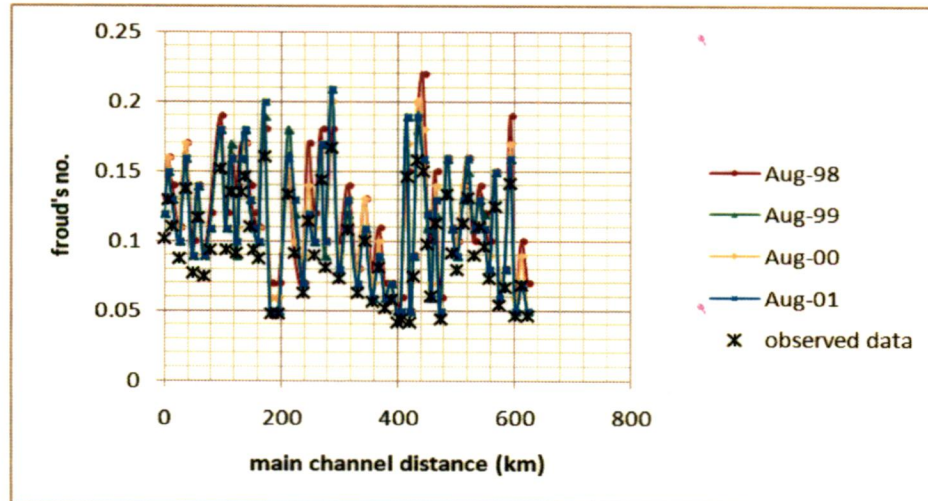


Fig: 5.4 Froude No v/s main channel distance for all reaches using Ackers-White sediment function

Froude No. shows a sinusoidal trend. Fig 5.3 & 5.4 depicts that Froude's no is as high as 0.33 (c/s 37 may 2001). The values for all the cross sections (c/s-65 to c/s-2) are by a large more than 0.02. These values are very encouraging as field data provides information regarding these sub reaches to be highly irregular rock outcrops. As one analyzes the table 5.1 with Fig 5.3 & 5.4 one can see that the lowest values of Froude No. nowhere shown in the month of May when the discharge was lowest. Similarly highest Froude No. was shown for all cross sections is in months of July & August. It implies that the reach under study is highly prone to bed form changes and its contributes a significant part of overall roughness of the reach and ultimately effects the water surface profile of the river Brahmaputra significantly and

thereby stage discharge constitution at each section. In all above plots it is clear that from most u/s sections (c/s 65 to c/s 2) Froude No. overall decreasing which results those channel is in attaining regime condition. At some places (c/s 26 to c/s 13) Froude No. shows much variation from mean value which means that flow is not uniform & bed formation is present there.

5.4 VARIATION OF UNIT STREAM POWER

The flow hydraulic parameters of an open channel flow such as hydraulic mean depth, wetted perimeter, flow area, slopes and the hydrological parameter discharge and the physical properties, $\gamma (= \rho g)$ of the fluid (water) are related to express the unit stream power of the flow at a point along the direction of flow (Chang, 1979; Yang and Wan 1991).

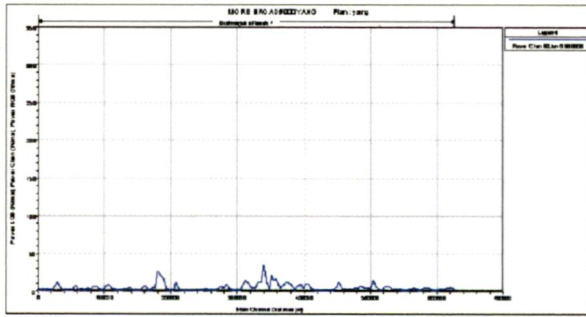
$$\text{Unit Stream Power, } \Omega = (\gamma Q.S/w) \quad (5.3)$$

Where γ is the specific weight of water, Q the discharge, S the slope and w the channel width. It must be emphasized that a right combination of these three parameters would give rise to the requisite stream power to erode the river bed and produce incised channels. The unit stream power of a flow quantifies the kinetic energy of the flow encapsulated in the mass of the fluid. The discharge and the slopes in the Eq: (5.3) are directly proportional to the Stream Power (Yang and Wan, 1991). The magnitude of unit stream power is one of the deterministic parameters of erosion of the bed and banks of a stream. The unit stream power is the function of location of the section in the river reach and slope has very significant contribution in the unit stream power. It has been found relevant to correlate the temporal changes in the slopes of the river Brahmaputra in different reaches of the study stretch and the unit stream power to explain the aggradation process of the lower reach.

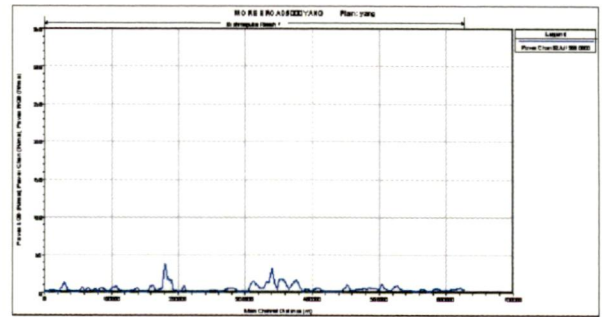
If one analyze following Figures minutely, one can perceive a considerable variation in unit stream power as one move from cross section-2 to cross section-65.

It is striking to note that the unit stream power of the Reach Station -37 (reach 4) of the study stretch is significantly higher than that of all other stations. Here a negative feedback of sediment supply (due to off- monsoon season, low sediment supply) and a positive feedback of unit stream power (Sinha, 2005) (higher values of unit stream power) are causing erosion at c/s -37. This is also supported by the model results of degradation at c/s-37.

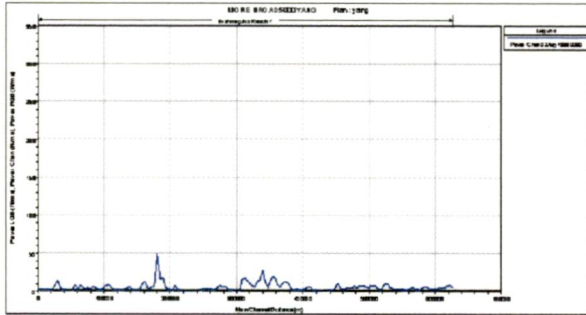
Following figures shows the variation of the stream power variation in all the reach with respect to the main channel distance.



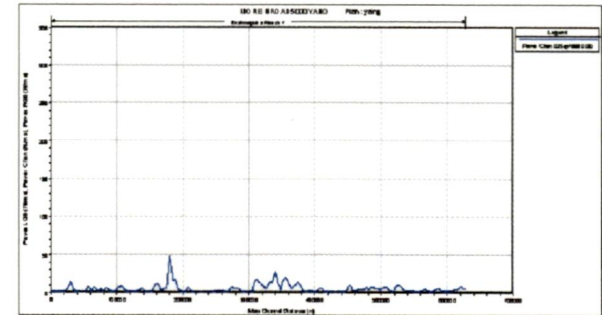
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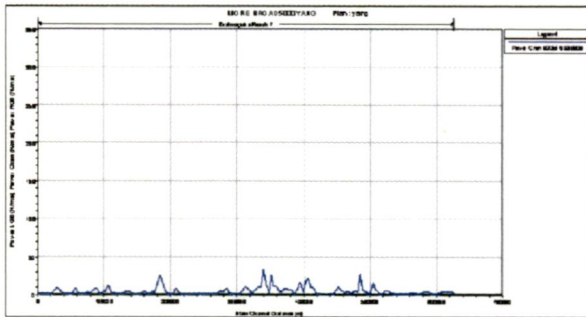
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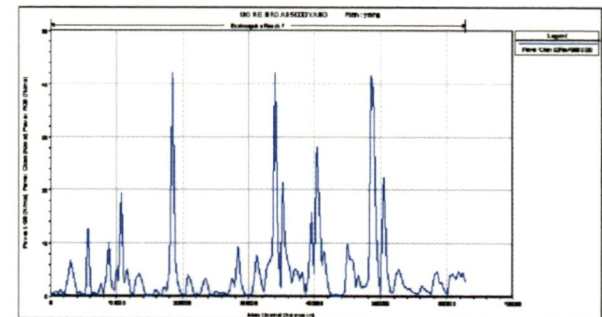
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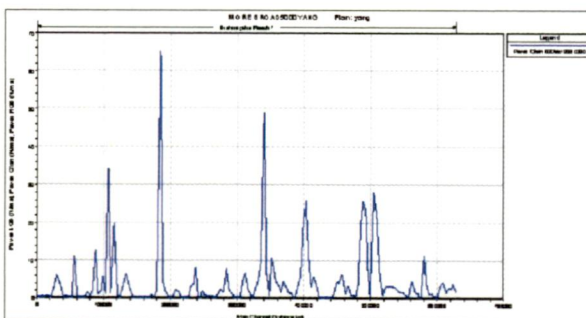
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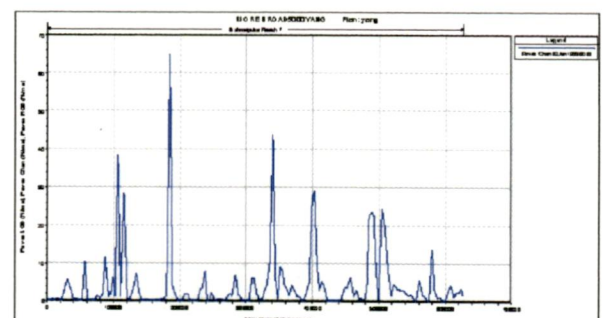
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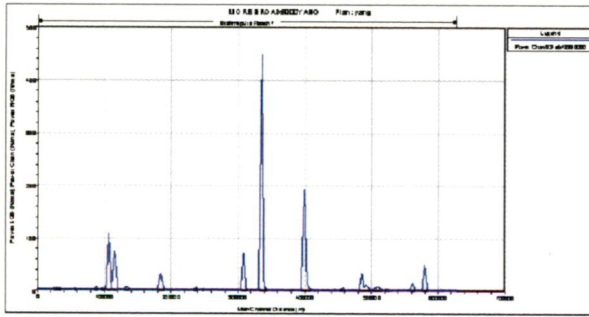
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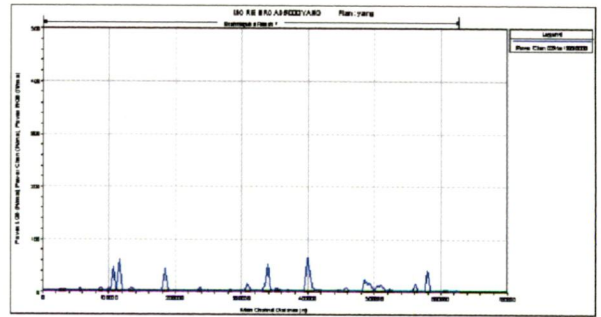
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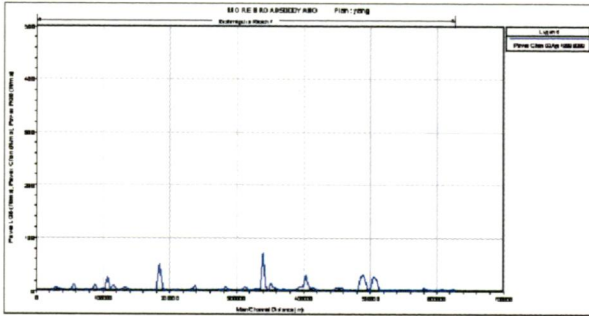
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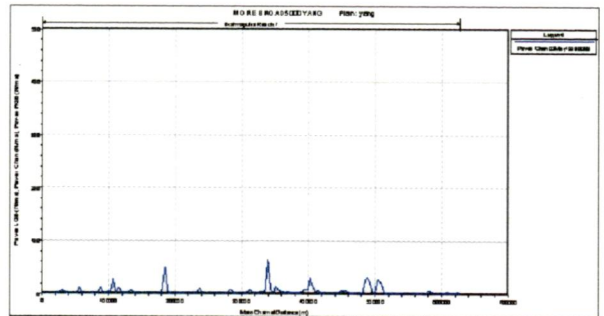
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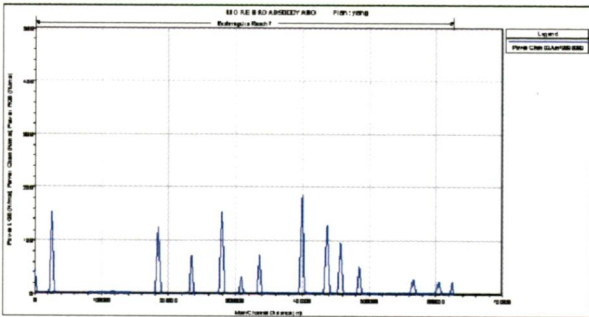
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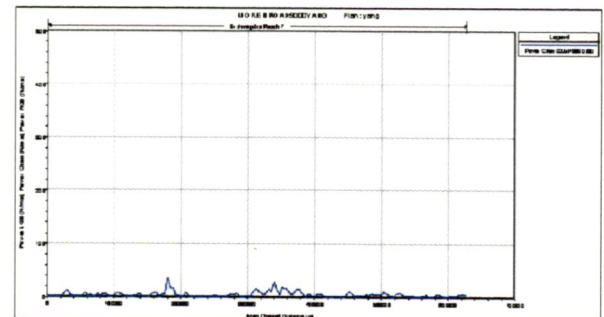
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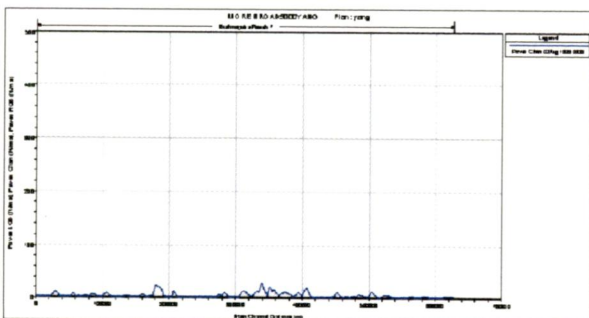
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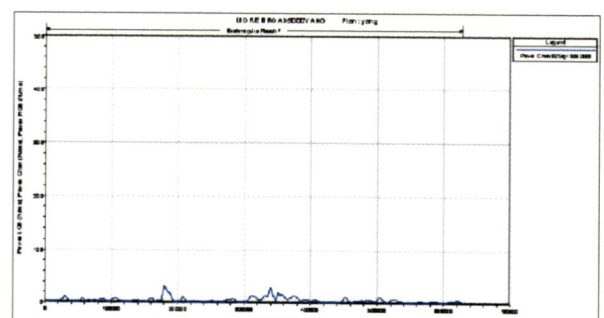
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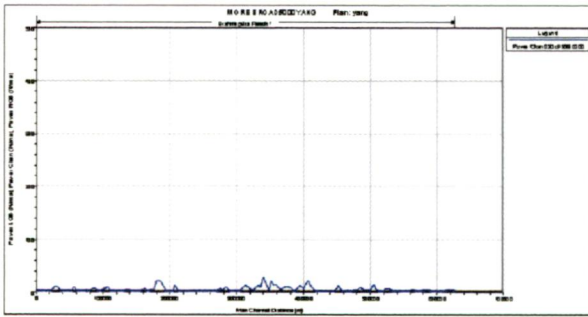
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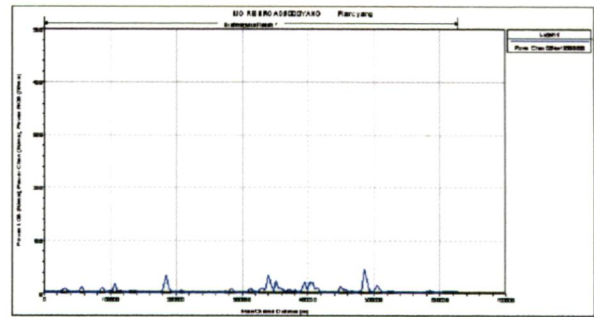
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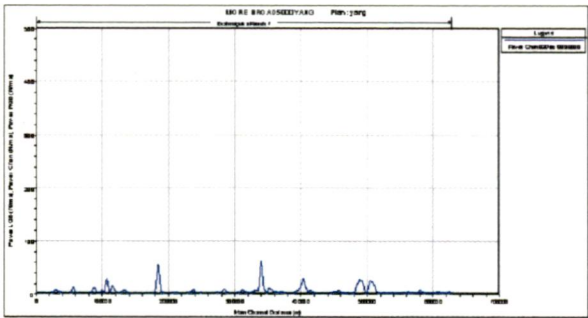
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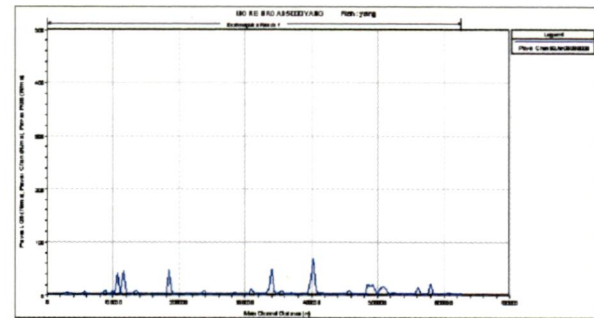
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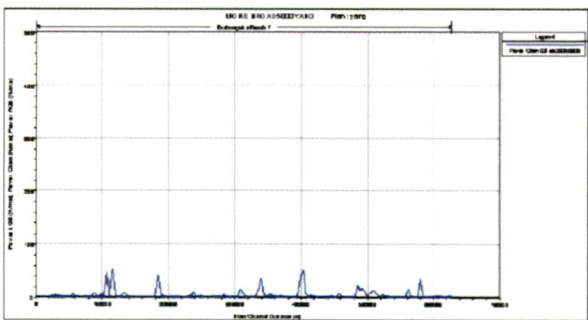
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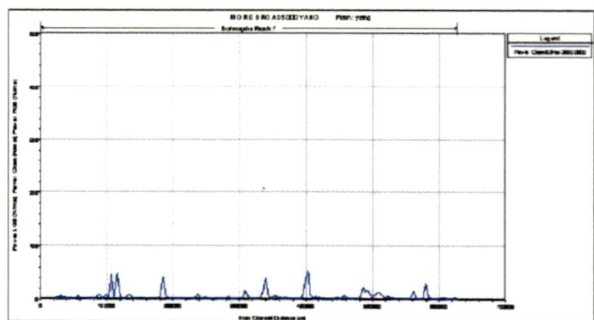
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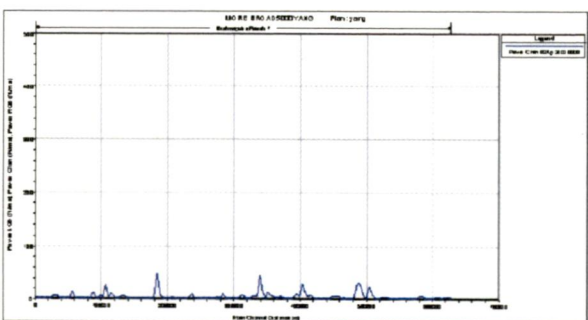
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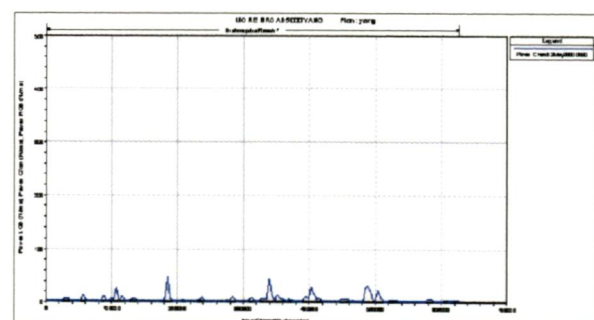
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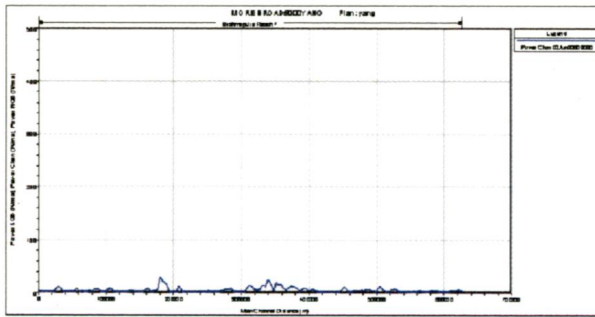
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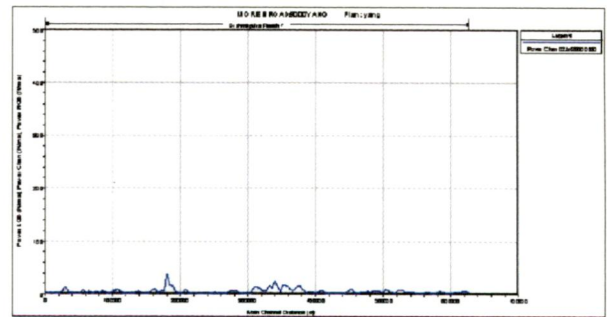
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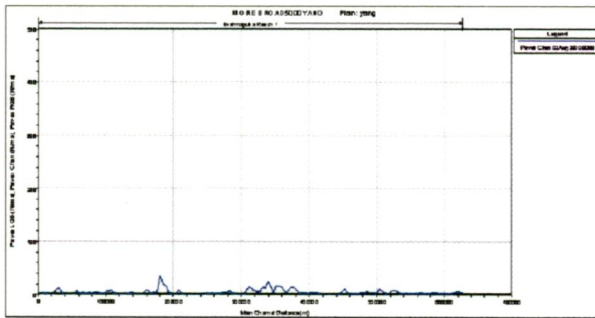
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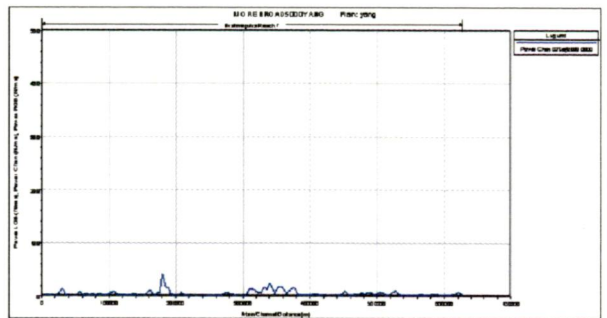
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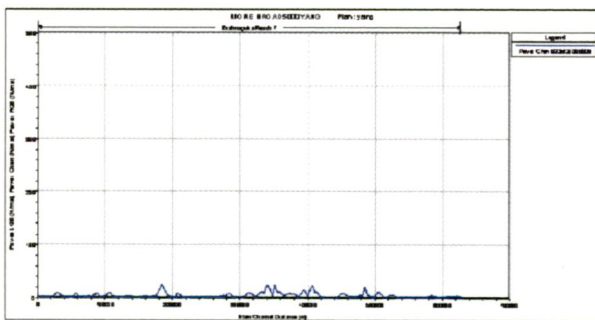
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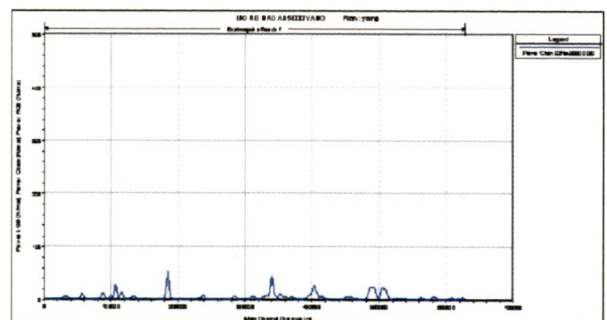
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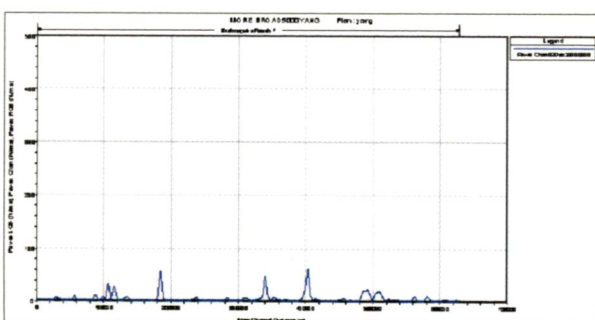
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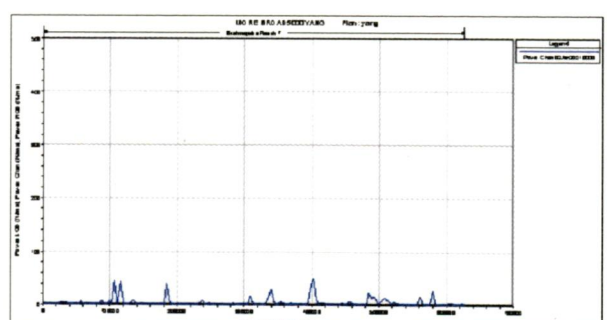
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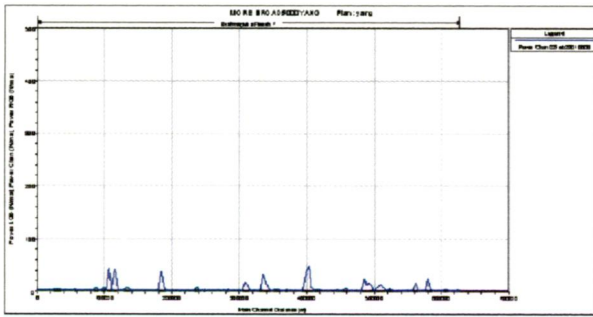
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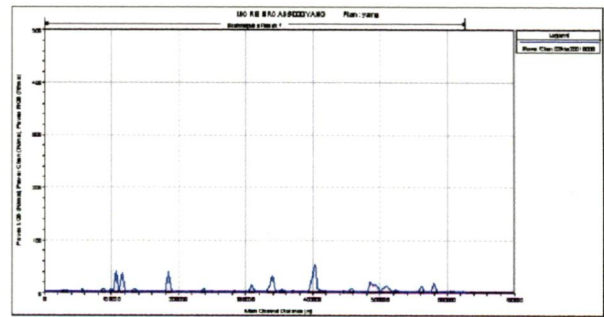
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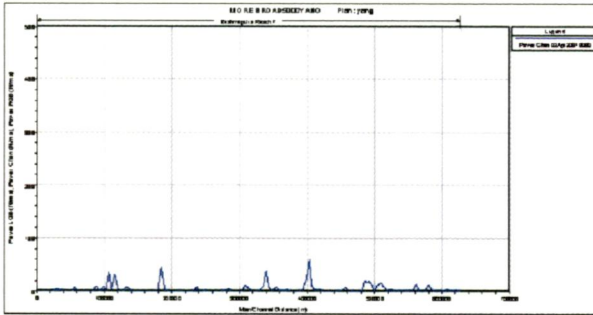
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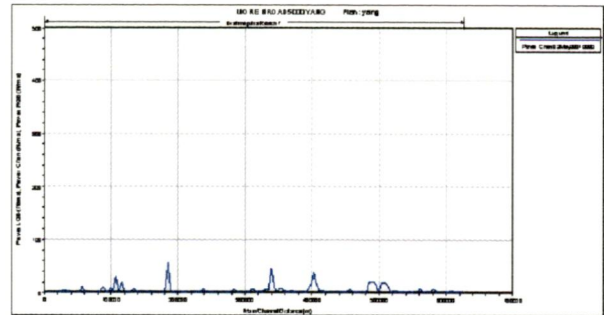
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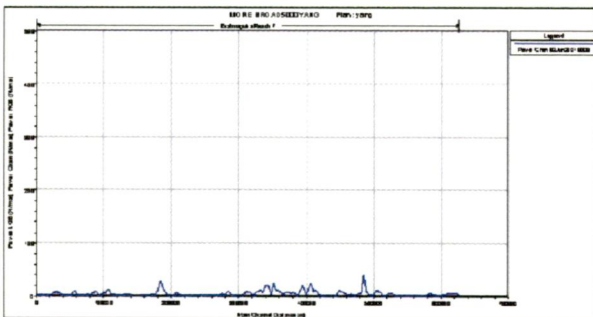
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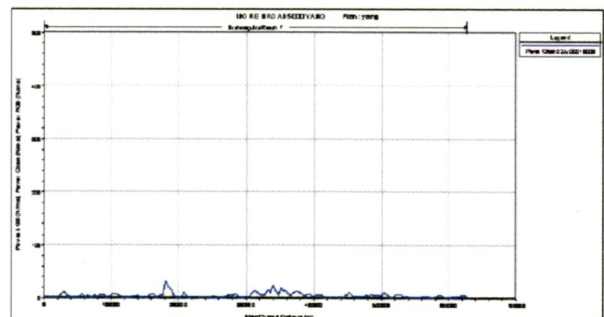
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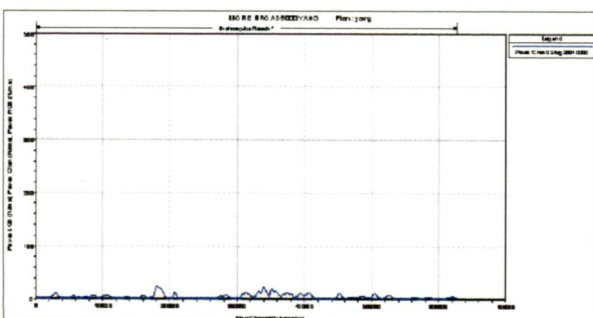
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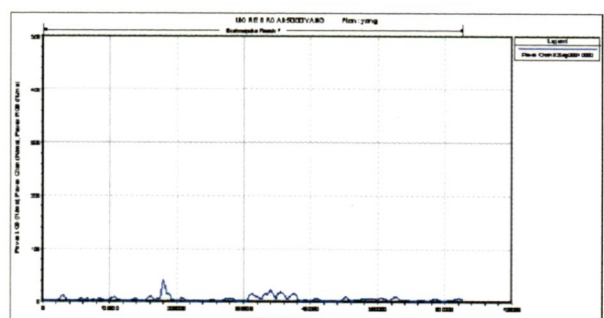
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Jul 01



Aug 01



Sept 01

Fig: 5.5 Simulated stream powers from October 1997 to September 2001

By observing above stream power plots at various cross sections in period October 1997 to September 2001 it is an obvious query that why stream power is very high in post monsoon

seasons i.e. November to February. The clarification is given by the HEC RAS 4.0 software itself that the basis of calculation of stream power is basically stream power per unit width.

So if the flow width in the channel is less than it will result in to the very high value of stream power. It can be easily understand by the following figure. Following diagram shows the flow width at the cross section 37 where the stream power is very high in post monsoon season as compare to the monsoon season.

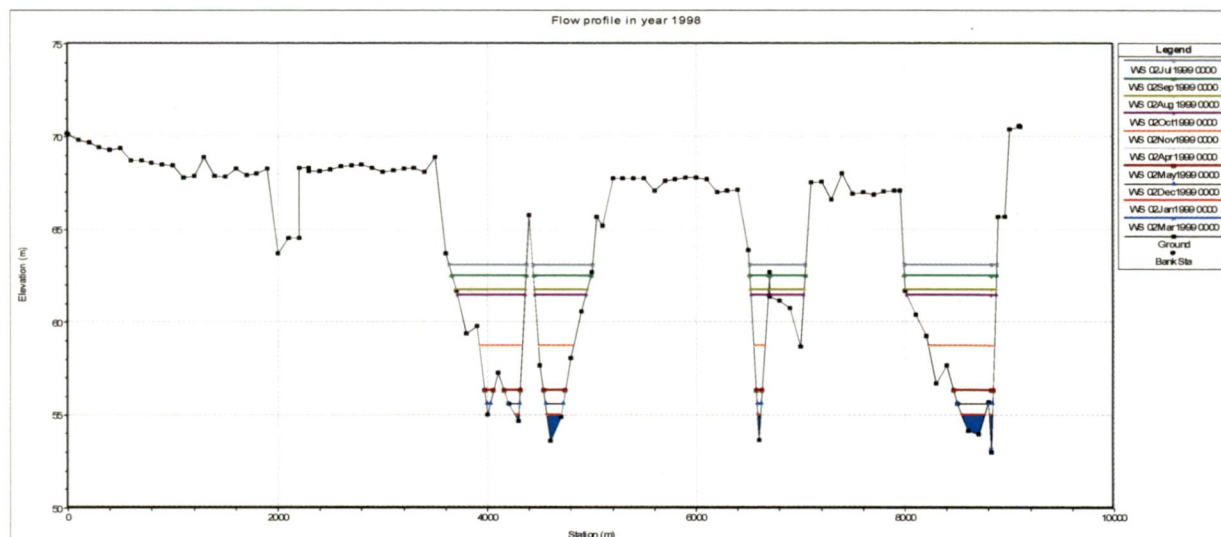


Fig: 5.6 Flow in cross section in year 1998

For above cross section available data's are:

Table 5.1 calculation procedure for unit stream power and total stream power

s.no.	month	Unit stream power N.s/m (per unit width)	Effective width of channel (m)	Total stream power
1	Jan 99	10.04	385.6	3871.424
2	Feb 99	447.73	299.25	133983.2
3	Mar 99	11.18	364.41	4074.104
4	Apr 99	5.75	680.66	3913.795
5	May 99	5.67	962.35	5456.525
6	Jun 99	74.89	1243.42	93119.72
7	Jul 99	11.65	2676.67	31183.21
8	Aug 99	9.97	2334.46	23274.57
9	Sept 99	11.17	2294.22	25626.44
10	Oct 99	9.54	534.5	5099.13
11	Nov 99	6.23	483.2	3010.336
12	Dec 99	6.11	374.3	2286.973

From above table it's clearly observed that in February the width of the cross section is narrowest and the value of the unit stream power is the highest.

Though total stream power follows the general trend i.e. highest in monsoon season & shows a decreasing trend. But the assessment of the aggradation and degradation can't be made on the basis of stream power only, as it is clear from above analysis that the stream power approach can't be applied for a highly braided river system like Brahmaputra.

5.5 SEDIMENT TRANSPORT ANALYSIS/BED VARIATION ANALYSIS

In the second module, designed roughness parameter along with various sediment parameters were selected and fed into the formulated quasi-unsteady flow model of HEC-RAS. Various input parameters like bed gradation for the study reach, sediment rating curve as boundary conditions at u/s and d/s boundary as well as flow change locations, gradation of suspended sediment were appropriately fed into the module as sediment data. Sediment transport parameters like transport functions, maximum erodible depth, fall velocity method, sorting method were appropriately selected. For this module maximum erodible depth is taken 5.0 meter wherever necessary. Those cross-sections where rock outcrops were reported maximum erodible depth was taken 0.0 meter. These are c/s-22, c/s-21, c/s-16 and c/s-9. Fall velocity method selected is Ruby and Exner is selected as sorting method. Transport functions selected were Yang, Acker-White for running different modules for prediction of thalweg changes. Modules were run and corresponding outputs for bed variation for the period (1993-1997) were analysed for in-depth examination of thalweg changes. For the Study Reach (Pandu-Joghhighopa), two sediment predictors were used to predict the changes in bed during the simulation time:

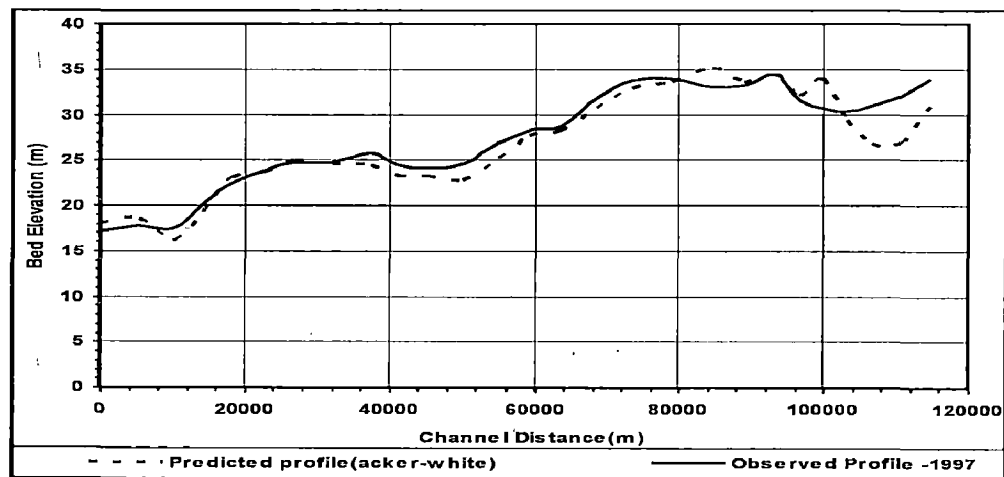


Fig: 5.7 Predicted Bed Profile for Yr-1997 with Acker-White Sediment Module

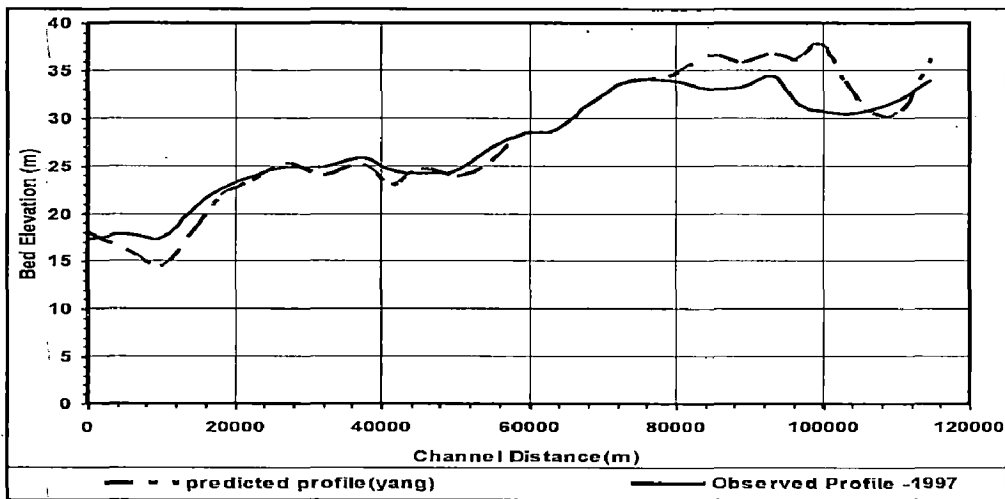


Fig: 5.8 Predicted Bed Profile for Yr-1997 with Yang Sediment Module

Above figures shows the predicted values of deepest bed level for the year 1997 with selecting the sediment predictors Yang & Acker-white and compared with the observed bed profile of 1997. Simulation was done for the period 1993 to 1997. Predicted values were compared with the observed separately and comparison was done using different statistical parameters for qualitative appraisal of the model. Figs: 5.6 & 5.7 show the comparison of predicted and observed water surface profiles for year 1997 for different sediment predictors. The validation of the prediction of bed profile has been observed to be quite encouraging when measured with RMSE, Correlation Coefficient R and Nash-Sutcliffe (E) coefficients. Since, the only two sets of the data pattern were available for the validation of the predicted values of the designed parameter the correlation R between the observed and predicted data for the total reach is found to be close to unity.

CONCLUSIONS AND SCOPE FOR FUTURE STUDY

6.1 CONCLUSION

The present study was endeavoured to investigate the flow characteristics and changes in spatial and temporal bed profiles of 622.73 km of river Brahmaputra. The salient observations of the study has been summarised as follows.

1. In the study reach, two different sediment predictors were applied to predict sediment transport capacities and ultimately bed variations of Year 1997 - 2001. Out of these two sediment predictors, the predicting accuracy of Acker-White is found to be more than that of Yang in present case.
2. Within the study period, the reach has undergone aggradations except some localised degradation in study period on account of substantial sediment inflow and negative stream power feed backs.
3. Gravitational and Inertial force parameter is somehow consistently decreasing which is indicative of dynamic and mobile as well as persistently changing bed forms.
4. The middle portion of study area exhibited some cases of degradations in local stretches, probably due to substantially high stream power at this section.
5. Froude No. in the middle channel undergoes very abrupt changes which shows the highly transient character of the flow reflecting very short duration flow variation.
6. The variations in bed profile are more in the upper study stretch (c/s 65 to c/s 44) while for the lower study (c/s 22 to 2) stretch, the variation is comparatively small indicating the morphological changes (bed variation, slopes) are more dynamic in the upper study stretch.
7. From the present study it is concluded that the stream power and aggradation and degradation depict interactive behaviour. However the relation is not instantaneous, as any changes in stream power will not immediately bring about aggradation and degradation processes in the river due to inherent lag time between flow changes and stream bed changes.
8. In the detailed output table, it can be seen that the unit stream power ($\Omega = \gamma Q.S/w$) attains high values in post monsoon months (November to February) because of the

width of the total flow in channel is minimum. Reason is the braiding effect, which causes the different channel formations in low flow.

9. Rivers adjust towards an equilibrium condition, the stability of which depends upon a set of controlling factors expressed by the Froude number (fig. 5.2). As alluvial river channels approach stable conditions, the Froude number of the channel flow will tend to attain a minimum value (fig 5.3 and 5.4) which reflects minimum bed material motion and maximum channel stability.
10. Variation of Froude's No. is associated with decreasing trend from Year 1998 to Year 2001. But in May 2001 it attains the value as high as 0.31 which was maximum for entire reach that is because of very high velocity in cross section 22 (pandu) at that time the effective flow area was narrowest, because of some local aggradation.
11. The HEC RAS 4.0 model has been calibrated, tested and validated with Froude No. (Fig. 5.3 & 5.4) and the simulation done by different sediment transport functions which show very supportive results.
12. The study of mathematical modelling conducted here can be used for flood propagation study, flood forecasting & channel improvement measures, like in the middle of study area (cross section 44 to 22) the braiding effect of river causing very high stream power in even post monsoon season, thus it is required to use some river training structures for improvement of channel.
13. Total stream power follows the general trend i.e. highest in monsoon season & shows a decreasing trend. But the assessment of the aggradation and degradation can't be made on the basis of stream power only, as it is clear from above analysis that the stream power approach can't be applied for a highly braided river system like Brahmaputra. Stream power is further need to investigate at some cross section as some outlier values are coming in analysis.

6.2 SCOPE FOR FUTURE STUDY

- The present study has identified the all reaches (of study reach of 622.73 km of the River Brahmaputra) is more susceptible to localised degradation with overall aggradation. Study on the further upstream might reveal the solution to the downstream aggradation problem.
- The morphological changes of the entire Brahmaputra River can be further investigated in 2-D hydrodynamic module with incorporation of back water effects due to sea level rise downstream in Bangladesh territory.
- The hydrodynamic module of this study not considered the braided effect of the river; development of a specific model to analyze the effect of braiding on the fluvial process will definitely reveal more realistic results.
- The present study was limited to Froude's coefficient & stream power approach to access the channel's stability process because of limitation of time and data, further investigation of roughness coefficient & analysis of other sediment transport functions will be more pragmatic.
- In future modelling of the Brahmaputra River may be attempted after incorporating bank erosion functions appropriately.

Appendix

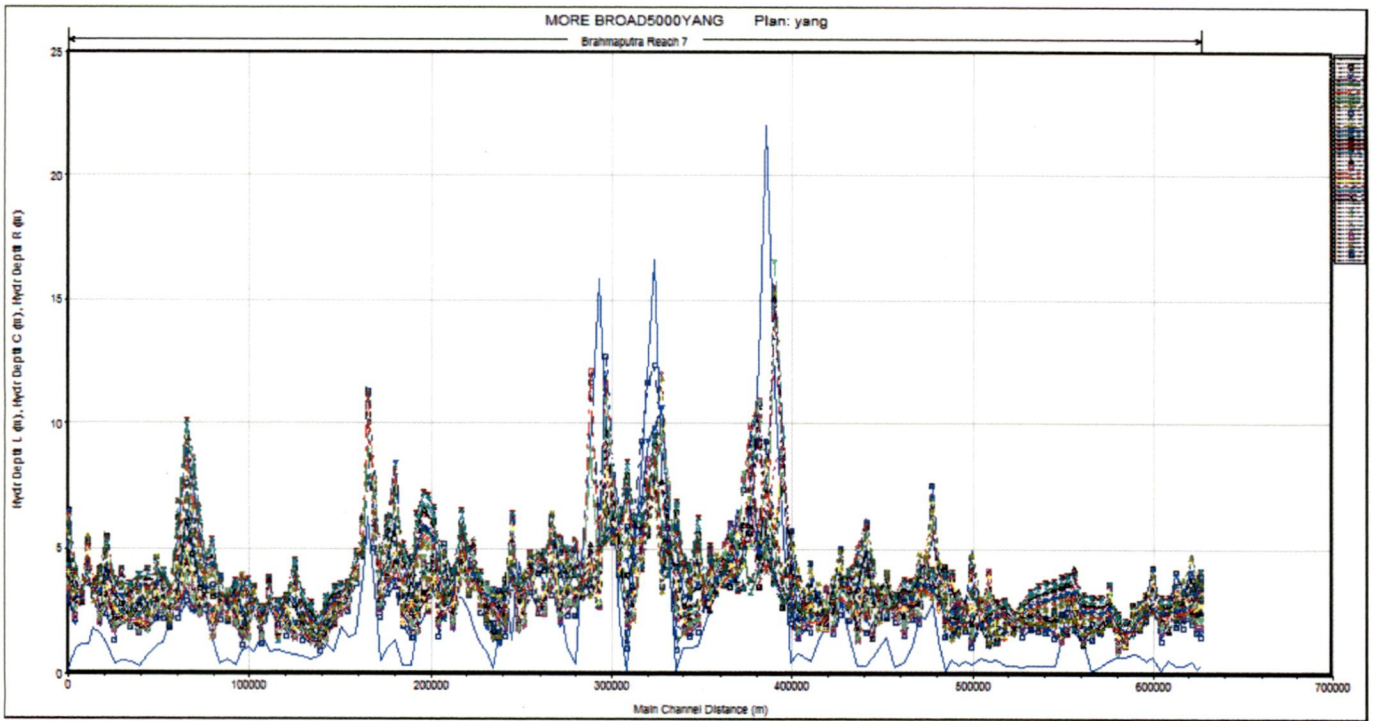


Fig: 1 General profile plots for hydraulic depth

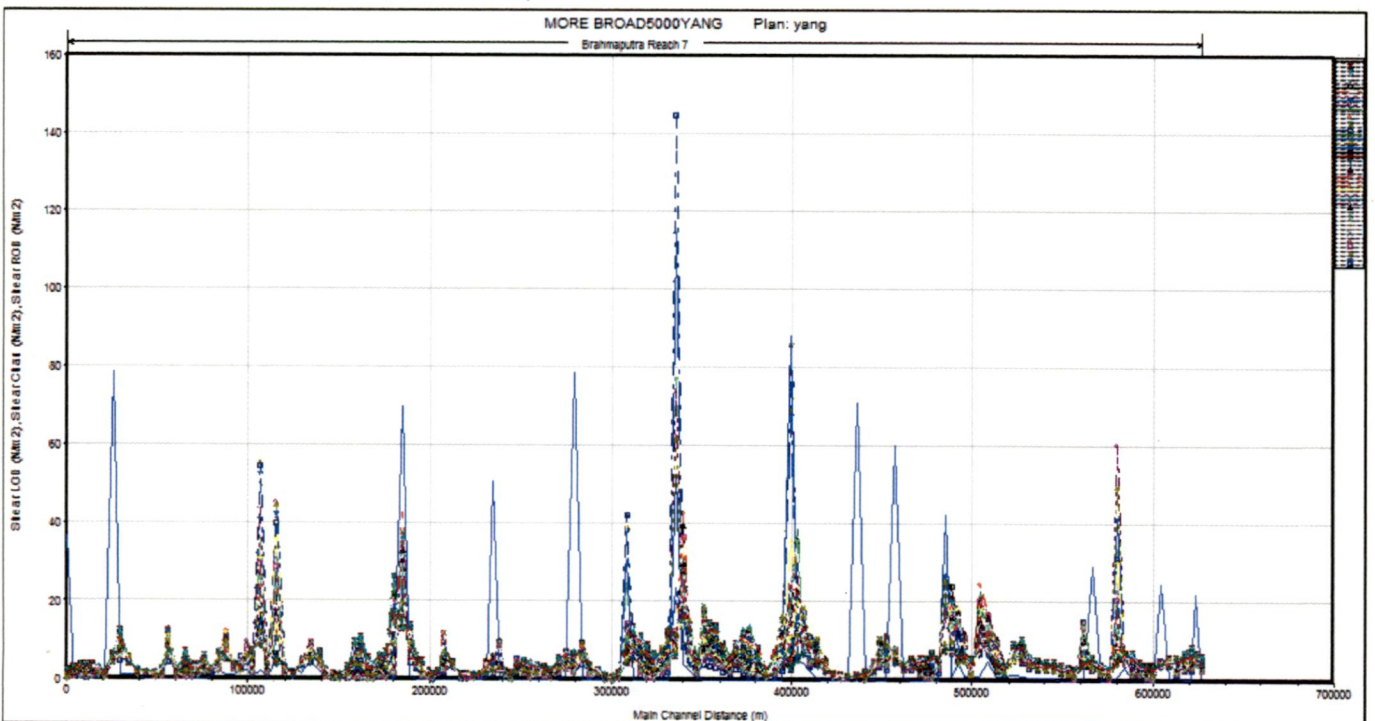


Fig: 2 General profile plots for shear stress

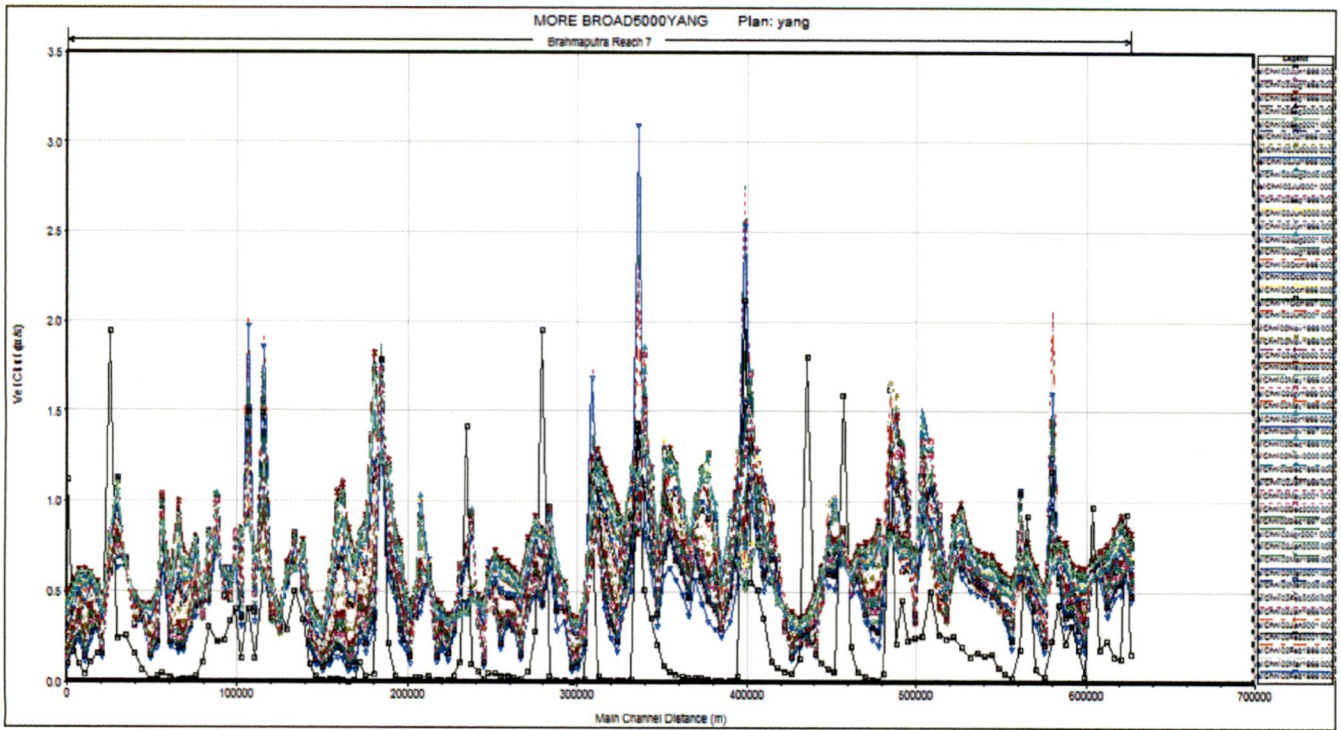


Fig: 3 General profile plots for velocities

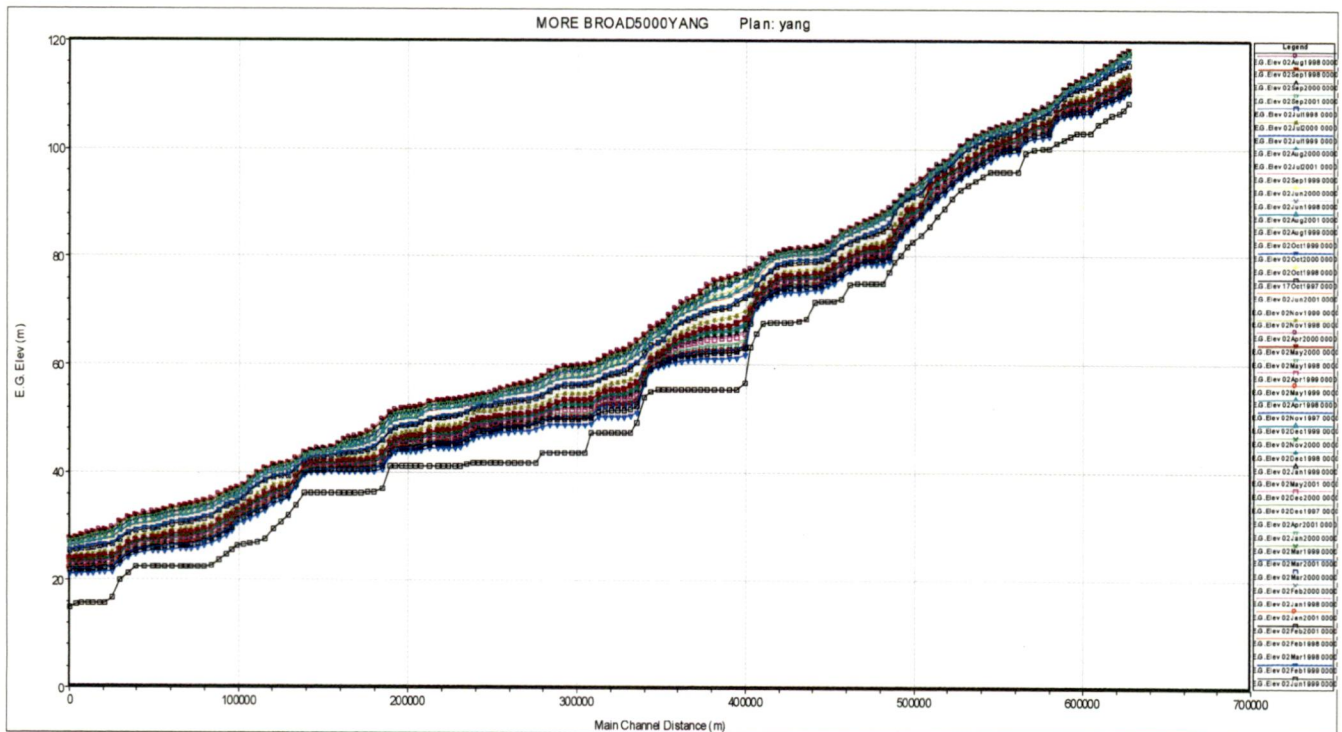


Fig: 4 General profile plots for E.G. Elevation

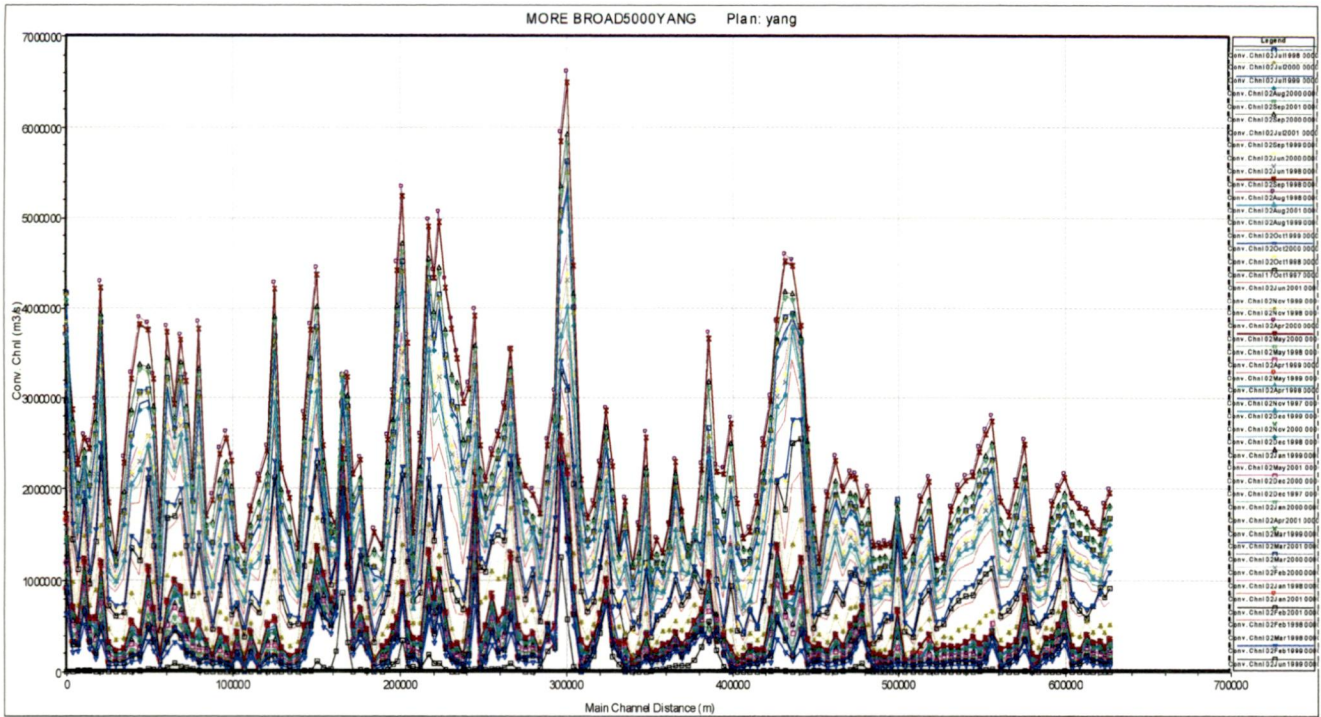


Fig: 5 General profile plots for Conveyance

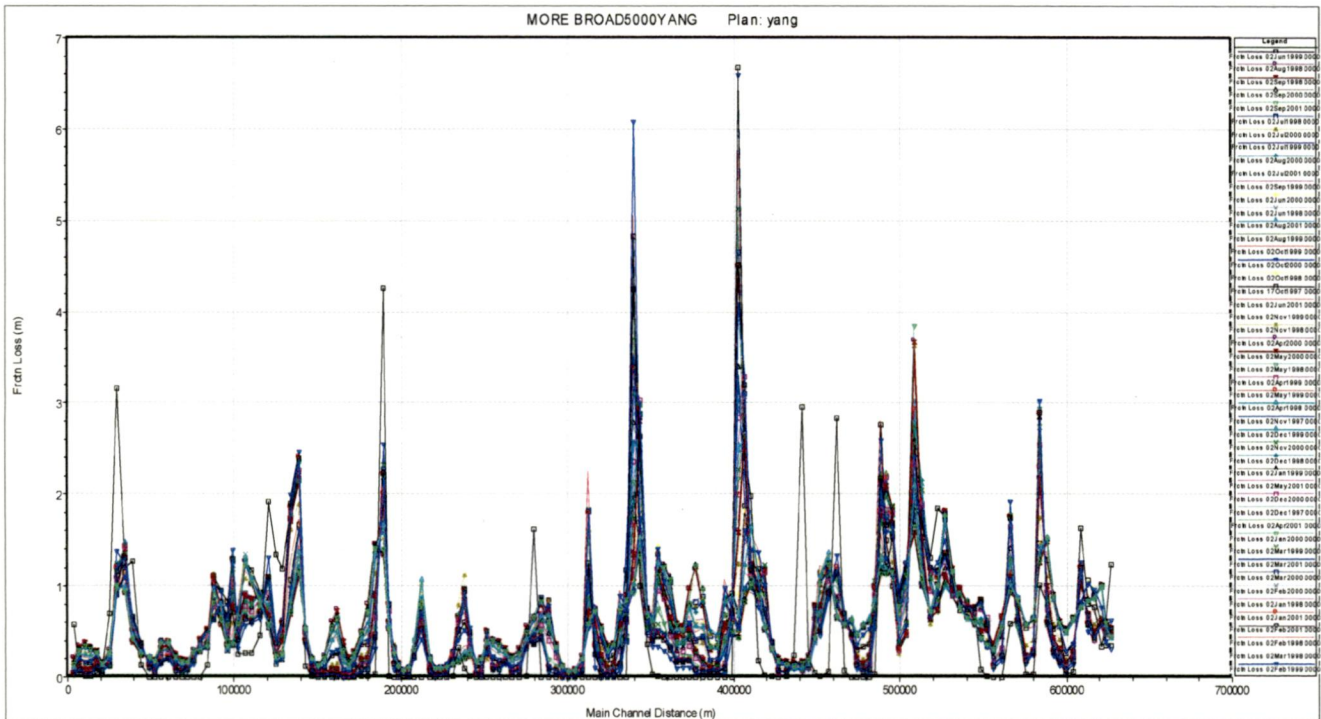
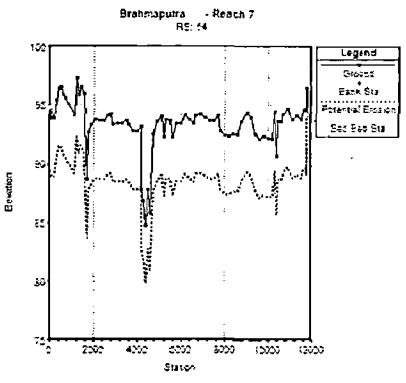
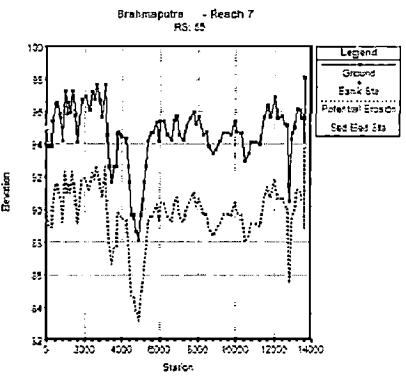
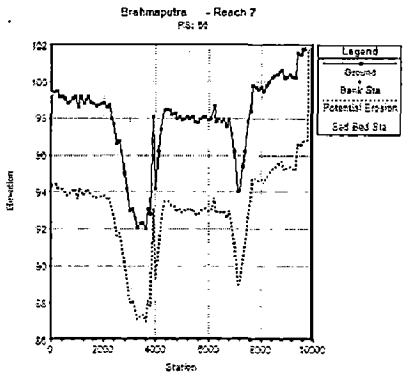
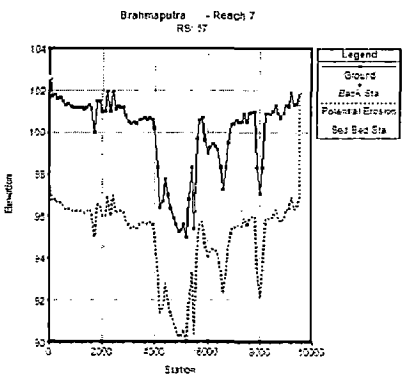
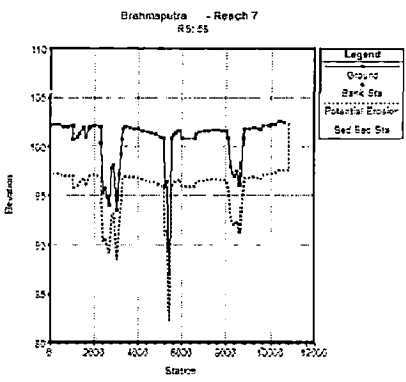
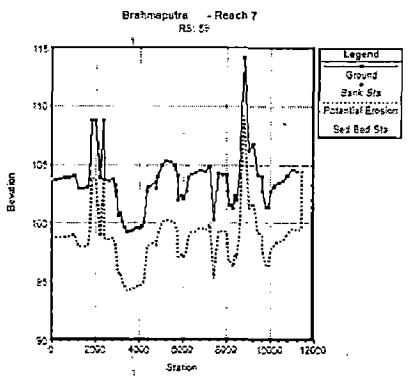
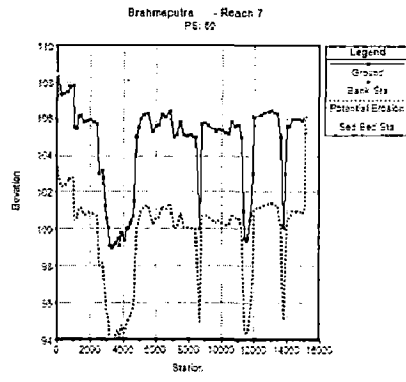
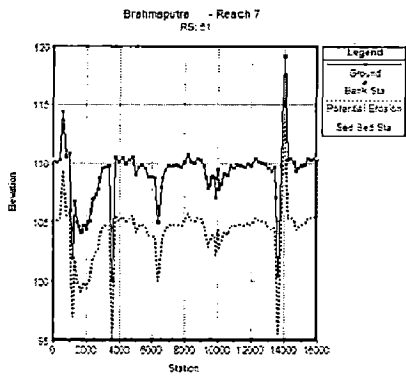
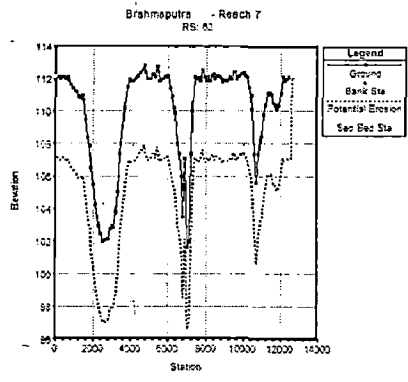
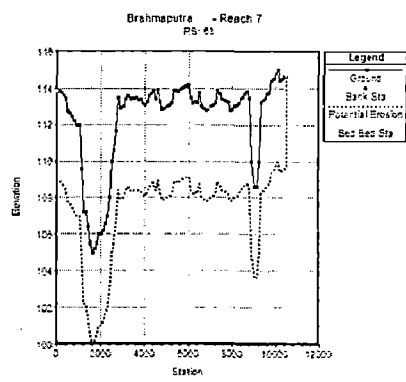
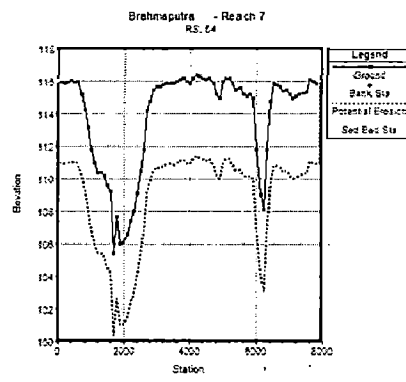
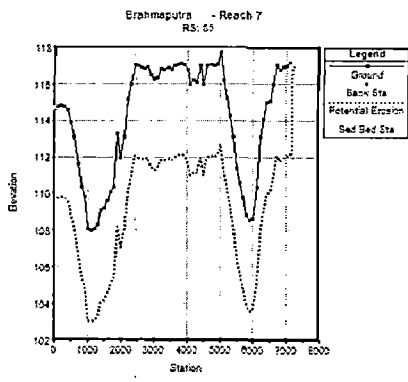
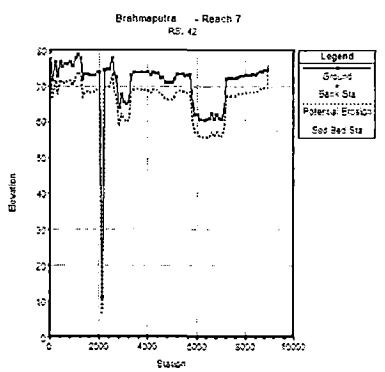
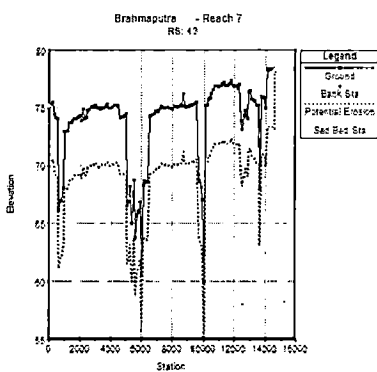
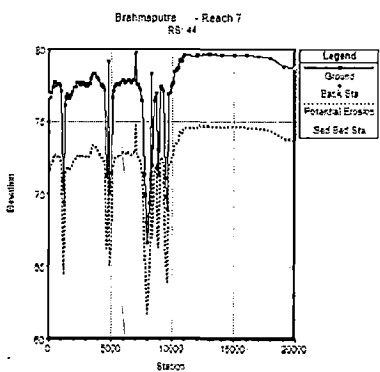
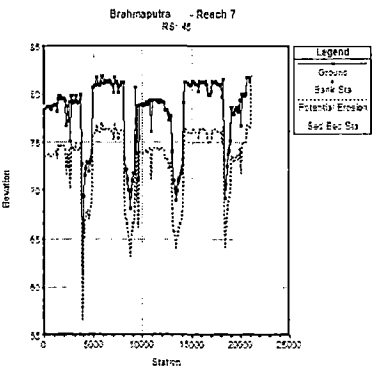
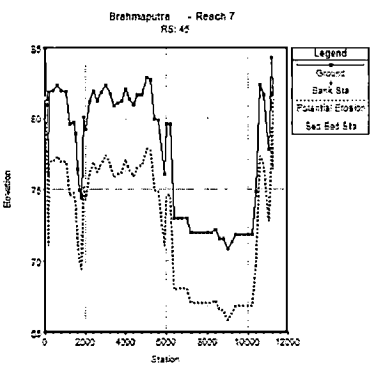
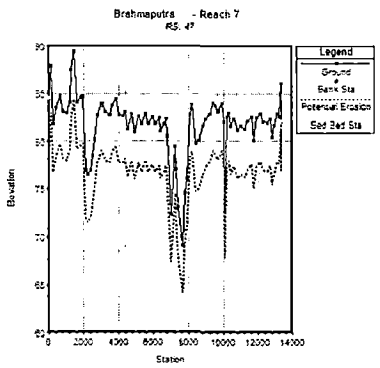
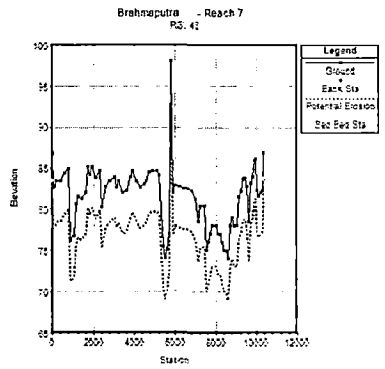
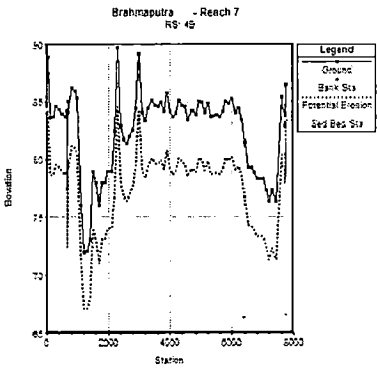
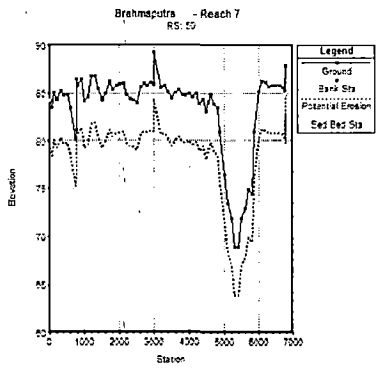
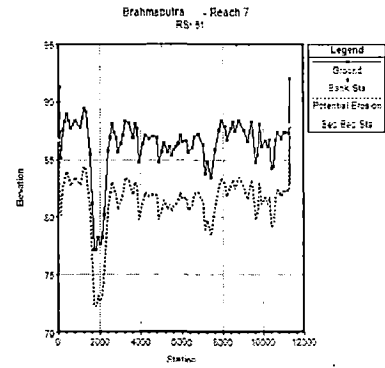
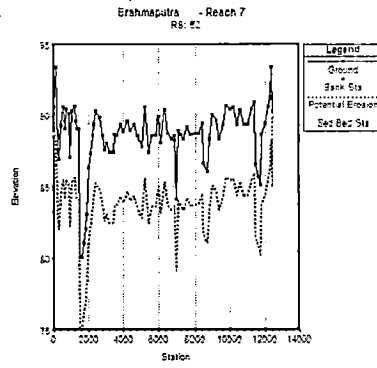
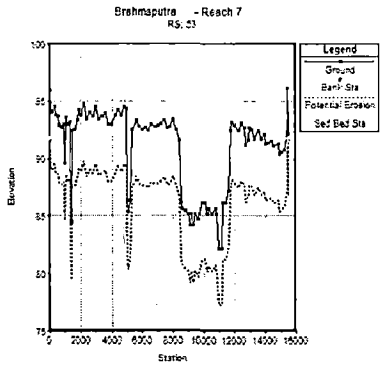
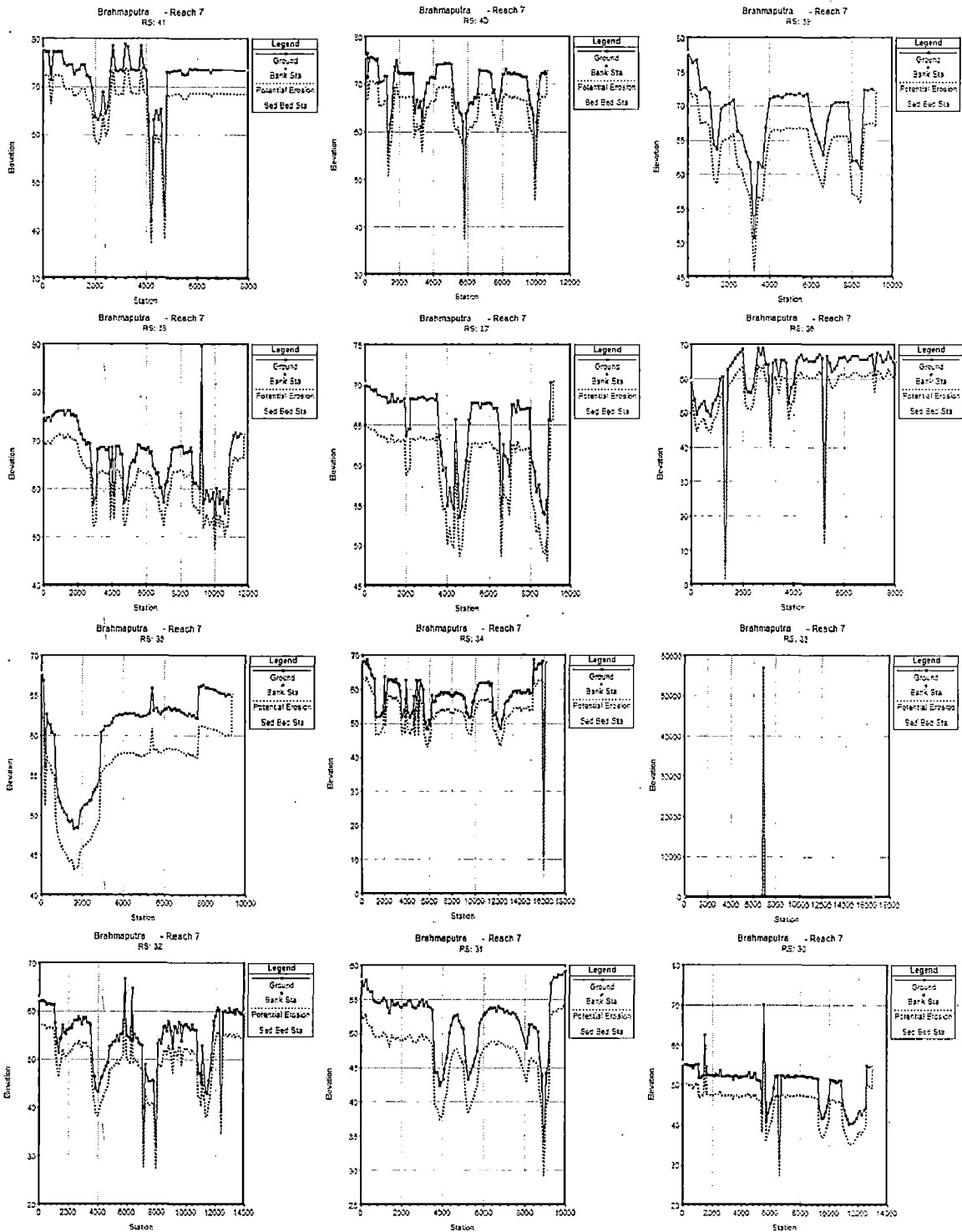
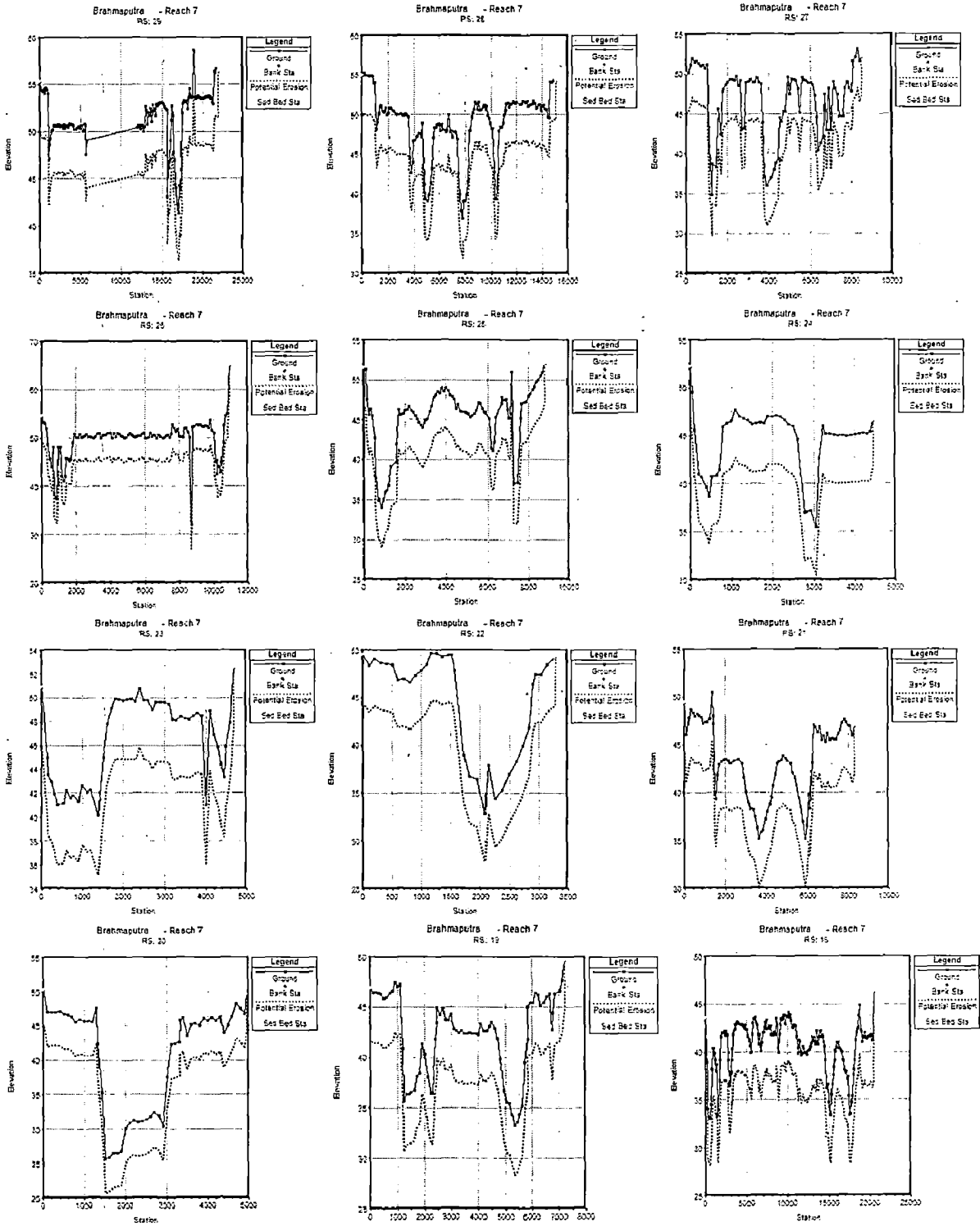


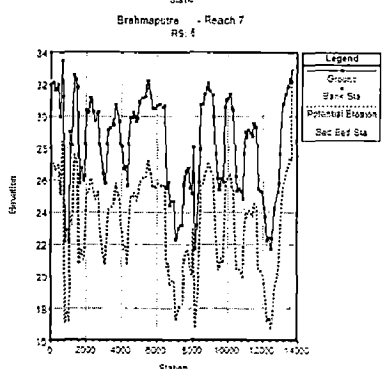
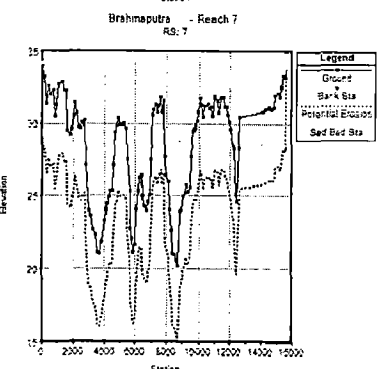
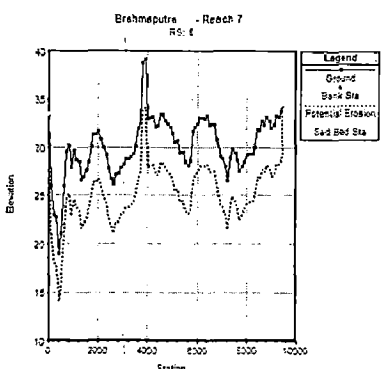
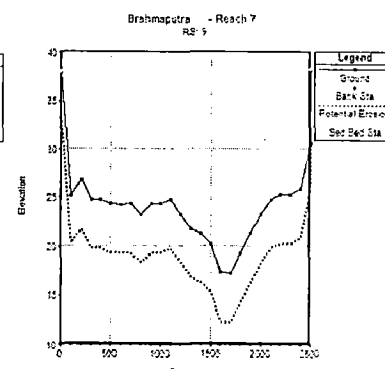
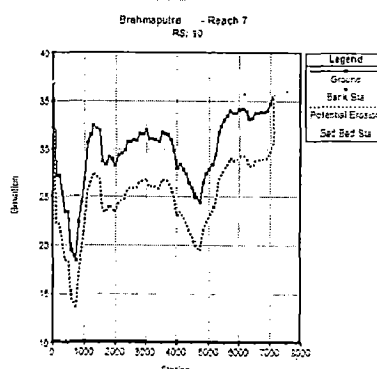
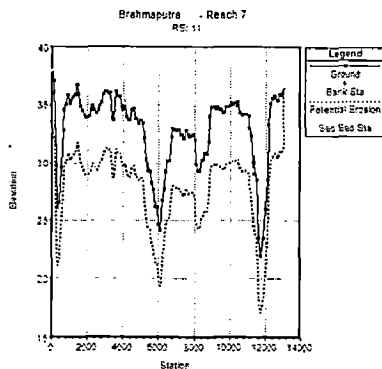
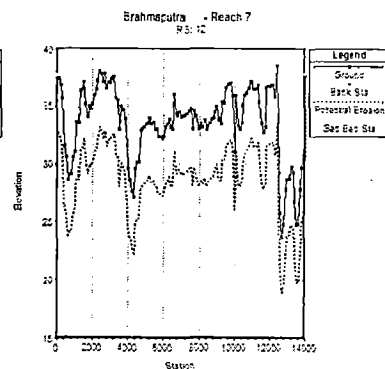
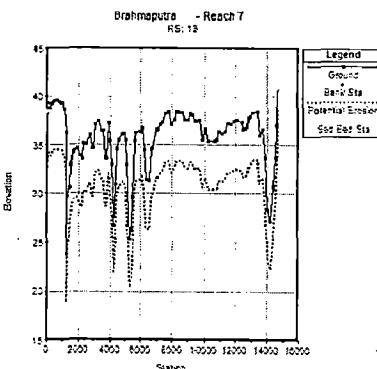
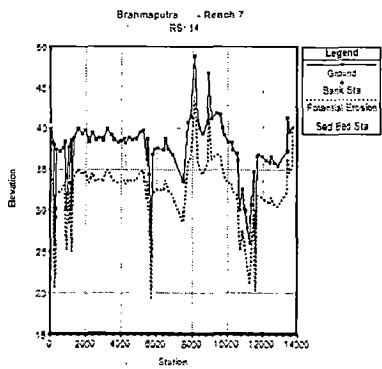
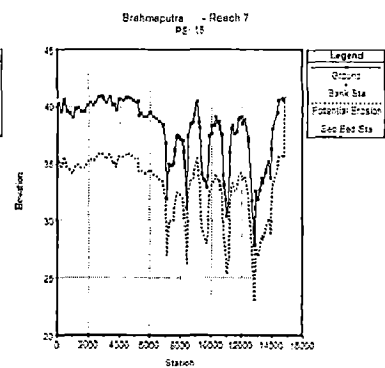
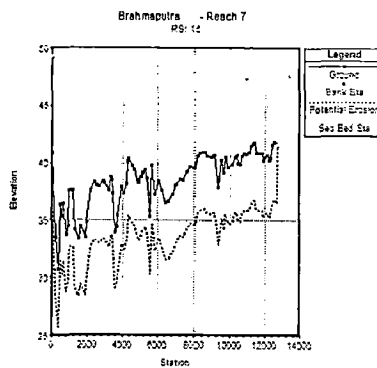
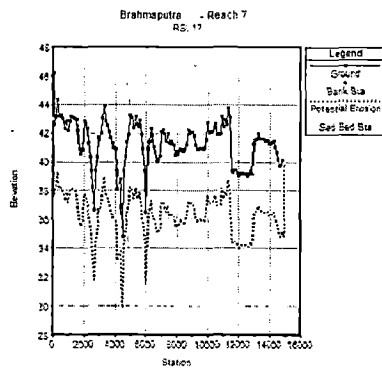
Fig: 6 General profile plots for Friction loss











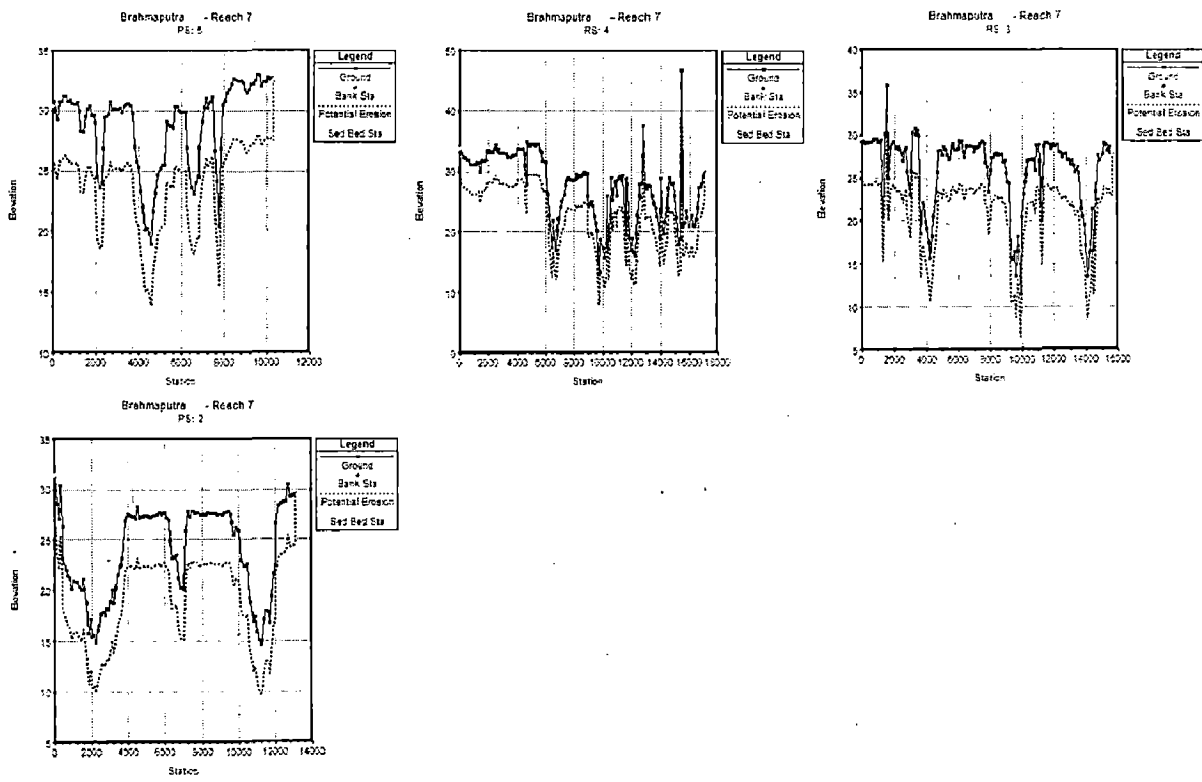


Fig: 9 Bed Change profile for each cross section

Table 1 Froude's no. comparison simulated from both sediment function at c/s 65 to c/s 2

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
65	May-98	3966.98	0.11	0.11
65	Jun-98	16239.17	0.12	0.12
65	Jul-98	20551.43	0.13	0.13
65	Aug-98	25025.09	0.13	0.13
65	Sep-98	24535.63	0.13	0.13
65	May-99	3860.72	0.11	0.11
65	Jun-99	22.54	0.1	0.08
65	Jul-99	19776.95	0.12	0.12
65	Aug-99	14700.76	0.12	0.12
65	Sep-99	17567.32	0.12	0.12
65	May-00	4089.95	0.11	0.11
65	Jun-00	16834.98	0.12	0.12
65	Jul-00	20453.02	0.13	0.12
65	Aug-00	19376.61	0.12	0.12
65	Sep-00	22196.91	0.13	0.13
65	May-01	2612.77	0.11	0.11
65	Jun-01	8871.91	0.12	0.12
65	Jul-01	17685.36	0.12	0.12
65	Aug-01	15560.1	0.12	0.12
65	Sep-01	21982.04	0.13	0.13
64	May-98	3966.98	0.12	0.12
64	Jun-98	16239.17	0.15	0.15
64	Jul-98	20551.43	0.16	0.16
64	Aug-98	25025.09	0.16	0.16
64	Sep-98	24535.63	0.16	0.16
64	May-99	3860.72	0.12	0.12
64	Jun-99	22.54	0.06	0.06
64	Jul-99	19776.95	0.16	0.16
64	Aug-99	14700.76	0.15	0.15
64	Sep-99	17567.32	0.15	0.15
64	May-00	4089.95	0.12	0.12
64	Jun-00	16834.98	0.15	0.15
64	Jul-00	20453.02	0.16	0.16
64	Aug-00	19376.61	0.16	0.16
64	Sep-00	22196.91	0.16	0.16
64	May-01	2612.77	0.12	0.12
64	Jun-01	8871.91	0.12	0.12

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
63	May-98	3966.98	0.1	0.1
63	Jun-98	16239.17	0.13	0.13
63	Jul-98	20551.43	0.14	0.14
63	Aug-98	25025.09	0.14	0.14
63	Sep-98	24535.63	0.14	0.14
63	May-99	3860.72	0.1	0.1
63	Jun-99	22.54	0.1	0.13
63	Jul-99	19776.95	0.14	0.14
63	Aug-99	14700.76	0.13	0.13
63	Sep-99	17567.32	0.13	0.13
63	May-00	4089.95	0.1	0.1
63	Jun-00	16834.98	0.13	0.13
63	Jul-00	20453.02	0.14	0.14
63	Aug-00	19376.61	0.13	0.14
63	Sep-00	22196.91	0.14	0.14
63	May-01	2612.77	0.09	0.09
63	Jun-01	8871.91	0.14	0.14
63	Jul-01	17685.36	0.13	0.13
63	Aug-01	15560.1	0.13	0.13
63	Sep-01	21982.04	0.14	0.14
62	May-98	3966.98	0.06	0.05
62	Jun-98	16239.17	0.1	0.1
62	Jul-98	20551.43	0.11	0.11
62	Aug-98	25025.09	0.11	0.11
62	Sep-98	24535.63	0.11	0.11
62	May-99	3860.72	0.05	0.05
62	Jun-99	22.54	0.01	0.01
62	Jul-99	19776.95	0.11	0.11
62	Aug-99	14700.76	0.1	0.1
62	Sep-99	17567.32	0.11	0.11
62	May-00	4089.95	0.06	0.06
62	Jun-00	16834.98	0.11	0.11
62	Jul-00	20453.02	0.11	0.11
62	Aug-00	19376.61	0.11	0.11
62	Sep-00	22196.91	0.11	0.11
62	May-01	2612.77	0.05	0.05
62	Jun-01	8871.91	0.07	0.07

64	Jul-01	17685.36	0.15	0.15
64	Aug-01	15560.1	0.15	0.15
64	Sep-01	21982.04	0.16	0.16

62	Jul-01	17685.36	0.11	0.11
62	Aug-01	15560.1	0.1	0.1
62	Sep-01	21982.04	0.11	0.11

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
61	May-98	3966.98	0.11	0.1
61	Jun-98	16239.17	0.16	0.17
61	Jul-98	20551.43	0.17	0.17
61	Aug-98	25025.09	0.17	0.17
61	Sep-98	24535.63	0.17	0.17
61	May-99	3860.72	0.1	0.1
61	Jun-99	22.54	0.08	0.08
61	Jul-99	19776.95	0.17	0.17
61	Aug-99	14700.76	0.16	0.16
61	Sep-99	17567.32	0.17	0.17
61	May-00	4089.95	0.11	0.1
61	Jun-00	16834.98	0.17	0.17
61	Jul-00	20453.02	0.17	0.17
61	Aug-00	19376.61	0.17	0.17
61	Sep-00	22196.91	0.17	0.17
61	May-01	2612.77	0.1	0.1
61	Jun-01	8871.91	0.14	0.14
61	Jul-01	17685.36	0.17	0.17
61	Aug-01	15560.1	0.16	0.16
61	Sep-01	21982.04	0.17	0.17
60	May-98	3966.98	0.05	0.05
60	Jun-98	16239.17	0.09	0.09
60	Jul-98	20551.43	0.1	0.09
60	Aug-98	25025.09	0.1	0.1
60	Sep-98	24535.63	0.1	0.1
60	May-99	3860.72	0.05	0.05
60	Jun-99	22.54	0.02	0.01
60	Jul-99	19776.95	0.09	0.09
60	Aug-99	14700.76	0.09	0.09
60	Sep-99	17567.32	0.09	0.09
60	May-00	4089.95	0.05	0.05
60	Jun-00	16834.98	0.09	0.09
60	Jul-00	20453.02	0.1	0.09
60	Aug-00	19376.61	0.09	0.09
60	Sep-00	22196.91	0.1	0.1

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
59	May-98	3966.98	0.12	0.13
59	Jun-98	16239.17	0.14	0.14
59	Jul-98	20551.43	0.14	0.14
59	Aug-98	25025.09	0.14	0.14
59	Sep-98	24535.63	0.14	0.14
59	May-99	3860.72	0.12	0.13
59	Jun-99	22.54	0.24	1.02
59	Jul-99	19776.95	0.14	0.14
59	Aug-99	14700.76	0.14	0.14
59	Sep-99	17567.32	0.14	0.14
59	May-00	4089.95	0.12	0.13
59	Jun-00	16834.98	0.14	0.14
59	Jul-00	20453.02	0.14	0.14
59	Aug-00	19376.61	0.14	0.14
59	Sep-00	22196.91	0.14	0.14
59	May-01	2612.77	0.12	0.12
59	Jun-01	8871.91	0.13	0.13
59	Jul-01	17685.36	0.14	0.14
59	Aug-01	15560.1	0.14	0.14
59	Sep-01	21982.04	0.14	0.14
58	May-98	3966.98	0.08	0.08
58	Jun-98	16239.17	0.09	0.09
58	Jul-98	20551.43	0.09	0.09
58	Aug-98	25025.09	0.09	0.09
58	Sep-98	24535.63	0.09	0.09
58	May-99	3860.72	0.08	0.08
58	Jun-99	22.54	0.01	0.01
58	Jul-99	19776.95	0.09	0.09
58	Aug-99	14700.76	0.09	0.09
58	Sep-99	17567.32	0.09	0.09
58	May-00	4089.95	0.08	0.08
58	Jun-00	16834.98	0.09	0.09
58	Jul-00	20453.02	0.09	0.09
58	Aug-00	19376.61	0.09	0.09
58	Sep-00	22196.91	0.09	0.09

60	May-01	2612.77	0.05	0.05
60	Jun-01	8871.91	0.08	0.08
60	Jul-01	17685.36	0.09	0.09
60	Aug-01	15560.1	0.09	0.09
60	Sep-01	21982.04	0.1	0.1

58	May-01	2612.77	0.05	0.05
58	Jun-01	8871.91	0.08	0.08
58	Jul-01	17685.36	0.09	0.09
58	Aug-01	15560.1	0.09	0.09
58	Sep-01	21982.04	0.09	0.09

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
57	May-98	3966.98	0.1	0.1
57	Jun-98	16239.17	0.11	0.11
57	Jul-98	20551.43	0.11	0.11
57	Aug-98	25025.09	0.12	0.12
57	Sep-98	24535.63	0.12	0.12
57	May-99	3860.72	0.1	0.1
57	Jun-99	22.54	0.09	0.09
57	Jul-99	19776.95	0.11	0.11
57	Aug-99	14700.76	0.11	0.11
57	Sep-99	17567.32	0.11	0.11
57	May-00	4089.95	0.1	0.1
57	Jun-00	16834.98	0.11	0.11
57	Jul-00	20453.02	0.11	0.11
57	Aug-00	19376.61	0.11	0.11
57	Sep-00	22196.91	0.12	0.12
57	May-01	2612.77	0.11	0.11
57	Jun-01	8871.91	0.11	0.11
57	Jul-01	17685.36	0.11	0.11
57	Aug-01	15560.1	0.11	0.11
57	Sep-01	21982.04	0.12	0.12
56	May-98	3966.98	0.14	0.14
56	Jun-98	16239.17	0.18	0.18
56	Jul-98	20551.43	0.18	0.18
56	Aug-98	25025.09	0.19	0.19
56	Sep-98	24535.63	0.19	0.19
56	May-99	3860.72	0.14	0.14
56	Jun-99	22.54	0.12	0.12
56	Jul-99	19776.95	0.18	0.18
56	Aug-99	14700.76	0.18	0.18
56	Sep-99	17567.32	0.18	0.18
56	May-00	4089.95	0.14	0.14
56	Jun-00	16834.98	0.18	0.18

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
55	May-98	3966.98	0.09	0.09
55	Jun-98	16239.17	0.11	0.11
55	Jul-98	20551.43	0.11	0.11
55	Aug-98	25025.09	0.12	0.12
55	Sep-98	24535.63	0.12	0.12
55	May-99	3860.72	0.09	0.1
55	Jun-99	22.54	0.12	0.13
55	Jul-99	19776.95	0.11	0.11
55	Aug-99	14700.76	0.11	0.11
55	Sep-99	17567.32	0.11	0.11
55	May-00	4089.95	0.09	0.09
55	Jun-00	16834.98	0.11	0.11
55	Jul-00	20453.02	0.11	0.11
55	Aug-00	19376.61	0.11	0.11
55	Sep-00	22196.91	0.11	0.11
55	May-01	2612.77	0.11	0.12
55	Jun-01	8871.91	0.1	0.1
55	Jul-01	17685.36	0.11	0.11
55	Aug-01	15560.1	0.11	0.11
55	Sep-01	21982.04	0.11	0.11
54	May-98	3966.98	0.22	0.21
54	Jun-98	16239.17	0.16	0.17
54	Jul-98	20551.43	0.16	0.16
54	Aug-98	25025.09	0.16	0.16
54	Sep-98	24535.63	0.16	0.16
54	May-99	3860.72	0.22	0.21
54	Jun-99	22.54	0.16	0.23
54	Jul-99	19776.95	0.16	0.16
54	Aug-99	14700.76	0.17	0.17
54	Sep-99	17567.32	0.16	0.16
54	May-00	4089.95	0.22	0.22
54	Jun-00	16834.98	0.16	0.17

56	Jul-00	20453.02	0.18	0.18
56	Aug-00	19376.61	0.18	0.18
56	Sep-00	22196.91	0.19	0.19
56	May-01	2612.77	0.13	0.14
56	Jun-01	8871.91	0.17	0.16
56	Jul-01	17685.36	0.18	0.18
56	Aug-01	15560.1	0.18	0.18
56	Sep-01	21982.04	0.19	0.19

54	Jul-00	20453.02	0.16	0.16
54	Aug-00	19376.61	0.16	0.16
54	Sep-00	22196.91	0.16	0.17
54	May-01	2612.77	0.19	0.22
54	Jun-01	8871.91	0.21	0.25
54	Jul-01	17685.36	0.16	0.16
54	Aug-01	15560.1	0.16	0.18
54	Sep-01	21982.04	0.16	0.17

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
53	May-98	3966.98	0.06	0.06
53	Jun-98	16239.17	0.1	0.1
53	Jul-98	20551.43	0.11	0.11
53	Aug-98	25025.09	0.14	0.14
53	Sep-98	24535.63	0.13	0.13
53	May-99	3860.72	0.06	0.06
53	Jun-99	22.54	0.12	0.12
53	Jul-99	19776.95	0.11	0.11
53	Aug-99	14700.76	0.09	0.09
53	Sep-99	17567.32	0.1	0.1
53	May-00	4089.95	0.06	0.06
53	Jun-00	16834.98	0.1	0.1
53	Jul-00	20453.02	0.11	0.11
53	Aug-00	19376.61	0.11	0.11
53	Sep-00	22196.91	0.12	0.13
53	May-01	2612.77	0.07	0.08
53	Jun-01	8871.91	0.06	0.07
53	Jul-01	17685.36	0.1	0.1
53	Aug-01	15560.1	0.1	0.1
53	Sep-01	21982.04	0.12	0.12
52	May-98	3966.98	0.25	0.25
52	Jun-98	16239.17	0.16	0.16
52	Jul-98	20551.43	0.17	0.17
52	Aug-98	25025.09	0.17	0.17
52	Sep-98	24535.63	0.17	0.17
52	May-99	3860.72	0.25	0.25
52	Jun-99	22.54	0.17	0.25
52	Jul-99	19776.95	0.17	0.17
52	Aug-99	14700.76	0.16	0.16

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
51	May-98	3966.98	0.22	0.23
51	Jun-98	16239.17	0.18	0.18
51	Jul-98	20551.43	0.17	0.18
51	Aug-98	25025.09	0.17	0.17
51	Sep-98	24535.63	0.17	0.17
51	May-99	3860.72	0.22	0.23
51	Jun-99	22.54	0.26	1
51	Jul-99	19776.95	0.17	0.18
51	Aug-99	14700.76	0.18	0.19
51	Sep-99	17567.32	0.18	0.18
51	May-00	4089.95	0.22	0.22
51	Jun-00	16834.98	0.18	0.18
51	Jul-00	20453.02	0.17	0.17
51	Aug-00	19376.61	0.17	0.18
51	Sep-00	22196.91	0.17	0.17
51	May-01	2612.77	0.21	0.22
51	Jun-01	8871.91	0.26	0.28
51	Jul-01	17685.36	0.17	0.17
51	Aug-01	15560.1	0.18	0.18
51	Sep-01	21982.04	0.17	0.17
50	May-98	3966.98	0.06	0.06
50	Jun-98	16239.17	0.13	0.14
50	Jul-98	20551.43	0.14	0.14
50	Aug-98	25025.09	0.14	0.14
50	Sep-98	24535.63	0.14	0.14
50	May-99	3860.72	0.06	0.06
50	Jun-99	22.54	0	0
50	Jul-99	19776.95	0.14	0.14
50	Aug-99	14700.76	0.13	0.14

52	Sep-99	17567.32	0.16	0.16
52	May-00	4089.95	0.25	0.25
52	Jun-00	16834.98	0.16	0.16
52	Jul-00	20453.02	0.17	0.17
52	Aug-00	19376.61	0.17	0.16
52	Sep-00	22196.91	0.17	0.17
52	May-01	2612.77	0.24	0.23
52	Jun-01	8871.91	0.15	0.15
52	Jul-01	17685.36	0.16	0.16
52	Aug-01	15560.1	0.16	0.16
52	Sep-01	21982.04	0.17	0.17

50	Sep-99	17567.32	0.13	0.14
50	May-00	4089.95	0.06	0.07
50	Jun-00	16834.98	0.13	0.14
50	Jul-00	20453.02	0.14	0.14
50	Aug-00	19376.61	0.14	0.14
50	Sep-00	22196.91	0.14	0.14
50	May-01	2612.77	0.05	0.05
50	Jun-01	8871.91	0.1	0.11
50	Jul-01	17685.36	0.13	0.14
50	Aug-01	15560.1	0.13	0.14
50	Sep-01	21982.04	0.14	0.14

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
49	May-98	3966.98	0.08	0.08
49	Jun-98	16239.17	0.11	0.11
49	Jul-98	20551.43	0.11	0.11
49	Aug-98	25025.09	0.12	0.12
49	Sep-98	24535.63	0.12	0.12
49	May-99	3860.72	0.08	0.08
49	Jun-99	22.54	0.01	0.01
49	Jul-99	19776.95	0.11	0.11
49	Aug-99	14700.76	0.11	0.11
49	Sep-99	17567.32	0.11	0.11
49	May-00	4089.95	0.08	0.08
49	Jun-00	16834.98	0.11	0.11
49	Jul-00	20453.02	0.11	0.12
49	Aug-00	19376.61	0.11	0.11
49	Sep-00	22196.91	0.12	0.12
49	May-01	2612.77	0.08	0.08
49	Jun-01	8871.91	0.09	0.09
49	Jul-01	17685.36	0.11	0.11
49	Aug-01	15560.1	0.11	0.11
49	Sep-01	21982.04	0.12	0.12
48	May-98	3966.98	0.1	0.1
48	Jun-98	16239.17	0.1	0.1
48	Jul-98	20551.43	0.11	0.11
48	Aug-98	25025.09	0.11	0.11
48	Sep-98	24535.63	0.11	0.11
48	May-99	3860.72	0.1	0.1

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
47	May-98	3966.98	0.14	0.14
47	Jun-98	16239.17	0.2	0.21
47	Jul-98	20551.43	0.19	0.21
47	Aug-98	25025.09	0.18	0.19
47	Sep-98	24535.63	0.18	0.19
47	May-99	3860.72	0.13	0.14
47	Jun-99	22.54	0.02	0.02
47	Jul-99	19776.95	0.2	0.21
47	Aug-99	14700.76	0.19	0.2
47	Sep-99	17567.32	0.2	0.21
47	May-00	4089.95	0.14	0.14
47	Jun-00	16834.98	0.2	0.21
47	Jul-00	20453.02	0.19	0.21
47	Aug-00	19376.61	0.2	0.21
47	Sep-00	22196.91	0.19	0.2
47	May-01	2612.77	0.13	0.13
47	Jun-01	8871.91	0.15	0.15
47	Jul-01	17685.36	0.2	0.21
47	Aug-01	15560.1	0.2	0.2
47	Sep-01	21982.04	0.19	0.2
46	May-98	3966.98	0.03	0.03
46	Jun-98	16239.17	0.05	0.05
46	Jul-98	20551.43	0.06	0.06
46	Aug-98	25025.09	0.07	0.07
46	Sep-98	24535.63	0.07	0.07
46	May-99	3860.72	0.03	0.03

48	Jun-99	22.54	0.16	0.09
48	Jul-99	19776.95	0.11	0.11
48	Aug-99	14700.76	0.1	0.1
48	Sep-99	17567.32	0.1	0.1
48	May-00	4089.95	0.1	0.1
48	Jun-00	16834.98	0.1	0.1
48	Jul-00	20453.02	0.11	0.11
48	Aug-00	19376.61	0.11	0.11
48	Sep-00	22196.91	0.11	0.11
48	May-01	2612.77	0.1	0.1
48	Jun-01	8871.91	0.11	0.11
48	Jul-01	17685.36	0.1	0.1
48	Aug-01	15560.1	0.1	0.1
48	Sep-01	21982.04	0.11	0.11

46	Jun-99	22.54	0.14	0.09
46	Jul-99	19776.95	0.06	0.06
46	Aug-99	14700.76	0.05	0.05
46	Sep-99	17567.32	0.06	0.06
46	May-00	4089.95	0.03	0.03
46	Jun-00	16834.98	0.05	0.05
46	Jul-00	20453.02	0.06	0.06
46	Aug-00	19376.61	0.06	0.06
46	Sep-00	22196.91	0.07	0.07
46	May-01	2612.77	0.03	0.03
46	Jun-01	8871.91	0.04	0.04
46	Jul-01	17685.36	0.06	0.06
46	Aug-01	15560.1	0.05	0.05
46	Sep-01	21982.04	0.07	0.07

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
45	May-98	3966.98	0.03	0.03
45	Jun-98	16239.17	0.05	0.05
45	Jul-98	20551.43	0.06	0.06
45	Aug-98	25025.09	0.07	0.07
45	Sep-98	24535.63	0.06	0.06
45	May-99	3860.72	0.03	0.03
45	Jun-99	22.54	0.01	0.01
45	Jul-99	19776.95	0.06	0.06
45	Aug-99	14700.76	0.05	0.05
45	Sep-99	17567.32	0.06	0.06
45	May-00	4089.95	0.03	0.03
45	Jun-00	16834.98	0.06	0.06
45	Jul-00	20453.02	0.06	0.06
45	Aug-00	19376.61	0.06	0.06
45	Sep-00	22196.91	0.06	0.06
45	May-01	2612.77	0.03	0.03
45	Jun-01	8871.91	0.05	0.05
45	Jul-01	17685.36	0.06	0.06
45	Aug-01	15560.1	0.05	0.05
45	Sep-01	21982.04	0.06	0.06
44	May-98	3966.98	0.13	0.13
44	Jun-98	16239.17	0.15	0.15
44	Jul-98	20551.43	0.16	0.16

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
43	May-98	3966.98	0.2	0.18
43	Jun-98	16239.17	0.13	0.12
43	Jul-98	20551.43	0.1	0.1
43	Aug-98	25025.09	0.09	0.09
43	Sep-98	24535.63	0.09	0.09
43	May-99	3860.72	0.2	0.17
43	Jun-99	22.54	0.36	1.02
43	Jul-99	19776.95	0.1	0.1
43	Aug-99	14700.76	0.12	0.11
43	Sep-99	17567.32	0.12	0.11
43	May-00	4089.95	0.2	0.15
43	Jun-00	16834.98	0.14	0.13
43	Jul-00	20453.02	0.1	0.1
43	Aug-00	19376.61	0.1	0.1
43	Sep-00	22196.91	0.09	0.09
43	May-01	2612.77	0.26	0.2
43	Jun-01	8871.91	0.1	0.1
43	Jul-01	17685.36	0.12	0.11
43	Aug-01	15560.1	0.13	0.12
43	Sep-01	21982.04	0.09	0.09
42	May-98	3966.98	0.04	0.04
42	Jun-98	16239.17	0.07	0.07
42	Jul-98	20551.43	0.08	0.08

44	Aug-98	25025.09	0.15	0.15
44	Sep-98	24535.63	0.15	0.15
44	May-99	3860.72	0.13	0.14
44	Jun-99	22.54	0.16	0.15
44	Jul-99	19776.95	0.16	0.16
44	Aug-99	14700.76	0.18	0.19
44	Sep-99	17567.32	0.15	0.15
44	May-00	4089.95	0.13	0.14
44	Jun-00	16834.98	0.15	0.15
44	Jul-00	20453.02	0.16	0.16
44	Aug-00	19376.61	0.15	0.16
44	Sep-00	22196.91	0.15	0.16
44	May-01	2612.77	0.13	0.14
44	Jun-01	8871.91	0.15	0.16
44	Jul-01	17685.36	0.15	0.16
44	Aug-01	15560.1	0.15	0.19
44	Sep-01	21982.04	0.15	0.16

42	Aug-98	25025.09	0.07	0.07
42	Sep-98	24535.63	0.07	0.07
42	May-99	3860.72	0.04	0.04
42	Jun-99	22.54	0	0
42	Jul-99	19776.95	0.08	0.08
42	Aug-99	14700.76	0.07	0.07
42	Sep-99	17567.32	0.08	0.08
42	May-00	4089.95	0.04	0.04
42	Jun-00	16834.98	0.08	0.08
42	Jul-00	20453.02	0.08	0.08
42	Aug-00	19376.61	0.09	0.09
42	Sep-00	22196.91	0.08	0.08
42	May-01	2612.77	0.04	0.04
42	Jun-01	8871.91	0.05	0.05
42	Jul-01	17685.36	0.08	0.09
42	Aug-01	15560.1	0.07	0.07
42	Sep-01	21982.04	0.08	0.08

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
41	May-98	3966.98	0.08	0.08
41	Jun-98	16239.17	0.12	0.12
41	Jul-98	20551.43	0.16	0.16
41	Aug-98	25025.09	0.17	0.17
41	Sep-98	24535.63	0.17	0.17
41	May-99	3860.72	0.08	0.08
41	Jun-99	22.54	0	0
41	Jul-99	19776.95	0.14	0.15
41	Aug-99	14700.76	0.12	0.12
41	Sep-99	17567.32	0.13	0.13
41	May-00	4089.95	0.08	0.08
41	Jun-00	16834.98	0.13	0.13
41	Jul-00	20453.02	0.15	0.15
41	Aug-00	19376.61	0.14	0.14
41	Sep-00	22196.91	0.2	0.2
41	May-01	2612.77	0.07	0.07
41	Jun-01	8871.91	0.1	0.1
41	Jul-01	17685.36	0.13	0.13
41	Aug-01	15560.1	0.12	0.12
41	Sep-01	21982.04	0.2	0.2

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
39	May-98	3966.98	0.16	0.17
39	Jun-98	16239.17	0.17	0.18
39	Jul-98	20551.43	0.17	0.18
39	Aug-98	25025.09	0.18	0.18
39	Sep-98	24535.63	0.18	0.18
39	May-99	3860.72	0.16	0.18
39	Jun-99	22.54	0.01	0.01
39	Jul-99	19776.95	0.17	0.18
39	Aug-99	14700.76	0.17	0.18
39	Sep-99	17567.32	0.17	0.18
39	May-00	4089.95	0.16	0.18
39	Jun-00	16834.98	0.17	0.18
39	Jul-00	20453.02	0.17	0.18
39	Aug-00	19376.61	0.17	0.18
39	Sep-00	22196.91	0.17	0.18
39	May-01	2612.77	0.17	0.18
39	Jun-01	8871.91	0.16	0.18
39	Jul-01	17685.36	0.17	0.18
39	Aug-01	15560.1	0.17	0.18
39	Sep-01	21982.04	0.17	0.18

40	May-98	3966.98	0.09	0.09
40	Jun-98	16239.17	0.1	0.1
40	Jul-98	20551.43	0.11	0.11
40	Aug-98	25025.09	0.12	0.12
40	Sep-98	24535.63	0.12	0.12
40	May-99	3860.72	0.09	0.09
40	Jun-99	22.54	0	0
40	Jul-99	19776.95	0.11	0.11
40	Aug-99	14700.76	0.1	0.11
40	Sep-99	17567.32	0.1	0.11
40	May-00	4089.95	0.1	0.1
40	Jun-00	16834.98	0.1	0.1
40	Jul-00	20453.02	0.11	0.11
40	Aug-00	19376.61	0.11	0.11
40	Sep-00	22196.91	0.11	0.11
40	May-01	2612.77	0.08	0.08
40	Jun-01	8871.91	0.1	0.11
40	Jul-01	17685.36	0.1	0.11
40	Aug-01	15560.1	0.1	0.11
40	Sep-01	21982.04	0.11	0.11

38	May-98	3966.98	0.08	0.09
38	Jun-98	16239.17	0.1	0.1
38	Jul-98	20551.43	0.1	0.1
38	Aug-98	25025.09	0.1	0.11
38	Sep-98	24535.63	0.1	0.11
38	May-99	3860.72	0.08	0.09
38	Jun-99	22.54	0.04	0.06
38	Jul-99	19776.95	0.1	0.11
38	Aug-99	14700.76	0.09	0.1
38	Sep-99	17567.32	0.1	0.11
38	May-00	4089.95	0.08	0.1
38	Jun-00	16834.98	0.1	0.11
38	Jul-00	20453.02	0.1	0.11
38	Aug-00	19376.61	0.1	0.11
38	Sep-00	22196.91	0.1	0.11
38	May-01	2612.77	0.08	0.1
38	Jun-01	8871.91	0.09	0.11
38	Jul-01	17685.36	0.1	0.11
38	Aug-01	15560.1	0.1	0.11
38	Sep-01	21982.04	0.1	0.11

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
37	May-98	3966.98	0.29	0.16
37	Jun-98	16239.17	0.21	0.15
37	Jul-98	20551.43	0.19	0.15
37	Aug-98	25025.09	0.18	0.15
37	Sep-98	24535.63	0.18	0.15
37	May-99	3860.72	0.29	0.13
37	Jun-99	22.54	0.34	1.03
37	Jul-99	19776.95	0.19	0.14
37	Aug-99	14700.76	0.21	0.14
37	Sep-99	17567.32	0.2	0.15
37	May-00	4089.95	0.28	0.13
37	Jun-00	16834.98	0.2	0.14
37	Jul-00	20453.02	0.19	0.14
37	Aug-00	19376.61	0.19	0.14
37	Sep-00	22196.91	0.18	0.14
37	May-01	2612.77	0.31	0.15
37	Jun-01	8871.91	0.22	0.13
37	Jul-01	17685.36	0.19	0.14

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
35	May-98	3966.98	0.12	0.12
35	Jun-98	16239.17	0.13	0.12
35	Jul-98	20551.43	0.13	0.13
35	Aug-98	25025.09	0.14	0.14
35	Sep-98	24535.63	0.14	0.14
35	May-99	3860.72	0.12	0.12
35	Jun-99	22.54	0.29	0.98
35	Jul-99	19776.95	0.13	0.12
35	Aug-99	14700.76	0.12	0.12
35	Sep-99	17567.32	0.13	0.12
35	May-00	4089.95	0.12	0.12
35	Jun-00	16834.98	0.13	0.12
35	Jul-00	20453.02	0.13	0.13
35	Aug-00	19376.61	0.13	0.12
35	Sep-00	22196.91	0.13	0.13
35	May-01	2612.77	0.16	0.16
35	Jun-01	8871.91	0.11	0.11
35	Jul-01	17685.36	0.13	0.12

37	Aug-01	15560.1	0.2	0.14
37	Sep-01	21982.04	0.18	0.14
36	May-98	3966.98	0.04	0.04
36	Jun-98	16239.17	0.08	0.09
36	Jul-98	20551.43	0.09	0.09
36	Aug-98	25025.09	0.1	0.1
36	Sep-98	24535.63	0.1	0.1
36	May-99	3860.72	0.04	0.04
36	Jun-99	22.54	0	0
36	Jul-99	19776.95	0.09	0.09
36	Aug-99	14700.76	0.08	0.08
36	Sep-99	17567.32	0.09	0.09
36	May-00	4089.95	0.04	0.05
36	Jun-00	16834.98	0.09	0.09
36	Jul-00	20453.02	0.09	0.09
36	Aug-00	19376.61	0.09	0.09
36	Sep-00	22196.91	0.1	0.1
36	May-01	2612.77	0.04	0.04
36	Jun-01	8871.91	0.07	0.07
36	Jul-01	17685.36	0.09	0.09
36	Aug-01	15560.1	0.08	0.09
36	Sep-01	21982.04	0.1	0.1

35	Aug-01	15560.1	0.13	0.12
35	Sep-01	21982.04	0.13	0.13
34	May-98	3966.98	0.07	0.08
34	Jun-98	16239.17	0.07	0.07
34	Jul-98	20551.43	0.08	0.08
34	Aug-98	25025.09	0.08	0.08
34	Sep-98	24535.63	0.08	0.08
34	May-99	3860.72	0.08	0.08
34	Jun-99	22.54	0	0
34	Jul-99	19776.95	0.08	0.08
34	Aug-99	14700.76	0.07	0.07
34	Sep-99	17567.32	0.07	0.08
34	May-00	4089.95	0.07	0.08
34	Jun-00	16834.98	0.07	0.08
34	Jul-00	20453.02	0.08	0.08
34	Aug-00	19376.61	0.08	0.08
34	Sep-00	22196.91	0.08	0.08
34	May-01	2612.77	0.08	0.08
34	Jun-01	8871.91	0.06	0.07
34	Jul-01	17685.36	0.07	0.08
34	Aug-01	15560.1	0.07	0.07
34	Sep-01	21982.04	0.08	0.08

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
33	May-98	3966.98	0.09	0.1
33	Jun-98	16239.17	0.11	0.11
33	Jul-98	20551.43	0.13	0.14
33	Aug-98	25025.09	0.13	0.13
33	Sep-98	24535.63	0.13	0.13
33	May-99	3860.72	0.09	0.1
33	Jun-99	22.54	0.24	1.01
33	Jul-99	19776.95	0.13	0.13
33	Aug-99	14700.76	0.11	0.11
33	Sep-99	17567.32	0.12	0.12
33	May-00	4089.95	0.09	0.1
33	Jun-00	16834.98	0.11	0.11
33	Jul-00	20453.02	0.13	0.13
33	Aug-00	19376.61	0.13	0.13
33	Sep-00	22196.91	0.13	0.13

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
31	May-98	3966.98	0.05	0.05
31	Jun-98	16239.17	0.09	0.09
31	Jul-98	20551.43	0.1	0.1
31	Aug-98	25025.09	0.11	0.11
31	Sep-98	24535.63	0.11	0.11
31	May-99	3860.72	0.05	0.05
31	Jun-99	22.54	0.01	0.01
31	Jul-99	19776.95	0.1	0.1
31	Aug-99	14700.76	0.09	0.09
31	Sep-99	17567.32	0.1	0.1
31	May-00	4089.95	0.05	0.05
31	Jun-00	16834.98	0.1	0.1
31	Jul-00	20453.02	0.1	0.1
31	Aug-00	19376.61	0.1	0.1
31	Sep-00	22196.91	0.11	0.11

33	May-01	2612.77	0.09	0.09
33	Jun-01	8871.91	0.09	0.1
33	Jul-01	17685.36	0.12	0.12
33	Aug-01	15560.1	0.11	0.11
33	Sep-01	21982.04	0.13	0.14
32	May-98	3966.98	0.03	0.03
32	Jun-98	16239.17	0.06	0.06
32	Jul-98	20551.43	0.07	0.07
32	Aug-98	25025.09	0.08	0.08
32	Sep-98	24535.63	0.08	0.08
32	May-99	3860.72	0.03	0.03
32	Jun-99	22.54	0	0
32	Jul-99	19776.95	0.07	0.07
32	Aug-99	14700.76	0.06	0.06
32	Sep-99	17567.32	0.07	0.07
32	May-00	4089.95	0.03	0.03
32	Jun-00	16834.98	0.06	0.06
32	Jul-00	20453.02	0.07	0.07
32	Aug-00	19376.61	0.07	0.07
32	Sep-00	22196.91	0.07	0.07
32	May-01	2612.77	0.03	0.03
32	Jun-01	8871.91	0.05	0.05
32	Jul-01	17685.36	0.07	0.07
32	Aug-01	15560.1	0.06	0.06
32	Sep-01	21982.04	0.07	0.07

31	May-01	2612.77	0.04	0.04
31	Jun-01	8871.91	0.07	0.07
31	Jul-01	17685.36	0.1	0.1
31	Aug-01	15560.1	0.09	0.09
31	Sep-01	21982.04	0.1	0.11
30	May-98	3966.98	0.02	0.02
30	Jun-98	16239.17	0.06	0.06
30	Jul-98	20551.43	0.06	0.06
30	Aug-98	25025.09	0.07	0.07
30	Sep-98	24535.63	0.07	0.07
30	May-99	3860.72	0.02	0.02
30	Jun-99	22.54	0	0.01
30	Jul-99	19776.95	0.06	0.06
30	Aug-99	14700.76	0.06	0.06
30	Sep-99	17567.32	0.06	0.06
30	May-00	4089.95	0.02	0.02
30	Jun-00	16834.98	0.06	0.06
30	Jul-00	20453.02	0.06	0.06
30	Aug-00	19376.61	0.06	0.06
30	Sep-00	22196.91	0.06	0.07
30	May-01	2612.77	0.02	0.02
30	Jun-01	8871.91	0.04	0.04
30	Jul-01	17685.36	0.06	0.06
30	Aug-01	15560.1	0.06	0.06
30	Sep-01	21982.04	0.06	0.07

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
29	May-98	3966.98	0.13	0.13
29	Jun-98	16239.17	0.07	0.07
29	Jul-98	20551.43	0.07	0.07
29	Aug-98	25025.09	0.07	0.07
29	Sep-98	24535.63	0.07	0.07
29	May-99	3860.72	0.13	0.13
29	Jun-99	22.54	0.15	1
29	Jul-99	19776.95	0.07	0.07
29	Aug-99	14700.76	0.07	0.07
29	Sep-99	17567.32	0.07	0.07
29	May-00	4089.95	0.13	0.13
29	Jun-00	16834.98	0.07	0.07

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
27	May-98	3966.98	0.03	0.03
27	Jun-98	16239.17	0.05	0.05
27	Jul-98	20551.43	0.05	0.05
27	Aug-98	25025.09	0.06	0.06
27	Sep-98	24535.63	0.06	0.06
27	May-99	3860.72	0.03	0.03
27	Jun-99	22.54	0	0
27	Jul-99	19776.95	0.05	0.05
27	Aug-99	14700.76	0.05	0.05
27	Sep-99	17567.32	0.05	0.05
27	May-00	4089.95	0.03	0.03
27	Jun-00	16834.98	0.05	0.05

29	Jul-00	20453.02	0.07	0.07
29	Aug-00	19376.61	0.07	0.07
29	Sep-00	22196.91	0.07	0.07
29	May-01	2612.77	0.12	0.13
29	Jun-01	8871.91	0.12	0.12
29	Jul-01	17685.36	0.07	0.07
29	Aug-01	15560.1	0.07	0.07
29	Sep-01	21982.04	0.07	0.07
28	May-98	3966.98	0.04	0.04
28	Jun-98	16239.17	0.05	0.05
28	Jul-98	20551.43	0.05	0.05
28	Aug-98	25025.09	0.05	0.05
28	Sep-98	24535.63	0.05	0.05
28	May-99	3860.72	0.04	0.04
28	Jun-99	22.54	0	0
28	Jul-99	19776.95	0.05	0.05
28	Aug-99	14700.76	0.05	0.05
28	Sep-99	17567.32	0.05	0.05
28	May-00	4089.95	0.04	0.04
28	Jun-00	16834.98	0.05	0.05
28	Jul-00	20453.02	0.05	0.05
28	Aug-00	19376.61	0.05	0.05
28	Sep-00	22196.91	0.05	0.05
28	May-01	2612.77	0.03	0.03
28	Jun-01	8871.91	0.05	0.05
28	Jul-01	17685.36	0.05	0.05
28	Aug-01	15560.1	0.05	0.05
28	Sep-01	21982.04	0.05	0.05

27	Jul-00	20453.02	0.05	0.05
27	Aug-00	19376.61	0.05	0.05
27	Sep-00	22196.91	0.05	0.05
27	May-01	2612.77	0.03	0.03
27	Jun-01	8871.91	0.05	0.05
27	Jul-01	17685.36	0.05	0.05
27	Aug-01	15560.1	0.05	0.05
27	Sep-01	21982.04	0.05	0.05
26	May-98	3966.98	0.11	0.11
26	Jun-98	16239.17	0.19	0.22
26	Jul-98	20551.43	0.16	0.18
26	Aug-98	25025.09	0.15	0.16
26	Sep-98	24535.63	0.15	0.16
26	May-99	3860.72	0.11	0.11
26	Jun-99	22.54	0	0
26	Jul-99	19776.95	0.16	0.18
26	Aug-99	14700.76	0.19	0.2
26	Sep-99	17567.32	0.18	0.21
26	May-00	4089.95	0.11	0.11
26	Jun-00	16834.98	0.18	0.22
26	Jul-00	20453.02	0.16	0.18
26	Aug-00	19376.61	0.17	0.19
26	Sep-00	22196.91	0.16	0.17
26	May-01	2612.77	0.1	0.1
26	Jun-01	8871.91	0.13	0.13
26	Jul-01	17685.36	0.18	0.21
26	Aug-01	15560.1	0.19	0.21
26	Sep-01	21982.04	0.16	0.17

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
25	May-98	3966.98	0.04	0.04
25	Jun-98	16239.17	0.05	0.05
25	Jul-98	20551.43	0.05	0.05
25	Aug-98	25025.09	0.05	0.05
25	Sep-98	24535.63	0.05	0.05
25	May-99	3860.72	0.04	0.04
25	Jun-99	22.54	0	0
25	Jul-99	19776.95	0.05	0.05
25	Aug-99	14700.76	0.05	0.05

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
23	May-98	3966.98	0.13	0.14
23	Jun-98	16239.17	0.18	0.19
23	Jul-98	20551.43	0.19	0.2
23	Aug-98	25025.09	0.18	0.19
23	Sep-98	24535.63	0.19	0.19
23	May-99	3860.72	0.13	0.14
23	Jun-99	22.54	0.19	0.12
23	Jul-99	19776.95	0.19	0.2
23	Aug-99	14700.76	0.18	0.18

25	Sep-99	17567.32	0.05	0.05
25	May-00	4089.95	0.04	0.04
25	Jun-00	16834.98	0.05	0.05
25	Jul-00	20453.02	0.05	0.05
25	Aug-00	19376.61	0.05	0.05
25	Sep-00	22196.91	0.05	0.05
25	May-01	2612.77	0.03	0.03
25	Jun-01	8871.91	0.05	0.05
25	Jul-01	17685.36	0.05	0.05
25	Aug-01	15560.1	0.05	0.05
25	Sep-01	21982.04	0.05	0.05
24	May-98	3966.98	0.08	0.08
24	Jun-98	16239.17	0.09	0.09
24	Jul-98	20551.43	0.09	0.09
24	Aug-98	25025.09	0.09	0.09
24	Sep-98	24535.63	0.09	0.09
24	May-99	3860.72	0.08	0.08
24	Jun-99	22.54	0	0
24	Jul-99	19776.95	0.09	0.09
24	Aug-99	14700.76	0.09	0.09
24	Sep-99	17567.32	0.09	0.09
24	May-00	4089.95	0.08	0.08
24	Jun-00	16834.98	0.09	0.09
24	Jul-00	20453.02	0.09	0.09
24	Aug-00	19376.61	0.09	0.09
24	Sep-00	22196.91	0.09	0.09
24	May-01	2612.77	0.07	0.07
24	Jun-01	8871.91	0.08	0.09
24	Jul-01	17685.36	0.09	0.09
24	Aug-01	15560.1	0.09	0.09
24	Sep-01	21982.04	0.09	0.09

23	Sep-99	17567.32	0.19	0.19
23	May-00	4089.95	0.13	0.14
23	Jun-00	16834.98	0.18	0.18
23	Jul-00	20453.02	0.19	0.19
23	Aug-00	19376.61	0.19	0.19
23	Sep-00	22196.91	0.19	0.19
23	May-01	2612.77	0.13	0.14
23	Jun-01	8871.91	0.15	0.15
23	Jul-01	17685.36	0.19	0.18
23	Aug-01	15560.1	0.18	0.18
23	Sep-01	21982.04	0.19	0.19
22	May-98	3966.98	0.09	0.09
22	Jun-98	16239.17	0.17	0.17
22	Jul-98	20551.43	0.2	0.2
22	Aug-98	25025.09	0.22	0.22
22	Sep-98	24535.63	0.22	0.22
22	May-99	3860.72	0.09	0.09
22	Jun-99	22.54	0.01	0.01
22	Jul-99	19776.95	0.19	0.19
22	Aug-99	14700.76	0.16	0.16
22	Sep-99	17567.32	0.17	0.18
22	May-00	4089.95	0.09	0.09
22	Jun-00	16834.98	0.17	0.17
22	Jul-00	20453.02	0.2	0.2
22	Aug-00	19376.61	0.18	0.18
22	Sep-00	22196.91	0.21	0.21
22	May-01	2612.77	0.08	0.08
22	Jun-01	8871.91	0.13	0.13
22	Jul-01	17685.36	0.17	0.18
22	Aug-01	15560.1	0.16	0.17
22	Sep-01	21982.04	0.21	0.21

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
21	May-98	3966.98	0.08	0.08
21	Jun-98	16239.17	0.11	0.11
21	Jul-98	20551.43	0.12	0.12
21	Aug-98	25025.09	0.12	0.12
21	Sep-98	24535.63	0.12	0.12
21	May-99	3860.72	0.08	0.08

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
19	May-98	3966.98	0.05	0.05
19	Jun-98	16239.17	0.13	0.13
19	Jul-98	20551.43	0.14	0.14
19	Aug-98	25025.09	0.15	0.15
19	Sep-98	24535.63	0.15	0.15
19	May-99	3860.72	0.05	0.05

21	Jun-99	22.54	0.04	0.05
21	Jul-99	19776.95	0.12	0.12
21	Aug-99	14700.76	0.11	0.12
21	Sep-99	17567.32	0.11	0.12
21	May-00	4089.95	0.08	0.08
21	Jun-00	16834.98	0.11	0.12
21	Jul-00	20453.02	0.12	0.12
21	Aug-00	19376.61	0.12	0.12
21	Sep-00	22196.91	0.12	0.12
21	May-01	2612.77	0.07	0.07
21	Jun-01	8871.91	0.11	0.12
21	Jul-01	17685.36	0.11	0.12
21	Aug-01	15560.1	0.11	0.12
21	Sep-01	21982.04	0.12	0.12
20	May-98	3966.98	0.02	0.02
20	Jun-98	16239.17	0.06	0.06
20	Jul-98	20551.43	0.08	0.08
20	Aug-98	25025.09	0.1	0.1
20	Sep-98	24535.63	0.1	0.1
20	May-99	3860.72	0.02	0.02
20	Jun-99	22.54	0	0
20	Jul-99	19776.95	0.07	0.07
20	Aug-99	14700.76	0.06	0.06
20	Sep-99	17567.32	0.07	0.07
20	May-00	4089.95	0.02	0.02
20	Jun-00	16834.98	0.06	0.06
20	Jul-00	20453.02	0.08	0.08
20	Aug-00	19376.61	0.07	0.07
20	Sep-00	22196.91	0.09	0.09
20	May-01	2612.77	0.01	0.01
20	Jun-01	8871.91	0.04	0.04
20	Jul-01	17685.36	0.07	0.07
20	Aug-01	15560.1	0.06	0.06
20	Sep-01	21982.04	0.08	0.08

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
17	May-98	3966.98	0.16	0.16
17	Jun-98	16239.17	0.16	0.17
17	Jul-98	20551.43	0.16	0.17

19	Jun-99	22.54	0.01	0
19	Jul-99	19776.95	0.14	0.14
19	Aug-99	14700.76	0.12	0.13
19	Sep-99	17567.32	0.13	0.13
19	May-00	4089.95	0.06	0.05
19	Jun-00	16834.98	0.13	0.13
19	Jul-00	20453.02	0.14	0.14
19	Aug-00	19376.61	0.14	0.14
19	Sep-00	22196.91	0.14	0.15
19	May-01	2612.77	0.04	0.04
19	Jun-01	8871.91	0.1	0.1
19	Jul-01	17685.36	0.13	0.13
19	Aug-01	15560.1	0.13	0.13
19	Sep-01	21982.04	0.14	0.15
18	May-98	3966.98	0.03	0.03
18	Jun-98	16239.17	0.05	0.05
18	Jul-98	20551.43	0.05	0.05
18	Aug-98	25025.09	0.06	0.06
18	Sep-98	24535.63	0.06	0.06
18	May-99	3860.72	0.03	0.03
18	Jun-99	22.54	0	0
18	Jul-99	19776.95	0.05	0.05
18	Aug-99	14700.76	0.05	0.05
18	Sep-99	17567.32	0.05	0.05
18	May-00	4089.95	0.03	0.03
18	Jun-00	16834.98	0.05	0.05
18	Jul-00	20453.02	0.05	0.05
18	Aug-00	19376.61	0.05	0.05
18	Sep-00	22196.91	0.06	0.06
18	May-01	2612.77	0.02	0.02
18	Jun-01	8871.91	0.04	0.04
18	Jul-01	17685.36	0.05	0.05
18	Aug-01	15560.1	0.05	0.05
18	Sep-01	21982.04	0.06	0.06

River Station	Profile	Q Total (m ³ /s)	Froude's no.	
			Ackers-White	Yang
15	May-98	3966.98	0.07	0.07
15	Jun-98	16239.17	0.09	0.09
15	Jul-98	20551.43	0.1	0.1

17	Aug-98	25025.09	0.16	0.17
17	Sep-98	24535.63	0.16	0.17
17	May-99	3860.72	0.16	0.16
17	Jun-99	22.54	0.15	0.13
17	Jul-99	19776.95	0.16	0.17
17	Aug-99	14700.76	0.16	0.17
17	Sep-99	17567.32	0.16	0.17
17	May-00	4089.95	0.16	0.16
17	Jun-00	16834.98	0.16	0.17
17	Jul-00	20453.02	0.16	0.17
17	Aug-00	19376.61	0.16	0.17
17	Sep-00	22196.91	0.16	0.17
17	May-01	2612.77	0.16	0.15
17	Jun-01	8871.91	0.16	0.16
17	Jul-01	17685.36	0.16	0.17
17	Aug-01	15560.1	0.16	0.17
17	Sep-01	21982.04	0.16	0.17
16	May-98	3966.98	0.13	0.14
16	Jun-98	16239.17	0.11	0.11
16	Jul-98	20551.43	0.11	0.11
16	Aug-98	25025.09	0.11	0.11
16	Sep-98	24535.63	0.11	0.11
16	May-99	3860.72	0.13	0.14
16	Jun-99	22.54	0.11	0.11
16	Jul-99	19776.95	0.11	0.11
16	Aug-99	14700.76	0.11	0.11
16	Sep-99	17567.32	0.11	0.11
16	May-00	4089.95	0.13	0.14
16	Jun-00	16834.98	0.11	0.11
16	Jul-00	20453.02	0.11	0.11
16	Aug-00	19376.61	0.11	0.11
16	Sep-00	22196.91	0.11	0.11
16	May-01	2612.77	0.12	0.14
16	Jun-01	8871.91	0.11	0.13
16	Jul-01	17685.36	0.11	0.11
16	Aug-01	15560.1	0.11	0.11
16	Sep-01	21982.04	0.11	0.11

15	Aug-98	25025.09	0.1	0.1
15	Sep-98	24535.63	0.1	0.1
15	May-99	3860.72	0.07	0.08
15	Jun-99	22.54	0.12	0.13
15	Jul-99	19776.95	0.1	0.1
15	Aug-99	14700.76	0.09	0.09
15	Sep-99	17567.32	0.09	0.09
15	May-00	4089.95	0.07	0.08
15	Jun-00	16834.98	0.09	0.09
15	Jul-00	20453.02	0.1	0.1
15	Aug-00	19376.61	0.1	0.1
15	Sep-00	22196.91	0.1	0.1
15	May-01	2612.77	0.06	0.08
15	Jun-01	8871.91	0.08	0.08
15	Jul-01	17685.36	0.09	0.09
15	Aug-01	15560.1	0.09	0.09
15	Sep-01	21982.04	0.1	0.1
14	May-98	3966.98	0.09	0.09
14	Jun-98	16239.17	0.13	0.13
14	Jul-98	20551.43	0.13	0.14
14	Aug-98	25025.09	0.14	0.14
14	Sep-98	24535.63	0.14	0.14
14	May-99	3860.72	0.09	0.09
14	Jun-99	22.54	0.04	0.05
14	Jul-99	19776.95	0.14	0.14
14	Aug-99	14700.76	0.13	0.13
14	Sep-99	17567.32	0.13	0.13
14	May-00	4089.95	0.09	0.1
14	Jun-00	16834.98	0.13	0.13
14	Jul-00	20453.02	0.14	0.14
14	Aug-00	19376.61	0.14	0.14
14	Sep-00	22196.91	0.14	0.14
14	May-01	2612.77	0.07	0.08
14	Jun-01	8871.91	0.12	0.12
14	Jul-01	17685.36	0.13	0.13
14	Aug-01	15560.1	0.13	0.13
14	Sep-01	21982.04	0.14	0.14

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
13	May-98	3966.98	0.1	0.1
13	Jun-98	16239.17	0.16	0.16
13	Jul-98	20551.43	0.16	0.16
13	Aug-98	25025.09	0.16	0.16
13	Sep-98	24535.63	0.16	0.16
13	May-99	3860.72	0.1	0.09
13	Jun-99	22.54	0.06	0.05
13	Jul-99	19776.95	0.16	0.16
13	Aug-99	14700.76	0.15	0.15
13	Sep-99	17567.32	0.16	0.16
13	May-00	4089.95	0.1	0.1
13	Jun-00	16834.98	0.16	0.16
13	Jul-00	20453.02	0.16	0.16
13	Aug-00	19376.61	0.16	0.16
13	Sep-00	22196.91	0.16	0.16
13	May-01	2612.77	0.09	0.08
13	Jun-01	8871.91	0.13	0.13
13	Jul-01	17685.36	0.16	0.16
13	Aug-01	15560.1	0.16	0.16
13	Sep-01	21982.04	0.16	0.16
12	May-98	3966.98	0.08	0.09
12	Jun-98	16239.17	0.11	0.11
12	Jul-98	20551.43	0.11	0.11
12	Aug-98	25025.09	0.1	0.1
12	Sep-98	24535.63	0.1	0.1
12	May-99	3860.72	0.08	0.09
12	Jun-99	22.54	0.11	0.12
12	Jul-99	19776.95	0.11	0.11
12	Aug-99	14700.76	0.11	0.11
12	Sep-99	17567.32	0.11	0.11
12	May-00	4089.95	0.08	0.09
12	Jun-00	16834.98	0.11	0.11
12	Jul-00	20453.02	0.11	0.11
12	Aug-00	19376.61	0.11	0.11
12	Sep-00	22196.91	0.1	0.11
12	May-01	2612.77	0.09	0.1
12	Jun-01	8871.91	0.11	0.11
12	Jul-01	17685.36	0.11	0.11

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
11	May-98	3966.98	0.11	0.12
11	Jun-98	16239.17	0.13	0.13
11	Jul-98	20551.43	0.13	0.14
11	Aug-98	25025.09	0.14	0.15
11	Sep-98	24535.63	0.14	0.14
11	May-99	3860.72	0.11	0.12
11	Jun-99	22.54	0.09	0.15
11	Jul-99	19776.95	0.13	0.14
11	Aug-99	14700.76	0.13	0.14
11	Sep-99	17567.32	0.13	0.13
11	May-00	4089.95	0.11	0.12
11	Jun-00	16834.98	0.13	0.13
11	Jul-00	20453.02	0.13	0.14
11	Aug-00	19376.61	0.13	0.14
11	Sep-00	22196.91	0.14	0.14
11	May-01	2612.77	0.1	0.1
11	Jun-01	8871.91	0.12	0.12
11	Jul-01	17685.36	0.13	0.13
11	Aug-01	15560.1	0.13	0.13
11	Sep-01	21982.04	0.14	0.14
10	May-98	3966.98	0.09	0.1
10	Jun-98	16239.17	0.11	0.12
10	Jul-98	20551.43	0.11	0.12
10	Aug-98	25025.09	0.12	0.12
10	Sep-98	24535.63	0.12	0.12
10	May-99	3860.72	0.09	0.1
10	Jun-99	22.54	0.01	0.01
10	Jul-99	19776.95	0.11	0.12
10	Aug-99	14700.76	0.12	0.12
10	Sep-99	17567.32	0.11	0.12
10	May-00	4089.95	0.09	0.1
10	Jun-00	16834.98	0.11	0.12
10	Jul-00	20453.02	0.11	0.12
10	Aug-00	19376.61	0.11	0.12
10	Sep-00	22196.91	0.12	0.12
10	May-01	2612.77	0.08	0.09
10	Jun-01	8871.91	0.11	0.11
10	Jul-01	17685.36	0.11	0.12

12	Aug-01	15560.1	0.11	0.11
12	Sep-01	21982.04	0.1	0.11

10	Aug-01	15560.1	0.11	0.12
10	Sep-01	21982.04	0.12	0.12

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
9	May-98	3966.98	0.04	0.04
9	Jun-98	16239.17	0.08	0.08
9	Jul-98	20551.43	0.09	0.09
9	Aug-98	25025.09	0.1	0.1
9	Sep-98	24535.63	0.1	0.1
9	May-99	3860.72	0.04	0.04
9	Jun-99	22.54	0	0
9	Jul-99	19776.95	0.09	0.09
9	Aug-99	14700.76	0.08	0.08
9	Sep-99	17567.32	0.08	0.09
9	May-00	4089.95	0.04	0.04
9	Jun-00	16834.98	0.08	0.08
9	Jul-00	20453.02	0.09	0.09
9	Aug-00	19376.61	0.09	0.09
9	Sep-00	22196.91	0.09	0.1
9	May-01	2612.77	0.03	0.04
9	Jun-01	8871.91	0.06	0.06
9	Jul-01	17685.36	0.08	0.09
9	Aug-01	15560.1	0.08	0.08
9	Sep-01	21982.04	0.09	0.1
8	May-98	3966.98	0.19	0.22
8	Jun-98	16239.17	0.15	0.16
8	Jul-98	20551.43	0.15	0.15
8	Aug-98	25025.09	0.15	0.15
8	Sep-98	24535.63	0.15	0.15
8	May-99	3860.72	0.19	0.22
8	Jun-99	22.54	0.01	0.01
8	Jul-99	19776.95	0.15	0.15
8	Aug-99	14700.76	0.15	0.16
8	Sep-99	17567.32	0.15	0.15
8	May-00	4089.95	0.19	0.22
8	Jun-00	16834.98	0.15	0.16
8	Jul-00	20453.02	0.15	0.15
8	Aug-00	19376.61	0.15	0.15
8	Sep-00	22196.91	0.15	0.15

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
7	May-98	3966.98	0.04	0.04
7	Jun-98	16239.17	0.06	0.06
7	Jul-98	20551.43	0.07	0.07
7	Aug-98	25025.09	0.07	0.07
7	Sep-98	24535.63	0.07	0.07
7	May-99	3860.72	0.04	0.04
7	Jun-99	22.54	0	0
7	Jul-99	19776.95	0.07	0.07
7	Aug-99	14700.76	0.06	0.06
7	Sep-99	17567.32	0.07	0.07
7	May-00	4089.95	0.04	0.04
7	Jun-00	16834.98	0.07	0.07
7	Jul-00	20453.02	0.07	0.07
7	Aug-00	19376.61	0.07	0.07
7	Sep-00	22196.91	0.07	0.07
7	May-01	2612.77	0.03	0.03
7	Jun-01	8871.91	0.05	0.05
7	Jul-01	17685.36	0.07	0.07
7	Aug-01	15560.1	0.06	0.06
7	Sep-01	21982.04	0.07	0.07
6	May-98	3966.98	0.07	0.07
6	Jun-98	16239.17	0.08	0.08
6	Jul-98	20551.43	0.08	0.08
6	Aug-98	25025.09	0.08	0.08
6	Sep-98	24535.63	0.08	0.08
6	May-99	3860.72	0.07	0.07
6	Jun-99	22.54	0.11	0.1
6	Jul-99	19776.95	0.08	0.08
6	Aug-99	14700.76	0.08	0.08
6	Sep-99	17567.32	0.08	0.08
6	May-00	4089.95	0.07	0.07
6	Jun-00	16834.98	0.08	0.08
6	Jul-00	20453.02	0.08	0.08
6	Aug-00	19376.61	0.08	0.08
6	Sep-00	22196.91	0.08	0.08

8	May-01	2612.77	0.17	0.2
8	Jun-01	8871.91	0.17	0.2
8	Jul-01	17685.36	0.15	0.15
8	Aug-01	15560.1	0.15	0.16
8	Sep-01	21982.04	0.15	0.15

6	May-01	2612.77	0.07	0.07
6	Jun-01	8871.91	0.07	0.07
6	Jul-01	17685.36	0.08	0.08
6	Aug-01	15560.1	0.08	0.08
6	Sep-01	21982.04	0.08	0.08

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
5	May-98	3966.98	0.16	0.17
5	Jun-98	16239.17	0.16	0.17
5	Jul-98	20551.43	0.18	0.18
5	Aug-98	25025.09	0.19	0.19
5	Sep-98	24535.63	0.19	0.19
5	May-99	3860.72	0.16	0.17
5	Jun-99	22.54	0.15	0.11
5	Jul-99	19776.95	0.17	0.18
5	Aug-99	14700.76	0.16	0.17
5	Sep-99	17567.32	0.17	0.17
5	May-00	4089.95	0.16	0.17
5	Jun-00	16834.98	0.16	0.17
5	Jul-00	20453.02	0.18	0.18
5	Aug-00	19376.61	0.17	0.17
5	Sep-00	22196.91	0.18	0.18
5	May-01	2612.77	0.16	0.17
5	Jun-01	8871.91	0.15	0.15
5	Jul-01	17685.36	0.17	0.17
5	Aug-01	15560.1	0.16	0.16
5	Sep-01	21982.04	0.18	0.18
4	May-98	3966.98	0.03	0.03
4	Jun-98	16239.17	0.05	0.05
4	Jul-98	20551.43	0.06	0.06
4	Aug-98	25025.09	0.06	0.06
4	Sep-98	24535.63	0.06	0.06
4	May-99	3860.72	0.03	0.03
4	Jun-99	22.54	0.06	0.06
4	Jul-99	19776.95	0.06	0.06
4	Aug-99	14700.76	0.05	0.05
4	Sep-99	17567.32	0.05	0.06
4	May-00	4089.95	0.03	0.03
4	Jun-00	16834.98	0.05	0.05

River Station	Profile	Q Total (m3/s)	Froude's no.	
			Ackers-White	Yang
3	May-98	3966.98	0.03	0.04
3	Jun-98	16239.17	0.08	0.08
3	Jul-98	20551.43	0.09	0.09
3	Aug-98	25025.09	0.1	0.1
3	Sep-98	24535.63	0.1	0.1
3	May-99	3860.72	0.03	0.03
3	Jun-99	22.54	0.01	0.01
3	Jul-99	19776.95	0.09	0.09
3	Aug-99	14700.76	0.07	0.07
3	Sep-99	17567.32	0.08	0.08
3	May-00	4089.95	0.04	0.04
3	Jun-00	16834.98	0.08	0.08
3	Jul-00	20453.02	0.09	0.09
3	Aug-00	19376.61	0.09	0.09
3	Sep-00	22196.91	0.09	0.1
3	May-01	2612.77	0.03	0.03
3	Jun-01	8871.91	0.05	0.05
3	Jul-01	17685.36	0.08	0.08
3	Aug-01	15560.1	0.07	0.07
3	Sep-01	21982.04	0.09	0.09
2	May-98	3966.98	0.02	0.02
2	Jun-98	16239.17	0.05	0.05
2	Jul-98	20551.43	0.06	0.06
2	Aug-98	25025.09	0.07	0.07
2	Sep-98	24535.63	0.07	0.07
2	May-99	3860.72	0.02	0.02
2	Jun-99	22.54	0.94	0.97
2	Jul-99	19776.95	0.05	0.05
2	Aug-99	14700.76	0.05	0.05
2	Sep-99	17567.32	0.05	0.05
2	May-00	4089.95	0.02	0.02
2	Jun-00	16834.98	0.05	0.05

4	Jul-00	20453.02	0.06	0.06
4	Aug-00	19376.61	0.06	0.06
4	Sep-00	22196.91	0.06	0.06
4	May-01	2612.77	0.03	0.03
4	Jun-01	8871.91	0.04	0.04
4	Jul-01	17685.36	0.05	0.06
4	Aug-01	15560.1	0.05	0.05
4	Sep-01	21982.04	0.06	0.06

2	Jul-00	20453.02	0.06	0.06
2	Aug-00	19376.61	0.05	0.05
2	Sep-00	22196.91	0.06	0.06
2	May-01	2612.77	0.02	0.02
2	Jun-01	8871.91	0.03	0.03
2	Jul-01	17685.36	0.05	0.05
2	Aug-01	15560.1	0.05	0.05
2	Sep-01	21982.04	0.06	0.06

Table 2 Detailed outputs of hydrodynamic module for complete study reach

River Sta	Profile	Q Total (m ³ /s)	Min Ch El (m)	W.S. Elev (m)	E.G. Elev (m)	E.G. Slope (m/m)	Vel Chnl (m/s)	Flow Area (m ²)	Top Width (m)	Froude # Chl	Power Chan (N/m s)	Max Chl Dpth (m)
65	17Oct1997 0000	9760.04	108	115.7	115.72	0.000112	0.68	14443.02	3675.03	0.11	2.92	7.7
65	02Nov1997 0000	3343.9	108	112.6	112.61	0.000132	0.58	5770.17	2086.05	0.11	2.07	4.6
65	02Dec1997 0000	2083.29	108	111.69	111.71	0.000141	0.52	4023.06	1811.17	0.11	1.59	3.69
65	02Jan1998 0000	1575.76	108	111.24	111.25	0.000156	0.49	3221.58	1706.88	0.11	1.41	3.24
65	02Feb1998 0000	1488.59	108	111.16	111.17	0.000158	0.48	3083.22	1684.61	0.11	1.37	3.15
65	02Mar1998 0000	1351.66	108	111.02	111.04	0.000163	0.47	2859.99	1647.98	0.11	1.31	3.02
65	02Apr1998 0000	3569.02	108	112.77	112.79	0.000127	0.58	6134.23	2148.61	0.11	2.07	4.77
65	02May1998 0000	3966.98	108	112.98	113	0.000129	0.6	6599.52	2225.49	0.11	2.25	4.98
65	02Jun1998 0000	16239.17	108	117.54	117.56	0.000141	0.68	23902.21	7153.51	0.12	3.13	9.53
65	02Jul1998 0000	20551.43	108	117.97	118	0.000151	0.76	27036.09	7200	0.13	4.22	9.97
65	02Aug1998 0000	25025.09	108	118.38	118.41	0.000158	0.83	29981.99	7200	0.13	5.39	10.38
65	02Sep1998 0000	24535.63	107.99	118.33	118.37	0.000157	0.83	29704.33	7200	0.13	5.24	10.34
65	02Oct1998 0000	10639.45	107.99	116.25	116.27	0.000098	0.64	16623.65	4157.66	0.1	2.46	8.26
65	02Nov1998 0000	5943.19	107.99	113.92	113.94	0.000132	0.67	8874.39	2591.54	0.12	2.97	5.92
65	02Dec1998 0000	3025.89	107.99	112.37	112.39	0.000134	0.57	5329.56	2009.18	0.11	1.97	4.38
65	02Jan1999 0000	2682.84	107.99	112.14	112.15	0.000134	0.55	4862.75	1923.54	0.11	1.84	4.14
65	02Feb1999 0000	1016.6	107.99	110.63	110.64	0.000188	0.45	2248.45	1543.11	0.12	1.22	2.64
65	02Mar1999 0000	1675.45	107.99	111.33	111.34	0.000152	0.49	3389.98	1733.81	0.11	1.44	3.33
65	02Apr1999 0000	3886.6	107.99	112.94	112.96	0.000128	0.6	6521.01	2212.91	0.11	2.2	4.94
65	02May1999 0000	3860.72	107.99	112.93	112.94	0.000128	0.59	6491.39	2208.12	0.11	2.19	4.93
65	02Jun1999 0000	22.54	107.99	108.53	108.53	0.000135	0.16	140.29	354.71	0.08	0.08	0.54
65	02Jul1999 0000	19776.95	107.99	117.89	117.92	0.000148	0.74	26552.66	7200	0.12	3.99	9.9
65	02Aug1999 0000	14700.76	107.99	117.36	117.38	0.000135	0.65	22743.04	7118.41	0.12	2.74	9.37
65	02Sep1999 0000	17567.32	107.99	117.67	117.7	0.000143	0.7	24979.03	7186.69	0.12	3.43	9.68
65	02Oct1999 0000	13622.8	107.99	117.23	117.25	0.000133	0.62	21802.53	7089.35	0.11	2.5	9.24
65	02Nov1999 0000	6945.28	107.99	114.35	114.37	0.00013	0.69	10040.48	2761.17	0.12	3.21	6.36
65	02Dec1999 0000	3256.33	107.99	112.54	112.55	0.00013	0.57	5676.22	2070.63	0.11	2.01	4.55
65	02Jan2000 0000	1967.94	107.99	111.59	111.61	0.000141	0.51	3871.33	1794.43	0.11	1.52	3.61
65	02Feb2000 0000	1590.46	107.99	111.24	111.26	0.000154	0.49	3256.96	1712.69	0.11	1.4	3.26
65	02Mar2000 0000	1612.66	107.99	111.26	111.28	0.000153	0.49	3292.14	1718.3	0.11	1.41	3.28
65	02Apr2000 0000	4103.09	107.99	113.05	113.06	0.000129	0.61	6776.29	2254.25	0.11	2.29	5.06
65	02May2000 0000	4089.95	107.99	113.04	113.06	0.000128	0.6	6761.66	2251.9	0.11	2.29	5.05
65	02Jun2000 0000	16834.98	107.98	117.59	117.62	0.000141	0.69	24445.63	7169.79	0.12	3.24	9.61
65	02Jul2000 0000	20453.02	107.98	117.96	117.99	0.000149	0.76	27074.55	7200	0.12	4.14	9.98
65	02Aug2000 0000	19376.61	107.98	117.85	117.88	0.000146	0.74	26351.16	7200	0.12	3.85	9.88

65	02Sep2000 0000	22196.91	107.97	118.12	118.15	0.000151	0.78	28296.86	7200	0.13	4.56	10.15
65	02Oct2000 0000	10971.93	107.97	116.37	116.39	0.000101	0.64	17219.73	4415.68	0.1	2.45	8.4
65	02Nov2000 0000	3236.85	107.97	112.52	112.54	0.000129	0.57	5675.08	2070.13	0.11	1.98	4.55
65	02Dec2000 0000	2441.69	107.97	111.95	111.97	0.000133	0.54	4561.4	1868.57	0.11	1.7	3.98
65	02Jan2001 0000	1556.19	107.97	111.2	111.22	0.000153	0.48	3219.13	1706.6	0.11	1.36	3.23
65	02Feb2001 0000	1507.84	107.97	111.16	111.17	0.000154	0.48	3142.23	1694.22	0.11	1.34	3.19
65	02Mar2001 0000	1642.2	107.97	111.29	111.3	0.00015	0.49	3357.86	1728.71	0.11	1.4	3.32
65	02Apr2001 0000	1970.43	107.97	111.59	111.6	0.000139	0.51	3893.56	1796.93	0.11	1.49	3.62
65	02May2001 0000	2612.77	107.97	112.08	112.09	0.000133	0.55	4792.04	1910.15	0.11	1.78	4.11
65	02Jun2001 0000	8871.91	107.97	115.17	115.2	0.000134	0.7	12673.09	3506.63	0.12	3.33	7.2
65	02Jul2001 0000	17685.36	107.97	117.68	117.71	0.000141	0.7	25180.32	7191.34	0.12	3.4	9.71
65	02Aug2001 0000	15560.1	107.96	117.45	117.47	0.000135	0.66	23568.62	7142.09	0.12	2.88	9.49
65	02Sep2001 0000	21982.04	107.96	118.1	118.13	0.00015	0.78	28211.49	7200	0.13	4.48	10.14
64	17Oct1997 0000	9760.04	105.4	114.98	115.01	0.000111	0.77	12644.99	2620.18	0.11	4.06	9.58
64	02Nov1997 0000	3343.9	105.4	111.64	111.66	0.00015	0.63	5299.87	1861.61	0.12	2.64	6.24
64	02Dec1997 0000	2083.29	105.4	110.67	110.68	0.000168	0.57	3624.81	1590.79	0.12	2.15	5.27
64	02Jan1998 0000	1575.76	105.4	110.14	110.16	0.000155	0.55	2863.99	1263.4	0.12	1.89	4.74
64	02Feb1998 0000	1488.59	105.4	110.05	110.06	0.000154	0.54	2746.49	1234.81	0.12	1.82	4.65
64	02Mar1998 0000	1351.66	105.4	109.89	109.91	0.000152	0.53	2561.44	1188.41	0.11	1.7	4.49
64	02Apr1998 0000	3569.02	105.4	111.77	111.79	0.00015	0.64	5553.07	1897.51	0.12	2.77	6.37
64	02May1998 0000	3956.98	105.4	111.99	112.01	0.000149	0.66	5978.66	1937.94	0.12	2.99	6.59
64	02Jun1998 0000	16239.17	105.4	116.53	116.56	0.000251	0.78	20891.88	7900	0.15	5.07	11.13
64	02Jul1998 0000	20551.43	105.4	116.92	116.95	0.000256	0.86	23926.6	7900	0.16	6.53	11.52
64	02Aug1998 0000	25025.09	105.4	117.28	117.32	0.000261	0.93	26786.1	7900	0.16	8.1	11.88
64	02Sep1998 0000	24535.63	105.4	117.24	117.28	0.00026	0.93	26487.43	7900	0.16	7.92	11.84
64	02Oct1998 0000	10639.45	105.39	115.53	115.56	0.000156	0.73	14563.26	4235.51	0.13	3.85	10.14
64	02Nov1998 0000	5943.19	105.39	113.02	113.04	0.000139	0.74	8067.4	2121.6	0.12	3.82	7.62
64	02Dec1998 0000	3025.89	105.39	111.43	111.44	0.000151	0.61	4926.49	1807.35	0.12	2.47	6.03
64	02Jan1999 0000	2682.84	105.39	111.17	111.19	0.000156	0.6	4468.6	1738.51	0.12	2.36	5.77
64	02Feb1999 0000	1016.6	105.39	109.46	109.47	0.000144	0.49	2086.3	1048.93	0.11	1.37	4.07
64	02Mar1999 0000	1675.45	105.39	110.25	110.27	0.000156	0.56	3013.6	1317.56	0.12	1.95	4.86
64	02Apr1999 0000	3886.6	105.39	111.95	111.97	0.000149	0.66	5904.7	1931.11	0.12	2.93	6.55
64	02May1999 0000	3860.72	105.39	111.93	111.96	0.000149	0.66	5877.4	1928.59	0.12	2.92	6.54
64	02Jun1999 0000	22.54	105.39	106.68	106.68	0.000062	0.13	175.01	343	0.06	0.04	1.28
64	02Jul1999 0000	19776.95	105.39	116.85	116.88	0.000254	0.84	23431	7900	0.16	6.24	11.45
64	02Aug1999 0000	14700.76	105.39	116.37	116.4	0.00025	0.75	19677	7866.17	0.15	4.58	10.98
64	02Sep1999 0000	17567.32	105.39	116.65	116.68	0.000252	0.8	21892	7900	0.15	5.49	11.26

64	02Oct1999 0000	13622.8	105.39	116.24	116.27	0.000246	0.73	18696	7676.47	0.15	4.29	10.85
64	02Nov1999 0000	6945.28	105.39	113.49	113.52	0.000134	0.76	9102.4	2212.94	0.12	4.14	8.1
64	02Dec1999 0000	3256.33	105.39	111.58	111.6	0.000149	0.62	5213.6	1849.3	0.12	2.57	6.19
64	02Jan2000 0000	1967.94	105.39	110.56	110.58	0.000167	0.57	3481.8	1563.26	0.12	2.06	5.18
64	02Feb2000 0000	1590.46	105.39	110.15	110.17	0.000153	0.55	2894.1	1270.74	0.12	1.88	4.76
64	02Mar2000 0000	1612.66	105.39	110.18	110.19	0.000153	0.55	2924.6	1278.04	0.12	1.9	4.79
64	02Apr2000 0000	4103.09	105.39	112.06	112.08	0.000148	0.67	6137.5	1952.51	0.12	3.04	6.67
64	02May2000 0000	4089.95	105.39	112.05	112.08	0.000148	0.67	6124.4	1951.31	0.12	3.03	6.67
64	02Jun2000 0000	16834.98	105.39	116.58	116.61	0.000251	0.79	21358	7900	0.15	5.24	11.19
64	02Jul2000 0000	20453.02	105.39	116.9	116.94	0.000255	0.86	23891	7900	0.16	6.47	11.51
64	02Aug2000 0000	19376.61	105.39	116.81	116.84	0.000254	0.84	23165	7900	0.16	6.1	11.42
64	02Sep2000 0000	22196.91	105.39	117.05	117.09	0.000257	0.89	25039	7900	0.16	7.07	11.66
64	02Oct2000 0000	10971.93	105.39	115.65	115.67	0.000162	0.73	15099	4535.95	0.13	3.83	10.26
64	02Nov2000 0000	3236.85	105.38	111.56	111.58	0.000149	0.62	5194.4	1846.56	0.12	2.56	6.18
64	02Dec2000 0000	2441.69	105.38	110.98	110.99	0.000158	0.59	4155.8	1689.7	0.12	2.24	5.59
64	02Jan2001 0000	1556.19	105.38	110.11	110.13	0.000153	0.55	2848.7	1259.86	0.12	1.85	4.73
64	02Feb2001 0000	1507.84	105.38	110.06	110.07	0.000153	0.54	2783.7	1244.11	0.12	1.81	4.68
64	02Mar2001 0000	1642.2	105.38	110.21	110.22	0.000154	0.55	2969.1	1296.15	0.12	1.91	4.82
64	02Apr2001 0000	1970.43	105.38	110.56	110.58	0.000167	0.57	3486.9	1564.33	0.12	2.06	5.18
64	02May2001 0000	2612.77	105.38	111.1	111.12	0.000157	0.6	4374.5	1724.23	0.12	2.33	5.72
64	02Jun2001 0000	8871.91	105.38	114.37	114.4	0.000126	0.8	11134	2409.72	0.12	4.53	8.98
64	02Jul2001 0000	17685.36	105.39	116.66	116.69	0.000252	0.8	21981	7900	0.15	5.52	11.27
64	02Aug2001 0000	15560.1	105.39	116.46	116.49	0.00025	0.76	20392	7900	0.15	4.83	11.07
64	02Sep2001 0000	21982.04	105.39	117.03	117.07	0.000257	0.88	24899	7900	0.16	7	11.64
63	17Oct1997 0000	9760.04	105	113.51	113.53	0.000276	0.68	14345	7099.12	0.15	3.72	8.51
63	02Nov1997 0000	3343.9	105	110.57	110.59	0.000092	0.54	6161.2	1873.53	0.1	1.6	5.57
63	02Dec1997 0000	2083.29	105	109.65	109.66	0.000082	0.46	4544.1	1644.26	0.09	1.02	4.65
63	02Jan1998 0000	1575.76	105	109.12	109.13	0.000084	0.43	3702	1515.45	0.09	0.85	4.12
63	02Feb1998 0000	1488.59	105	109.02	109.03	0.000083	0.42	3561.9	1492.91	0.09	0.81	4.02
63	02Mar1998 0000	1351.66	105	108.88	108.89	0.000082	0.4	3347.5	1457.74	0.09	0.74	3.88
63	02Apr1998 0000	3569.02	105	110.69	110.7	0.000094	0.56	6381.6	1898.06	0.1	1.74	5.69
63	02May1998 0000	3966.98	105	110.88	110.9	0.000099	0.59	6757.8	1936.32	0.1	1.99	5.88
63	02Jun1998 0000	16239.17	105	114.67	114.69	0.000193	0.65	25103	10274.49	0.13	3	9.67
63	02Jul1998 0000	20551.43	105	115.05	115.07	0.000197	0.71	29004	10500	0.14	3.78	10.05
63	02Aug1998 0000	25025.09	105	115.39	115.42	0.000198	0.77	32580	10500	0.14	4.63	10.39
63	02Sep1998 0000	24535.63	105	115.35	115.38	0.000198	0.76	32200	10500	0.14	4.54	10.35
63	02Oct1998 0000	10639.45	105	113.8	113.82	0.00026	0.64	16589	8589.2	0.15	3.16	8.79

63	02Nov1998 0000	5943.19	105	111.78	111.8	0.000113	0.69	8558.3	2104.98	0.11	3.13	6.77
63	02Dec1998 0000	3025.89	105	110.39	110.4	0.000088	0.52	5817.6	1826.41	0.09	1.43	5.38
63	02Jan1999 0000	2682.84	105	110.17	110.18	0.000084	0.49	5426.5	1771.33	0.09	1.24	5.17
63	02Feb1999 0000	1016.6	105	108.46	108.46	0.000074	0.37	2762.8	1276.59	0.08	0.57	3.45
63	02Mar1999 0000	1675.45	105	109.23	109.24	0.000084	0.43	3869	1541.91	0.09	0.89	4.23
63	02Apr1999 0000	3886.6	105	110.84	110.86	0.000098	0.58	6678.8	1928.43	0.1	1.94	5.84
63	02May1999 0000	3860.72	105	110.83	110.85	0.000098	0.58	6653.9	1925.93	0.1	1.93	5.83
63	02Jun1999 0000	22.34	105	105.57	105.57	0.000369	0.23	99.55	319.6	0.13	0.26	0.56
63	02Jul1999 0000	19776.95	105	114.99	115.01	0.000197	0.7	28340	10489.21	0.14	3.64	9.98
63	02Aug1999 0000	14700.76	105	114.51	114.53	0.000194	0.63	23405	10023.38	0.13	2.79	9.5
63	02Sep1999 0000	17567.32	105.01	114.8	114.82	0.000195	0.67	26352	10363.73	0.13	3.24	9.79
63	02Oct1999 0000	13622.8	105.01	114.39	114.41	0.000193	0.61	22189	9797.14	0.13	2.63	9.38
63	02Nov1999 0000	6945.28	105.01	112.26	112.28	0.000124	0.72	9621.9	2389.49	0.11	3.53	7.25
63	02Dec1999 0000	3256.33	105.01	110.52	110.53	0.000091	0.54	6054.8	1859.24	0.1	1.57	5.51
63	02Jan2000 0000	1967.94	105.01	109.55	109.56	0.000082	0.45	4375.4	1619.48	0.09	0.97	4.55
63	02Feb2000 0000	1590.46	105.01	109.13	109.14	0.000085	0.43	3712.9	1517.26	0.09	0.87	4.12
63	02Mar2000 0000	1612.66	105.01	109.16	109.17	0.000085	0.43	3750.2	1523.23	0.09	0.88	4.15
63	02Apr2000 0000	4103.09	105.01	110.95	110.97	0.000101	0.6	6868.9	1947.74	0.1	2.09	5.94
63	02May2000 0000	4089.95	105.01	110.94	110.96	0.000101	0.6	6856.4	1946.52	0.1	2.08	5.93
63	02Jun2000 0000	16834.98	105.01	114.73	114.75	0.000195	0.66	25663	10330.78	0.13	3.11	9.72
63	02Jul2000 0000	20453.02	105.01	115.04	115.07	0.000197	0.71	28905	10500	0.14	3.77	10.04
63	02Aug2000 0000	19376.61	105.01	114.96	114.98	0.000197	0.69	27984	10468.92	0.14	3.57	9.95
63	02Sep2000 0000	22196.91	105.01	115.18	115.21	0.000198	0.73	30335	10500	0.14	4.1	10.17
63	02Oct2000 0000	10971.93	105.01	113.91	113.93	0.000252	0.62	17566	9239.68	0.14	2.93	8.9
63	02Nov2000 0000	3236.85	105.01	110.51	110.52	0.000091	0.54	6029	1855.9	0.1	1.56	5.5
63	02Dec2000 0000	2441.69	105.01	110	110.01	0.000081	0.48	5126.6	1728.02	0.09	1.12	5
63	02Jan2001 0000	1556.19	105.01	109.09	109.1	0.000084	0.43	3658.2	1508.54	0.09	0.85	4.09
63	02Feb2001 0000	1507.84	105.01	109.04	109.05	0.000084	0.42	3582	1496.29	0.09	0.83	4.04
63	02Mar2001 0000	1642.2	105.01	109.19	109.2	0.000084	0.43	3802	1531.49	0.09	0.89	4.18
63	02Apr2001 0000	1970.43	105.01	109.55	109.56	0.000082	0.45	4376.5	1619.82	0.09	0.98	4.55
63	02May2001 0000	2612.77	105.01	110.11	110.13	0.000084	0.49	5320	1756.26	0.09	1.22	5.11
63	02Jun2001 0000	8871.91	105.01	113.1	113.13	0.000202	0.74	12062	4202.36	0.14	4.18	8.1
63	02Jul2001 0000	17685.36	105.01	114.81	114.83	0.000195	0.67	26469	10371.18	0.13	3.26	9.8
63	02Aug2001 0000	15560.1	105.01	114.61	114.63	0.000193	0.64	24375	10169.05	0.13	2.9	9.6
63	02Sep2001 0000	21982.04	105.01	115.17	115.19	0.000198	0.73	30168	10500	0.14	4.06	10.16
62	17Oct1997 0000	9760.04	101.6	111.29	111.3	0.000052	0.45	21789	5738.41	0.07	0.86	9.69
62	02Nov1997 0000	3343.9	101.6	108.58	108.58	0.000025	0.3	11081	3103.36	0.05	0.27	6.98

62	02Dec1997 0000	2083.29	101.6	107.65	107.65	107.65	0.000018	0.25	8466.1	2525.43	0.04	0.15	6.05
62	02Jan1998 0000	1575.76	101.6	107.19	107.2	107.2	0.000015	0.21	7366.7	2304.8	0.04	0.1	5.59
62	02Feb1998 0000	1488.59	101.6	107.09	107.09	107.09	0.000014	0.21	7129.2	2271.27	0.04	0.09	5.49
62	02Mar1998 0000	1351.66	101.6	106.94	106.94	106.94	0.000014	0.2	6797	2217.4	0.04	0.08	5.34
62	02Apr1998 0000	3569.02	101.6	108.68	108.69	108.69	0.000027	0.31	11398	3144.03	0.05	0.3	7.08
62	02May1998 0000	3966.98	101.6	108.88	108.89	108.89	0.000029	0.33	12036	3222.98	0.05	0.34	7.28
62	02Jun1998 0000	16239.17	101.61	112.46	112.47	112.47	0.000118	0.52	31172	12206.09	0.1	1.54	10.85
62	02Jul1998 0000	20551.43	101.61	112.81	112.82	112.82	0.000128	0.58	35495	12572.85	0.11	2.05	11.2
62	02Aug1998 0000	25025.09	101.61	113.12	113.14	113.14	0.000134	0.63	39437	12600	0.11	2.61	11.51
62	02Sep1998 0000	24535.63	101.61	113.09	113.11	113.11	0.000133	0.63	39023	12600	0.11	2.54	11.48
62	02Oct1998 0000	10639.45	101.61	111.6	111.62	111.62	0.000051	0.45	23620	6087.35	0.07	0.87	10
62	02Nov1998 0000	5943.19	101.61	109.79	109.8	109.8	0.000034	0.39	15104	3563.19	0.06	0.56	8.18
62	02Dec1998 0000	3025.89	101.61	108.39	108.39	108.39	0.000024	0.29	10469	3000.55	0.05	0.24	6.78
62	02Jan1999 0000	2682.84	101.61	108.18	108.19	108.19	0.000021	0.27	9867.5	2839.07	0.05	0.2	6.57
62	02Feb1999 0000	1016.6	101.61	106.55	106.55	106.55	0.000011	0.17	5926.7	2069.42	0.03	0.05	4.93
62	02Mar1999 0000	1675.45	101.61	107.27	107.27	107.27	0.000016	0.22	7521.5	2326.47	0.04	0.11	5.66
62	02Apr1999 0000	3886.6	101.61	108.84	108.84	108.84	0.000029	0.33	11854	3201.93	0.05	0.34	7.22
62	02May1999 0000	3860.72	101.61	108.82	108.83	108.83	0.000028	0.33	11808	3196.54	0.05	0.34	7.21
62	02Jun1999 0000	22.54	101.62	103.06	103.06	103.06	0.000003	0.04	642	974.41	0.01	0	1.44
62	02Jul1999 0000	19776.95	101.61	112.75	112.76	112.76	0.000127	0.57	34723	12522.51	0.11	1.96	11.14
62	02Aug1999 0000	14700.76	101.61	112.31	112.33	112.33	0.000111	0.5	29396	11691.61	0.1	1.37	10.7
62	02Sep1999 0000	17567.32	101.61	112.57	112.59	112.59	0.000122	0.54	32527	12355.04	0.11	1.7	10.96
62	02Oct1999 0000	13622.8	101.61	112.19	112.21	112.21	0.000104	0.49	28028	11043.83	0.1	1.26	10.58
62	02Nov1999 0000	6945.28	101.61	110.24	110.25	110.25	0.000038	0.41	16755	3968.98	0.06	0.66	8.63
62	02Dec1999 0000	3256.33	101.62	108.5	108.51	108.51	0.000026	0.3	10800	3069.28	0.05	0.27	6.89
62	02Jan2000 0000	1967.94	101.62	107.51	107.52	107.52	0.000018	0.24	8083.3	2435.61	0.04	0.14	5.9
62	02Feb2000 0000	1590.46	101.62	107.18	107.18	107.18	0.000015	0.22	7303.8	2296.15	0.04	0.1	5.56
62	02Mar2000 0000	1612.66	101.62	107.2	107.2	107.2	0.000016	0.22	7341.2	2301.44	0.04	0.11	5.58
62	02Apr2000 0000	4103.09	101.62	108.94	108.94	108.94	0.00003	0.34	12157	3239.77	0.06	0.37	7.32
62	02May2000 0000	4089.95	101.62	108.93	108.93	108.93	0.00003	0.34	12133	3237.04	0.06	0.37	7.31
62	02Jun2000 0000	16834.98	101.62	112.51	112.53	112.53	0.000121	0.53	31740	12273.27	0.11	1.62	10.89
62	02Jul2000 0000	20453.02	101.62	112.8	112.82	112.82	0.000128	0.58	35337	12568	0.11	2.05	11.18
62	02Aug2000 0000	19376.61	101.62	112.72	112.73	112.73	0.000126	0.56	34303	12495.66	0.11	1.92	11.1
62	02Sep2000 0000	22196.91	101.62	112.93	112.95	112.95	0.000131	0.6	36926	12600	0.11	2.26	11.31
62	02Oct2000 0000	10971.93	101.62	111.68	111.69	111.69	0.000052	0.46	24033	6160.41	0.07	0.9	10.06
62	02Nov2000 0000	3236.85	101.62	108.48	108.48	108.48	0.000026	0.3	10703	3057.51	0.05	0.27	6.86
62	02Dec2000 0000	2441.69	101.62	107.89	107.89	107.89	0.000022	0.27	9018.1	2651.65	0.05	0.2	6.26
62	02Jan2001 0000	1556.19	101.63	107.13	107.13	107.13	0.000016	0.22	7168.7	2277.54	0.04	0.1	5.51

62	02Feb2001 0000	1507.84	101.63	107.08	107.09	0.000015	0.21	7060.9	2260.47	0.04	0.1	5.46
62	02Mar2001 0000	1642.2	101.63	107.21	107.21	0.000016	0.22	7350.7	2303.1	0.04	0.11	5.59
62	02Apr2001 0000	1970.43	101.63	107.49	107.5	0.000019	0.25	8010.9	2419.47	0.04	0.15	5.87
62	02May2001 0000	2612.77	101.63	108	108	0.000023	0.28	9302.6	2726.37	0.05	0.22	6.37
62	02Jun2001 0000	8871.91	101.63	111.01	111.02	0.000048	0.44	20175	5140.51	0.07	0.8	9.39
62	02Jul2001 0000	17685.36	101.63	112.58	112.6	0.000123	0.54	32592	12368.04	0.11	1.73	10.95
62	02Aug2001 0000	15560.1	101.63	112.4	112.41	0.000117	0.51	30340	12090.28	0.1	1.48	10.77
62	02Sep2001 0000	21982.04	101.63	112.91	112.93	0.000131	0.6	36705	12660	0.11	2.24	11.28
61	17Oct1997 0000	9760.04	100.14	109.6	109.62	0.000247	0.69	14169	6338.64	0.15	3.73	9.46
61	02Nov1997 0000	3343.9	100.14	107.81	107.83	0.000095	0.47	7048.9	2697.89	0.09	1.16	7.67
61	02Dec1997 0000	2083.29	100.14	107.04	107.05	0.000082	0.41	5124.8	2210.84	0.09	0.76	6.9
61	02Jan1998 0000	1575.76	100.14	106.67	106.68	0.000075	0.36	4337	2061.41	0.08	0.56	6.53
61	02Feb1998 0000	1488.59	100.14	106.58	106.58	0.000075	0.36	4148.4	2026.12	0.08	0.54	6.44
61	02Mar1998 0000	1351.66	100.14	106.45	106.45	0.000075	0.35	3885.9	1975.97	0.08	0.5	6.31
61	02Apr1998 0000	3569.02	100.14	107.87	107.88	0.000103	0.5	7191.7	2731.41	0.1	1.32	7.73
61	02May1998 0000	3966.98	100.14	108.01	108.02	0.000114	0.52	7590.5	2868.19	0.1	1.54	7.87
61	02Jun1998 0000	16239.17	100.14	110.54	110.56	0.000344	0.66	24452	14813.83	0.17	3.7	10.4
61	02Jul1998 0000	20551.43	100.14	110.8	110.83	0.000344	0.72	28475	15229.31	0.17	4.55	10.66
61	02Aug1998 0000	25025.09	100.14	111.04	111.07	0.000342	0.78	32159	15302.44	0.17	5.49	10.9
61	02Sep1998 0000	24535.63	100.14	111.02	111.05	0.000343	0.77	31760	15298.67	0.17	5.39	10.88
61	02Oct1998 0000	10639.45	100.14	109.94	109.96	0.000301	0.63	17022	10227.82	0.15	3.07	9.8
61	02Nov1998 0000	5943.19	100.14	108.6	108.62	0.000155	0.63	9449.8	3409.55	0.12	2.64	8.46
61	02Dec1998 0000	3025.89	100.13	107.67	107.68	0.00009	0.45	6670.8	2620.96	0.09	1.02	7.53
61	02Jan1999 0000	2682.84	100.13	107.53	107.53	0.000082	0.43	6305	2546	0.09	0.85	7.39
61	02Feb1999 0000	1016.6	100.13	106.1	106.11	0.000071	0.31	3241.1	1847	0.08	0.38	8.97
61	02Mar1999 0000	1675.45	100.13	106.72	106.72	0.000079	0.38	4444.4	2081.15	0.08	0.62	8.58
61	02Apr1999 0000	3886.6	100.13	107.96	107.98	0.000112	0.52	7476.1	2825.91	0.1	1.52	9.83
61	02May1999 0000	3860.72	100.13	107.95	107.97	0.000112	0.52	7447.8	2815.27	0.1	1.5	9.82
61	02Jun1999 0000	22.54	100.13	101.89	101.89	0.000098	0.22	103.21	129.52	0.08	0.17	7.76
61	02Jul1999 0000	19776.95	100.13	110.75	110.78	0.000345	0.71	27771	15184.09	0.17	4.41	10.62
61	02Aug1999 0000	14760.76	100.13	110.43	110.45	0.000342	0.64	22928	14572.47	0.16	3.38	10.3
61	02Sep1999 0000	17567.32	100.13	110.62	110.64	0.000344	0.68	25740	14974.39	0.17	3.96	10.49
61	02Oct1999 0000	13622.8	100.13	110.3	110.32	0.000327	0.64	21166	12936.81	0.16	3.38	10.17
61	02Nov1999 0000	6945.28	100.13	108.91	108.93	0.000194	0.65	10628	4293.2	0.13	3.08	8.79
61	02Dec1999 0000	3256.33	100.12	107.73	107.71	0.000098	0.48	6841.3	2654.72	0.09	1.17	7.6
61	02Jan2000 0000	1967.94	100.12	106.89	106.9	0.000086	0.41	4825.2	2142.08	0.09	0.77	6.77
61	02Feb2000 0000	1500.46	100.12	106.64	106.64	0.000078	0.37	3901.7	2052.61	0.08	0.59	6.51
61	02Mar2000 0000	1612.66	100.12	106.65	106.65	0.000079	0.37	3310.1	2056.03	0.08	0.61	6.52

61	02Apr2000 0000	4103.09	100.12	108.03	108.04	0.000119	0.53	7672.4	2896.12	0.1	1.65	7.9
61	02May2000 0000	4089.95	100.12	108.02	108.04	0.000118	0.53	7657	2890.72	0.1	1.64	7.9
61	02Jun2000 0000	16834.98	100.12	110.57	110.59	0.000342	0.67	25082	14894.1	0.17	3.79	10.45
61	02Jul2000 0000	20453.02	100.12	110.79	110.82	0.000344	0.72	28400	15221.41	0.17	4.53	10.67
61	02Aug2000 0000	19376.61	100.12	110.73	110.75	0.000345	0.71	27410	15147.28	0.17	4.32	10.6
61	02Sep2000 0000	22196.91	100.12	110.89	110.92	0.000342	0.74	29916	15281.02	0.17	4.87	10.77
61	02Oct2000 0000	10971.93	100.12	109.98	110	0.000301	0.63	17467	10396.84	0.15	3.11	9.85
61	02Nov2000 0000	3236.85	100.12	107.69	107.7	0.0001	0.48	6751.6	2636.77	0.1	1.2	7.57
61	02Dec2000 0000	2441.69	100.12	107.16	107.17	0.0001	0.45	5433	2337.45	0.09	1.02	7.04
61	02Jan2001 0000	1556.19	100.12	106.59	106.6	0.000079	0.37	4208.1	2036.63	0.08	0.59	6.47
61	02Feb2001 0000	1507.84	100.12	106.55	106.56	0.000078	0.37	4127.8	2021.5	0.08	0.57	6.43
61	02Mar2001 0000	1642.2	100.12	106.64	106.65	0.000082	0.38	4314.2	2056.42	0.08	0.64	6.52
61	02Apr2001 0000	1970.43	100.12	106.85	106.86	0.00009	0.41	4755.2	2131.61	0.09	0.81	6.74
61	02May2001 0000	2612.77	100.12	107.22	107.23	0.000107	0.47	5587.2	2377.5	0.1	1.15	7.11
61	02Jun2001 0000	8871.91	100.12	109.37	109.39	0.00023	0.69	12894	5481.17	0.14	3.65	9.25
61	02Jul2001 0000	17685.36	100.12	110.62	110.65	0.000342	0.68	25912	14988.02	0.17	3.95	10.51
61	02Aug2001 0000	15560.1	100.12	110.49	110.51	0.000339	0.65	23885	14733.75	0.16	3.51	10.37
61	02Sep2001 0000	21982.04	100.12	110.88	110.9	0.000342	0.74	29733	15279.17	0.17	4.83	10.76
60	17Oct1997 0000	9760.04	99	106.22	106.23	0.000088	0.38	25519	12777.67	0.09	0.66	7.22
60	02Nov1997 0000	3343.9	99	104.08	104.08	0.000024	0.28	12119	3669.11	0.05	0.21	5.08
60	02Dec1997 0000	2083.29	99.01	103.21	103.21	0.000022	0.23	9011.8	3409.97	0.05	0.13	4.2
60	02Jan1998 0000	1575.76	99.02	102.73	102.73	0.00002	0.21	7468.4	2998.43	0.04	0.1	3.71
60	02Feb1998 0000	1488.59	99.02	102.66	102.66	0.00002	0.21	7248.7	2976.5	0.04	0.1	3.64
60	02Mar1998 0000	1351.66	99.03	102.54	102.54	0.000019	0.2	6871.7	2940.3	0.04	0.09	3.51
60	02Apr1998 0000	3569.02	99.04	104.28	104.28	0.000023	0.28	12745	3726.22	0.05	0.22	5.24
60	02May1998 0000	3966.98	99.04	104.5	104.5	0.000024	0.29	13548	3790.39	0.05	0.24	5.46
60	02Jun1998 0000	16239.17	99.04	106.95	106.96	0.000093	0.46	35454	14096.29	0.09	1.05	7.9
60	02Jul1998 0000	20551.43	99.04	107.32	107.33	0.000094	0.5	40703	14097.91	0.09	1.35	8.28
60	02Aug1998 0000	25025.09	99.04	107.69	107.7	0.000098	0.54	46011	14628.41	0.1	1.64	8.64
60	02Sep1998 0000	24535.63	99.04	107.65	107.66	0.000098	0.54	45448	14609.11	0.1	1.61	8.6
60	02Oct1998 0000	10639.45	99.05	106.37	106.37	0.000092	0.39	27242	13641.29	0.09	0.71	7.32
60	02Nov1998 0000	5943.19	99.05	105.38	105.39	0.000043	0.34	17427	6080.67	0.06	0.42	6.34
60	02Dec1998 0000	3025.89	99.05	103.91	103.91	0.000023	0.27	11362	3614.76	0.05	0.19	4.87
60	02Jan1999 0000	2682.84	99.05	103.71	103.72	0.000022	0.25	10646	3555.26	0.05	0.17	4.67
60	02Feb1999 0000	1016.6	99.05	102.19	102.19	0.000018	0.17	5817.7	2831.63	0.04	0.06	3.14
60	02Mar1999 0000	1675.45	99.06	102.87	102.88	0.00002	0.22	7788	3044.23	0.04	0.11	3.81

60	02Apr1999 0000	3886.6	99.06	104.48	104.48	104.48	0.000024	0.29	13396	3782.61	0.05	0.24	5.41
60	02May1999 0000	3860.72	99.07	104.46	104.47	104.47	0.000024	0.29	13339	3778.59	0.05	0.24	5.4
60	02Jun1999 0000	22.54	99.07	100.05	100.05	100.05	0.000003	0.03	776.43	1364.01	0.01	0	0.98
60	02Jul1999 0000	19776.95	99.07	107.26	107.27	107.27	0.000094	0.5	39784	14097.66	0.09	1.3	8.19
60	02Aug1999 0000	14700.76	99.07	106.81	106.82	106.82	0.000093	0.44	33431	14095.7	0.09	0.95	7.74
60	02Sep1999 0000	17567.32	99.07	107.07	107.08	107.08	0.000094	0.47	37093	14096.83	0.09	1.15	8
60	02Oct1999 0000	13622.8	99.07	106.71	106.72	106.72	0.000093	0.43	31935	14095.24	0.09	0.88	7.64
60	02Nov1999 0000	6945.28	99.07	105.7	105.7	105.7	0.000062	0.35	19606	8475.85	0.07	0.5	6.62
60	02Dec1999 0000	3256.33	99.07	104.11	104.11	104.11	0.000023	0.27	11980	3669.84	0.05	0.2	5.03
60	02Jan2000 0000	1967.94	99.08	103.18	103.18	103.18	0.000022	0.23	8710.7	3331.52	0.04	0.12	4.11
60	02Feb2000 0000	1590.46	99.08	102.8	102.81	102.81	0.00002	0.21	7522.9	3010.69	0.04	0.1	3.72
60	02Mar2000 0000	1612.66	99.08	102.83	102.84	102.84	0.00002	0.21	7600.5	3019.42	0.04	0.1	3.75
60	02Apr2000 0000	4103.09	99.09	104.59	104.59	104.59	0.000025	0.3	13749	3814.37	0.05	0.26	5.5
60	02May2000 0000	4089.95	99.09	104.59	104.59	104.59	0.000025	0.3	13719	3812.67	0.05	0.26	5.49
60	02Jun2000 0000	16834.98	99.09	107.02	107.03	107.03	0.000094	0.47	36173	14096.57	0.09	1.1	7.92
60	02Jul2000 0000	20453.02	99.1	107.33	107.34	107.34	0.000095	0.5	40539	14097.93	0.09	1.35	8.23
60	02Aug2000 0000	19376.61	99.1	107.24	107.25	107.25	0.000095	0.49	39263	14097.54	0.09	1.27	8.14
60	02Sep2000 0000	22196.91	99.1	107.48	107.49	107.49	0.000098	0.52	42677	14506.93	0.1	1.46	8.38
60	02Oct2000 0000	10971.93	99.1	106.43	106.44	106.44	0.000094	0.39	27882	13944.21	0.09	0.72	7.33
60	02Nov2000 0000	3236.85	99.1	104.11	104.11	104.11	0.000023	0.27	11913	3667.93	0.05	0.2	5.01
60	02Dec2000 0000	2441.69	99.1	103.56	103.56	103.56	0.000023	0.25	9919.5	3500.73	0.05	0.16	4.45
60	02Jan2001 0000	1556.19	99.1	102.79	102.79	102.79	0.00002	0.21	7399.6	3000.64	0.04	0.1	3.68
60	02Feb2001 0000	1507.84	99.11	102.75	102.75	102.75	0.00002	0.21	7270.4	2988.05	0.04	0.1	3.64
60	02Mar2001 0000	1642.2	99.11	102.88	102.88	102.88	0.00002	0.21	7655.5	3030.07	0.04	0.11	3.77
60	02Apr2001 0000	1970.43	99.11	103.22	103.22	103.22	0.000022	0.23	8721.8	3360.45	0.04	0.13	4.11
60	02May2001 0000	2612.77	99.11	103.73	103.73	103.73	0.000022	0.25	10489	3551.48	0.05	0.16	4.61
60	02Jun2001 0000	8871.91	99.12	106.13	106.14	106.14	0.000083	0.37	23883	11855.23	0.08	0.61	7.01
60	02Jul2001 0000	17685.36	99.12	107.1	107.11	107.11	0.000094	0.48	37181	14096.92	0.09	1.16	7.98
60	02Aug2001 0000	15560.1	99.12	106.91	106.92	106.92	0.000094	0.45	34490	14096.09	0.09	1.02	7.79
60	02Sep2001 0000	21982.04	99.12	107.46	107.48	107.48	0.000098	0.52	42375	14487.23	0.1	1.46	8.34
59	17Oct1997 0000	9760.04	99.2	104.83	104.84	104.84	0.000207	0.56	17476	9381.53	0.13	2.11	5.63
59	02Nov1997 0000	3343.9	99.2	103.15	103.16	103.16	0.0002	0.52	6396.2	3695.74	0.13	1.78	3.95
59	02Dec1997 0000	2083.29	99.2	102.52	102.53	102.53	0.00017	0.47	4476.3	2726.43	0.12	1.27	3.32

59	02Jan1998 0000	1575.76	99.2	102.01	102.02	0.000196	0.49	3234.8	2045.26	0.12	1.48	2.81
59	02Feb1998 0000	1488.59	99.2	101.92	101.93	0.000203	0.49	3063.4	1996.78	0.13	1.48	2.72
59	02Mar1998 0000	1351.66	99.2	101.81	101.82	0.000207	0.48	2839.8	1937.14	0.13	1.42	2.61
59	02Apr1998 0000	3569.02	99.2	103.28	103.29	0.000195	0.52	6883.7	3942.21	0.13	1.73	4.08
59	02May1998 0000	3966.98	99.2	103.48	103.49	0.000198	0.51	7765.6	4613.47	0.13	1.67	4.28
59	02Jun1998 0000	16239.17	99.2	105.51	105.54	0.000217	0.67	24199	10198.38	0.14	3.38	6.31
59	02Jul1998 0000	20551.43	99.2	105.89	105.92	0.000213	0.73	28102	10273.6	0.14	4.17	6.7
59	02Aug1998 0000	25025.09	99.2	106.27	106.3	0.000208	0.78	31936	10349.58	0.14	4.93	7.07
59	02Sep1998 0000	24335.63	99.2	106.23	106.26	0.000209	0.78	31523	10339.15	0.14	4.85	7.03
59	02Oct1998 0000	10639.45	99.2	104.93	104.94	0.000209	0.58	18400	9456.65	0.13	2.31	5.73
59	02Nov1998 0000	5943.19	99.2	104.25	104.26	0.000184	0.48	12423	7701.42	0.12	1.39	5.05
59	02Dec1998 0000	3025.89	99.2	102.94	102.95	0.000188	0.53	5682.8	3043.02	0.12	1.83	3.74
59	02Jan1999 0000	2682.84	99.2	102.79	102.81	0.000182	0.51	5252.6	2922.49	0.12	1.63	3.59
59	02Feb1999 0000	1016.6	99.2	101.47	101.48	0.000205	0.45	2238.9	1626.17	0.12	1.26	2.27
59	02Mar1999 0000	1675.45	99.2	102.1	102.11	0.000194	0.49	3438.4	2155.75	0.12	1.48	2.9
59	02Apr1999 0000	3886.6	99.2	103.45	103.46	0.000197	0.51	7615.7	4516.29	0.13	1.67	4.25
59	02May1999 0000	3860.72	99.2	103.44	103.45	0.000197	0.51	7572.2	4488.42	0.13	1.66	4.24
59	02Jun1999 0000	22.54	99.18	99.35	99.39	0.035288	0.93	24.37	289.51	1.02	26.95	0.17
59	02Jul1999 0000	19776.95	99.17	105.83	105.85	0.000214	0.72	27419	10260.34	0.14	4.03	6.65
59	02Aug1999 0000	14700.76	99.17	105.37	105.39	0.000217	0.65	22746	10170.1	0.14	3.08	6.2
59	02Sep1999 0000	17567.32	99.17	105.63	105.66	0.000216	0.69	25423	10221.93	0.14	3.63	6.46
59	02Oct1999 0000	13622.8	99.17	105.26	105.28	0.000217	0.63	21611	10033.89	0.14	2.89	6.08
59	02Nov1999 0000	6945.28	99.17	104.43	104.44	0.000192	0.5	13871	8272.23	0.12	1.58	5.26
59	02Dec1999 0000	3256.33	99.17	103.1	103.11	0.000202	0.52	6212.4	3594.49	0.13	1.79	3.92
59	02Jan2000 0000	1967.94	99.17	102.42	102.43	0.000179	0.47	4215.7	2653.46	0.12	1.3	3.24
59	02Feb2000 0000	1590.46	99.17	102.01	102.02	0.000196	0.49	3253.4	2049.78	0.12	1.49	2.84
59	02Mar2000 0000	1612.66	99.17	102.03	102.05	0.000196	0.49	3302.3	2077.27	0.12	1.49	2.86
59	02Apr2000 0000	4103.09	99.17	103.54	103.55	0.000196	0.51	8032.8	4734.33	0.13	1.67	4.36
59	02May2000 0000	4089.95	99.17	103.53	103.55	0.000196	0.51	8009.2	4725.05	0.13	1.67	4.36
59	02Jun2000 0000	16834.98	99.17	105.57	105.59	0.000216	0.68	24745	10208.86	0.14	3.5	6.39
59	02Jul2000 0000	20453.02	99.17	105.89	105.91	0.000213	0.73	28010	10271.81	0.14	4.16	6.71
59	02Aug2000 0000	19376.61	99.17	105.79	105.82	0.000214	0.72	27055	10253.46	0.14	3.97	6.62
59	02Sep2000 0000	22196.91	99.17	106.03	106.06	0.000211	0.75	29532	10301.07	0.14	4.46	6.86
59	02Oct2000 0000	10971.93	99.17	104.96	104.98	0.00021	0.59	18737	9475.81	0.13	2.39	5.79

59	02Nov2000 0000	3236.85	99.17	103.08	103.09	0.000202	0.53	6141.9	3534.7	0.13	1.82	3.9
59	02Dec2000 0000	2441.69	99.17	102.71	102.72	0.000171	0.49	5010	2859.59	0.12	1.43	3.53
59	02Jan2001 0000	1556.19	99.17	101.98	101.99	0.000199	0.49	3182.3	2025.48	0.12	1.5	2.8
59	02Feb2001 0000	1507.84	99.17	101.93	101.94	0.000202	0.49	3092.7	2002.17	0.13	1.5	2.76
59	02Mar2001 0000	1642.2	99.17	102.05	102.07	0.000197	0.49	3346.2	2100.14	0.12	1.51	2.88
59	02Apr2001 0000	1970.43	99.17	102.42	102.43	0.000179	0.47	4220	2653.85	0.12	1.3	3.25
59	02May2001 0000	2612.77	99.17	102.76	102.78	0.000179	0.51	5173.5	2895.69	0.12	1.58	3.59
59	02Jun2001 0000	8871.91	99.17	104.72	104.74	0.000205	0.54	16473	9265.29	0.13	1.92	5.55
59	02Jul2001 0000	17685.36	99.17	105.64	105.67	0.000216	0.69	25512	10223.66	0.14	3.66	6.47
59	02Aug2001 0000	15560.1	99.17	105.45	105.47	0.000218	0.66	23538	10185.49	0.14	3.26	6.28
59	02Sep2001 0000	21982.04	99.17	106.02	106.04	0.000212	0.75	29336	10297.24	0.14	4.43	6.84
58	17Oct1997 0000	9760.04	87.1	103.12	103.13	0.000075	0.39	25088	10792.88	0.08	0.66	16.02
58	02Nov1997 0000	3343.9	87.1	101.33	101.34	0.000053	0.35	9669.3	3814.02	0.07	0.45	14.23
58	02Dec1997 0000	2083.29	87.1	100.44	100.45	0.000019	0.28	7414	1867.85	0.05	0.21	13.34
58	02Jan1998 0000	1575.76	87.1	100	100	0.000016	0.24	6587.8	1814.65	0.04	0.13	12.9
58	02Feb1998 0000	1488.59	87.1	99.91	99.91	0.000015	0.23	6422.5	1803.47	0.04	0.12	12.8
58	02Mar1998 0000	1351.66	87.1	99.77	99.77	0.000014	0.22	6176.6	1786.56	0.04	0.1	12.67
58	02Apr1998 0000	3569.02	87.1	101.45	101.45	0.00006	0.35	10126	4277.48	0.07	0.49	14.34
58	02May1998 0000	3966.98	87.1	101.71	101.71	0.00008	0.35	11452	6186.92	0.08	0.51	14.6
58	02Jun1998 0000	16239.17	87.11	103.93	103.94	0.000077	0.48	33767	10795.29	0.09	1.13	16.82
58	02Jul1998 0000	20551.43	87.11	104.38	104.39	0.000079	0.53	38643	10796.64	0.09	1.47	17.27
58	02Aug1998 0000	25025.09	87.11	104.81	104.82	0.00008	0.58	43243	10797.92	0.09	1.82	17.7
58	02Sep1998 0000	24535.63	87.11	104.76	104.78	0.00008	0.57	42743	10797.79	0.09	1.78	17.65
58	02Oct1998 0000	10639.45	87.11	103.24	103.25	0.000075	0.4	26360	10793.24	0.08	0.73	16.14
58	02Nov1998 0000	5943.19	87.11	102.46	102.47	0.00008	0.33	17948	10302.23	0.08	0.45	15.35
58	02Dec1998 0000	3025.89	87.11	101.17	101.18	0.000044	0.33	9073.2	3325.63	0.06	0.4	14.06
58	02Jan1999 0000	2682.84	87.11	100.95	100.96	0.000036	0.32	8407.8	2797.68	0.06	0.34	13.84
58	02Feb1999 0000	1016.6	87.11	99.35	99.35	0.000012	0.19	5426.5	1733.85	0.03	0.07	12.24
58	02Mar1999 0000	1675.45	87.11	100.1	100.1	0.000016	0.25	6760.6	1826.3	0.04	0.15	12.99
58	02Apr1999 0000	3886.6	87.11	101.67	101.68	0.000077	0.35	11211	5838.1	0.08	0.5	14.56
58	02May1999 0000	3860.72	87.11	101.66	101.66	0.000075	0.35	11131	5726.59	0.08	0.5	14.55
58	02Jun1999 0000	22.54	87.13	95.79	95.79	0	0.02	1025.9	619.89	0.01	0	8.67
58	02Jul1999 0000	19776.95	87.13	104.3	104.32	0.000079	0.52	37758	10796.41	0.09	1.41	17.17

58	02Aug1999 0000	14700.76	87.13	103.75	103.76	0.000077	0.46	31821	10794.76	0.09	1.03	16.62
58	02Sep1999 0000	17567.32	87.13	104.07	104.09	0.000078	0.5	35275	10795.72	0.09	1.24	16.94
58	02Oct1999 0000	13622.8	87.13	103.63	103.64	0.000077	0.45	30435	10794.38	0.09	0.95	16.49
58	02Nov1999 0000	6945.28	87.13	102.69	102.69	0.000077	0.34	20306	10791.56	0.08	0.48	15.55
58	02Dec1999 0000	3256.33	87.13	101.29	101.3	0.000049	0.34	9473.2	3592.24	0.07	0.44	14.16
58	02Jan2000 0000	1967.94	87.13	100.35	100.36	0.000019	0.27	7213.2	1856.99	0.04	0.19	13.22
58	02Feb2000 0000	1590.46	87.13	100.02	100.02	0.000016	0.24	6608	1816.56	0.04	0.14	12.89
58	02Mar2000 0000	1612.66	87.13	100.04	100.05	0.000016	0.24	6657.6	1819.76	0.04	0.14	12.92
58	02Apr2000 0000	4103.09	87.12	101.78	101.78	0.000083	0.35	11858	6569.29	0.08	0.51	14.65
58	02May2000 0000	4089.95	87.12	101.77	101.78	0.000083	0.35	11821	6551.08	0.08	0.51	14.65
58	02Jun2000 0000	16834.98	87.12	104	104.01	0.000077	0.49	34436	10795.48	0.09	1.18	16.87
58	02Jul2000 0000	20453.02	87.12	104.37	104.39	0.000079	0.53	38492	10796.61	0.09	1.47	17.25
58	02Aug2000 0000	19376.61	87.13	104.26	104.28	0.000079	0.52	37316	10796.29	0.09	1.38	17.14
58	02Sep2000 0000	22196.91	87.13	104.54	104.56	0.00008	0.55	40314	10797.12	0.09	1.61	17.42
58	02Oct2000 0000	10971.93	87.13	103.29	103.3	0.000076	0.41	26817	10793.37	0.08	0.75	16.17
58	02Nov2000 0000	3236.85	87.13	101.28	101.29	0.000049	0.34	9452.6	3569.27	0.07	0.43	14.16
58	02Dec2000 0000	2441.69	87.13	100.74	100.75	0.000021	0.31	7952.6	1899.26	0.05	0.27	13.61
58	02Jan2001 0000	1556.19	87.13	99.98	99.98	0.000016	0.24	6539.7	1811.46	0.04	0.13	12.85
58	02Feb2001 0000	1507.84	87.13	99.94	99.94	0.000015	0.23	6457.5	1806	0.04	0.12	12.81
58	02Mar2001 0000	1642.2	87.13	100.08	100.08	0.000016	0.24	6708.3	1823.23	0.04	0.14	12.95
58	02Apr2001 0000	1970.43	87.13	100.36	100.37	0.000018	0.27	7232.8	1857.85	0.04	0.19	13.23
58	02May2001 0000	2612.77	87.14	100.86	100.87	0.000023	0.32	8168	1965.07	0.05	0.3	13.73
58	02Jun2001 0000	8871.91	87.14	103	103.01	0.000075	0.38	23646	10792.49	0.08	0.61	15.86
58	02Jul2001 0000	17685.36	87.14	104.09	104.1	0.000078	0.5	35392	10795.76	0.09	1.25	16.95
58	02Aug2001 0000	15560.1	87.14	103.86	103.87	0.000077	0.47	32863	10795.06	0.09	1.09	16.72
58	02Sep2001 0000	21982.04	87.14	104.52	104.54	0.00008	0.55	40063	10797.06	0.09	1.59	17.38
57	17Oct1997 0000	9760.04	95	102.07	102.08	0.000132	0.49	20046	9441.76	0.11	1.34	7.07
57	02Nov1997 0000	3343.9	95	99.89	99.91	0.000123	0.5	6714.4	2893.65	0.1	1.39	4.89
57	02Dec1997 0000	2083.29	95	98.88	98.89	0.000148	0.5	4173.3	2061.39	0.11	1.47	3.88
57	02Jan1998 0000	1575.76	95	98.45	98.46	0.000164	0.48	3315.1	1907.34	0.12	1.33	3.45
57	02Feb1998 0000	1488.59	95	98.36	98.38	0.00017	0.47	3154.2	1877.06	0.12	1.32	3.36
57	02Mar1998 0000	1351.66	95	98.23	98.24	0.000176	0.47	2901.6	1809.04	0.12	1.29	3.23
57	02Apr1998 0000	3569.02	95	100.02	100.04	0.00012	0.5	7093.2	2956.12	0.1	1.42	5.02

57	02May1998 0000	3966.98	95	100.31	100.32	0.00011	0.5	7954.8	3146.04	0.1	1.36	5.31
57	02Jun1998 0000	16239.17	95	102.85	102.87	0.00013	0.59	27428	9500	0.11	2.17	7.85
57	02Jul1998 0000	20551.43	95	103.28	103.3	0.000131	0.65	31477	9500	0.11	2.78	8.28
57	02Aug1998 0000	25025.09	95	103.68	103.71	0.000133	0.71	35324	9500	0.12	3.42	8.68
57	02Sep1998 0000	24535.63	95	103.64	103.66	0.000133	0.7	34913	9500	0.12	3.36	8.64
57	02Oct1998 0000	10639.45	95	102.19	102.2	0.000131	0.5	21161	9455.02	0.11	1.45	7.19
57	02Nov1998 0000	5943.19	95	101.2	101.22	0.000169	0.48	12427	7246.25	0.12	1.36	6.2
57	02Dec1998 0000	3025.89	95	99.67	99.68	0.000133	0.5	6088.3	2795.93	0.11	1.41	4.67
57	02Jan1999 0000	2682.84	95	99.37	99.39	0.000149	0.51	5278.3	2550.66	0.11	1.54	4.38
57	02Feb1999 0000	1016.6	95	97.89	97.9	0.000181	0.44	2326.5	1632.81	0.12	1.11	2.89
57	02Mar1999 0000	1675.45	95	98.54	98.55	0.00016	0.48	3493.3	1940.35	0.11	1.35	3.54
57	02Apr1999 0000	3886.6	95	100.27	100.28	0.000109	0.5	7844.3	3118.62	0.1	1.33	5.27
57	02May1999 0000	3860.72	95	100.25	100.26	0.00011	0.5	7785.1	3103.85	0.1	1.34	5.25
57	02Jun1999 0000	22.54	95	95.69	95.7	0.000181	0.15	145.9	487.61	0.09	0.08	0.7
57	02Jul1999 0000	19776.95	95	103.2	103.22	0.000131	0.64	30784	9500	0.11	2.67	8.21
57	02Aug1999 0000	14700.76	95	102.68	102.7	0.00013	0.57	25822	9500	0.11	1.97	7.68
57	02Sep1999 0000	17567.32	95	102.99	103	0.00013	0.61	28731	9500	0.11	2.36	7.99
57	02Oct1999 0000	13622.8	95	102.56	102.57	0.00013	0.55	24640	9496.09	0.11	1.83	7.56
57	02Nov1999 0000	6945.28	95	101.58	101.59	0.000142	0.45	15509	8729.79	0.11	1.11	6.58
57	02Dec1999 0000	3256.33	95	99.83	99.84	0.000125	0.5	6542	2866.23	0.11	1.4	4.84
57	02Jan2000 0000	1967.94	94.99	98.78	98.8	0.000151	0.49	3984.3	2028.18	0.11	1.44	3.79
57	02Feb2000 0000	1590.46	94.99	98.46	98.47	0.000164	0.48	3342.7	1912.24	0.11	1.33	3.47
57	02Mar2000 0000	1612.66	94.99	98.48	98.49	0.000163	0.48	3382	1919.55	0.11	1.34	3.49
57	02Apr2000 0000	4103.09	94.99	100.37	100.38	0.000112	0.5	8175	3241.09	0.1	1.39	5.38
57	02May2000 0000	4089.95	94.99	100.36	100.38	0.000111	0.5	8153.1	3223.07	0.1	1.38	5.37
57	02Jun2000 0000	16834.98	94.99	102.91	102.93	0.00013	0.6	28022	9500	0.11	2.26	7.92
57	02Jul2000 0000	20453.02	94.99	103.26	103.29	0.000131	0.65	31385	9500	0.11	2.77	8.27
57	02Aug2000 0000	19376.61	94.99	103.16	103.18	0.000131	0.64	30421	9500	0.11	2.62	8.17
57	02Sep2000 0000	22196.91	94.99	103.42	103.45	0.000132	0.67	32899	9500	0.12	3.03	8.43
57	02Oct2000 0000	10971.93	94.99	102.23	102.24	0.000131	0.51	21575	9459.66	0.11	1.49	7.24
57	02Nov2000 0000	3236.85	94.99	99.82	99.83	0.000126	0.5	6512.2	2861.14	0.11	1.39	4.83
57	02Dec2000 0000	2441.69	94.99	99.17	99.18	0.000143	0.51	4805.2	2252.22	0.11	1.52	4.18
57	02Jan2001 0000	1556.19	94.99	98.42	98.43	0.000165	0.47	3281	1900.71	0.12	1.33	3.43
57	02Feb2001 0000	1507.84	94.99	98.38	98.39	0.000168	0.47	3190	1883.58	0.12	1.32	3.38

57	02Mar2001 0000	1642.2	94.99	98.5	98.52	0.000161	0.48	3436.3	1929.56	0.11	1.34	3.51
57	02Apr2001 0000	1970.43	94.99	98.78	98.8	0.000151	0.49	3990.4	2029.16	0.11	1.43	3.79
57	02May2001 0000	2612.77	94.99	99.31	99.32	0.000146	0.51	5132.8	2440.3	0.11	1.54	4.32
57	02Jun2001 0000	8871.91	94.99	101.93	101.94	0.000136	0.47	18749	9417.48	0.11	1.26	6.94
57	02Jul2001 0000	17685.36	94.99	103	103.01	0.00013	0.61	28843	9500	0.11	2.37	8.01
57	02Aug2001 0000	--15560.1	94.99	102.77	102.79	0.00013	0.58	26720	9500	0.11	2.09	7.78
57	02Sep2001 0000	21982.04	94.99	103.4	103.43	0.000132	0.67	32715	9500	0.12	3	8.41
56	17Oct1997 0000	9760.04	92	98.9	98.93	0.000344	0.76	12922	6461.06	0.17	5.1	6.9
56	02Nov1997 0000	3343.9	92	96.61	96.63	0.000201	0.68	4911.3	1918.01	0.14	3.44	4.61
56	02Dec1997 0000	2083.29	92	95.58	95.6	0.000244	0.66	3163.7	1501.33	0.14	3.32	3.58
56	02Jan1998 0000	1575.76	92	95.13	95.15	0.00026	0.63	2520.2	1355.51	0.15	2.97	3.13
56	02Feb1998 0000	1488.59	92	94.98	95	0.000289	0.64	2330	1311.73	0.15	3.21	2.98
56	02Mar1998 0000	1351.66	92	94.85	94.87	0.000292	0.63	2159.6	1266.39	0.15	3.06	2.85
56	02Apr1998 0000	3569.02	92	96.74	96.76	0.000211	0.69	5172.9	2054.19	0.14	3.6	4.74
56	02May1998 0000	3966.98	92	96.98	97.01	0.000207	0.7	5689.5	2187.35	0.14	3.68	4.99
56	02Jun1998 0000	16239.17	92	99.72	99.76	0.000359	0.86	18939	8085.33	0.18	7.08	7.72
56	02Jul1998 0000	20351.43	92	100.1	100.14	0.000361	0.93	22063	8348.62	0.18	8.72	8.1
56	02Aug1998 0000	25025.09	91.99	100.44	100.49	0.000392	1	25077	9094.22	0.19	10.57	8.45
56	02Sep1998 0000	24535.63	91.99	100.41	100.46	0.00039	0.99	24773	9062.43	0.19	10.36	8.42
56	02Oct1998 0000	10639.45	91.99	99.01	99.04	0.000355	0.78	13718	6737.32	0.17	5.49	7.02
56	02Nov1998 0000	5943.19	91.99	97.8	97.83	0.000239	0.78	7643.4	2780.1	0.15	5.01	5.81
56	02Dec1998 0000	3025.89	91.99	96.41	96.43	0.000198	0.66	4551.6	1822.65	0.13	3.23	4.42
56	02Jan1999 0000	2682.84	91.99	96.14	96.16	0.000205	0.66	4080.4	1703.42	0.14	3.17	4.15
56	02Feb1999 0000	1016.6	91.99	94.49	94.51	0.000296	0.58	1743.7	1148.1	0.15	2.57	2.51
56	02Mar1999 0000	1675.45	91.99	95.2	95.22	0.000258	0.63	2642.6	1382.28	0.15	3.06	3.22
56	02Apr1999 0000	3886.6	91.99	96.93	96.96	0.000207	0.69	5606.8	2172.64	0.14	3.62	4.95
56	02May1999 0000	3860.72	91.99	96.92	96.95	0.000206	0.69	5580.2	2167.89	0.14	3.6	4.93
56	02Jun1999 0000	22.54	91.99	92.5	92.51	0.000344	0.2	114.51	430.32	0.12	0.18	0.52
56	02Jul1999 0000	19776.95	91.99	100.03	100.07	0.000359	0.92	21579	8318.93	0.18	8.36	8.04
56	02Aug1999 0000	14700.76	91.99	99.52	99.56	0.000361	0.84	17475	7707.03	0.18	6.76	7.54
56	02Sep1999 0000	17567.32	91.98	99.84	99.88	0.000356	0.88	20050	8225.56	0.18	7.45	7.86
56	02Oct1999 0000	13622.8	91.98	99.4	99.43	0.000365	0.82	16528	7571.41	0.18	6.44	7.41

56	02Nov1999 0000	6945.28	91.98	98.32	98.34	0.000313	0.71	9770.2	4976.84	0.16	4.28	6.33
56	02Dec1999 0000	3256.33	91.98	96.55	96.57	0.000198	0.67	4832.4	1891.86	0.13	3.34	4.57
56	02Jan2000 0000	1967.94	91.98	95.44	95.47	0.000253	0.66	2990.6	1459.55	0.15	3.35	3.46
56	02Feb2000 0000	1590.46	91.98	95.12	95.14	0.00026	0.63	2536.4	1358.82	0.15	2.99	3.14
56	02Mar2000 0000	1612.66	91.98	95.14	95.16	0.000259	0.63	2566.8	1365.57	0.15	3	3.16
56	02Apr2000 0000	4103.09	91.98	97.04	97.06	0.000206	0.7	5840.3	2213.95	0.14	3.74	5.05
56	02May2000 0000	4089.95	91.98	97.03	97.05	0.000206	0.7	5827.2	2211.65	0.14	3.73	5.05
56	02Jun2000 0000	16834.98	91.98	99.77	99.81	0.000356	0.86	19501	8175.83	0.18	7.18	7.79
56	02Jul2000 0000	20453.02	91.98	100.08	100.12	0.000361	0.93	22001	8341.91	0.18	8.67	8.1
56	02Aug2000 0000	19376.61	91.98	99.99	100.04	0.000358	0.91	21303	8300.68	0.18	8.2	8.01
56	02Sep2000 0000	22196.91	91.98	100.2	100.25	0.000368	0.96	23061	8418.77	0.19	9.51	8.22
56	02Oct2000 0000	10971.93	91.98	99.05	99.08	0.000358	0.78	14013	6833.42	0.17	5.64	7.07
56	02Nov2000 0000	3236.85	91.98	96.53	96.55	0.0002	0.68	4786.5	1880.75	0.14	3.38	4.55
56	02Dec2000 0000	2441.69	91.98	95.95	95.98	0.000207	0.64	3791	1642.14	0.14	3.02	3.98
56	02Jan2001 0000	1556.19	91.98	95.03	95.05	0.000286	0.64	2414.6	1331.41	0.15	3.27	3.05
56	02Feb2001 0000	1507.84	91.98	94.98	95	0.000288	0.64	2354.6	1317.71	0.15	3.23	3
56	02Mar2001 0000	1642.2	91.98	95.17	95.19	0.000258	0.63	2603.8	1373.72	0.15	3.02	3.19
56	02Apr2001 0000	1970.43	91.98	95.44	95.46	0.000253	0.66	2995.2	1460.61	0.15	3.34	3.47
56	02May2001 0000	2612.77	91.98	96.07	96.1	0.000207	0.65	3989.7	1684.4	0.14	3.14	4.1
56	02Jun2001 0000	8871.91	91.98	98.71	98.74	0.000316	0.75	11875	5664.28	0.16	4.86	6.73
56	02Jul2001 0000	17685.36	91.98	99.85	99.89	0.000356	0.88	20133	8229.53	0.18	7.5	7.87
56	02Aug2001 0000	15560.1	91.98	99.62	99.66	0.000357	0.85	18289	7860.99	0.18	6.93	7.64
56	02Sep2001 0000	21982.04	91.98	100.18	100.23	0.000366	0.96	22926	8394.93	0.19	9.41	8.21
55	17Oct1997 0000	9760.04	88.15	96.27	96.27	0.000118	0.43	22463	11540.06	0.1	0.98	8.12
55	02Nov1997 0000	3343.9	88.15	94.82	94.82	0.000132	0.36	9251.6	6802.72	0.1	0.64	6.67
55	02Dec1997 0000	2083.29	88.15	93.2	93.21	0.00017	0.55	3763.2	1769.19	0.12	1.97	5.05
55	02Jan1998 0000	1575.76	88.15	92.68	92.7	0.000187	0.54	2931.5	1542.83	0.12	1.87	4.53
55	02Feb1998 0000	1488.59	88.15	92.55	92.57	0.00018	0.54	2743.2	1386.28	0.12	1.9	4.4
55	02Mar1998 0000	1351.66	88.15	92.25	92.27	0.000213	0.57	2351.7	1236.89	0.13	2.29	4.1
55	02Apr1998 0000	3569.02	88.15	94.91	94.92	0.000125	0.36	9934.3	7068.14	0.1	0.62	6.76
55	02May1998 0000	3966.98	88.15	95.16	95.16	0.000099	0.34	11724	7683.07	0.09	0.5	7.01
55	02Jun1998 0000	16239.17	88.15	96.95	96.96	0.000134	0.53	30826	13031.58	0.11	1.64	8.8
55	02Jul1998 0000	20551.43	88.15	97.32	97.33	0.000137	0.58	35697	13430.38	0.11	2.06	9.16
55	02Aug1998 0000	25025.09	88.15	97.65	97.67	0.000139	0.62	40144	13580.28	0.12	2.52	9.49
55	02Sep1998 0000	24535.63	88.16	97.61	97.63	0.000139	0.62	39657	13564.96	0.12	2.47	9.46
55	02Oct1998 0000	10639.45	88.16	96.38	96.39	0.000122	0.45	23662	11796.46	0.1	1.08	8.22

55	02Nov1998 0000	5943.19	88.16	95.68	95.68	95.68	0.000104	0.37	16118	9606.04	0.09	0.63	7.52
55	02Dec1998 0000	3025.89	88.16	94.54	94.55	94.55	0.000136	0.4	7596.9	4935.22	0.1	0.82	6.38
55	02Jan1999 0000	2682.84	88.16	93.95	93.96	93.96	0.000157	0.5	5408.8	2814.11	0.11	1.46	5.79
55	02Feb1999 0000	1016.6	88.16	91.74	91.76	91.76	0.000212	0.57	1778.4	939.57	0.13	2.25	3.58
55	02Mar1999 0000	1675.45	88.16	92.78	92.79	92.79	0.000185	0.55	3063.6	1562.25	0.12	1.95	4.62
55	02Apr1999 0000	3886.6	88.16	95.02	95.03	95.03	0.000124	0.37	10629	7320.06	0.1	0.64	6.86
55	02May1999 0000	3860.72	88.16	95.01	95.02	95.02	0.000125	0.37	10547	7293.47	0.1	0.65	6.85
55	02Jun1999 0000	22.54	88.16	88.9	88.9	88.9	0.000374	0.24	93.1	272.7	0.13	0.3	0.74
55	02Jul1999 0000	19776.95	88.16	97.26	97.27	97.27	0.000137	0.57	34813	13387.29	0.11	1.99	9.1
55	02Aug1999 0000	14700.76	88.16	96.8	96.82	96.82	0.000131	0.51	28863	12590.86	0.11	1.49	8.64
55	02Sep1999 0000	17567.32	88.16	97.07	97.08	97.08	0.000136	0.54	32284	13169.97	0.11	1.78	8.91
55	02Oct1999 0000	13622.8	88.16	96.7	96.71	96.71	0.000129	0.49	27524	12436.28	0.11	1.39	8.53
55	02Nov1999 0000	6945.28	88.16	95.85	95.86	95.86	0.00011	0.39	17853	10244.24	0.09	0.73	7.69
55	02Dec1999 0000	3256.33	88.16	94.78	94.78	94.78	0.000135	0.37	8900.2	6521.48	0.1	0.66	6.61
55	02Jan2000 0000	1967.94	88.16	93.04	93.06	93.06	0.000178	0.56	3484.1	1640.14	0.12	2.09	4.88
55	02Feb2000 0000	1590.46	88.16	92.65	92.67	92.67	0.000185	0.55	2866.4	1430.22	0.13	2.02	4.49
55	02Mar2000 0000	1612.66	88.16	92.7	92.72	92.72	0.000193	0.55	2944.1	1544.74	0.13	1.98	4.54
55	02Apr2000 0000	4103.09	88.16	95.2	95.2	95.2	0.000102	0.34	11947	7801.71	0.09	0.52	7.03
55	02May2000 0000	4089.95	88.16	95.19	95.2	95.2	0.000102	0.34	11915	7785.11	0.09	0.52	7.03
55	02Jun2000 0000	16834.98	88.16	97	97.02	97.02	0.000136	0.54	31391	13090.82	0.11	1.72	8.84
55	02Jul2000 0000	20453.02	88.16	97.31	97.32	97.32	0.000139	0.58	35447	13425.02	0.11	2.07	9.14
55	02Aug2000 0000	19376.61	88.16	97.22	97.24	97.24	0.000138	0.56	34308	13349.87	0.11	1.96	9.06
55	02Sep2000 0000	22196.91	88.16	97.44	97.46	97.46	0.00014	0.6	37207	13484.85	0.11	2.26	9.27
55	02Oct2000 0000	10971.93	88.16	96.42	96.43	96.43	0.000123	0.46	24080	11884.08	0.1	1.12	8.25
55	02Nov2000 0000	3236.85	88.16	94.67	94.68	94.68	0.00014	0.39	8253.8	5610.96	0.1	0.79	6.51
55	02Dec2000 0000	2441.69	88.16	93.54	93.56	93.56	0.000179	0.55	4406.6	2147.7	0.12	2	5.38
55	02Jan2001 0000	1556.19	88.16	92.61	92.62	92.62	0.000187	0.56	2803.3	1407.95	0.13	2.03	4.44
55	02Feb2001 0000	1507.84	88.16	92.45	92.46	92.46	0.000213	0.58	2582.2	1326.39	0.13	2.38	4.28
55	02Mar2001 0000	1642.2	88.16	92.73	92.74	92.74	0.000193	0.55	2982	1550.03	0.13	2	4.57
55	02Apr2001 0000	1970.43	88.16	93.03	93.05	93.05	0.00018	0.57	3468.4	1631.47	0.12	2.13	4.87
55	02May2001 0000	2612.77	88.16	93.72	93.74	93.74	0.000179	0.54	4823.4	2426.35	0.12	1.89	5.56
55	02Jun2001 0000	8871.91	88.16	96.14	96.15	96.15	0.000115	0.42	20964	11006.42	0.1	0.91	7.98
55	02Jul2001 0000	17685.36	88.16	97.08	97.09	97.09	0.000137	0.55	32388	13179.65	0.11	1.8	8.92
55	02Aug2001 0000	15560.1	88.16	96.88	96.9	96.9	0.000134	0.52	29872	12828.75	0.11	1.59	8.72
55	02Sep2001 0000	21982.04	88.16	97.42	97.44	97.44	0.00014	0.59	36968	13476.53	0.11	2.24	9.26
54	17Oct1997 0000	9760.04	84.8	94.31	94.34	94.34	0.000643	0.77	12681	9846.54	0.22	6.25	9.51

54	02Nov1997 0000	3343.9	84.78	91.64	91.73	0.00043	1.31	2557.8	662.4	0.21	21.25	6.86
54	02Dec1997 0000	2083.29	84.78	90.49	90.56	0.000382	1.12	1861.4	556.88	0.2	13.99	5.71
54	02Jan1998 0000	1575.76	84.78	89.93	89.99	0.000365	1.01	1560.2	526.67	0.19	10.7	5.16
54	02Feb1998 0000	1488.59	84.78	89.83	89.88	0.000362	0.99	1504.5	520.88	0.19	10.15	5.05
54	02Mar1998 0000	1351.66	84.78	89.65	89.7	0.000358	0.96	1414.3	511.41	0.18	9.28	4.87
54	02Apr1998 0000	3569.02	84.77	91.95	92.03	0.000399	1.29	2769.5	692.2	0.21	20.12	7.17
54	02May1998 0000	3956.98	84.77	93.09	93.13	0.000585	0.79	5045	3534.18	0.21	6.44	- 8.32
54	02Jun1998 0000	16239.17	84.77	95.16	95.19	0.00034	0.75	21598	10754.54	0.17	5.03	10.39
54	02Jul1998 0000	20551.43	84.77	95.6	95.63	0.000286	0.78	26371	10940.99	0.16	5.27	10.83
54	02Aug1998 0000	25025.09	84.77	95.91	95.94	0.000289	0.84	29755	11098.75	0.16	6.39	11.14
54	02Sep1998 0000	24535.63	84.77	95.87	95.91	0.00029	0.84	29366	11085.2	0.16	6.29	11.1
54	02Oct1998 0000	10639.45	84.77	94.42	94.45	0.00059	0.77	13819	10047.87	0.21	6.12	9.65
54	02Nov1998 0000	5943.19	84.77	93.82	93.84	0.000597	0.7	8484.4	7176.86	0.21	4.85	9.05
54	02Dec1998 0000	3025.89	84.75	91.24	91.33	0.000452	1.3	2319.7	625.34	0.22	21.4	6.49
54	02Jan1999 0000	2682.84	84.73	90.89	90.97	0.000449	1.27	2115.6	592.49	0.21	19.91	6.16
54	02Feb1999 0000	1016.6	84.73	89.03	89.08	0.000392	0.9	1131.6	480.06	0.19	8.13	4.31
54	02Mar1999 0000	1675.45	84.72	89.88	89.94	0.000409	1.07	1563.5	526.02	0.2	12.77	5.17
54	02Apr1999 0000	3886.6	84.7	92.1	92.19	0.000422	1.33	2916.6	723.23	0.21	22.19	7.39
54	02May1999 0000	3860.72	84.69	92.05	92.14	0.000415	1.34	2888.4	704.85	0.21	22.27	7.36
54	02Jun1999 0000	22.54	84.69	85.72	85.73	0.000974	0.51	44.52	88.38	0.23	2.43	1.03
54	02Jul1999 0000	19776.95	84.69	95.53	95.56	0.000289	0.77	25660	10907.96	0.16	5.14	10.84
54	02Aug1999 0000	14700.76	84.68	94.99	95.01	0.000367	0.74	19829	10683.56	0.17	4.95	10.3
54	02Sep1999 0000	17567.32	84.68	95.3	95.33	0.000314	0.76	23217	10811.66	0.16	5.01	10.62
54	02Oct1999 0000	13622.8	84.68	94.84	94.87	0.000405	0.74	18340	10625.58	0.18	5.1	10.16
54	02Nov1999 0000	6945.28	84.68	93.83	93.87	0.000756	0.79	8750.6	7323.81	0.23	7.03	9.16
54	02Dec1999 0000	3256.33	84.66	91.51	91.6	0.00041	1.28	2544.2	655.95	0.21	19.91	6.85
54	02Jan2000 0000	1967.94	84.65	90.08	90.15	0.000438	1.16	1703.5	539.02	0.21	15.68	5.43
54	02Feb2000 0000	1590.46	84.64	89.65	89.71	0.000428	1.07	1484.9	516.83	0.2	12.9	5.02
54	02Mar2000 0000	1612.66	84.63	89.68	89.74	0.000427	1.07	1500.2	518.28	0.2	13	5.05
54	02Apr2000 0000	4103.09	84.61	93.03	93.06	0.000637	0.83	4957.4	3423.35	0.22	7.48	8.42
54	02May2000 0000	4089.95	84.6	93.01	93.04	0.000647	0.83	4902.3	3387.3	0.22	7.66	8.41
54	02Jun2000 0000	16834.98	84.6	95.17	95.2	0.000348	0.77	21908	10758.23	0.17	5.34	10.56
54	02Jul2000 0000	20453.02	84.6	95.54	95.57	0.000299	0.79	25913	10911.98	0.16	5.5	10.93
54	02Aug2000 0000	19376.61	84.6	95.47	95.5	0.000293	0.77	23216	10882.89	0.16	5.12	10.87
54	02Sep2000 0000	22196.91	84.6	95.65	95.68	0.000303	0.82	27165	10966.49	0.17	6.01	11.05
54	02Oct2000 0000	10971.93	84.6	94.41	94.44	0.000601	0.78	13996	10051.13	0.21	6.44	9.81
54	02Nov2000 0000	3236.85	84.6	91.45	91.53	0.000405	1.28	2536.2	651.37	0.21	19.72	6.85

54	02Dec2000 0000	2441.69	84.59	90.46	90.55	0.000459	1.26	1942.7	560.63	0.22	19.58	5.87
54	02Jan2001 0000	1556.19	84.59	89.55	89.61	0.000436	1.07	1451.9	512.29	0.2	12.98	4.96
54	02Feb2001 0000	1507.84	84.59	89.49	89.55	0.000435	1.06	1422	509.19	0.2	12.63	4.9
54	02Mar2001 0000	1642.2	84.59	89.65	89.71	0.000438	1.09	1504.3	517.63	0.2	13.6	5.06
54	02Apr2001 0000	1970.43	84.58	90	90.07	0.000444	1.16	1695.2	536.62	0.21	15.97	5.42
54	02May2001 0000	2612.77	84.56	90.63	90.71	0.000455	1.27	2050.2	575.4	0.22	20.22	6.06
54	02Jun2001 0000	8871.91	84.56	94.01	94.05	0.00086	0.86	10305	8411.1	0.25	8.89	9.45
54	02Jul2001 0000	17685.36	84.56	95.29	95.32	0.00031	0.76	23409	10811.35	0.16	4.97	10.74
54	02Aug2001 0000	15560.1	84.56	95.02	95.05	0.000372	0.76	20446	10699.22	0.18	5.3	10.46
54	02Sep2001 0000	21982.04	84.55	95.62	95.65	0.000304	0.82	26970	10950.9	0.17	5.98	11.06
53	17Oct1997 0000	9760.04	82.2	91.15	91.17	0.000039	0.46	21036	4246.55	0.07	0.87	8.95
53	02Nov1997 0000	3343.9	82.2	88.31	88.32	0.000037	0.32	10447	3517.9	0.06	0.34	6.11
53	02Dec1997 0000	2083.29	82.21	87.03	87.03	0.000087	0.35	5972.3	3378.53	0.08	0.52	4.82
53	02Jan1998 0000	1575.76	82.21	86.56	86.57	0.000128	0.36	4422.9	3257.26	0.1	0.61	4.35
53	02Feb1998 0000	1488.59	82.21	86.48	86.49	0.000139	0.36	4164.1	3236.56	0.1	0.63	4.27
53	02Mar1998 0000	1351.66	82.21	86.35	86.36	0.000158	0.36	3762.2	3194.48	0.11	0.66	4.14
53	02Apr1998 0000	3569.02	82.22	88.51	88.51	0.000035	0.32	11064	3532.88	0.06	0.34	6.28
53	02May1998 0000	3966.98	82.24	88.77	88.77	0.000033	0.33	11944	3553.91	0.06	0.36	6.53
53	02Jun1998 0000	16239.17	82.24	92.13	92.15	0.000088	0.62	26069	6246.37	0.1	2.24	9.89
53	02Jul1998 0000	20551.43	82.24	92.61	92.64	0.000118	0.7	29255	7322.09	0.11	3.26	10.37
53	02Aug1998 0000	25025.09	82.25	93.11	93.14	0.000188	0.74	33843	11076.44	0.14	4.16	10.86
53	02Sep1998 0000	24535.63	82.25	93.06	93.09	0.000183	0.74	33367	10826.94	0.13	4.08	10.82
53	02Oct1998 0000	10639.45	82.25	91.34	91.36	0.000048	0.49	21686	4691.71	0.07	1.06	9.09
53	02Nov1998 0000	5943.19	82.26	89.71	89.72	0.000034	0.39	15253	3634.07	0.06	0.55	7.45
53	02Dec1998 0000	3025.89	82.27	88.02	88.03	0.000045	0.33	9188.2	3489.61	0.06	0.39	5.75
53	02Jan1999 0000	2682.84	82.28	87.73	87.74	0.000032	0.33	8159.9	3465.05	0.07	0.4	5.45
53	02Feb1999 0000	1016.6	82.28	86.04	86.05	0.000206	0.38	2676.6	2556.59	0.12	0.8	3.76
53	02Mar1999 0000	1675.45	82.28	86.68	86.68	0.00013	0.37	4576.2	3269.88	0.1	0.65	4.4
53	02Apr1999 0000	3886.6	82.29	88.74	88.74	0.000035	0.33	11659	3548.78	0.06	0.37	6.45
53	02May1999 0000	3860.72	82.3	88.7	88.7	0.000036	0.34	11465	3544.57	0.06	0.39	6.4
53	02Jun1999 0000	22.54	82.31	82.73	82.74	0.000311	0.25	91.13	225.01	0.12	0.31	0.43
53	02Jul1999 0000	19776.95	82.31	92.54	92.57	0.000113	0.69	28542	7018.98	0.11	3.11	10.24
53	02Aug1999 0000	14700.76	82.31	91.94	91.96	0.000079	0.6	24676	5835.63	0.09	1.95	9.63
53	02Sep1999 0000	17567.32	82.31	92.31	92.33	0.000097	0.65	26965	6516.87	0.1	2.57	10
53	02Oct1999 0000	13622.8	82.31	91.8	91.82	0.000071	0.57	23891	5542.85	0.09	1.7	9.5
53	02Nov1999 0000	6945.28	82.33	90.26	90.27	0.000033	0.41	17027	3697.94	0.06	0.61	7.93

53	02Dec1999 0000	3256.33	82.33	88.19	88.2	0.000046	0.34	9570.4	3500.12	0.07	0.42	5.86
53	02Jan2000 0000	1967.94	82.34	86.95	86.95	0.000114	0.37	5284.1	3326.3	0.09	0.66	4.61
53	02Feb2000 0000	1590.46	82.34	86.64	86.64	0.000148	0.37	4259	3244.95	0.1	0.71	4.3
53	02Mar2000 0000	1612.66	82.34	86.65	86.66	0.000146	0.37	4307.8	3248.94	0.1	0.71	4.31
53	02Apr2000 0000	4103.09	82.35	88.85	88.86	0.000037	0.35	11853	3555.14	0.06	0.41	6.5
53	02May2000 0000	4089.95	82.36	88.84	88.85	0.000037	0.35	11790	3554.01	0.06	0.42	6.49
53	02Jun2000 0000	16834.98	82.36	92.23	92.26	0.000095	0.64	26274	6406.92	0.1	2.45	9.87
53	02Jul2000 0000	20453.02	82.36	92.65	92.67	0.000125	0.7	29111	7583.44	0.11	3.3	10.29
53	02Aug2000 0000	19376.61	82.35	92.52	92.55	0.000111	0.69	28232	6951.55	0.11	3.02	10.17
53	02Sep2000 0000	22196.91	82.35	92.87	92.89	0.000156	0.72	31032	9305.78	0.13	3.65	10.52
53	02Oct2000 0000	10971.93	82.35	91.44	91.45	0.000055	0.5	21814	5056.73	0.08	1.17	9.09
53	02Nov2000 0000	3236.85	82.35	88.16	88.16	0.000048	0.34	9408.4	3496.81	0.07	0.44	5.81
53	02Dec2000 0000	2441.69	82.35	87.34	87.35	0.000087	0.37	6588.8	3427.82	0.09	0.61	5
53	02Jan2001 0000	1556.19	82.35	86.6	86.61	0.000137	0.38	4121.7	3234.05	0.11	0.74	4.26
53	02Feb2001 0000	1507.84	82.35	86.56	86.57	0.000164	0.38	3986.7	3223.08	0.11	0.75	4.21
53	02Mar2001 0000	1642.2	82.35	86.66	86.67	0.00015	0.38	4326.9	3250.64	0.11	0.74	4.32
53	02Apr2001 0000	1970.43	82.35	86.92	86.93	0.000122	0.38	5169	3317.85	0.1	0.71	4.58
53	02May2001 0000	2612.77	82.35	87.48	87.49	0.00008	0.37	7063.7	3439.55	0.08	0.59	5.13
53	02Jun2001 0000	8871.91	82.36	90.99	91	0.000039	0.45	19765	4172.89	0.07	0.8	8.63
53	02Jul2001 0000	17685.36	82.36	92.33	92.36	0.0001	0.66	26948	6571.76	0.1	2.63	9.97
53	02Aug2001 0000	15560.1	82.37	92.07	92.09	0.000088	0.62	25276	6145.12	0.1	2.17	9.71
53	02Sep2001 0000	21982.04	82.37	92.85	92.87	0.000154	0.71	30759	9131.11	0.12	3.63	10.48
52	17Oct1997 0000	9760.04	80.1	89.85	89.87	0.00029	0.62	15848	9466.7	0.15	2.93	9.75
52	02Nov1997 0000	3343.9	80.08	86.32	86.4	0.000642	1.26	2659.2	987.16	0.24	21.32	6.24
52	02Dec1997 0000	2083.29	80.08	84.94	85.02	0.000508	1.24	1686.4	538.98	0.22	19.23	4.86
52	02Jan1998 0000	1575.76	80.08	84.35	84.42	0.000495	1.14	1385.1	491.62	0.22	15.55	4.28
52	02Feb1998 0000	1488.59	80.06	84.24	84.3	0.000487	1.11	1355.7	483.23	0.21	14.71	4.18
52	02Mar1998 0000	1351.66	80.05	84.05	84.11	0.00048	1.08	1253.8	471.21	0.21	13.49	4
52	02Apr1998 0000	3569.02	80.02	86.48	86.56	0.000664	1.25	2866.4	1107.67	0.25	20.98	6.45
52	02May1998 0000	3966.98	80	86.74	86.82	0.00067	1.23	3214.8	1266.88	0.25	20.55	6.75
52	02Jun1998 0000	16239.17	79.99	90.51	90.53	0.000305	0.71	22850	11408.83	0.16	4.26	10.51
52	02Jul1998 0000	20551.43	79.99	90.83	90.86	0.000314	0.77	26647	12056.34	0.17	5.25	10.84
52	02Aug1998 0000	25025.09	79.99	91.12	91.16	0.000311	0.83	30221	12175.61	0.17	6.26	11.13
52	02Sep1998 0000	24535.63	79.99	91.09	91.13	0.000311	0.82	29854	12169.9	0.17	6.14	11.1
52	02Oct1998 0000	10639.45	79.99	89.93	89.95	0.000299	0.64	16723	9718.82	0.15	3.21	9.94
52	02Nov1998 0000	5943.19	79.98	88.15	88.21	0.00059	1.03	5792.6	2739.21	0.23	12.55	8.17

52	02Dec1998 0000	3025.89	79.96	85.82	85.9	0.000603	1.31	2316.6	775.11	0.24	23.08	5.86
52	02Jan1999 0000	2682.84	79.94	85.46	85.55	0.000574	1.3	2068.3	673.59	0.24	22.4	5.52
52	02Feb1999 0000	1016.6	79.94	83.44	83.49	0.000508	1	1021	451.55	0.21	11.22	3.5
52	02Mar1999 0000	1675.45	79.93	84.3	84.37	0.000511	1.17	1429.6	496.72	0.22	16.88	4.37
52	02Apr1999 0000	3886.6	79.9	86.58	86.66	0.000689	1.26	3091.8	1211	0.25	21.68	6.67
52	02May1999 0000	3860.72	79.88	86.53	86.61	0.000688	1.26	3060	1190.85	0.25	21.87	6.65
52	02Jun1999 0000	22.54	79.88	80.28	80.29	0.00129	0.45	49.89	145.12	0.25	1.96	0.41
52	02Jul1999 0000	19776.95	79.88	90.76	90.79	0.000315	0.76	26002	12019.16	0.17	5.08	10.89
52	02Aug1999 0000	14700.76	79.88	90.35	90.37	0.000301	0.69	21214	10914.98	0.16	3.98	10.47
52	02Sep1999 0000	17567.32	79.88	90.6	90.63	0.000312	0.73	24091	11777.69	0.16	4.56	10.73
52	02Oct1999 0000	13622.8	79.88	90.24	90.26	0.0003	0.68	20060	10596.86	0.16	3.78	10.37
52	02Nov1999 0000	6945.28	79.87	88.91	88.94	0.000506	0.78	8904.4	5660.79	0.2	6.09	9.05
52	02Dec1999 0000	3256.33	79.85	85.89	85.98	0.000618	1.33	2454	816.52	0.24	24.15	6.04
52	02Jan2000 0000	1967.94	79.84	84.53	84.61	0.000524	1.24	1592.4	520.83	0.23	19.4	4.69
52	02Feb2000 0000	1590.46	79.83	84.08	84.15	0.000517	1.16	1368.9	486.19	0.22	16.57	4.25
52	02Mar2000 0000	1612.66	79.82	84.11	84.18	0.000516	1.17	1383.7	488.46	0.22	16.69	4.28
52	02Apr2000 0000	4103.09	79.8	86.61	86.7	0.000687	1.27	3232.4	1244.22	0.25	22.2	6.81
52	02May2000 0000	4089.95	79.77	86.58	86.66	0.000681	1.27	3221.7	1232.62	0.25	22.16	6.81
52	02Jun2000 0000	16834.98	79.77	90.53	90.56	0.000306	0.72	23375	11491.27	0.16	4.4	10.76
52	02Jul2000 0000	20453.02	79.77	90.8	90.83	0.000314	0.77	26562	12038.72	0.17	5.23	11.03
52	02Aug2000 0000	19376.61	79.77	90.72	90.75	0.000314	0.75	25684	11997.8	0.16	4.97	10.95
52	02Sep2000 0000	22196.91	79.77	90.92	90.95	0.000314	0.79	27976	12104.53	0.17	5.64	11.14
52	02Oct2000 0000	10971.93	79.77	89.93	89.95	0.0003	0.64	17025	9727.02	0.16	3.31	10.16
52	02Nov2000 0000	3236.85	79.75	85.8	85.89	0.000606	1.32	2450.5	809.23	0.24	23.77	6.05
52	02Dec2000 0000	2441.69	79.74	84.97	85.06	0.000527	1.3	1885.3	576.93	0.23	21.84	5.24
52	02Jan2001 0000	1556.19	79.73	83.96	84.03	0.000504	1.15	1358.4	483.66	0.22	15.9	4.23
52	02Feb2001 0000	1507.84	79.72	83.9	83.96	0.000501	1.13	1330.8	479.2	0.22	15.44	4.17
52	02Mar2001 0000	1642.2	79.72	84.06	84.13	0.000503	1.16	1413.7	492.14	0.22	16.45	4.35
52	02Apr2001 0000	1970.43	79.71	84.45	84.52	0.000505	1.22	1612.3	521.82	0.22	18.7	4.74
52	02May2001 0000	2612.77	79.68	85.15	85.24	0.000542	1.29	2021.2	633.57	0.23	21.89	5.47
52	02Jun2001 0000	8871.91	79.68	89.67	89.69	0.000287	0.6	14690	8956.1	0.15	2.79	9.99
52	02Jul2001 0000	17685.36	79.68	90.59	90.62	0.000311	0.73	24168	11732.5	0.16	4.59	10.91
52	02Aug2001 0000	15560.1	79.68	90.4	90.43	0.000302	0.7	22073	11081.08	0.16	4.15	10.73
52	02Sep2001 0000	21982.04	79.68	90.89	90.92	0.000314	0.79	27791	12091.41	0.17	5.59	11.21
51	17Oct1997 0000	9760.04	77.19	85.47	85.61	0.000933	1.63	6005.9	2008.55	0.3	44.44	8.28
51	02Nov1997 0000	3343.9	77.18	82.14	82.23	0.000524	1.36	2452.1	692.45	0.23	24.82	4.95

01	02Dec1997	0000	2083.29	77.19	80.86	80.94	0.000703	1.29	1613.1	616.01	0.25	23.31	3.67
51	02Jan1998	0000	1575.76	77.18	80.14	80.23	0.001012	1.33	1187.1	571.62	0.29	27.34	2.96
51	02Feb1998	0000	1488.59	77.15	79.98	80.07	0.001101	1.34	1109.2	559.8	0.3	28.71	2.82
51	02Mar1998	0000	1351.66	77.11	79.74	79.83	0.001246	1.36	996.35	542.76	0.32	30.42	2.62
51	02Apr1998	0000	3569.02	77.12	82.3	82.4	0.000503	1.37	2596	701.77	0.23	25.06	5.18
51	02May1998	0000	3966.98	77.13	82.54	82.64	0.000521	1.44	2757.8	715.51	0.23	28.32	5.41
51	02Jun1998	0000	16239.17	77.13	87.97	88.01	0.000392	0.83	19513	9294.9	0.18	6.72	10.84
51	02Jul1998	0000	20551.43	77.13	88.45	88.49	0.000362	0.84	24378	10723.09	0.18	6.8	11.32
51	02Aug1998	0000	25025.09	77.13	88.86	88.9	0.000315	0.87	28812	10923.1	0.17	7.07	11.73
51	02Sep1998	0000	24535.63	77.13	88.82	88.85	0.000319	0.87	28351	10902.36	0.17	7.03	11.69
51	02Oct1998	0000	10639.45	77.11	86.19	86.28	0.000905	1.32	8045	3583.89	0.28	26.35	9.09
51	02Nov1998	0000	5943.19	77.1	83.61	83.75	0.000593	1.66	3587.7	829.77	0.25	41.62	6.51
51	02Dec1998	0000	3025.89	77.1	81.97	82.06	0.000465	1.27	2381.7	683.59	0.22	20.18	4.87
51	02Jan1999	0000	2682.84	77.1	81.51	81.59	0.000554	1.3	2067.4	655.72	0.23	22.23	4.4
51	02Feb1999	0000	1016.6	77.07	79.19	79.29	0.001769	1.38	734.47	505.04	0.37	34.91	2.12
51	02Mar1999	0000	1675.45	77.06	80.32	80.4	0.000765	1.24	1351.2	584.43	0.26	21.5	3.25
51	02Apr1999	0000	3886.6	77.07	82.53	82.63	0.000484	1.4	2785.8	716.26	0.23	25.76	5.46
51	02May1999	0000	3860.72	77.08	82.53	82.63	0.000481	1.39	2778.9	715.87	0.23	25.45	5.45
51	02Jun1999	0000	22.54	77.02	77.18	77.26	0.028162	1.23	18.31	119.6	1	52.05	0.17
51	02Jul1999	0000	19776.95	77.01	88.39	88.42	0.000359	0.83	23819	10662.32	0.18	6.53	11.37
51	02Aug1999	0000	14700.76	77.01	87.7	87.74	0.000428	0.85	17262	8490.29	0.19	7.27	10.69
51	02Sep1999	0000	17567.32	77.01	88.15	88.18	0.000369	0.82	21351	9892.95	0.18	6.43	11.13
51	02Oct1999	0000	13622.8	77.01	87.46	87.5	0.000512	0.89	15280	8018.11	0.21	8.53	10.45
51	02Nov1999	0000	6945.28	77	84.16	84.31	0.000698	1.68	4126.1	1052.63	0.27	45.12	7.16
51	02Dec1999	0000	3256.33	77.01	82.17	82.25	0.000445	1.28	2537	694.34	0.21	20.48	5.16
51	02Jan2000	0000	1967.94	77.01	80.72	80.8	0.000643	1.24	1592.4	607.57	0.24	20.42	3.71
51	02Feb2000	0000	1590.46	77	80.18	80.25	0.000818	1.25	1275.5	574.95	0.27	22.18	3.17
51	02Mar2000	0000	1612.66	77	80.21	80.29	0.000799	1.24	1297	577.31	0.26	21.89	3.21
51	02Apr2000	0000	4103.09	77.02	82.7	82.8	0.000476	1.41	2907.2	725.41	0.23	26.4	5.68
51	02May2000	0000	4089.95	77.03	82.7	82.81	0.000476	1.41	2901.9	725.26	0.22	26.31	5.67
51	02Jun2000	0000	16834.98	77.03	88.08	88.11	0.000367	0.81	20682	9684.71	0.18	6.25	11.05
51	02Jul2000	0000	20453.02	77.03	88.47	88.5	0.000343	0.83	24703	10731.95	0.17	6.41	11.44
51	02Aug2000	0000	19376.61	77.03	88.36	88.4	0.000353	0.82	23582	10584.86	0.18	6.34	11.33
51	02Sep2000	0000	22196.91	77.03	88.63	88.67	0.000324	0.84	26476	10811.23	0.17	6.52	11.6
51	02Oct2000	0000	10971.93	77.02	86.45	86.53	0.000801	1.2	9154.1	4313.26	0.26	19.99	9.44
51	02Nov2000	0000	3236.85	77.02	82.19	82.27	0.000437	1.27	2544	695.24	0.21	19.94	5.17
51	02Dec2000	0000	2441.69	77.02	81.33	81.41	0.000528	1.24	1966.8	643.31	0.23	19.66	4.31

51	02Jan2001 0000	1556.19	77.02	80.14	80.22	0.000834	1.25	1248	571.14	0.27	22.29	3.13
51	02Feb2001 0000	1507.84	77.01	80.04	80.12	0.000896	1.26	1192.4	563.63	0.28	23.49	3.03
51	02Mar2001 0000	1642.2	77.01	80.28	80.36	0.000763	1.23	1332	580.09	0.26	21.19	3.27
51	02Apr2001 0000	1970.43	77	80.75	80.83	0.000619	1.22	1613.2	608.43	0.24	19.64	3.75
51	02May2001 0000	2612.77	77	81.5	81.58	0.000506	1.25	2088.4	653.7	0.22	19.83	4.5
51	02Jun2001 0000	8871.91	76.97	85.19	85.31	0.000828	1.57	5646.9	1816.64	0.28	39.64	8.22
51	02Jul2001 0000	17685.36	76.97	88.18	88.22	0.000349	0.81	21898	9998.37	0.17	6.05	11.22
51	02Aug2001 0000	15560.1	76.97	87.92	87.95	0.000361	0.8	19355	9129.47	0.18	6.03	10.95
51	02Sep2001 0000	21982.04	76.96	88.62	88.65	0.000317	0.83	26494	10804.39	0.17	6.32	11.65
50	17Oct1997 0000	9760.04	68.94	84.34	84.38	0.000103	0.82	11854	2097.85	0.11	4.68	15.4
50	02Nov1997 0000	3343.9	68.95	81.03	81.04	0.000022	0.44	7526.5	1052.7	0.05	0.68	12.09
50	02Dec1997 0000	2083.29	68.96	79.95	79.96	0.000013	0.32	6437.1	960.4	0.04	0.27	11
50	02Jan1998 0000	1575.76	68.96	79.43	79.44	0.000009	0.27	5937.8	939.76	0.03	0.15	10.47
50	02Feb1998 0000	1488.59	68.98	79.3	79.3	0.000009	0.26	5797.2	934.2	0.03	0.14	10.32
50	02Mar1998 0000	1351.66	69.01	79.13	79.13	0.000008	0.24	5610.6	926.87	0.03	0.11	10.12
50	02Apr1998 0000	3569.02	69.03	81.19	81.2	0.000024	0.47	7608.3	1068.87	0.06	0.8	12.16
50	02May1998 0000	3966.98	69.06	81.45	81.46	0.000028	0.5	7863.6	1094.72	0.06	0.99	12.39
50	02Jun1998 0000	16239.17	69.06	86.47	86.5	0.000184	0.77	21191	6472.19	0.14	4.52	17.41
50	02Jul1998 0000	20551.43	69.06	87.01	87.05	0.000182	0.83	24731	6643.76	0.14	5.53	17.95
50	02Aug1998 0000	25025.09	69.07	87.49	87.53	0.000182	0.9	27897	6673.74	0.14	6.69	18.42
50	02Sep1998 0000	24535.63	69.07	87.44	87.48	0.000182	0.89	27572	6670.74	0.14	6.55	18.38
50	02Oct1998 0000	10639.45	69.1	84.89	84.93	0.000171	0.81	13116	3485.3	0.13	5.12	15.79
50	02Nov1998 0000	5943.19	69.14	82.59	82.61	0.000044	0.65	9079.5	1207.2	0.08	2.14	13.45
50	02Dec1998 0000	3025.89	69.15	80.82	80.83	0.000021	0.43	7098.4	1016.11	0.05	0.6	11.66
50	02Jan1999 0000	2682.84	69.18	80.52	80.52	0.000018	0.4	6777.4	983.84	0.05	0.49	11.34
50	02Feb1999 0000	1016.6	69.21	78.66	78.66	0.000006	0.2	5004.3	901.52	0.03	0.07	9.45
50	02Mar1999 0000	1675.45	69.22	79.58	79.58	0.000011	0.29	5831.9	938.62	0.04	0.19	10.35
50	02Apr1999 0000	3886.6	69.25	81.4	81.41	0.000029	0.51	7620.2	1079.38	0.06	1.03	12.15
50	02May1999 0000	3860.72	69.27	81.38	81.4	0.000029	0.51	7581.6	1075.91	0.06	1.03	12.12
50	02Jun1999 0000	22.54	69.36	75.03	75.03	0	0.01	1913.9	672.28	0	0	5.68
50	02Jul1999 0000	19776.95	69.35	86.94	86.98	0.000189	0.83	23909	6639.33	0.14	5.51	17.59
50	02Aug1999 0000	14700.76	69.35	86.28	86.3	0.000194	0.75	19564	6403.43	0.14	4.36	16.92
50	02Sep1999 0000	17567.32	69.35	86.67	86.7	0.000188	0.79	22120	6508.4	0.14	4.97	17.32
50	02Oct1999 0000	13622.8	69.35	86.05	86.08	0.000198	0.75	18218	6103.27	0.14	4.33	16.71
50	02Nov1999 0000	6945.28	69.38	83.1	83.13	0.000055	0.73	9494.4	1260.44	0.09	2.98	13.72
50	02Dec1999 0000	3256.33	69.4	80.99	81	0.000025	0.46	7067.3	1026.16	0.06	0.77	11.59

50	02Jan2000 0000	1967.94	69.41	79.86	79.87	0.000014	0.33	5947	946.88	0.04	0.29	10.45
50	02Feb2000 0000	1590.46	69.43	79.47	79.47	0.000011	0.29	5565.9	930.48	0.04	0.19	10.04
50	02Mar2000 0000	1612.66	69.44	79.5	79.5	0.000012	0.29	5576.4	931.35	0.04	0.2	10.05
50	02Apr2000 0000	4103.09	69.47	81.55	81.57	0.000033	0.54	7597.2	1090.04	0.07	1.23	12.09
50	02May2000 0000	4089.95	69.49	81.55	81.56	0.000033	0.54	7567.6	1087.47	0.07	1.23	12.06
50	02Jun2000 0000	16834.98	69.49	86.58	86.61	0.000192	0.79	21419	6492.4	0.14	4.87	17.09
50	02Jul2000 0000	20453.02	69.49	87.03	87.07	0.000189	0.84	24381	6645.06	0.14	5.71	17.54
50	02Aug2000 0000	19376.61	69.49	86.91	86.94	0.00019	0.82	23571	6637.41	0.14	5.43	17.42
50	02Sep2000 0000	22196.91	69.49	87.23	87.26	0.000188	0.86	25683	6657.34	0.14	6.14	17.74
50	02Oct2000 0000	10971.93	69.51	85.08	85.11	0.000194	0.82	13393	3854	0.14	5.42	15.57
50	02Nov2000 0000	3236.85	69.52	80.99	81	0.000026	0.47	6945.2	1018.7	0.06	0.8	11.47
50	02Dec2000 0000	2441.69	69.54	80.33	80.33	0.000019	0.39	6278.2	963.1	0.05	0.47	10.79
50	02Jan2001 0000	1556.19	69.55	79.44	79.45	0.000012	0.29	5430.2	925.89	0.04	0.19	9.89
50	02Feb2001 0000	1507.84	69.57	79.35	79.36	0.000012	0.28	5329.7	921.73	0.04	0.19	9.78
50	02Mar2001 0000	1642.2	69.59	79.54	79.54	0.000013	0.3	5490.1	929.45	0.04	0.22	9.95
50	02Apr2001 0000	1970.43	69.6	79.87	79.88	0.000016	0.34	5788.7	943.36	0.04	0.32	10.27
50	02May2001 0000	2612.77	69.61	80.47	80.48	0.000021	0.41	6349.3	968.69	0.05	0.56	10.86
50	02Jun2001 0000	8871.91	69.67	83.97	84	0.000091	0.85	10390	1591.81	0.11	4.97	14.3
50	02Jul2001 0000	17685.36	69.67	86.71	86.74	0.000195	0.8	21984	6516.09	0.14	5.18	17.03
50	02Aug2001 0000	15560.1	69.67	86.43	86.46	0.000198	0.77	20202	6465.19	0.14	4.66	16.76
50	02Sep2001 0000	21982.04	69.67	87.21	87.25	0.000192	0.87	25382	6656.87	0.14	6.2	17.55
49	17Oct1997 0000	9760.04	72.02	83.72	83.74	0.000081	0.64	15192	3273.39	0.1	2.37	11.7
49	02Nov1997 0000	3343.9	72.02	80.76	80.77	0.00006	0.45	7436.3	2192.45	0.08	0.9	8.74
49	02Dec1997 0000	2083.29	72.02	79.74	79.75	0.00007	0.4	5248.3	2072.86	0.08	0.68	7.72
49	02Jan1998 0000	1575.76	72.02	79.26	79.26	0.00007	0.37	4277	1902.78	0.08	0.57	7.24
49	02Feb1998 0000	1488.59	72.02	79.13	79.13	0.000075	0.37	4028.8	1867.38	0.08	0.58	7.11
49	02Mar1998 0000	1351.66	72.02	78.97	78.97	0.00007	0.36	3738.5	1713.98	0.08	0.54	6.95
49	02Apr1998 0000	3569.02	72.02	80.9	80.91	0.000061	0.46	7729.7	2208	0.08	0.97	8.88
49	02May1998 0000	3966.98	72.02	81.13	81.14	0.000062	0.48	8240.7	2234.81	0.08	1.08	9.11
49	02Jun1998 0000	16239.17	72.02	85.47	85.49	0.000122	0.65	24936	7151.55	0.11	2.72	13.45
49	02Jul1998 0000	20551.43	72.02	86.01	86.04	0.000125	0.71	28885	7366.22	0.11	3.41	13.99
49	02Aug1998 0000	25025.09	72.03	86.47	86.5	0.000131	0.78	32241	7503.25	0.12	4.29	14.44
49	02Sep1998 0000	24535.63	72.03	86.42	86.45	0.000131	0.77	31866	7498.51	0.12	4.21	14.39
49	02Oct1998 0000	10639.45	72.04	84.13	84.15	0.000105	0.64	16713	4439.84	0.1	2.47	12.09
49	02Nov1998 0000	5943.19	72.04	82.14	82.15	0.000073	0.56	10619	2602.6	0.09	1.64	10.1
49	02Dec1998 0000	3025.89	72.04	80.56	80.57	0.000061	0.44	6942.8	2166.12	0.08	0.84	8.52
49	02Jan1999 0000	2682.84	72.04	80.27	80.28	0.000064	0.42	6324.4	2132.58	0.08	0.79	8.23

49	02Feb1999 0000	1016.6	72.04	78.52	78.53	0.00007	0.34	2994.6	1502.88	0.08	0.46	6.48
49	02Mar1999 0000	1675.45	72.04	79.38	79.39	0.000074	0.37	4485	2029.52	0.08	0.6	7.34
49	02Apr1999 0000	3886.6	72.04	81.08	81.09	0.000063	0.48	8089.6	2226.99	0.08	1.08	9.04
49	02May1999 0000	3860.72	72.04	81.06	81.08	0.000063	0.48	8057.1	2225.29	0.08	1.07	9.02
49	02Jun1999 0000	22.54	72.04	75.03	75.03	0.000001	0.03	687.55	308.03	0.01	0	2.99
49	02Jul1999 0000	19776.95	72.03	85.93	85.96	0.000125	0.7	28179	7326.77	0.11	3.29	13.9
49	02Aug1999 0000	14700.76	72.04	85.24	85.27	-0.000125	-0.63	23195	7056.07	0.11	2.56	13.2
49	02Sep1999 0000	17567.32	72.04	85.65	85.68	0.000125	0.67	26089	7222.77	0.11	2.97	13.61
49	02Oct1999 0000	13622.8	72.05	85.02	85.05	0.000125	0.63	21626	6619.51	0.11	2.51	12.98
49	02Nov1999 0000	6945.28	72.05	82.6	82.61	0.000076	0.59	11808	2764.32	0.09	1.87	10.55
49	02Dec1999 0000	3256.33	72.05	80.71	80.72	0.000062	0.45	7252.2	2182.75	0.08	0.91	8.66
49	02Jan2000 0000	1967.94	72.05	79.64	79.65	0.000073	0.4	4973.2	2057.39	0.08	0.69	7.59
49	02Feb2000 0000	1590.46	72.05	79.28	79.29	0.000073	0.37	4251.5	1899.08	0.08	0.6	7.23
49	02Mar2000 0000	1612.66	72.05	79.3	79.31	0.000072	0.38	4298.3	1905.7	0.08	0.6	7.25
49	02Apr2000 0000	4103.09	72.05	81.21	81.22	0.000064	0.49	8346.9	2240.47	0.08	1.14	9.16
49	02May2000 0000	4089.95	72.05	81.2	81.21	0.000064	0.49	8329.4	2239.56	0.08	1.14	9.15
49	02Jun2000 0000	16834.98	72.05	85.55	85.58	0.000125	0.66	25329	7179.94	0.11	2.88	13.5
49	02Jul2000 0000	20453.02	72.06	86.01	86.04	0.000127	0.71	28614	7358.51	0.12	3.47	13.96
49	02Aug2000 0000	19376.61	72.06	85.89	85.92	0.000126	0.7	27715	7312.64	0.11	3.27	13.83
49	02Sep2000 0000	22196.91	72.06	86.2	86.23	0.000131	0.74	29932	7450.19	0.12	3.83	14.13
49	02Oct2000 0000	10971.93	72.07	84.25	84.28	0.000112	0.64	17133	4712.96	0.11	2.55	12.19
49	02Nov2000 0000	3236.85	72.07	80.71	80.72	0.000063	0.45	7188.1	2179.41	0.08	0.92	8.63
49	02Dec2000 0000	2441.69	72.07	80.08	80.09	0.000068	0.42	5841.8	2106.12	0.08	0.78	8
49	02Jan2001 0000	1556.19	72.07	79.25	79.26	0.000074	0.37	4161.2	1886.3	0.08	0.6	7.18
49	02Feb2001 0000	1507.84	72.07	79.16	79.17	0.000079	0.38	3985.8	1861.12	0.08	0.63	7.09
49	02Mar2001 0000	1642.2	72.07	79.34	79.35	0.000074	0.38	4330.5	1910.29	0.08	0.62	7.27
49	02Apr2001 0000	1970.43	72.07	79.65	79.66	0.000075	0.4	4943.3	2055.76	0.08	0.71	7.57
49	02May2001 0000	2612.77	72.07	80.21	80.22	0.000067	0.43	6130.9	2122	0.08	0.81	8.14
49	02Jun2001 0000	8871.91	72.07	83.38	83.4	0.000077	0.63	13976	2934.86	0.09	2.27	11.3
49	02Jul2001 0000	17685.36	72.08	85.68	85.7	0.000127	0.68	26044	7225.73	0.11	3.05	13.6
49	02Aug2001 0000	15560.1	72.08	85.39	85.41	0.000127	0.65	23949	7104.02	0.11	2.73	13.31
49	02Sep2001 0000	21982.04	72.08	86.18	86.21	0.000132	0.74	29674	7439.52	0.12	3.83	14.1
48	17Oct1997 0000	9760.04	74.05	82.62	82.64	0.000119	0.6	16334	5231.4	0.11	2.18	8.57
48	02Nov1997 0000	3343.9	74.05	79.68	79.7	0.000104	0.51	6546.4	2403.91	0.1	1.42	5.63
48	02Dec1997 0000	2083.29	74.05	78.64	78.66	0.000144	0.5	4203.9	2050.92	0.11	1.43	4.59
48	02Jan1998 0000	1575.76	74.05	78.15	78.16	0.000178	0.49	3226.2	1890.81	0.12	1.45	4.1

48	02Feb1998 0000	1488.59	74.05	77.98	77.99	0.000166	0.51	2935	1539.32	0.12	1.57	3.93
48	02Mar1998 0000	1351.66	74.05	77.82	77.83	0.000174	0.5	2694.4	1490.89	0.12	1.55	3.77
48	02Apr1998 0000	3569.02	74.05	79.82	79.83	0.000103	0.32	6869.1	2438.5	0.1	1.48	5.77
48	02May1998 0000	3966.98	74.05	80.07	80.08	0.000099	0.33	7494.1	2504.55	0.1	1.54	6.02
48	02Jun1998 0000	16239.17	74.05	84.29	84.31	0.000103	0.57	28352	8697.99	0.1	1.89	10.24
48	02Jul1998 0000	20551.43	74.05	84.85	84.87	0.000113	0.61	33483	9880.49	0.11	2.3	10.8
48	02Aug1998 0000	25025.09	74.05	85.29	85.31	0.000113	0.66	37936	10062.05	0.11	2.75	11.24
48	02Sep1998 0000	24535.63	74.05	85.24	85.27	0.000113	0.66	37455	10057.8	0.11	2.71	11.2
48	02Oct1998 0000	10639.45	74.05	82.93	82.95	0.000123	0.59	18064	6075.4	0.11	2.12	8.88
48	02Nov1998 0000	5943.19	74.05	81.1	81.11	0.000098	0.57	10366	3049.83	0.1	1.87	7.05
48	02Dec1998 0000	3025.89	74.05	79.48	79.49	0.000108	0.5	6052.3	2349.39	0.1	1.36	5.43
48	02Jan1999 0000	2682.84	74.05	79.21	79.23	0.000116	0.49	5446.1	2281	0.1	1.33	5.16
48	02Feb1999 0000	1016.6	74.05	77.39	77.4	0.000206	0.49	2081.5	1359.63	0.13	1.51	3.34
48	02Mar1999 0000	1675.45	74.05	78.24	78.25	0.000173	0.49	3397.1	1918.22	0.12	1.48	4.19
48	02Apr1999 0000	3886.6	74.05	79.99	80.01	0.000102	0.53	7304.5	2484.7	0.1	1.57	5.94
48	02May1999 0000	3860.72	74.05	79.98	79.99	0.000102	0.53	7267.6	2480.82	0.1	1.56	5.93
48	02Jun1999 0000	22.54	74.04	74.96	74.96	0.000172	0.2	114.83	257.21	0.09	0.15	0.92
48	02Jul1999 0000	19776.95	74.04	84.76	84.78	0.000112	0.61	32648	9806.32	0.11	2.22	10.73
48	02Aug1999 0000	14700.76	74.04	84.04	84.06	0.000105	0.56	26206	8374.5	0.1	1.8	10.01
48	02Sep1999 0000	17567.32	74.04	84.49	84.5	0.000105	0.58	30040	9030.15	0.1	2	10.45
48	02Oct1999 0000	13622.8	74.04	83.8	83.82	0.00011	0.56	24211	7976.27	0.1	1.84	9.76
48	02Nov1999 0000	6945.28	74.04	81.55	81.56	0.000105	0.59	11811	3514.35	0.1	2.03	7.51
48	02Dec1999 0000	3256.33	74.04	79.62	79.63	0.000106	0.51	6387.8	2386.12	0.1	1.42	5.58
48	02Jan2000 0000	1967.94	74.04	78.51	78.52	0.000156	0.5	3925.8	2001.16	0.11	1.5	4.47
48	02Feb2000 0000	1590.46	74.04	78.15	78.16	0.000181	0.49	3230.3	1890.74	0.12	1.49	4.11
48	02Mar2000 0000	1612.66	74.04	78.17	78.18	0.000179	0.49	3268.6	1896.99	0.12	1.49	4.13
48	02Apr2000 0000	4103.09	74.04	80.15	80.16	0.000098	0.53	7690.4	2524.69	0.1	1.56	6.11
48	02May2000 0000	4089.95	74.04	80.14	80.16	0.000098	0.53	7671.7	2522.75	0.1	1.56	6.1
48	02Jun2000 0000	16834.98	74.04	84.37	84.39	0.000105	0.58	29003	8823.53	0.1	1.96	10.33
48	02Jul2000 0000	20453.02	74.04	84.83	84.85	0.000114	0.61	33278	9864.27	0.11	2.31	10.79
48	02Aug2000 0000	19376.61	74.04	84.71	84.73	0.000113	0.6	32120	9752.38	0.11	2.2	10.67
48	02Sep2000 0000	22196.91	74.04	85.01	85.03	0.000115	0.63	35019	9976.11	0.11	2.5	10.97
48	02Oct2000 0000	10971.93	74.04	83.01	83.03	0.000127	0.59	18544	6335.71	0.11	2.16	8.97
48	02Nov2000 0000	3236.85	74.04	79.6	79.62	0.000108	0.51	6335.9	2380.45	0.1	1.44	5.56
48	02Dec2000 0000	2441.69	74.04	79.01	79.02	0.000125	0.49	4967	2214.92	0.1	1.35	4.96
48	02Jan2001 0000	1556.19	74.04	78.12	78.13	0.000185	0.49	3156.2	1878.59	0.12	1.5	4.07
48	02Feb2001 0000	1507.84	74.04	77.99	78	0.000169	0.51	2937.6	1538.96	0.12	1.63	3.94

48	02Mar2001 0000	1642.2	74.04	78.2	78.21	0.000179	0.5	3310.9	1903.57	0.12	1.51	4.15
48	02Apr2001 0000	1970.43	74.04	78.5	78.52	0.000158	0.5	3909.7	1998.39	0.12	1.53	4.46
48	02May2001 0000	2612.77	74.04	79.14	79.16	0.000121	0.5	5272.5	2260.54	0.1	1.37	5.1
48	02Jun2001 0000	8871.91	74.04	82.3	82.32	0.000115	0.6	14779	4582.76	0.11	2.18	8.26
48	02Jul2001 0000	17685.36	74.04	84.49	84.51	0.000106	0.59	30059	9037.39	0.1	2.04	10.45
48	02Aug2001 0000	15560.1	74.04	84.18	84.19	0.000105	0.57	27273	8529.28	0.1	1.88	10.13
48	02Sep2001 0000	21982.04	74.04	84.98	85	0.000116	0.63	34719	9963.22	0.11	2.5	10.94
47	17Oct1997 0000	9760.04	69.1	80.71	80.76	0.00023	0.98	9931.6	2470.3	0.16	8.9	11.61
47	02Nov1997 0000	3343.9	69.1	77.7	77.73	0.000188	0.75	4440.1	1413.78	0.14	4.35	8.6
47	02Dec1997 0000	2083.29	69.1	76.66	76.68	0.000144	0.66	3133.7	983.8	0.12	2.98	7.56
47	02Jan1998 0000	1575.76	69.1	76.01	76.03	0.000127	0.61	2564.7	825.53	0.11	2.37	6.91
47	02Feb1998 0000	1488.59	69.1	75.9	75.91	0.000124	0.6	2473.5	807.05	0.11	2.24	6.8
47	02Mar1998 0000	1351.66	69.1	75.7	75.72	0.00012	0.58	2319.8	774.87	0.11	2.05	6.6
47	02Apr1998 0000	3569.02	69.1	77.84	77.87	0.000189	0.77	4654.3	1448.57	0.14	4.56	8.75
47	02May1998 0000	3966.98	69.1	78.09	78.13	0.000191	0.79	5022.8	1506.69	0.14	4.92	9
47	02Jun1998 0000	16239.17	69.1	82.28	82.33	0.000484	1.01	16082	6716.49	0.21	11.48	13.18
47	02Jul1998 0000	20551.43	69.09	82.92	82.96	0.000481	0.97	21252	9420.43	0.21	10.29	13.82
47	02Aug1998 0000	25025.09	69.09	83.43	83.48	0.000405	0.94	26497	10692.89	0.19	9.29	14.34
47	02Sep1998 0000	24535.63	69.09	83.36	83.41	0.000419	0.95	25791	10556.99	0.19	9.54	14.28
47	02Oct1998 0000	10639.45	69.09	80.96	81.01	0.000241	1.01	10580	2630.71	0.16	9.54	11.87
47	02Nov1998 0000	5943.19	69.08	79.03	79.07	0.00021	0.91	6563.1	1724.11	0.15	7.1	9.95
47	02Dec1998 0000	3025.89	69.08	77.49	77.52	0.00018	0.72	4178.9	1369.71	0.13	3.91	8.41
47	02Jan1999 0000	2682.84	69.08	77.25	77.27	0.000176	0.7	3852.4	1313.07	0.13	3.52	8.17
47	02Feb1999 0000	1016.6	69.08	75.19	75.2	0.000103	0.52	1955.8	692.62	0.1	1.48	6.11
47	02Mar1999 0000	1675.45	69.08	76.13	76.15	0.000128	0.63	2680.4	846.5	0.11	2.48	7.05
47	02Apr1999 0000	3886.6	69.08	78.05	78.08	0.000187	0.78	4981.4	1499.74	0.14	4.75	8.97
47	02May1999 0000	3860.72	69.08	78.03	78.06	0.000187	0.78	4958	1496.1	0.14	4.72	8.95
47	02Jun1999 0000	22.54	69.07	71.8	71.8	0.000003	0.06	389.47	264.4	0.02	0	2.73
47	02Jul1999 0000	19776.95	69.07	82.81	82.86	0.000486	0.97	20357	9029.41	0.21	10.43	13.74
47	02Aug1999 0000	14700.76	69.07	81.98	82.03	0.00043	1.02	14369	5385.43	0.2	11.52	12.91
47	02Sep1999 0000	17567.32	69.07	82.48	82.53	0.000492	1	17632	7599.72	0.21	11.14	13.41
47	02Oct1999 0000	13622.8	69.07	81.72	81.77	0.000367	1.04	13128	4270.8	0.19	11.46	12.65
47	02Nov1999 0000	6945.28	69.07	79.57	79.61	0.000197	0.92	7535	1838.46	0.15	7.3	10.5
47	02Dec1999 0000	3256.33	69.07	77.64	77.67	0.000182	0.74	4402.8	1406.76	0.13	4.13	8.58
47	02Jan2000 0000	1967.94	69.06	76.47	76.49	0.000132	0.66	2987.9	891.69	0.11	2.85	7.41
47	02Feb2000 0000	1590.46	69.06	76.03	76.05	0.000124	0.61	2604.6	832.96	0.11	2.32	6.96

47	02Mar2000 0000	1612.66	69.06	76.05	76.07	0.000125	0.61	2626.6	837.35	0.11	2.36	6.99
47	02Apr2000 0000	4103.09	69.07	78.17	78.2	0.000188	0.79	5175.5	1528.97	0.14	4.95	9.1
47	02May2000 0000	4089.95	69.06	78.16	78.19	0.000188	0.79	5167.4	1527.55	0.14	4.93	9.1
47	02Jun2000 0000	16834.98	69.06	82.36	82.41	0.000487	1	16829	7162.47	0.21	11.23	13.31
47	02Jul2000 0000	20453.02	69.05	82.88	82.93	0.000478	0.97	21157	9343.62	0.21	10.26	13.84
47	02Aug2000 0000	19376.61	69.04	82.74	82.79	0.000479	0.97	19896	8696.66	0.21	10.46	13.7
47	02Sep2000 0000	22196.91	69.04	83.09	83.13	0.00045	0.96	23178	9922.18	0.2	9.87	14.05
47	02Oct2000 0000	10971.93	69.03	81.01	81.07	0.000244	1.01	10843	2699.62	0.16	9.72	11.98
47	02Nov2000 0000	3236.85	69.03	77.63	77.66	0.000176	0.73	4438.1	1411.94	0.13	3.95	8.6
47	02Dec2000 0000	2441.69	69.03	77.06	77.08	0.000166	0.67	3667	1279.01	0.13	3.1	8.03
47	02Jan2001 0000	1556.19	69.03	75.99	76.01	0.000119	0.6	2599.4	831.87	0.11	2.19	6.96
47	02Feb2001 0000	1507.84	69.03	75.92	75.94	0.000118	0.59	2546.1	821.2	0.11	2.13	6.89
47	02Mar2001 0000	1642.2	69.03	76.09	76.11	0.000122	0.61	2687.1	847.11	0.11	2.32	7.06
47	02Apr2001 0000	1970.43	69.03	76.46	76.48	0.00013	0.65	3008.9	894.6	0.11	2.8	7.43
47	02May2001 0000	2612.77	69.03	77.2	77.22	0.000168	0.68	3841.7	1310.32	0.13	3.28	8.16
47	02Jun2001 0000	8871.91	69.03	80.37	80.41	0.000218	0.96	9240.3	2285.91	0.15	8.29	11.33
47	02Jul2001 0000	17685.36	69.02	82.48	82.53	0.000481	0.99	17882	7667.21	0.21	10.88	13.45
47	02Aug2001 0000	15560.1	69.02	82.12	82.17	0.000456	1.01	15430	6170.06	0.2	11.27	13.1
47	02Sep2001 0000	21982.04	69.01	83.05	83.1	0.000447	0.96	22988	9814.45	0.2	9.82	14.04
46	17Oct1997 0000	9760.04	70.86	79.1	79.1	0.000015	0.32	30397	5136.87	0.04	0.27	8.24
46	02Nov1997 0000	3343.9	70.86	76.28	76.28	0.000009	0.2	17085	4375.23	0.03	0.07	5.42
46	02Dec1997 0000	2083.29	70.86	75.26	75.26	0.000009	0.16	12687	4210.43	0.03	0.05	4.39
46	02Jan1998 0000	1575.76	70.86	74.64	74.64	0.000011	0.16	10113	4074.18	0.03	0.04	3.78
46	02Feb1998 0000	1488.59	70.86	74.51	74.51	0.000012	0.16	9597.2	4034.65	0.03	0.04	3.65
46	02Mar1998 0000	1351.66	70.86	74.3	74.3	0.000013	0.15	8759.4	4002.03	0.03	0.04	3.44
46	02Apr1998 0000	3569.02	70.86	76.41	76.41	0.00001	0.2	17628	4408.03	0.03	0.08	5.55
46	02May1998 0000	3966.98	70.86	76.62	76.62	0.00001	0.21	18561	4457.61	0.03	0.09	5.76
46	02Jun1998 0000	16239.17	70.86	80.65	80.66	0.000023	0.41	39557	6543.03	0.05	0.57	9.79
46	02Jul1998 0000	20551.43	70.86	81.23	81.25	0.000032	0.47	43540	7414.68	0.06	0.87	10.37
46	02Aug1998 0000	25025.09	70.87	81.75	81.76	0.000044	0.53	47636	8788.51	0.07	1.23	10.88
46	02Sep1998 0000	24535.63	70.87	81.69	81.71	0.000042	0.52	47174	8467.98	0.07	1.18	10.83
46	02Oct1998 0000	10639.45	70.87	79.45	79.45	0.000015	0.33	32158	5315.78	0.04	0.3	8.58
46	02Nov1998 0000	5943.19	70.87	77.51	77.51	0.000013	0.26	22590	4659.53	0.04	0.16	6.64
46	02Dec1998 0000	3025.89	70.87	76.08	76.08	0.000009	0.19	16130	4321.73	0.03	0.06	5.2
46	02Jan1999 0000	2682.84	70.87	75.83	75.83	0.000009	0.18	15065	4287.63	0.03	0.06	4.95
46	02Feb1999 0000	1016.6	70.87	73.77	73.78	0.000018	0.15	6617.2	3949.8	0.04	0.05	2.9

46	02Mar1999 0000	1675.45	70.87	74.75	74.76	0.000011	0.16	10540	4106.94	0.03	0.04	3.88
46	02Apr1999 0000	3886.6	70.88	76.57	76.57	0.00001	0.21	18286	4444.02	0.03	0.09	5.69
46	02May1999 0000	3860.72	70.88	76.56	76.56	0.00001	0.21	18223	4440.79	0.03	0.09	5.68
46	02Jun1999 0000	22.54	70.88	71.51	71.51	0.000185	0.16	138.73	436.16	0.09	0.09	0.64
46	02Jul1999 0000	19776.95	70.88	81.12	81.14	0.00003	0.46	42679	7097.57	0.06	0.82	10.25
46	02Aug1999 0000	14700.76	70.88	80.43	80.44	0.000021	0.39	38068	6457.44	0.05	0.48	9.55
46	02Sep1999 0000	17567.32	70.88	80.81	80.82	0.000025	0.43	40540	6604.13	0.06	0.66	9.93
46	02Oct1999 0000	13622.8	70.88	80.19	80.2	0.000021	0.37	36519	6364.65	0.05	0.43	9.31
46	02Nov1999 0000	6945.28	70.88	77.87	77.87	0.000014	0.29	24198	4742.08	0.04	0.2	6.98
46	02Dec1999 0000	3256.33	70.89	76.21	76.21	0.00001	0.2	16648	4349.7	0.03	0.07	5.32
46	02Jan2000 0000	1967.94	70.89	75.09	75.09	0.00001	0.17	11892	4184.64	0.03	0.05	4.21
46	02Feb2000 0000	1590.46	70.89	74.64	74.64	0.000012	0.16	10018	4067.3	0.03	0.04	3.75
46	02Mar2000 0000	1612.66	70.89	74.67	74.67	0.000011	0.16	10123	4075.36	0.03	0.04	3.78
46	02Apr2000 0000	4103.09	70.89	76.67	76.67	0.000011	0.22	18658	4463.64	0.03	0.1	5.78
46	02May2000 0000	4089.95	70.89	76.66	76.66	0.000011	0.22	18621	4461.79	0.03	0.1	5.77
46	02Jun2000 0000	16834.98	70.89	80.72	80.73	0.000024	0.42	39874	6567.72	0.05	0.62	9.83
46	02Jul2000 0000	20453.02	70.89	81.21	81.22	0.000032	0.47	43223	7340.85	0.06	0.88	10.32
46	02Aug2000 0000	19376.61	70.9	81.06	81.07	0.000029	0.46	42084	6914.67	0.06	0.8	10.16
46	02Sep2000 0000	22196.91	70.9	81.44	81.45	0.000037	0.49	44916	7899.87	0.07	1.01	10.54
46	02Oct2000 0000	10971.93	70.9	79.52	79.53	0.000016	0.34	32395	5353.64	0.04	0.32	8.62
46	02Nov2000 0000	3236.85	70.9	76.19	76.19	0.00001	0.2	16488	4340.48	0.03	0.07	5.28
46	02Dec2000 0000	2441.69	70.91	75.6	75.6	0.00001	0.17	13957	4252.4	0.03	0.05	4.69
46	02Jan2001 0000	1556.19	70.91	74.59	74.59	0.000012	0.16	9739.2	4046	0.03	0.05	3.68
46	02Feb2001 0000	1507.84	70.91	74.51	74.52	0.000012	0.16	9431.9	4022.28	0.03	0.05	3.61
46	02Mar2001 0000	1642.2	70.91	74.69	74.7	0.000012	0.16	10160	4078.47	0.03	0.05	3.79
46	02Apr2001 0000	1970.43	70.91	75.08	75.08	0.000011	0.17	11738	4179.96	0.03	0.05	4.17
46	02May2001 0000	2612.77	70.91	75.73	75.74	0.00001	0.18	14516	4270.77	0.03	0.06	4.83
46	02Jun2001 0000	8871.91	70.92	78.51	78.51	0.000017	0.33	27156	4934.18	0.04	0.29	7.59
46	02Jul2001 0000	17685.36	70.92	80.82	80.83	0.000026	0.44	40407	6604.74	0.06	0.68	9.91
46	02Aug2001 0000	15560.1	70.92	80.54	80.55	0.000023	0.4	38540	6494.32	0.05	0.54	9.62
46	02Sep2001 0000	21982.04	70.92	81.4	81.41	0.000036	0.49	44484	7804.56	0.07	1.01	10.48
45	17Oct1997 0000	9760.04	61.64	78.81	78.81	0.000022	0.3	32282	8144.32	0.05	0.26	17.17
45	02Nov1997 0000	3343.9	61.64	76.07	76.07	0.000007	0.18	18120	4175.84	0.03	0.06	14.43
45	02Dec1997 0000	2083.29	61.64	75	75	0.000006	0.15	13787	3907.49	0.03	0.03	13.36
45	02Jan1998 0000	1575.76	61.64	74.32	74.32	0.000007	0.14	11197	3724.77	0.03	0.03	12.68
45	02Feb1998 0000	1488.59	61.64	74.19	74.19	0.000007	0.14	10742	3691.73	0.03	0.03	12.55

45	02Mar1998 0000	1351.66	61.64	74	74	0.000007	0.13	10025	3610.69	0.03	0.03	12.36
45	02Apr1998 0000	3569.02	61.64	76.18	76.19	0.000008	0.19	18612	4209.6	0.03	0.06	14.54
45	02May1998 0000	3966.98	61.64	76.39	76.39	0.000008	0.2	19473	4271.66	0.03	0.08	14.75
45	02Jun1998 0000	16239.17	61.64	80.32	80.33	0.000029	0.32	50029	13839.98	0.05	0.33	18.68
45	02Jul1998 0000	20551.43	61.64	80.82	80.83	0.000032	0.36	57139	14608.47	0.06	0.44	19.18
45	02Aug1998 0000	25025.09	61.64	81.27	81.27	0.000042	0.39	64265	18006.75	0.07	0.58	19.63
45	02Sep1998 0000	24535.63	61.64	81.22	81.23	0.00004	0.39	63553	17425.7	-0.06	-0.56	19.58
45	02Oct1998 0000	10639.45	61.64	79.16	79.16	0.000026	0.3	35459	10058.87	0.05	0.26	17.52
45	02Nov1998 0000	5943.19	61.64	77.22	77.22	0.000012	0.26	23143	4606.62	0.04	0.15	15.58
45	02Dec1998 0000	3025.89	61.64	75.86	75.86	0.000007	0.18	17257	4125.19	0.03	0.05	14.22
45	02Jan1999 0000	2682.84	61.64	75.61	75.61	0.000007	0.17	16250	4065.21	0.03	0.04	13.97
45	02Feb1999 0000	1016.6	61.64	73.42	73.42	0.000008	0.13	8006	3384.07	0.03	0.02	11.78
45	02Mar1999 0000	1675.45	61.64	74.44	74.44	0.000007	0.14	11659	3758.02	0.03	0.03	12.8
45	02Apr1999 0000	3886.6	61.64	76.34	76.34	0.000008	0.2	19265	4256.71	0.03	0.07	14.7
45	02May1999 0000	3860.72	61.64	76.32	76.33	0.000008	0.2	19208	4252.66	0.03	0.07	14.68
45	02Jun1999 0000	22.54	61.7	67.96	67.96	0.000001	0.05	430.28	137.51	0.01	0	6.26
45	02Jul1999 0000	19776.95	61.7	80.73	80.73	0.000032	0.36	55705	14449.95	0.06	0.43	19.02
45	02Aug1999 0000	14700.76	61.7	80.13	80.13	0.000028	0.31	47308	13628	0.05	0.3	18.42
45	02Sep1999 0000	17567.32	61.7	80.46	80.47	0.00003	0.34	51922	14010.91	0.06	0.37	18.76
45	02Oct1999 0000	13622.8	61.7	79.89	79.9	0.000028	0.31	44191	12872.58	0.05	0.29	18.19
45	02Nov1999 0000	6945.28	61.7	77.56	77.56	0.000014	0.28	24751	4898.99	0.04	0.19	15.85
45	02Dec1999 0000	3256.33	61.7	75.99	75.99	0.000007	0.18	17783	4156.51	0.03	0.06	14.28
45	02Jan2000 0000	1967.94	61.7	74.81	74.81	0.000007	0.15	13061	3857.56	0.03	0.03	13.11
45	02Feb2000 0000	1590.46	61.7	74.31	74.31	0.000007	0.14	11170	3723.25	0.03	0.03	12.61
45	02Mar2000 0000	1612.66	61.7	74.34	74.34	0.000007	0.14	11276	3730.89	0.03	0.03	12.64
45	02Apr2000 0000	4103.09	61.7	76.43	76.43	0.000009	0.21	19640	4284	0.03	0.08	14.72
45	02May2000 0000	4089.95	61.7	76.42	76.42	0.000009	0.21	19608	4281.74	0.03	0.08	14.72
45	02Jun2000 0000	16834.98	61.7	80.38	80.39	0.00003	0.33	50845	13914.19	0.06	0.35	18.68
45	02Jul2000 0000	20453.02	61.7	80.8	80.81	0.000032	0.36	56810	14572.83	0.06	0.44	19.1
45	02Aug2000 0000	19376.61	61.7	80.67	80.67	0.000032	0.35	54833	14268.86	0.06	0.42	18.96
45	02Sep2000 0000	22196.91	61.7	81	81.01	0.000037	0.37	59812	16214.5	0.06	0.49	19.3
45	02Oct2000 0000	10971.93	61.7	79.22	79.23	0.000027	0.3	36150	10552.9	0.05	0.28	17.52
45	02Nov2000 0000	3236.85	61.7	75.96	75.97	0.000007	0.18	17690	4151.06	0.03	0.06	14.26
45	02Dec2000 0000	2441.69	61.7	75.37	75.37	0.000007	0.16	15254	4005.46	0.03	0.04	13.66
45	02Jan2001 0000	1556.19	61.7	74.25	74.25	0.000007	0.14	10955	3707.65	0.03	0.03	12.55
45	02Feb2001 0000	1507.84	61.7	74.18	74.18	0.000007	0.14	10693	3688.62	0.03	0.03	12.48
45	02Mar2001 0000	1642.2	61.7	74.36	74.36	0.000007	0.14	11363	3737.16	0.03	0.03	12.66

45	02Apr2001 0000	1970.43	61.7	74.78	74.78	74.78	0.000007	0.15	12954	3850.09	0.03	0.04	13.08
45	02May2001 0000	2612.77	61.7	75.51	75.51	75.51	0.000007	0.17	15809	4039.07	0.03	0.04	13.8
45	02Jun2001 0000	8871.91	61.7	78.16	78.17	78.17	0.000018	0.32	27941	5706.63	0.05	0.28	16.46
45	02Jul2001 0000	17685.36	61.7	80.46	80.47	80.47	0.000031	0.34	51985	14016.51	0.06	0.38	18.76
45	02Aug2001 0000	15560.1	61.7	80.22	80.22	80.22	0.000029	0.32	48559	13710.96	0.05	0.32	18.51
45	02Sep2001 0000	21982.04	61.7	80.96	80.97	80.97	0.000035	0.37	59199	15411	0.06	0.49	19.26
44	17Oct1997 0000	9760.04	66.67	76.11	76.16	76.16	0.000217	1.01	9699.8	2230.02	0.15	9.31	9.44
44	02Nov1997 0000	3343.9	66.67	73.63	73.65	73.65	0.000172	0.69	4869.8	1667.36	0.13	3.38	6.96
44	02Dec1997 0000	2083.29	66.67	72.76	72.78	72.78	0.000169	0.59	3505.2	1470.01	0.12	2.34	6.09
44	02Jan1998 0000	1575.76	66.67	72.29	72.31	72.31	0.000176	0.55	2840.8	1363.6	0.12	1.99	5.62
44	02Feb1998 0000	1488.59	66.67	72.2	72.22	72.22	0.000178	0.55	2718.3	1343.05	0.12	1.94	5.53
44	02Mar1998 0000	1351.66	66.67	72.05	72.07	72.07	0.000183	0.54	2518.2	1308.81	0.12	1.85	5.38
44	02Apr1998 0000	3569.02	66.67	73.74	73.77	73.77	0.000177	0.71	5051.8	1692.04	0.13	3.65	7.07
44	02May1998 0000	3966.98	66.67	73.96	73.99	73.99	0.000179	0.73	5428	1741.77	0.13	3.99	7.29
44	02Jun1998 0000	16239.17	66.67	78.45	78.47	78.47	0.000271	0.72	22493	10046.42	0.15	4.29	11.78
44	02Jul1998 0000	20551.43	66.67	78.89	78.92	78.92	0.000277	0.76	27214	11563.44	0.16	4.83	12.22
44	02Aug1998 0000	25025.09	66.67	79.33	79.36	79.36	0.000256	0.77	32523	12642.42	0.15	4.96	12.67
44	02Sep1998 0000	24535.63	66.67	79.28	79.31	79.31	0.000258	0.77	31784	12387.22	0.15	5.01	12.61
44	02Oct1998 0000	10639.45	66.67	76.3	76.35	76.35	0.000233	1.05	10131	2300.62	0.16	10.54	9.63
44	02Nov1998 0000	5943.19	66.66	74.81	74.85	74.85	0.000197	0.85	7006.3	1936.05	0.14	5.93	8.15
44	02Dec1998 0000	3025.89	66.66	73.38	73.4	73.4	0.000179	0.68	4473.6	1612.32	0.13	3.29	6.72
44	02Jan1999 0000	2682.84	66.66	73.17	73.19	73.19	0.000175	0.65	4133.4	1563.74	0.13	2.95	6.51
44	02Feb1999 0000	1016.6	66.66	71.63	71.64	71.64	0.000198	0.51	1995.3	1190.6	0.13	1.66	4.97
44	02Mar1999 0000	1675.45	66.66	72.34	72.36	72.36	0.000184	0.57	2920.2	1376.6	0.13	2.19	5.68
44	02Apr1999 0000	3886.6	66.66	73.84	73.87	73.87	0.000189	0.74	5237.2	1716.36	0.14	4.2	7.18
44	02May1999 0000	3860.72	66.66	73.81	73.84	73.84	0.000192	0.74	5189.9	1710.1	0.14	4.24	7.15
44	02Jun1999 0000	22.54	66.65	67.73	67.74	67.74	0.000425	0.35	64.05	117.9	0.15	0.8	1.09
44	02Jul1999 0000	19776.95	66.65	78.82	78.85	78.85	0.000279	0.75	26403	11423.11	0.16	4.74	12.17
44	02Aug1999 0000	14700.76	66.65	77.94	77.97	77.97	0.000447	0.83	17641	9255.17	0.19	6.96	11.29
44	02Sep1999 0000	17567.32	66.64	78.57	78.6	78.6	0.000266	0.74	23837	10172.48	0.15	4.5	11.93
44	02Oct1999 0000	13622.8	66.64	77.19	77.25	77.25	0.00036	1.06	12884	4016.89	0.19	11.96	10.55
44	02Nov1999 0000	6945.28	66.64	75.06	75.1	75.1	0.000222	0.92	7512.8	1994.14	0.15	7.58	8.42
44	02Dec1999 0000	3256.33	66.64	73.42	73.45	73.45	0.000197	0.72	4552.2	1623.01	0.14	3.87	6.78
44	02Jan2000 0000	1967.94	66.64	72.54	72.56	72.56	0.000195	0.61	3203.7	1422.22	0.13	2.64	5.9
44	02Feb2000 0000	1590.46	66.64	72.18	72.2	72.2	0.000206	0.59	2708	1340.88	0.13	2.39	5.54
44	02Mar2000 0000	1612.66	66.64	72.19	72.21	72.21	0.000208	0.59	2724.7	1343.7	0.13	2.44	5.55

44	02Apr2000 0000	4103.09	66.64	73.83	73.86	0.000212	0.79	5225.6	1714.49	0.14	4.98	7.19
44	02May2000 0000	4089.95	66.64	73.81	73.84	0.000214	0.79	5198.8	1710.95	0.14	5.02	7.17
44	02Jun2000 0000	16834.98	66.64	78.49	78.51	0.000271	0.73	23002	10060.85	0.15	4.44	11.85
44	02Jul2000 0000	20453.02	66.64	78.85	78.88	0.000288	0.76	26758	11477.55	0.16	5.02	12.21
44	02Aug2000 0000	19376.61	66.64	78.72	78.75	0.000271	0.76	25340	10387.76	0.16	4.95	12.08
44	02Sep2000 0000	22196.91	66.64	79.01	79.04	0.00028	0.77	28648	11792.96	0.16	5.16	12.37
44	02Oct2000 0000	10971.93	66.64	76.24	76.3	0.000253	-1.09	10035	2283.79	0.17	-1.91	- 9.6
44	02Nov2000 0000	3236.85	66.63	73.33	73.36	0.000212	0.73	4417.2	1603.81	0.14	4.19	6.7
44	02Dec2000 0000	2441.69	66.63	72.84	72.86	0.000207	0.67	3645.5	1490.86	0.14	3.33	6.2
44	02Jan2001 0000	1556.19	66.64	72.08	72.1	0.000225	0.6	2585.4	1319.95	0.14	2.6	5.45
44	02Feb2001 0000	1507.84	66.64	72.03	72.05	0.000229	0.6	2514.8	1307.78	0.14	2.59	5.39
44	02Mar2001 0000	1642.2	66.64	72.15	72.17	0.000226	0.61	2680.4	1336.16	0.14	2.72	5.52
44	02Apr2001 0000	1970.43	66.64	72.43	72.45	0.000223	0.64	3056.2	1398.47	0.14	3.08	5.79
44	02May2001 0000	2612.77	66.64	72.9	72.92	0.000222	0.7	3733.9	1504.29	0.14	3.78	6.26
44	02Jun2001 0000	8871.91	66.64	75.63	75.69	0.000242	1.02	8699.1	2124.54	0.16	9.89	9
44	02Jul2001 0000	17685.36	66.63	78.55	78.57	0.000277	0.75	23618	10143.26	0.16	4.73	11.91
44	02Aug2001 0000	15360.1	66.63	78.07	78.11	0.000406	0.82	18961	9475.8	0.19	6.54	11.44
44	02Sep2001 0000	21982.04	66.63	78.97	79	0.000285	0.78	28241	11716.69	0.16	5.25	12.34
43	17Oct1997 0000	9760.04	60.03	72.3	72.33	0.000107	0.77	12646	2541.56	0.11	4.02	12.27
43	02Nov1997 0000	3343.9	59.98	67.44	67.54	0.001395	1.42	2350.2	1296.19	0.34	35.25	7.46
43	02Dec1997 0000	2083.29	58.47	64.42	64.81	0.003799	2.76	756.13	327.14	0.58	236.27	5.95
43	02Jan1998 0000	1575.76	57.4	63.02	63.4	0.003933	2.73	577.4	259.79	0.58	232.72	5.62
43	02Feb1998 0000	1488.59	57.06	62.81	63.13	0.003246	2.52	590.04	258.52	0.53	182.25	5.75
43	02Mar1998 0000	1351.66	56.78	62.45	62.75	0.00307	2.44	554.63	245.42	0.52	164.84	5.67
43	02Apr1998 0000	3569.02	56.77	67.65	67.7	0.000439	1	3564.3	1397.29	0.2	10.97	10.88
43	02May1998 0000	3966.98	56.77	68.14	68.19	0.000342	0.92	4290.3	1572.85	0.18	8.44	11.37
43	02Jun1998 0000	16239.17	56.78	74.8	74.83	0.000138	0.73	22380	5979.73	0.12	3.67	18.03
43	02Jul1998 0000	20551.43	56.78	76.35	76.37	0.000094	0.54	38321	12127.08	0.1	1.57	19.57
43	02Aug1998 0000	25025.09	56.79	77.07	77.08	0.000081	0.53	47323	13653.73	0.09	1.46	20.28
43	02Sep1998 0000	24535.63	56.79	77.01	77.03	0.000081	0.53	46532	13522.54	0.09	1.45	20.22
43	02Oct1998 0000	10639.45	56.8	72.57	72.6	0.000086	0.75	14279	2572.88	0.1	3.49	15.77
43	02Nov1998 0000	5943.19	56.81	69.94	69.97	0.000166	0.75	7882.6	2279.63	0.13	4.23	13.13
43	02Dec1998 0000	3025.89	56.78	66.77	66.85	0.000642	1.22	2473.8	954.5	0.24	19.89	9.99
43	02Jan1999 0000	2682.84	56.76	66.06	66.16	0.000691	1.39	1935.4	653.28	0.26	27.7	9.3
43	02Feb1999 0000	1016.6	56.38	61.43	61.76	0.003824	2.54	400.3	196.18	0.57	193.05	5.05
43	02Mar1999 0000	1675.45	56.32	63.39	63.56	0.001261	1.83	917.32	320.92	0.34	64.17	7.07

43	02Apr1999 0000	3886.6	56.32	68.07	68.11	0.000319	0.91	4293.1	1541.2	0.17	7.87	11.75
43	02May1999 0000	3860.72	56.33	68.05	68.09	0.000322	0.91	4253.6	1533.29	0.17	7.94	11.72
43	02Jun1999 0000	22.54	55.33	56.44	56.66	0.020446	2.12	10.65	24.02	1.02	186.38	1.1
43	02Jul1999 0000	19776.95	55.33	76.22	76.23	0.000098	0.53	36986	12052.69	0.1	1.57	20.89
43	02Aug1999 0000	14700.76	55.35	74.05	74.08	0.000097	0.78	18880	3483.2	0.11	4.01	18.7
43	02Sep1999 0000	17567.32	55.36	75.63	75.65	0.00014	0.59	30017	11187.46	0.11	2.15	20.27
43	02Oct1999 0000	13622.8	55.38	73.63	73.66	0.000091	0.78	17432	3045.45	0.1	3.98	18.25
43	02Nov1999 0000	6945.28	55.38	70.89	70.91	0.000097	0.67	10344	2383.89	0.1	2.77	15.51
43	02Dec1999 0000	3256.33	55.37	67.16	67.22	0.000439	1.03	3173.4	1198.19	0.2	11.66	11.79
43	02Jan2000 0000	1967.94	55.33	64.17	64.28	0.000597	1.46	1351.6	378.63	0.25	30.19	8.85
43	02Feb2000 0000	1590.46	55.3	63.17	63.3	0.000825	1.58	1008.8	319.79	0.28	39.95	7.87
43	02Mar2000 0000	1612.66	55.27	63.26	63.38	0.00078	1.55	1041.9	325.42	0.28	37.62	7.98
43	02Apr2000 0000	4103.09	55.27	68.37	68.4	0.000247	0.84	4901.3	1630.39	0.15	6.07	13.09
43	02May2000 0000	4089.95	55.28	68.36	68.39	0.000247	0.84	4886.1	1627.72	0.15	6.07	13.08
43	02Jun2000 0000	16834.98	55.28	75.25	75.27	0.000184	0.65	25858	10094.14	0.13	3.01	19.97
43	02Jul2000 0000	20453.02	55.28	76.34	76.35	0.000094	0.54	38220	12116.69	0.1	1.56	21.05
43	02Aug2000 0000	19376.61	55.28	76.15	76.16	0.000103	0.54	35899	11993.3	0.1	1.63	20.86
43	02Sep2000 0000	22196.91	55.29	76.69	76.71	0.00008	0.52	42539	12367.2	0.09	1.4	21.41
43	02Oct2000 0000	10971.93	55.31	72.73	72.75	0.000081	0.74	14871	2587.07	0.1	3.35	17.42
43	02Nov2000 0000	3236.85	55.3	67.19	67.25	0.000418	1.01	3210.1	1200.1	0.2	11.03	11.9
43	02Dec2000 0000	2441.69	55.27	65.49	65.57	0.000397	1.27	1917.6	484.15	0.2	19.5	10.21
43	02Jan2001 0000	1556.19	55.24	63.16	63.28	0.000767	1.53	1018.2	320.14	0.27	36.3	7.93
43	02Feb2001 0000	1507.84	55.2	63.05	63.16	0.000775	1.53	988.56	314.12	0.27	36.21	7.84
43	02Mar2001 0000	1642.2	55.18	63.45	63.56	0.000655	1.46	1127.8	338.69	0.25	30.92	8.28
43	02Apr2001 0000	1970.43	55.16	64.32	64.42	0.000494	1.36	1448.1	389.71	0.23	24.32	9.16
43	02May2001 0000	2612.77	55.16	65.96	66.03	0.000402	1.19	2201.4	623.74	0.2	16.41	10.81
43	02Jun2001 0000	8871.91	55.17	71.97	71.99	0.00008	0.68	12956	2501.6	0.1	2.77	16.8
43	02Jul2001 0000	17685.36	55.17	75.71	75.73	0.000132	0.57	30795	11289.16	0.11	2.02	20.54
43	02Aug2001 0000	15560.1	55.18	74.56	74.59	0.000137	0.74	21017	5423.47	0.12	3.85	19.38
43	02Sep2001 0000	21982.04	55.18	76.67	76.69	0.00008	0.52	42191	12359.54	0.09	1.4	21.49
42	17Oct1997 0000	9760.04	11.25	70.36	70.38	0.00002	0.49	19732	2170.4	0.05	0.87	59.12
42	02Nov1997 0000	3343.9	11.25	66.17	66.17	0.000013	0.3	11149	1843.21	0.04	0.22	54.92
42	02Dec1997 0000	2083.29	11.3	63.81	63.81	0.000014	0.29	7304.6	1427.37	0.04	0.2	52.51
42	02Jan1998 0000	1575.76	11.32	62.51	62.52	0.00002	0.29	5487.9	1335.11	0.05	0.22	51.2
42	02Feb1998 0000	1488.59	11.32	62.3	62.31	0.000018	0.29	5210.6	1215.3	0.04	0.22	50.99
42	02Mar1998 0000	1351.66	11.32	61.98	61.99	0.000016	0.28	4852.9	1054.09	0.04	0.2	50.66

42	02Apr1998 0000	3569.02	11.32	66.43	66.44	0.000013	0.31	11535	1877.12	0.04	0.24	55.11
42	02May1998 0000	3966.98	11.33	66.86	66.86	0.000014	0.32	12339	1933.5	0.04	0.27	55.53
42	02Jun1998 0000	16239.17	11.33	72.87	72.89	0.000045	0.61	26450	3871.11	0.07	1.82	61.53
42	02Jul1998 0000	20551.43	11.34	74.5	74.52	0.000059	0.57	36050	7326.03	0.08	1.63	63.17
42	02Aug1998 0000	25025.09	11.33	75.71	75.73	0.000045	0.55	45355	7880.56	0.07	1.4	64.38
42	02Sep1998 0000	24535.63	11.33	75.63	75.65	0.000045	0.55	44757	7843.67	0.07	1.38	64.3
42	02Oct1998 0000	10639.45	11.34	70.71	70.72	0.000022	0.52	20329	2187.5	0.05	1.02	59.36
42	02Nov1998 0000	5943.19	11.35	68.47	68.47	0.000015	0.38	15541	2072.08	0.04	0.43	57.11
42	02Dec1998 0000	3025.89	11.36	65.77	65.77	0.000013	0.3	10256	1784.57	0.04	0.22	54.41
42	02Jan1999 0000	2682.84	11.36	65.27	65.27	0.000012	0.29	9397.8	1612.99	0.04	0.19	53.91
42	02Feb1999 0000	1016.6	11.37	61.13	61.13	0.000009	0.25	4062.8	687.53	0.03	0.13	49.76
42	02Mar1999 0000	1675.45	11.37	62.74	62.74	0.00002	0.29	5723.2	1349.19	0.05	0.23	51.37
42	02Apr1999 0000	3886.6	11.37	66.76	66.77	0.000014	0.32	12081	1917.21	0.04	0.27	55.39
42	02May1999 0000	3860.72	11.37	66.73	66.74	0.000014	0.32	12023	1913.3	0.04	0.27	55.36
42	02Jun1999 0000	22.54	11.38	55.5	55.5	0	0.01	3093	140.2	0	0	44.12
42	02Jul1999 0000	19776.95	11.38	74.27	74.28	0.000064	0.58	34266	7250.53	0.08	1.71	62.89
42	02Aug1999 0000	14700.76	11.37	72.27	72.29	0.000038	0.61	24271	3226.84	0.07	1.7	60.9
42	02Sep1999 0000	17567.32	11.37	73.39	73.41	0.000061	0.61	28753	5336.41	0.08	1.95	62.01
42	02Oct1999 0000	13622.8	11.37	71.84	71.86	0.000031	0.59	23058	2678.93	0.06	1.51	60.47
42	02Nov1999 0000	6945.28	11.38	69	69.01	0.000017	0.42	16595	2099.11	0.05	0.55	57.61
42	02Dec1999 0000	3256.33	11.39	66.03	66.03	0.000014	0.3	10687	1817.58	0.04	0.24	54.64
42	02Jan2000 0000	1967.94	11.39	63.45	63.45	0.000017	0.29	6672.1	1404.24	0.04	0.23	52.06
42	02Feb2000 0000	1590.46	11.4	62.48	62.49	0.000021	0.3	5349.8	1322.33	0.05	0.25	51.09
42	02Mar2000 0000	1612.66	11.4	62.54	62.54	0.000021	0.3	5415.8	1331.14	0.05	0.25	51.14
42	02Apr2000 0000	4103.09	11.4	66.96	66.97	0.000014	0.33	12420	1942.72	0.04	0.29	55.56
42	02May2000 0000	4089.95	11.41	66.95	66.95	0.000014	0.33	12385	1940.46	0.04	0.29	55.54
42	02Jun2000 0000	16834.98	11.41	73.06	73.08	0.000051	0.62	27132	4308.38	0.08	1.94	61.66
42	02Jul2000 0000	20453.02	11.41	74.41	74.42	0.000063	0.58	35255	7296.58	0.08	1.73	62.99
42	02Aug2000 0000	19376.61	11.41	74.13	74.15	0.000068	0.58	33280	7209.51	0.09	1.77	62.72
42	02Sep2000 0000	22196.91	11.41	75.16	75.17	0.000049	0.54	40947	7743.82	0.08	1.37	63.75
42	02Oct2000 0000	10971.93	11.42	70.82	70.83	0.000023	0.54	20423	2192.59	0.06	1.11	59.39
42	02Nov2000 0000	3236.85	11.43	65.98	65.99	0.000014	0.31	10529	1807.37	0.04	0.24	54.55
42	02Dec2000 0000	2441.69	11.43	64.67	64.68	0.000013	0.29	8382.6	1495.59	0.04	0.21	53.24
42	02Jan2001 0000	1556.19	11.44	62.39	62.39	0.00002	0.3	5180.6	1181.43	0.05	0.25	50.95
42	02Feb2001 0000	1507.84	11.44	62.26	62.27	0.000019	0.3	5033.7	1119.14	0.05	0.24	50.82
42	02Mar2001 0000	1642.2	11.44	62.62	62.63	0.000021	0.3	5474.3	1334.83	0.05	0.25	51.18
42	02Apr2001 0000	1970.43	11.45	63.42	63.43	0.000018	0.3	6567.8	1399.25	0.04	0.24	51.98

42	02May2001 0000	2612.77	11.45	65.01	65.02	0.000013	0.29	8879	1526.11	0.04	0.21	53.56
42	02Jun2001 0000	8871.91	11.48	69.92	69.94	0.000021	0.48	18388	2145.63	0.05	0.82	58.44
42	02Jul2001 0000	17685.36	11.49	73.41	73.43	0.000063	0.62	28673	5395.07	0.09	2.01	61.92
42	02Aug2001 0000	15560.1	11.5	72.55	72.57	0.000044	0.62	24966	3492.82	0.07	1.88	61.05
42	02Sep2001 0000	21982.04	11.5	75.12	75.13	0.00005	0.54	40450	7737.16	0.08	1.38	63.62
41	17Oct1997 0000	9760.04	42.12	69.72	69.76	0.000084	0.91	10753	1405.31	0.1	5.68	27.6
41	02Nov1997 0000	3343.9	42.12	65.92	65.93	0.000053	0.56	5921.3	1111.34	0.08	1.54	23.8
41	02Dec1997 0000	2083.29	42.12	63.64	63.65	0.000034	0.53	3917.3	575.9	0.07	1.19	21.52
41	02Jan1998 0000	1575.76	42.12	62.39	62.4	0.000016	0.46	3415.5	345.38	0.05	0.69	20.27
41	02Feb1998 0000	1488.59	42.12	62.18	62.19	0.000015	0.44	3345.4	341.81	0.05	0.62	20.07
41	02Mar1998 0000	1351.66	42.12	61.88	61.89	0.000013	0.42	3243.2	336.55	0.04	0.51	19.76
41	02Apr1998 0000	3569.02	42.12	66.17	66.18	0.000053	0.58	6200.1	1133.44	0.08	1.62	24.05
41	02May1998 0000	3966.98	42.12	66.57	66.59	0.000053	0.6	6665.7	1168.32	0.08	1.76	24.45
41	02Jun1998 0000	16239.17	42.12	71.91	71.98	0.000113	1.16	14011	1581.11	0.12	11.25	29.79
41	02Jul1998 0000	20551.43	42.11	73.1	73.19	0.000191	1.27	16229	2389.38	0.16	16.02	31
41	02Aug1998 0000	25025.09	42.1	74.6	74.65	0.000282	1.04	24073	6406.86	0.17	10.79	32.5
41	02Sep1998 0000	24535.63	42.1	74.51	74.56	0.000287	1.04	23502	6298.16	0.17	10.95	32.41
41	02Oct1998 0000	10639.45	42.1	70.03	70.08	0.000088	0.95	11226	1428.8	0.11	6.4	27.93
41	02Nov1998 0000	5943.19	42.1	67.92	67.95	0.000065	0.71	8343.8	1286.1	0.09	2.9	25.82
41	02Dec1998 0000	3025.89	42.1	65.53	65.55	0.000051	0.55	5521.2	1059.25	0.08	1.42	23.43
41	02Jan1999 0000	2682.84	42.1	65.05	65.07	0.000049	0.53	5030.9	973.51	0.07	1.31	22.95
41	02Feb1999 0000	1016.6	42.1	61.06	61.07	0.000009	0.34	2977.2	322.44	0.04	0.29	18.96
41	02Mar1999 0000	1675.45	42.1	62.6	62.61	0.000017	0.48	3495.5	349.4	0.05	0.77	20.5
41	02Apr1999 0000	3886.6	42.1	66.48	66.5	0.000053	0.59	6578.1	1161.95	0.08	1.73	24.38
41	02May1999 0000	3860.72	42.1	66.45	66.47	0.000053	0.59	6545.2	1159.55	0.08	1.72	24.35
41	02Jun1999 0000	22.54	42.11	55.5	55.5	0	0.02	1453.6	225.19	0	0	13.39
41	02Jul1999 0000	19776.95	42.1	72.85	72.93	0.00016	1.26	15708	2045.49	0.15	15.12	30.75
41	02Aug1999 0000	14700.76	42.1	71.41	71.48	0.000106	1.11	13271	1530.9	0.12	9.9	29.31
41	02Sep1999 0000	17567.32	42.09	72.28	72.35	0.000125	1.2	14656	1697.29	0.13	12.55	30.18
41	02Oct1999 0000	13622.8	42.09	71.03	71.09	0.000103	1.07	12699	1501.49	0.12	9.06	28.94
41	02Nov1999 0000	6945.28	42.09	68.41	68.44	0.000071	0.77	9006.4	1329.88	0.09	3.63	26.33
41	02Dec1999 0000	3256.33	42.09	65.78	65.79	0.000053	0.56	5801.7	1096.33	0.08	1.52	23.69
41	02Jan2000 0000	1967.94	42.09	63.29	63.3	0.000025	0.52	3753.5	441.31	0.06	1.06	21.2
41	02Feb2000 0000	1590.46	42.09	62.35	62.36	0.000016	0.47	3413.7	345.27	0.05	0.71	20.26
41	02Mar2000 0000	1612.66	42.09	62.4	62.41	0.000016	0.47	3431.3	346.16	0.05	0.73	20.32
41	02Apr2000 0000	4103.09	42.09	66.65	66.67	0.000054	0.6	6794.6	1177.99	0.08	1.84	24.56

41	02May2000 0000	4089.95	42.09	66.64	66.66	0.000054	0.6	6779.3	1176.9	0.08	1.83	24.55
41	02Jun2000 0000	16834.98	42.08	72.06	72.13	0.000118	1.18	14316	1635.08	0.13	11.8	29.98
41	02Jul2000 0000	20453.02	42.08	73.01	73.09	0.000169	1.27	16079	2140.91	0.15	15.71	30.93
41	02Aug2000 0000	19376.61	42.07	72.74	72.82	0.000154	1.25	15541	1994.5	0.14	14.61	30.67
41	02Sep2000 0000	22196.91	42.05	73.81	73.87	0.000422	1.15	19358	6015.88	0.2	15.24	31.75
41	02Oct2000 0000	10971.93	42.05	70.13	70.17	0.000089	0.96	11435	1439.22	0.11	6.62	28.08
41	02Nov2000 0000	3236.85	42.05	65.73	65.75	0.000052	0.56	5788.8	1094.81	0.08	1.5	23.68
41	02Dec2000 0000	2441.69	42.05	64.47	64.49	0.000045	0.54	4558.5	816.74	0.07	1.3	22.42
41	02Jan2001 0000	1556.19	42.05	62.26	62.27	0.000016	0.46	3395.8	344.35	0.05	0.68	20.21
41	02Feb2001 0000	1507.84	42.05	62.14	62.15	0.000015	0.45	3354.1	342.23	0.05	0.64	20.09
41	02Mar2001 0000	1642.2	42.05	62.49	62.5	0.000016	0.47	3472.8	348.24	0.05	0.74	20.44
41	02Apr2001 0000	1970.43	42.05	63.26	63.28	0.000025	0.52	3757.9	446.18	0.06	1.06	21.21
41	02May2001 0000	2612.77	42.05	64.8	64.81	0.000049	0.54	4838.8	913.5	0.07	1.35	22.75
41	02Jun2001 0000	8871.91	42.05	69.28	69.31	0.000081	0.87	10231	1388.86	0.1	5.01	27.22
41	02Jul2001 0000	17685.36	42.05	72.29	72.36	0.000124	1.2	14756	1708.46	0.13	12.55	30.24
41	02Aug2001 0000	15560.1	42.04	71.65	71.71	0.000109	1.13	13716	1560.62	0.12	10.58	29.6
41	02Sep2001 0000	21982.04	42.04	73.76	73.83	0.000426	1.15	19167	5996.44	0.2	15.28	31.73
40	17Oct1997 0000	9760.04	42.5	68.29	68.31	0.000095	0.66	14836	3460.57	0.1	2.62	25.79
40	02Nov1997 0000	3343.9	42.5	64.82	64.84	0.000068	0.56	5945.8	1369.57	0.09	1.63	22.32
40	02Dec1997 0000	2083.29	42.5	63.01	63.02	0.000043	0.51	4071.7	760.73	0.07	1.15	20.51
40	02Jan1998 0000	1575.76	42.5	61.94	61.95	0.000032	0.47	3369.6	574.15	0.06	0.85	19.44
40	02Feb1998 0000	1488.59	42.5	61.76	61.77	0.00003	0.46	3268.9	551.88	0.06	0.78	19.26
40	02Mar1998 0000	1351.66	42.5	61.51	61.52	0.000026	0.43	3130.7	521.14	0.06	0.66	19
40	02Apr1998 0000	3569.02	42.5	65.01	65.03	0.000072	0.58	6206.9	1437.64	0.09	1.74	22.51
40	02May1998 0000	3966.98	42.5	65.34	65.36	0.000085	0.59	6719.5	1700.22	0.09	1.94	22.84
40	02Jun1998 0000	16239.17	42.51	70.16	70.19	0.000088	0.74	21892	4037.15	0.1	3.47	27.65
40	02Jul1998 0000	20551.43	42.51	71.05	71.09	0.000098	0.8	25804	4635.78	0.11	4.25	28.54
40	02Aug1998 0000	25025.09	42.53	71.91	71.95	0.000116	0.83	30106	5765.7	0.12	4.94	29.39
40	02Sep1998 0000	24535.63	42.53	71.78	71.82	0.000114	0.84	29345	5502.29	0.12	4.99	29.25
40	02Oct1998 0000	10639.45	42.54	68.57	68.59	0.000098	0.68	15676	3575.13	0.1	2.85	26.03
40	02Nov1998 0000	5943.19	42.54	66.56	66.58	0.000116	0.63	9375.5	2689.04	0.11	2.51	24.03
40	02Dec1998 0000	3025.89	42.53	64.46	64.47	0.000067	0.56	5426.9	1246.12	0.09	1.59	21.92
40	02Jan1999 0000	2682.84	42.53	64.08	64.1	0.000058	0.54	4986.9	1085.29	0.08	1.4	21.55
40	02Feb1999 0000	1016.6	42.53	60.79	60.8	0.000019	0.37	2764.6	461.99	0.05	0.41	18.26
40	02Mar1999 0000	1675.45	42.53	62.12	62.14	0.000034	0.48	3457.5	592.9	0.06	0.95	19.59
40	02Apr1999 0000	3886.6	42.53	65.25	65.26	0.000083	0.6	6515.5	1588.67	0.09	1.98	22.71

40	02May1999 0000	3860.72	42.53	65.22	65.24	0.000082	0.6	6477.4	1566.88	0.09	1.97	22.69
40	02Jun1999 0000	22.54	42.53	55.5	55.5	0	0.02	1016.5	206.69	0	0	12.97
40	02Jul1999 0000	19776.95	42.53	70.9	70.93	0.000099	0.79	24988	4568.27	0.11	4.2	28.37
40	02Aug1999 0000	14700.76	42.54	69.68	69.71	0.000096	0.74	19844	3913.54	0.11	3.53	27.14
40	02Sep1999 0000	17567.32	42.55	70.47	70.5	0.000096	0.76	23007	4317.37	0.11	3.8	27.92
40	02Oct1999 0000	13622.8	42.55	69.4	69.43	0.000098	0.73	18737	3844.69	0.11	3.38	26.85
40	02Nov1999 0000	6945.28	42.55	66.99	67.01	0.000117	0.66	10508	2850.12	0.11	2.79	24.44
40	02Dec1999 0000	3256.33	42.55	64.66	64.68	0.000072	0.58	5658.3	1302.23	0.09	1.75	22.11
40	02Jan2000 0000	1967.94	42.55	62.71	62.72	0.000042	0.52	3816.3	690.7	0.07	1.16	20.15
40	02Feb2000 0000	1590.46	42.55	61.89	61.91	0.000033	0.48	3314.3	562.02	0.06	0.92	19.34
40	02Mar2000 0000	1612.66	42.55	61.94	61.95	0.000034	0.48	3339.9	567.65	0.06	0.93	19.39
40	02Apr2000 0000	4103.09	42.55	65.38	65.4	0.000091	0.61	6704	1688.04	0.1	2.16	22.83
40	02May2000 0000	4089.95	42.55	65.37	65.39	0.000091	0.61	6687.8	1678.85	0.1	2.16	22.82
40	02Jun2000 0000	16834.98	42.55	70.27	70.3	0.000092	0.76	22130	4075.9	0.1	3.74	27.72
40	02Jul2000 0000	20453.02	42.56	71	71.03	0.000103	0.81	25302	4601.31	0.11	4.47	28.44
40	02Aug2000 0000	19376.61	42.57	70.8	70.83	0.000102	0.8	24344	4518.58	0.11	4.29	28.23
40	02Sep2000 0000	22196.91	42.58	71.3	71.33	0.000106	0.83	26616	4719.05	0.11	4.86	28.72
40	02Oct2000 0000	10971.93	42.58	68.62	68.64	0.000104	0.7	15668	3571.06	0.11	3.13	26.04
40	02Nov2000 0000	3236.85	42.58	64.59	64.61	0.000074	0.58	5533.6	1271.49	0.09	1.83	22.01
40	02Dec2000 0000	2441.69	42.58	63.65	63.67	0.000049	0.54	4530.1	865.99	0.08	1.35	21.07
40	02Jan2001 0000	1556.19	42.58	61.81	61.83	0.000033	0.48	3251.5	547.93	0.06	0.91	19.23
40	02Feb2001 0000	1507.84	42.58	61.71	61.72	0.000032	0.47	3193.7	534.66	0.06	0.87	19.12
40	02Mar2001 0000	1642.2	42.58	62.01	62.03	0.000035	0.49	3364.7	573.03	0.06	0.96	19.43
40	02Apr2001 0000	1970.43	42.58	62.67	62.69	0.000043	0.52	3772.8	677.73	0.07	1.2	20.09
40	02May2001 0000	2612.77	42.58	63.87	63.89	0.000054	0.55	4729.5	929.72	0.08	1.47	21.29
40	02Jun2001 0000	8871.91	42.58	67.76	67.79	0.000118	0.69	12770	3231.21	0.11	3.17	25.18
40	02Jul2001 0000	17685.36	42.59	70.46	70.49	0.000099	0.78	22757	4275.54	0.11	4.01	27.87
40	02Aug2001 0000	15560.1	42.59	69.85	69.88	0.000101	0.77	20290	3944.76	0.11	3.9	27.26
40	02Sep2001 0000	21982.04	42.6	71.24	71.28	0.000108	0.84	26259	4694.37	0.11	4.93	28.64
39	17Oct1997 0000	9760.04	50.71	66.04	66.09	0.000282	1.01	9698.9	2713.51	0.17	9.94	15.33
39	02Nov1997 0000	3343.9	50.71	62.98	63.02	0.000309	0.91	3679.4	1285.03	0.17	7.89	12.27
39	02Dec1997 0000	2083.29	50.71	61.79	61.83	0.000271	0.88	2361.3	780.84	0.16	7.09	11.08
39	02Jan1998 0000	1575.76	50.7	60.99	61.03	0.000126	0.83	1902.2	388.86	0.12	5	10.29
39	02Feb1998 0000	1488.59	50.7	60.87	60.9	0.000112	0.8	1855.4	364.98	0.11	4.48	10.17
39	02Mar1998 0000	1351.66	50.7	60.69	60.72	0.000102	0.75	1791.7	358.66	0.11	3.75	9.99
39	02Apr1998 0000	3569.02	50.7	63.1	63.14	0.000318	0.93	3844.9	1327.83	0.17	8.37	12.4

39	02May1998 0000	3966.98	50.7	63.38	63.42	0.000313	0.94	4232.9	1425.15	0.17	8.54	12.68
39	02Jun1998 0000	16239.17	50.7	67.47	67.54	0.000291	1.16	14021	3252.29	0.18	14.24	16.77
39	02Jul1998 0000	20551.43	50.7	68.23	68.31	0.000294	1.24	16586	3505.26	0.18	16.9	17.53
39	02Aug1998 0000	25025.09	50.69	68.94	69.02	0.000294	1.31	19170	3746.5	0.18	19.26	18.24
39	02Sep1998 0000	24535.63	50.69	68.87	68.95	0.000294	1.3	18901	3722.13	0.18	18.98	18.17
39	02Oct1998 0000	10639.45	50.69	66.21	66.27	0.000296	1.04	10216	2815.39	0.17	10.96	15.52
39	02Nov1998 0000	5943.19	50.69	64.45	64.5	0.000333	0.98	6054.8	1992.26	0.18	9.74	13.76
39	02Dec1998 0000	3025.89	50.68	62.65	62.69	0.000339	0.92	3301.1	1218.78	0.18	8.24	11.97
39	02Jan1999 0000	2682.84	50.67	62.37	62.41	0.000354	0.9	2970.8	1158.42	0.18	8.03	11.69
39	02Feb1999 0000	1016.6	50.67	60.17	60.19	0.000075	0.63	1620.5	341.07	0.09	2.19	9.5
39	02Mar1999 0000	1675.45	50.67	61.1	61.14	0.000155	0.86	1959.6	445.69	0.13	5.69	10.43
39	02Apr1999 0000	3886.6	50.67	63.28	63.32	0.000318	0.94	4132.6	1399.75	0.17	8.65	12.61
39	02May1999 0000	3860.72	50.66	63.25	63.29	0.000321	0.94	4093.5	1390.81	0.18	8.73	12.58
39	02Jun1999 0000	22.54	50.66	55.49	55.49	0.000001	0.05	419.55	173.53	0.01	0	4.84
39	02Jul1999 0000	19776.95	50.66	68.07	68.14	0.000295	1.23	16100	3452.55	0.18	16.55	17.41
39	02Aug1999 0000	14700.76	50.64	67.1	67.16	0.000297	1.14	12939	3133.74	0.18	13.64	16.45
39	02Sep1999 0000	17567.32	50.64	67.69	67.76	0.000289	1.18	14875	3331.14	0.18	14.92	17.05
39	02Oct1999 0000	13622.8	50.63	66.86	66.92	0.000297	1.11	12237	3057.73	0.18	12.96	16.22
39	02Nov1999 0000	6945.28	50.63	64.79	64.84	0.000332	1.02	6836.8	2131.77	0.18	10.61	14.15
39	02Dec1999 0000	3256.33	50.63	62.77	62.81	0.000333	0.93	3506.4	1253.03	0.18	8.48	12.14
39	02Jan2000 0000	1967.94	50.62	61.51	61.55	0.000248	0.89	2216.6	678.57	0.16	7.04	10.89
39	02Feb2000 0000	1590.46	50.62	60.93	60.97	0.000129	0.83	1908.3	392.47	0.12	5.1	10.31
39	02Mar2000 0000	1612.66	50.62	60.96	61	0.000132	0.84	1920.5	399.42	0.12	5.24	10.34
39	02Apr2000 0000	4103.09	50.62	63.37	63.41	0.000317	0.95	4319	1438.52	0.18	8.87	12.75
39	02May2000 0000	4089.95	50.61	63.35	63.4	0.000318	0.95	4303.9	1435.06	0.18	8.88	12.74
39	02Jun2000 0000	16834.98	50.61	67.49	67.57	0.000295	1.18	14291	3267.82	0.18	14.91	16.89
39	02Jul2000 0000	20453.02	50.6	68.13	68.21	0.000297	1.24	16442	3477.67	0.18	17.11	17.52
39	02Aug2000 0000	19376.61	50.6	67.96	68.04	0.000293	1.22	15884	3422.98	0.18	16.24	17.36
39	02Sep2000 0000	22196.91	50.6	68.4	68.48	0.000299	1.28	17409	3568.85	0.18	18.23	17.8
39	02Oct2000 0000	10971.93	50.59	66.19	66.25	0.000303	1.06	10346	2824.2	0.18	11.54	15.6
39	02Nov2000 0000	3236.85	50.59	62.71	62.76	0.000334	0.93	3485.1	1248.44	0.18	8.49	12.12
39	02Dec2000 0000	2441.69	50.58	62.08	62.12	0.000365	0.89	2736.6	1112.76	0.18	7.85	11.49
39	02Jan2001 0000	1556.19	50.58	60.88	60.91	0.000123	0.82	1904.1	390.17	0.12	4.8	10.3
39	02Feb2001 0000	1507.84	50.58	60.8	60.83	0.000114	0.8	1873.8	372.24	0.11	4.54	10.22
39	02Mar2001 0000	1642.2	50.58	61.02	61.06	0.000149	0.84	1962.5	449.27	0.13	5.35	10.44
39	02Apr2001 0000	1970.43	50.58	61.48	61.52	0.000248	0.89	2223.6	682.76	0.16	7	10.9
39	02May2001 0000	2612.77	50.57	62.21	62.25	0.000357	0.9	2901.2	1143.3	0.18	7.99	11.64

39	02Jun2001 0000	8871.91	50.57	65.44	65.5	0.000318	1.05	8435.3	2414.22	0.18	11.44	14.88
39	02Jul2001 0000	17685.36	50.56	67.66	67.73	0.000289	1.19	14918	3324.64	0.18	15.07	17.09
39	02Aug2001 0000	15560.1	50.56	67.19	67.26	0.0003	1.16	13412	3172.62	0.18	14.41	16.63
39	02Sep2001 0000	21982.04	50.55	68.34	68.42	0.000298	1.27	17293	3551.91	0.18	18.08	17.78
38	17Oct1997 0000	9760.04	52.61	64.2	64.22	0.000067	0.58	16861	3675.89	0.09	1.74	11.59
38	02Nov1997 0000	3343.9	52.61	61.55	61.56	0.000065	0.41	8164.4	2912.86	0.08	0.73	8.93
38	02Dec1997 0000	2083.29	52.62	60.61	60.62	0.000066	0.37	5683.4	2436.4	0.08	0.55	8
38	02Jan1998 0000	1575.76	52.62	60.17	60.17	0.000063	0.34	4633.3	2176.02	0.07	0.45	7.55
38	02Feb1998 0000	1488.59	52.62	60.08	60.09	0.000063	0.33	4477	2141.84	0.07	0.43	7.47
38	02Mar1998 0000	1351.66	52.62	59.95	59.96	0.000063	0.32	4194.6	2096.06	0.07	0.4	7.33
38	02Apr1998 0000	3569.02	52.62	61.55	61.56	0.000074	0.44	8163.5	2913.18	0.08	0.88	8.93
38	02May1998 0000	3966.98	52.62	61.71	61.73	0.000077	0.46	8634.7	2957.25	0.09	1.01	9.09
38	02Jun1998 0000	16239.17	52.62	65.63	65.65	0.000085	0.72	22482	4210.44	0.1	3.22	13.01
38	02Jul1998 0000	20551.43	52.62	66.49	66.52	0.00009	0.78	26304	4569.61	0.1	3.97	13.87
38	02Aug1998 0000	25025.09	52.63	67.34	67.37	0.000091	0.83	30261	4876.24	0.11	4.59	14.71
38	02Sep1998 0000	24535.63	52.64	67.25	67.29	0.000092	0.82	29793	4847.09	0.11	4.55	14.62
38	02Oct1998 0000	10639.45	52.64	64.19	64.21	0.000082	0.64	16712	3664.82	0.1	2.32	11.55
38	02Nov1998 0000	5943.19	52.65	62.51	62.52	0.000085	0.54	10976	3160.41	0.09	1.56	9.86
38	02Dec1998 0000	3025.89	52.65	61.14	61.15	0.00008	0.44	6922.2	2614.96	0.09	0.9	8.49
38	02Jan1999 0000	2682.84	52.66	60.91	60.92	0.000081	0.42	6319.9	2522.05	0.09	0.84	8.25
38	02Feb1999 0000	1016.6	52.66	59.51	59.52	0.000076	0.32	3216.7	1913.09	0.08	0.4	6.85
38	02Mar1999 0000	1675.45	52.66	60.15	60.15	0.000078	0.37	4513.9	2149.76	0.08	0.6	7.48
38	02Apr1999 0000	3886.6	52.66	61.6	61.61	0.000087	0.48	8181.9	2917.26	0.09	1.13	8.94
38	02May1999 0000	3860.72	52.67	61.57	61.58	0.00009	0.48	8061.8	2905.92	0.09	1.17	8.9
38	02Jun1999 0000	22.54	52.67	55.44	55.44	0.000054	0.2	111.15	99.76	0.06	0.12	2.77
38	02Jul1999 0000	19776.95	52.68	66.26	66.29	0.000097	0.79	25044	4513.11	0.11	4.15	13.58
38	02Aug1999 0000	14700.76	52.69	65.19	65.21	0.000092	0.72	20427	4056.7	0.1	3.25	12.5
38	02Sep1999 0000	17567.32	52.69	65.83	65.86	0.000095	0.76	23089	4331.97	0.11	3.76	13.14
38	02Oct1999 0000	13622.8	52.7	64.93	64.96	0.000092	0.7	19344	3979.07	0.1	3.08	12.23
38	02Nov1999 0000	6945.28	52.71	62.81	62.83	0.000094	0.59	11759	3211.36	0.1	2	10.1
38	02Dec1999 0000	3236.33	52.71	61.23	61.24	0.00009	0.47	6994.6	2632.29	0.09	1.09	8.51
38	02Jan2000 0000	1967.94	52.72	60.35	60.36	0.000089	0.41	4842.8	2212.98	0.09	0.77	7.63
38	02Feb2000 0000	1590.46	52.72	60.05	60.06	0.000087	0.38	4199.5	2098.19	0.09	0.64	7.33
38	02Mar2000 0000	1612.66	52.72	60.07	60.07	0.000087	0.38	4229.6	2101.93	0.09	0.66	7.35
38	02Apr2000 0000	4103.09	52.72	61.63	61.64	0.0001	0.51	8096.2	2911.85	0.1	1.38	8.91
38	02May2000 0000	4089.95	52.72	61.61	61.62	0.000102	0.51	8041.2	2906.86	0.1	1.4	8.89

38	02Jun2000 0000	16834.98	52.73	65.65	65.67	0.000096	0.76	22163	4195.96	0.11	3.76	12.91
38	02Jul2000 0000	20453.02	52.74	66.37	66.4	0.0001	0.81	25335	4535.59	0.11	4.43	13.63
38	02Aug2000 0000	19376.61	52.75	66.16	66.2	0.000101	0.8	24371	4486.84	0.11	4.27	13.42
38	02Sep2000 0000	22196.91	52.75	66.7	66.74	0.0001	0.83	26802	4611.9	0.11	4.72	13.95
38	02Oct2000 0000	10971.93	52.76	64.14	64.16	0.000097	0.68	16121	3631.34	0.1	2.86	11.37
38	02Nov2000 0000	3236.85	52.76	61.16	61.18	0.000099	0.48	6703.5	2578.57	0.1	1.22	8.4
38	02Dec2000 0000	2441.69	52.77	60.68	60.69	0.000102	0.45	5478.1	2412.75	0.09	1.01	7.91
38	02Jan2001 0000	1556.19	52.77	60.02	60.03	0.000094	0.39	4028	2077.66	0.09	0.69	7.25
38	02Feb2001 0000	1507.84	52.77	59.97	59.97	0.000096	0.39	3913.4	2063.28	0.09	0.69	7.2
38	02Mar2001 0000	1642.2	52.77	60.08	60.09	0.000095	0.39	4158.5	2093.94	0.09	0.73	7.31
38	02Apr2001 0000	1970.43	52.77	60.33	60.33	0.000098	0.42	4670.8	2182.45	0.09	0.87	7.55
38	02May2001 0000	2612.77	52.77	60.76	60.77	0.000106	0.46	5662.9	2438.66	0.1	1.11	7.98
38	02Jun2001 0000	8871.91	52.78	63.38	63.4	0.000106	0.66	13429	3374.71	0.11	2.72	10.6
38	02Jul2001 0000	17685.36	52.79	65.83	65.86	0.0001	0.78	22754	4309.13	0.11	4.02	13.04
38	02Aug2001 0000	15560.1	52.79	65.34	65.37	0.000099	0.75	20700	4088.82	0.11	3.69	12.55
38	02Sep2001 0000	21982.04	52.79	66.66	66.69	0.000102	0.83	26445	4599.35	0.11	4.79	13.86
37	17Oct1997 0000	9760.04	52.99	60.26	60.36	0.000592	1.42	6854.7	1986.7	0.24	28.51	7.27
37	02Nov1997 0000	3343.9	52.47	56.15	56.41	0.004004	2.24	1489.9	914.58	0.56	143.38	3.68
37	02Dec1997 0000	2083.29	51.15	54.24	54.53	0.006205	2.37	878.23	688.76	0.67	183.71	3.09
37	02Jan1998 0000	1575.76	50.31	53.27	53.54	0.006214	2.3	684.83	562.54	0.67	170.3	2.96
37	02Feb1998 0000	1488.59	50.08	53.12	53.35	0.004931	2.11	705.34	554.48	0.6	129.51	3.04
37	02Mar1998 0000	1351.66	49.02	51.7	52.1	0.010225	2.82	478.78	420.09	0.84	321.63	2.68
37	02Apr1998 0000	3569.02	49.03	55.92	55.97	0.000279	0.97	3678.2	1075.5	0.17	9.06	6.9
37	02May1998 0000	3966.98	49.03	56.42	56.47	0.000235	0.94	4229.3	1141.93	0.16	7.97	7.39
37	02Jun1998 0000	16239.17	49.04	62.09	62.16	0.000201	1.13	14391	2621.52	0.15	12.16	13.05
37	02Jul1998 0000	20551.43	49.05	63.22	63.29	0.000184	1.18	17418	2775.27	0.15	13.3	14.17
37	02Aug1998 0000	25025.09	49.05	64.29	64.37	0.000174	1.22	20481	2974.78	0.15	14.32	15.24
37	02Sep1998 0000	24535.63	49.06	64.2	64.28	0.000173	1.21	20202	2951.84	0.15	14.09	15.15
37	02Oct1998 0000	10639.45	49.07	60.41	60.46	0.000187	1.03	10348	2057.05	0.15	9.47	11.34
37	02Nov1998 0000	5943.19	49.07	58.02	58.07	0.000197	0.95	6269.8	1461.49	0.15	7.83	8.95
37	02Dec1998 0000	3025.89	49.06	55.4	55.45	0.000322	0.98	3102	1001.34	0.18	9.51	6.34
37	02Jan1999 0000	2682.84	49.05	55	55.05	0.000362	0.99	2722.9	944.97	0.19	10.04	5.96
37	02Feb1999 0000	1016.6	48.29	50.62	51.1	0.015455	3.09	328.77	342.95	1.01	447.73	2.33
37	02Mar1999 0000	1675.45	48.29	53.18	53.23	0.000484	1	1676.9	708.43	0.21	11.18	4.89
37	02Apr1999 0000	3886.6	48.31	56.32	56.35	0.000173	0.85	4578.9	1141.94	0.14	5.75	8
37	02May1999 0000	3860.72	48.32	56.31	56.35	0.000172	0.84	4571.1	1141.48	0.13	5.67	8

37	02Jun1999 0000	22.54	48.04	49.14	49.24	0.027198	1.43	15.77	79.87	1.03	74.89	1.1
37	02Jul1999 0000	19776.95	48.06	63.05	63.12	0.000166	1.13	17496	2755.28	0.14	11.65	14.99
37	02Aug1999 0000	14700.76	48.07	61.73	61.78	0.000178	1.05	13935	2561.57	0.14	9.97	13.65
37	02Sep1999 0000	17567.32	48.09	62.48	62.55	0.000174	1.11	15879	2678.67	0.15	11.17	14.39
37	02Oct1999 0000	13622.8	48.1	61.44	61.5	0.000178	1.04	13143	2483.94	0.14	9.54	13.34
37	02Nov1999 0000	6945.28	48.11	58.67	58.71	0.000142	0.89	7769.3	1544.53	0.13	6.23	10.56
37	02Dec1999 0000	3256.33	48.11	55.6	55.64	0.000201	0.86	3800.1	1045.44	0.14	6.11	7.49
37	02Jan2000 0000	1967.94	48.09	53.62	53.67	0.000404	0.98	2011.9	765.21	0.19	10.13	5.53
37	02Feb2000 0000	1590.46	48.08	52.97	53.02	0.000532	1.03	1548.8	674.12	0.22	12.26	4.88
37	02Mar2000 0000	1612.66	48.07	53.03	53.09	0.000502	1.01	1598.9	683.97	0.21	11.55	4.96
37	02Apr2000 0000	4103.09	48.08	56.65	56.69	0.000152	0.82	4983.7	1178.83	0.13	5.16	8.57
37	02May2000 0000	4089.95	48.09	56.65	56.69	0.000152	0.82	4975.3	1178.4	0.13	5.13	8.56
37	02Jun2000 0000	16834.98	48.11	62.35	62.41	0.000173	1.09	15455	2656.38	0.14	10.73	14.24
37	02Jul2000 0000	20453.02	48.11	63.29	63.36	0.000164	1.14	18002	2781.6	0.14	11.75	15.18
37	02Aug2000 0000	19376.61	48.12	63	63.07	0.000169	1.13	17180	2747.15	0.14	11.63	14.88
37	02Sep2000 0000	22196.91	48.13	63.72	63.79	0.000161	1.16	19152	2831.51	0.14	12.29	15.59
37	02Oct2000 0000	10971.93	48.15	60.66	60.7	0.000155	0.98	11245	2099.04	0.13	7.93	12.5
37	02Nov2000 0000	3236.85	48.14	55.64	55.68	0.000199	0.85	3794.4	1043.62	0.14	6.03	7.5
37	02Dec2000 0000	2441.69	48.12	54.47	54.52	0.000287	0.91	2684.2	881.33	0.17	7.76	6.35
37	02Jan2001 0000	1556.19	48.11	52.92	52.98	0.000559	1.04	1495.5	661.69	0.22	12.83	4.81
37	02Feb2001 0000	1507.84	48.09	52.23	52.33	0.00125	1.39	1083.5	566.92	0.32	32.45	4.14
37	02Mar2001 0000	1642.2	48.09	53.12	53.17	0.000482	1	1642.3	691.04	0.21	11.19	5.03
37	02Apr2001 0000	1970.43	48.08	53.64	53.69	0.000394	0.97	2026.8	764.5	0.19	9.92	5.56
37	02May2001 0000	2612.77	48.08	54.82	54.86	0.000238	0.86	3025.8	933.09	0.15	6.5	6.74
37	02Jun2001 0000	8871.91	48.1	59.87	59.91	0.000142	0.91	9703.5	1868.21	0.13	6.59	11.77
37	02Jul2001 0000	17685.36	48.11	62.6	62.66	0.000172	1.1	16030	2692.29	0.14	11.06	14.49
37	02Aug2001 0000	15560.1	48.12	62.07	62.13	0.000175	1.07	14590	2606.84	0.14	10.2	13.95
37	02Sep2001 0000	21982.04	48.12	63.69	63.76	0.000161	1.16	18994	2827.27	0.14	12.27	15.57
36	17Oct1997 0000	9760.04	6.88	58.33	58.34	0.000038	0.6	16133	2089.16	0.07	1.68	51.45
36	02Nov1997 0000	3343.9	6.94	54.6	54.6	0.000013	0.34	9756.8	1339.03	0.04	0.31	47.66
36	02Dec1997 0000	2083.29	7	53.43	53.43	0.000007	0.25	8235.9	1134.31	0.03	0.13	46.43
36	02Jan1998 0000	1575.76	7.01	52.83	52.83	0.000004	0.21	7606.1	933.66	0.02	0.07	45.81
36	02Feb1998 0000	1488.59	7.02	52.69	52.69	0.000004	0.2	7477.5	903.99	0.02	0.06	45.67
36	02Mar1998 0000	1351.66	7.02	51.36	51.36	0.000003	0.21	6454.8	652.62	0.02	0.07	44.34
36	02Apr1998 0000	3569.02	7.03	54.73	54.74	0.000015	0.36	9853.6	1354.88	0.04	0.37	47.7
36	02May1998 0000	3966.98	7.04	55.27	55.28	0.000015	0.37	10595	1427.24	0.04	0.41	48.23

36	02Jun1998 0000	16239.17	7.04	60.33	60.36	0.000056	0.8	20388	2354.33	0.09	3.7	53.29
36	02Jul1998 0000	20551.43	7.04	61.47	61.51	0.000064	0.89	23178	2518.67	0.09	5	54.43
36	02Aug1998 0000	25025.09	7.05	62.35	62.4	0.000075	0.98	25433	2673.08	0.1	6.75	55.3
36	02Sep1998 0000	24535.63	7.06	62.26	62.3	0.000074	0.97	25168	2643.38	0.1	6.57	55.2
36	02Oct1998 0000	10639.45	7.06	58.62	58.64	0.000042	0.64	16545	2134.34	0.07	2.02	51.56
36	02Nov1998 0000	5943.19	7.06	56.6	56.62	0.000025	0.47	12623	1725.64	0.06	0.81	49.54
36	02Dec1998 0000	3025.89	7.07	54.24	54.24	0.000013	0.33	9154.3	1280.6	0.04	0.28	47.16
36	02Jan1999 0000	2682.84	7.07	53.93	53.93	0.000011	0.31	8763.1	1236.37	0.04	0.23	46.85
36	02Feb1999 0000	1016.6	7.08	50.33	50.33	0.000002	0.17	5845.5	471.35	0.02	0.03	43.25
36	02Mar1999 0000	1675.45	7.08	52.67	52.68	0.000005	0.23	7420.7	889.8	0.02	0.09	45.6
36	02Apr1999 0000	3886.6	7.08	55.08	55.09	0.000016	0.38	10279	1399.59	0.04	0.42	48
36	02May1999 0000	3860.72	7.08	55.05	55.06	0.000016	0.38	10236	1395.52	0.04	0.42	47.97
36	02Jun1999 0000	22.54	7.09	47.37	47.37	0	0	4847.4	291.83	0	0	40.28
36	02Jul1999 0000	19776.95	7.09	61.28	61.32	0.000063	0.87	22634	2490.2	0.09	4.8	54.19
36	02Aug1999 0000	14700.76	7.08	59.87	59.9	0.000053	0.76	19260	2265	0.08	3.27	52.78
36	02Sep1999 0000	17567.32	7.08	60.7	60.73	0.00006	0.83	21212	2425.08	0.09	4.14	53.62
36	02Oct1999 0000	13622.8	7.08	59.54	59.57	0.00005	0.73	18541	2235.46	0.08	2.94	52.46
36	02Nov1999 0000	6945.28	7.08	57.14	57.15	0.000029	0.51	13558	1863.32	0.06	1.04	50.06
36	02Dec1999 0000	3256.33	7.09	54.37	54.38	0.000014	0.35	9308.6	1298.25	0.04	0.33	47.28
36	02Jan2000 0000	1967.94	7.09	53	53.01	0.000007	0.26	7714.6	964.72	0.03	0.13	45.91
36	02Feb2000 0000	1590.46	7.09	52.47	52.47	0.000004	0.22	7228.8	841.78	0.02	0.08	45.37
36	02Mar2000 0000	1612.66	7.1	52.52	52.52	0.000005	0.22	7275.4	853.76	0.02	0.08	45.43
36	02Apr2000 0000	4103.09	7.1	55.34	55.34	0.000016	0.39	10620	1430.42	0.05	0.45	48.24
36	02May2000 0000	4089.95	7.1	55.32	55.33	0.000016	0.39	10595	1428.93	0.05	0.44	48.22
36	02Jun2000 0000	16834.98	7.11	60.49	60.52	0.000058	0.81	20657	2383.52	0.09	3.96	53.37
36	02Jul2000 0000	20453.02	7.12	61.43	61.47	0.000065	0.89	22957	2511.14	0.09	5.08	54.31
36	02Aug2000 0000	19376.61	7.13	61.19	61.23	0.000063	0.87	22324	2477.28	0.09	4.72	54.05
36	02Sep2000 0000	22196.91	7.15	61.79	61.84	0.00007	0.93	23812	2560.82	0.1	5.79	54.64
36	02Oct2000 0000	10971.93	7.15	58.71	58.73	0.000045	0.66	16593	2140.6	0.08	2.2	51.56
36	02Nov2000 0000	3236.85	7.16	54.34	54.35	0.000014	0.35	9189.6	1285.61	0.04	0.34	47.18
36	02Dec2000 0000	2441.69	7.16	53.54	53.55	0.00001	0.3	8211.7	1127.43	0.04	0.2	46.38
36	02Jan2001 0000	1556.19	7.17	52.37	52.37	0.000004	0.22	7095.6	805.63	0.02	0.08	45.2
36	02Feb2001 0000	1507.84	7.17	51.47	51.48	0.000004	0.23	6449.7	649.17	0.02	0.09	44.3
36	02Mar2001 0000	1642.2	7.17	52.54	52.55	0.000005	0.23	7239.1	843.73	0.02	0.09	45.37
36	02Apr2001 0000	1970.43	7.17	52.96	52.96	0.000007	0.26	7607.3	933.65	0.03	0.13	45.79
36	02May2001 0000	2612.77	7.18	53.72	53.73	0.000011	0.31	8414	1187.19	0.04	0.24	46.55
36	02Jun2001 0000	8871.91	7.19	57.96	57.97	0.000038	0.59	14985	2000.98	0.07	1.59	50.77

36	02Jul2001 0000	17685.36	7.19	60.73	60.76	0.000062	0.84	21092	2424.95	0.09	4.31	53.53
36	02Aug2001 0000	15560.1	7.21	60.12	60.15	0.000056	0.79	19629	2298.93	0.09	3.66	52.91
36	02Sep2001 0000	21982.04	7.22	61.75	61.79	0.00007	0.93	23575	2552.58	0.1	5.8	54.53
35	17Oct1997 0000	9760.04	48.28	56.39	56.43	0.000121	0.85	11430	2171.36	0.12	5.34	8.11
35	02Nov1997 0000	3343.9	48.28	52.83	52.87	0.000304	0.81	4153.7	1720.41	0.17	5.8	4.56
35	02Dec1997 0000	2083.29	48.24	51	51.09	0.001721	1.36	1528.9	1054.44	0.36	33.34	2.75
35	02Jan1998 0000	1575.76	47.99	50.08	50.23	0.003351	1.74	906.83	715.95	0.49	72.33	2.09
35	02Feb1998 0000	1488.59	47.86	49.93	50.07	0.003108	1.67	889.2	701.53	0.47	64.66	2.07
35	02Mar1998 0000	1351.66	47.67	49.64	49.79	0.003177	1.66	812.22	657.31	0.48	64.06	1.98
35	02Apr1998 0000	3569.02	47.66	53.07	53.09	0.000199	0.72	4978.4	1783.52	0.14	3.9	5.4
35	02May1998 0000	3966.98	47.66	53.55	53.57	0.00016	0.68	5868.9	1947.5	0.12	3.19	5.88
35	02Jun1998 0000	16239.17	47.66	58.16	58.21	0.000121	1.03	15775	2266.76	0.12	8.52	10.5
35	02Jul1998 0000	20551.43	47.67	59.28	59.34	0.000122	1.12	18333	2326.98	0.13	10.56	11.61
35	02Aug1998 0000	25025.09	47.67	59.98	60.06	0.000139	1.25	19970	2364.8	0.14	14.41	12.31
35	02Sep1998 0000	24535.63	47.68	59.91	59.99	0.000137	1.24	19805	2361.12	0.14	13.96	12.24
35	02Oct1998 0000	10639.45	47.68	56.69	56.72	0.000109	0.85	12454	2186.67	0.11	5.21	9.01
35	02Nov1998 0000	5943.19	47.69	54.8	54.83	0.000121	0.71	8403.9	2112.13	0.11	3.33	7.12
35	02Dec1998 0000	3025.89	47.69	52.51	52.54	0.000275	0.76	3979.7	1666.11	0.16	4.9	4.82
35	02Jan1999 0000	2682.84	47.68	52.13	52.16	0.000353	0.8	3370.3	1588.04	0.17	5.85	4.45
35	02Feb1999 0000	1016.6	47.22	48.89	49.03	0.004214	1.69	601.46	587.72	0.53	71.47	1.66
35	02Mar1999 0000	1675.45	47.21	50.32	50.38	0.000683	1.07	1563.6	773.17	0.24	14.51	3.11
35	02Apr1999 0000	3886.6	47.21	53.46	53.49	0.000141	0.65	5962.9	1907.95	0.12	2.83	6.25
35	02May1999 0000	3860.72	47.21	53.44	53.46	0.000143	0.65	5913.2	1898.26	0.12	2.84	6.23
35	02Jun1999 0000	22.54	47.09	47.31	47.36	0.030461	0.98	22.92	222.33	0.98	30.29	0.23
35	02Jul1999 0000	19776.95	47.09	59.12	59.18	0.000115	1.09	18217	2317.61	0.12	9.6	12.02
35	02Aug1999 0000	14700.76	47.1	57.78	57.83	0.000112	0.97	15148	2244.9	0.12	7.22	10.68
35	02Sep1999 0000	17567.32	47.11	58.52	58.57	0.000116	1.05	16802	2284.78	0.12	8.77	11.41
35	02Oct1999 0000	13622.8	47.11	57.52	57.56	0.00011	0.94	14541	2230.38	0.12	6.57	10.41
35	02Nov1999 0000	6945.28	47.12	55.33	55.36	0.0001	0.71	9782	2129.26	0.11	3.21	8.22
35	02Dec1999 0000	3256.33	47.12	52.72	52.75	0.0002	0.71	4609	1693.88	0.14	3.77	5.6
35	02Jan2000 0000	1967.94	47.1	50.82	50.87	0.000545	0.98	2010.1	961.45	0.22	10.95	3.72
35	02Feb2000 0000	1590.46	47.09	50.15	50.21	0.000714	1.08	1471.1	742.27	0.25	15.01	3.07
35	02Mar2000 0000	1612.66	47.08	50.2	50.25	0.000688	1.07	1506	749.62	0.24	14.51	3.11
35	02Apr2000 0000	4103.09	47.08	53.63	53.65	0.000137	0.65	6275.3	1956.31	0.12	2.83	6.55
35	02May2000 0000	4089.95	47.09	53.62	53.64	0.000138	0.65	6251.7	1952.32	0.12	2.83	6.53
35	02Jun2000 0000	16834.98	47.09	58.33	58.39	0.000116	1.03	16374	2274.42	0.12	8.4	11.24

35	02Jul2000 0000	20453.02	47.1	59.26	59.32	0.000118	1.11	18474	2324.5	0.13	10.14	12.15
35	02Aug2000 0000	19376.61	47.11	59.04	59.1	0.000115	1.08	17943	2312.32	0.12	9.49	11.92
35	02Sep2000 0000	22196.91	47.12	59.57	59.64	0.000124	1.16	19173	2341.44	0.13	11.49	12.45
35	02Oct2000 0000	10971.93	47.12	56.79	56.82	0.000105	0.85	12859	2189.06	0.11	5.14	9.67
35	02Nov2000 0000	3236.85	47.13	52.7	52.73	0.000207	0.71	4532.8	1684.3	0.14	3.9	5.58
35	02Dec2000 0000	2441.69	47.12	51.69	51.72	0.000351	0.82	2978.5	1336.78	0.18	6.29	4.57
35	02Jan2001 0000	1556.19	47.1	50.09	50.15	0.000758	1.1	1415	727.52	0.25	15.89	2.99
35	02Feb2001 0000	1507.84	47.09	50	50.06	0.000797	1.11	1357.2	713.73	0.26	16.51	2.91
35	02Mar2001 0000	1642.2	47.08	50.25	50.31	0.000664	1.06	1542.9	754.6	0.24	14.17	3.16
35	02Apr2001 0000	1970.43	47.08	50.83	50.88	0.000525	0.98	2020.8	944.81	0.21	10.73	3.75
35	02May2001 0000	2612.77	47.08	51.99	52.02	0.000286	0.76	3420.5	1462.74	0.16	5.01	4.91
35	02Jun2001 0000	8871.91	47.08	56.09	56.12	0.000101	0.78	11368	2154.21	0.11	4.07	9
35	02Jul2001 0000	17685.36	47.09	58.56	58.61	0.000117	1.05	16824	2285.61	0.12	8.91	11.46
35	02Aug2001 0000	15560.1	47.1	57.99	58.04	0.000117	1	15502	2253.95	0.12	7.93	10.88
35	02Sep2001 0000	21982.04	47.1	59.53	59.6	0.000124	1.15	19053	2338.88	0.13	11.38	12.43
34	17Oct1997 0000	9760.04	11.91	56.07	56.08	0.000039	0.45	21796	4678.98	0.07	0.8	44.16
34	02Nov1997 0000	3343.9	11.91	52.61	52.62	0.000072	0.43	7776.6	2783.57	0.08	0.84	40.7
34	02Dec1997 0000	2083.29	11.91	50.9	50.91	0.000049	0.45	4657.3	1162.35	0.07	0.84	38.99
34	02Jan1998 0000	1575.76	11.91	50.07	50.08	0.000036	0.41	3824.2	846.66	0.06	0.64	38.16
34	02Feb1998 0000	1488.59	11.91	49.92	49.93	0.000032	0.4	3699.6	788.63	0.06	0.58	38
34	02Mar1998 0000	1351.66	11.91	49.65	49.65	0.000027	0.39	3499.9	685.49	0.05	0.5	37.73
34	02Apr1998 0000	3569.02	11.91	52.86	52.87	0.000069	0.42	8482.8	3029.74	0.08	0.79	40.94
34	02May1998 0000	3966.98	11.91	53.33	53.33	0.000065	0.39	10070	3818.55	0.08	0.66	41.41
34	02Jun1998 0000	16239.17	11.91	57.74	57.76	0.000049	0.53	30871	6153.45	0.07	1.27	45.83
34	02Jul1998 0000	20551.43	11.91	58.88	58.89	0.000036	0.53	38901	8444.35	0.08	1.32	46.96
34	02Aug1998 0000	25025.09	11.91	59.53	59.55	0.000066	0.55	45265	10481.46	0.08	1.55	47.62
34	02Sep1998 0000	24535.63	11.91	59.47	59.49	0.000066	0.55	44598	10403.05	0.08	1.53	47.56
34	02Oct1998 0000	10639.45	11.91	56.36	56.37	0.000041	0.46	23177	4952.84	0.07	0.86	44.44
34	02Nov1998 0000	5943.19	11.91	54.54	54.55	0.000044	0.4	15013	4226.44	0.07	0.61	42.63
34	02Dec1998 0000	3025.89	11.91	52.29	52.3	0.000074	0.44	6929.1	2473.54	0.08	0.88	40.38
34	02Jan1999 0000	2682.84	11.91	51.91	51.92	0.000073	0.44	6063.7	2089.97	0.08	0.91	40
34	02Feb1999 0000	1016.6	11.91	48.92	48.92	0.000016	0.33	3069.3	500.58	0.04	0.3	37
34	02Mar1999 0000	1675.45	11.91	50.24	50.25	0.000039	0.42	3976	912.39	0.06	0.69	38.33
34	02Apr1999 0000	3886.6	11.91	53.26	53.26	0.000066	0.4	9816.4	3729.86	0.08	0.67	41.34
34	02May1999 0000	3860.72	11.91	53.23	53.24	0.000066	0.4	9729.9	3665.9	0.08	0.67	41.32
34	02Jun1999 0000	22.54	11.91	43.62	43.62	0	0.01	2128.5	134.28	0	0	31.7

34	02Jul1999 0000	19776.95	11.91	58.72	58.74	0.000053	0.53	37640	7927.51	0.08	1.29	46.81
34	02Aug1999 0000	14700.76	11.91	57.38	57.39	0.000047	0.51	28703	5785.76	0.07	1.18	45.47
34	02Sep1999 0000	17567.32	11.91	58.11	58.12	0.00005	0.53	33183	6619.18	0.08	1.29	46.2
34	02Oct1999 0000	13622.8	11.91	57.13	57.14	0.000046	0.5	27290	5585.21	0.07	1.1	45.22
34	02Nov1999 0000	6945.28	11.91	55.07	55.07	0.00004	0.4	17263	4366.85	0.06	0.62	43.16
34	02Dec1999 0000	3256.33	11.91	52.51	52.52	0.000074	0.43	7487.4	2679.7	0.08	0.87	40.6
34	02Jan2000 0000	1967.94	11.91	50.72	50.73	0.000047	0.44	4459.1	1095.37	0.07	0.81	38.81
34	02Feb2000 0000	1590.46	11.9	50.09	50.1	0.000036	0.41	3842.6	854.41	0.06	0.65	38.18
34	02Mar2000 0000	1612.66	11.9	50.13	50.13	0.000037	0.42	3875.9	869.1	0.06	0.66	38.22
34	02Apr2000 0000	4103.09	11.9	53.4	53.41	0.000064	0.4	10382	3859.36	0.08	0.66	41.5
34	02May2000 0000	4089.95	11.9	53.39	53.4	0.000064	0.4	10345	3854.53	0.08	0.66	41.49
34	02Jun2000 0000	16834.98	11.9	57.92	57.93	0.00005	0.53	31951	6402.9	0.08	1.28	46.01
34	02Jul2000 0000	20453.02	11.9	58.85	58.87	0.000055	0.53	38685	8322.04	0.08	1.32	46.95
34	02Aug2000 0000	19376.61	11.9	58.64	58.65	0.000052	0.52	36997	7761.16	0.08	1.27	46.74
34	02Sep2000 0000	22196.91	11.9	59.14	59.16	0.000064	0.54	41320	9677.99	0.08	1.43	47.24
34	02Oct2000 0000	10971.93	11.9	56.45	56.46	0.000042	0.46	23616	5043.15	0.07	0.9	44.54
34	02Nov2000 0000	3236.85	11.9	52.48	52.49	0.000074	0.44	7418.6	2653.34	0.08	0.88	40.57
34	02Dec2000 0000	2441.69	11.9	51.53	51.54	0.000047	0.45	5457.6	1328.19	0.07	0.84	39.63
34	02Jan2001 0000	1556.19	11.9	50.02	50.03	0.000035	0.41	3791.7	831.49	0.06	0.63	38.12
34	02Feb2001 0000	1507.84	11.9	49.94	49.95	0.000033	0.41	3722.5	799.25	0.06	0.6	38.04
34	02Mar2001 0000	1642.2	11.9	50.18	50.18	0.000038	0.42	3921.3	888.77	0.06	0.67	38.27
34	02Apr2001 0000	1970.43	11.9	50.72	50.73	0.000047	0.44	4465.7	1097.09	0.07	0.81	38.82
34	02May2001 0000	2612.77	11.9	51.8	51.81	0.000065	0.45	5851.3	1822.72	0.08	0.9	39.9
34	02Jun2001 0000	8871.91	11.9	55.78	55.79	0.000039	0.43	20442	4574.89	0.07	0.74	43.87
34	02Jul2001 0000	17685.36	11.9	58.14	58.15	0.00005	0.53	33427	6654.81	0.08	1.29	46.24
34	02Aug2001 0000	15560.1	11.9	57.56	57.57	0.000048	0.52	29789	5922.26	0.07	1.24	45.66
34	02Sep2001 0000	21982.04	11.9	59.1	59.12	0.000062	0.54	40931	9447.6	0.08	1.42	47.2
33	17Oct1997 0000	9760.04	43.15	54.27	54.29	0.000084	0.7	14023	2740.14	0.1	2.92	11.12
33	02Nov1997 0000	3343.9	43.15	51.06	51.07	0.00009	0.53	6263.9	1920.77	0.09	1.53	7.91
33	02Dec1997 0000	2083.29	43.15	49.99	50	0.000088	0.47	4391.9	1579.38	0.09	1.13	6.84
33	02Jan1998 0000	1575.76	43.15	49.43	49.44	0.000075	0.44	3574	1278.47	0.08	0.91	6.28
33	02Feb1998 0000	1488.59	43.15	49.31	49.32	0.000071	0.43	3429.7	1206.21	0.08	0.86	6.16
33	02Mar1998 0000	1351.66	43.15	49.07	49.08	0.000073	0.43	3142	1144.98	0.08	0.85	5.92
33	02Apr1998 0000	3569.02	43.15	51.23	51.25	0.000091	0.54	6605.9	2010.88	0.1	1.58	8.08
33	02May1998 0000	3966.98	43.15	51.53	51.55	0.000094	0.55	7245	2224.1	0.1	1.65	8.38
33	02Jun1998 0000	16239.17	43.15	56.05	56.08	0.000109	0.82	19842	3700.06	0.11	4.67	12.89

33	02Jul1998 0000	20551.43	43.15	57.03	57.06	0.000173	0.84	24360	6146.19	0.14	5.66	13.88
33	02Aug1998 0000	25025.09	43.15	57.79	57.82	0.000158	0.85	29399	6830.09	0.13	5.66	14.64
33	02Sep1998 0000	24535.63	43.15	57.69	57.73	0.000161	0.85	28791	6792.43	0.13	5.71	14.55
33	02Oct1998 0000	10639.45	43.14	54.56	54.59	0.000094	0.71	14916	3078.92	0.1	3.2	11.42
33	02Nov1998 0000	5943.19	43.14	52.77	52.79	0.000077	0.59	10115	2387.2	0.09	1.87	9.62
33	02Dec1998 0000	3025.89	43.14	50.79	50.81	0.000091	0.52	5780.6	1838.46	0.09	1.46	7.65
33	02Jan1999 0000	2682.84	43.14	50.53	50.54	0.000089	0.51	5304	1753.35	0.09	1.33	7.38
33	02Feb1999 0000	1016.6	43.14	48.4	48.41	0.000089	0.42	2416.2	1050.11	0.09	0.84	5.25
33	02Mar1999 0000	1675.45	43.14	49.56	49.57	0.000081	0.45	3760	1401.36	0.09	0.95	6.42
33	02Apr1999 0000	3886.6	43.14	51.48	51.49	0.000095	0.54	7147.6	2218.56	0.1	1.62	8.33
33	02May1999 0000	3860.72	43.14	51.46	51.47	0.000095	0.54	7107.7	2216.32	0.1	1.62	8.32
33	02Jun1999 0000	22.54	42.65	43.4	43.59	0.021338	1.95	11.57	30.75	1.01	152.99	0.75
33	02Jul1999 0000	19776.95	42.64	56.86	56.9	0.000158	0.84	23483	5558.41	0.13	5.51	14.22
33	02Aug1999 0000	14700.76	42.64	55.67	55.71	0.000103	0.79	18581	3502.94	0.11	4.24	13.03
33	02Sep1999 0000	17567.32	42.65	56.36	56.39	0.000115	0.83	21105	4003.01	0.12	4.94	13.71
33	02Oct1999 0000	13622.8	42.65	55.39	55.43	0.000102	0.77	17605	3412.3	0.11	4	12.75
33	02Nov1999 0000	6945.28	42.65	53.34	53.36	0.000075	0.6	11587	2617.53	0.09	1.96	10.7
33	02Dec1999 0000	3256.33	42.65	50.97	50.98	0.000089	0.53	6135.2	1894.34	0.09	1.51	8.32
33	02Jan2000 0000	1967.94	42.65	49.88	49.89	0.000085	0.46	4257.9	1549.76	0.09	1.05	7.23
33	02Feb2000 0000	1590.46	42.65	49.45	49.46	0.000074	0.44	3640.4	1300.65	0.08	0.88	6.8
33	02Mar2000 0000	1612.66	42.65	49.48	49.49	0.000075	0.44	3678	1325.97	0.08	0.9	6.83
33	02Apr2000 0000	4103.09	42.65	51.62	51.63	0.000091	0.55	7483.4	2236.88	0.1	1.64	8.97
33	02May2000 0000	4089.95	42.65	51.61	51.63	0.000092	0.55	7463.1	2235.83	0.1	1.64	8.96
33	02Jun2000 0000	16834.98	42.66	56.21	56.24	0.00011	0.82	20495	3842.33	0.11	4.73	13.55
33	02Jul2000 0000	20453.02	42.66	57.02	57.05	0.000171	0.84	24331	6121.11	0.13	5.59	14.36
33	02Aug2000 0000	19376.61	42.65	56.79	56.82	0.000151	0.84	23035	5278.8	0.13	5.43	14.13
33	02Sep2000 0000	22196.91	42.65	57.32	57.36	0.000172	0.84	26326	6621.22	0.13	5.65	14.67
33	02Oct2000 0000	10971.93	42.65	54.66	54.69	0.000094	0.72	15258	3094.76	0.1	3.26	12.01
33	02Nov2000 0000	3236.85	42.65	50.96	50.97	0.00009	0.53	6106.8	1889.96	0.09	1.5	8.3
33	02Dec2000 0000	2441.69	42.66	50.33	50.34	0.000086	0.49	4984.5	1688.68	0.09	1.22	7.68
33	02Jan2001 0000	1556.19	42.66	49.41	49.42	0.000071	0.43	3581.7	1260.1	0.08	0.86	6.76
33	02Feb2001 0000	1507.84	42.66	49.35	49.36	0.000069	0.43	3501.5	1216.75	0.08	0.84	6.69
33	02Mar2001 0000	1642.2	42.66	49.53	49.54	0.000077	0.44	3729.7	1360.17	0.08	0.91	6.87
33	02Apr2001 0000	1970.43	42.66	49.89	49.9	0.000084	0.46	4262.3	1550.7	0.09	1.05	7.23
33	02May2001 0000	2612.77	42.66	50.48	50.49	0.000087	0.5	5232.4	1735.33	0.09	1.29	7.82
33	02Jun2001 0000	8871.91	42.66	54.01	54.03	0.00008	0.66	13355	2715.75	0.1	2.57	11.35
33	02Jul2001 0000	17685.36	42.66	56.4	56.43	0.00012	0.83	21241	4151.01	0.12	5	13.74

33	02Aug2001 0000	15560.1	42.66	55.89	55.93	0.000105	0.81	19316	3587.5	0.11	4.45	13.23
33	02Sep2001 0000	21982.04	42.66	57.29	57.33	0.000172	0.84	26118	6605.01	0.14	5.62	14.63
32	17Oct1997 0000	9760.04	32.1	53.28	53.29	0.000018	0.38	25746	4026.33	0.05	0.44	21.17
32	02Nov1997 0000	3343.9	32.11	50.17	50.17	0.000009	0.22	15071	3123.86	0.03	0.1	18.06
32	02Dec1997 0000	2083.29	32.11	49.13	49.13	0.000007	0.17	11923	2926.51	0.03	0.05	17.02
32	02Jan1998 0000	1575.76	32.11	48.59	48.59	0.000006	0.15	10386	2772.34	0.03	0.03	16.49
32	02Feb1998 0000	1488.59	32.11	48.47	48.47	0.000006	0.15	10051	2739.93	0.02	0.03	16.36
32	02Mar1998 0000	1351.66	32.11	48.24	48.24	0.000006	0.14	9423.1	2678.08	0.02	0.03	16.13
32	02Apr1998 0000	3569.02	32.11	50.32	50.33	0.00001	0.23	15567	3146.99	0.03	0.11	18.22
32	02May1998 0000	3966.98	32.11	50.65	50.65	0.00001	0.24	16584	3193.8	0.03	0.12	18.54
32	02Jun1998 0000	16239.17	32.11	54.93	54.94	0.000034	0.48	33922	5899.56	0.06	0.91	22.83
32	02Jul1998 0000	20551.43	32.11	55.66	55.68	0.000042	0.53	38458	6612.15	0.07	1.27	23.55
32	02Aug1998 0000	25025.09	32.11	56.27	56.29	0.00005	0.59	42655	7339.67	0.08	1.68	24.16
32	02Sep1998 0000	24535.63	32.11	56.21	56.22	0.000048	0.58	42166	7095.14	0.08	1.62	24.1
32	02Oct1998 0000	10639.45	32.11	53.53	53.54	0.000021	0.4	26767	4247.26	0.05	0.51	21.42
32	02Nov1998 0000	5943.19	32.11	51.96	51.97	0.000011	0.28	20917	3437.96	0.04	0.19	19.85
32	02Dec1998 0000	3025.89	32.11	49.92	49.93	0.000009	0.21	14293	3087.45	0.03	0.08	17.81
32	02Jan1999 0000	2682.84	32.11	49.66	49.67	0.000008	0.2	13497	3046.55	0.03	0.07	17.55
32	02Feb1999 0000	1016.6	32.11	47.57	47.57	0.000006	0.13	7692.2	2453.12	0.02	0.02	15.46
32	02Mar1999 0000	1675.45	32.11	48.71	48.71	0.000006	0.16	10686	2802.32	0.03	0.04	16.59
32	02Apr1999 0000	3886.6	32.11	50.58	50.58	0.00001	0.24	16358	3183.61	0.03	0.12	18.47
32	02May1999 0000	3860.72	32.11	50.56	50.56	0.00001	0.24	16290	3180.49	0.03	0.12	18.45
32	02Jun1999 0000	22.54	32.11	41.76	41.76	0	0.02	1351.6	304.04	0	0	9.64
32	02Jul1999 0000	19776.95	32.11	55.54	55.56	0.00004	0.53	37655	6490.33	0.07	1.2	23.43
32	02Aug1999 0000	14700.76	32.12	54.6	54.61	0.000031	0.46	31962	5543.74	0.06	0.81	22.48
32	02Sep1999 0000	17567.32	32.12	55.18	55.19	0.000036	0.5	35315	6060.47	0.07	1.02	23.06
32	02Oct1999 0000	13622.8	32.12	54.31	54.32	0.000029	0.45	30389	5134.97	0.06	0.74	22.19
32	02Nov1999 0000	6945.28	32.13	52.43	52.44	0.000012	0.31	22503	3552.23	0.04	0.24	20.31
32	02Dec1999 0000	3256.33	32.13	50.09	50.09	0.000009	0.22	14775	3110.42	0.03	0.1	17.97
32	02Jan2000 0000	1967.94	32.13	49.01	49.01	0.000007	0.17	11519	2888.7	0.03	0.05	16.89
32	02Feb2000 0000	1590.46	32.13	48.6	48.6	0.000006	0.15	10355	2769.53	0.03	0.03	16.47
32	02Mar2000 0000	1612.66	32.13	48.63	48.63	0.000006	0.15	10426	2776.47	0.03	0.04	16.5
32	02Apr2000 0000	4103.09	32.13	50.74	50.74	0.00001	0.24	16803	3204.33	0.03	0.13	18.61
32	02May2000 0000	4089.95	32.13	50.73	50.73	0.00001	0.24	16773	3203.02	0.03	0.12	18.6
32	02Jun2000 0000	16834.98	32.13	55.05	55.06	0.000035	0.49	34491	5970.71	0.06	0.97	22.92
32	02Jul2000 0000	20453.02	32.13	55.65	55.66	0.000042	0.54	38222	6589.91	0.07	1.27	23.51

32	02Aug2000 0000	19376.61	32.13	55.48	55.5	0.00004	0.52	37156	6423.99	0.07	1.18	23.35
32	02Sep2000 0000	22196.91	32.14	55.9	55.91	0.000045	0.56	39867	6795.68	0.07	1.43	23.76
32	02Oct2000 0000	10971.93	32.14	53.63	53.64	0.000022	0.41	27058	4299.68	0.05	0.54	21.49
32	02Nov2000 0000	3236.85	32.14	50.07	50.08	0.000009	0.22	14668	3105.69	0.03	0.1	17.93
32	02Dec2000 0000	2441.69	32.14	49.46	49.46	0.000008	0.19	12795	3007.29	0.03	0.06	17.32
32	02Jan2001 0000	1556.19	32.14	48.55	48.55	0.000006	0.15	10171	2751.94	0.03	0.03	16.41
32	02Feb2001 0000	1507.84	32.14	48.48	48.48	0.000006	0.15	9987.8	2734.15	0.03	0.03	16.34
32	02Mar2001 0000	1642.2	32.14	48.66	48.66	0.000006	0.16	10466	2780.55	0.03	0.04	16.51
32	02Apr2001 0000	1970.43	32.14	49.01	49.01	0.000007	0.17	11462	2883.38	0.03	0.05	16.87
32	02May2001 0000	2612.77	32.14	49.6	49.6	0.000008	0.2	13214	3032.1	0.03	0.07	17.46
32	02Jun2001 0000	8871.91	32.14	53.03	53.03	0.000017	0.36	24609	3813.71	0.05	0.38	20.88
32	02Jul2001 0000	17685.36	32.15	55.2	55.21	0.000037	0.5	35301	6066.67	0.07	1.04	23.05
32	02Aug2001 0000	15560.1	32.15	54.8	54.81	0.000033	0.47	32923	5736.42	0.06	0.88	22.65
32	02Sep2001 0000	21982.04	32.15	55.87	55.88	0.000045	0.56	39599	6774.49	0.07	1.42	23.72
31	17Oct1997 0000	9760.04	34.25	52.82	52.83	0.000047	0.49	19865	4236.57	0.07	1.06	18.56
31	02Nov1997 0000	3343.9	34.25	49.78	49.79	0.000021	0.32	10378	2278.57	0.05	0.3	15.53
31	02Dec1997 0000	2083.29	34.25	48.78	48.78	0.000015	0.25	8223.4	2022.48	0.04	0.15	14.53
31	02Jan1998 0000	1575.76	34.25	48.28	48.28	0.000012	0.22	7245.7	1894.91	0.04	0.1	14.03
31	02Feb1998 0000	1488.59	34.26	48.18	48.18	0.000012	0.21	7048.2	1868.07	0.03	0.09	13.92
31	02Mar1998 0000	1351.66	34.26	47.95	47.95	0.000011	0.2	6634.6	1810.6	0.03	0.08	13.7
31	02Apr1998 0000	3569.02	34.26	49.94	49.95	0.000022	0.33	10739	2318.74	0.05	0.33	15.68
31	02May1998 0000	3966.98	34.26	50.27	50.28	0.000022	0.34	11530	2414.11	0.05	0.36	16.02
31	02Jun1998 0000	16239.17	34.26	54.22	54.23	0.000083	0.59	27381	6787.27	0.09	1.95	19.96
31	02Jul1998 0000	20551.43	34.26	54.83	54.85	0.000105	0.64	32065	8418.38	0.1	2.51	20.57
31	02Aug1998 0000	25025.09	34.26	55.33	55.35	0.000106	0.69	36389	8661.3	0.11	3.01	21.08
31	02Sep1998 0000	24535.63	34.26	55.28	55.3	0.000106	0.68	35932	8656.68	0.11	2.96	21.02
31	02Oct1998 0000	10639.45	34.26	53.03	53.05	0.000052	0.51	20812	4537.14	0.08	1.2	18.78
31	02Nov1998 0000	5943.19	34.25	51.64	51.64	0.000029	0.38	15453	3358	0.06	0.51	17.38
31	02Dec1998 0000	3025.89	34.25	49.54	49.55	0.00002	0.31	9847.6	2218.27	0.05	0.26	15.29
31	02Jan1999 0000	2682.84	34.25	49.29	49.3	0.000018	0.29	9295.2	2153.68	0.04	0.22	15.04
31	02Feb1999 0000	1016.6	34.25	47.3	47.3	0.000011	0.19	5492.9	1708.74	0.03	0.06	13.05
31	02Mar1999 0000	1675.45	34.25	48.39	48.39	0.000013	0.22	7453.8	1922.77	0.04	0.11	14.14
31	02Apr1999 0000	3886.6	34.25	50.21	50.21	0.000022	0.34	11375	2393.85	0.05	0.35	15.95
31	02May1999 0000	3860.72	34.25	50.19	50.19	0.000022	0.34	11324	2387.09	0.05	0.35	15.93
31	02Jun1999 0000	22.54	34.25	41.75	41.75	0	0.04	631.7	168.44	0.01	0	7.5
31	02Jul1999 0000	19776.95	34.25	54.73	54.75	0.000102	0.63	31256	8205.32	0.1	2.42	20.47

31	02Aug1999 0000	14700.76	34.25	53.94	53.95	0.000079	0.58	25538	6389.08	0.09	1.79	19.68
31	02Sep1999 0000	17567.32	34.25	54.42	54.44	0.000091	0.61	28870	7370.76	0.1	2.13	20.17
31	02Oct1999 0000	13622.8	34.25	53.69	53.71	0.000066	0.56	24114	5425.11	0.09	1.64	19.44
31	02Nov1999 0000	6945.28	34.25	52.09	52.1	0.000032	0.41	17028	3625.43	0.06	0.6	17.83
31	02Dec1999 0000	3256.33	34.25	49.7	49.71	0.000021	0.32	10207	2259.26	0.05	0.29	15.45
31	02Jan2000 0000	1967.94	34.25	48.67	48.67	0.000014	0.25	8002.2	1994.18	0.04	0.14	14.42
31	02Feb2000 0000	1590.46	34.25	48.29	48.29	0.000012	0.22	7265.1	1897.4	0.04	0.1	14.04
31	02Mar2000 0000	1612.66	34.25	48.31	48.31	0.000012	0.22	7311.5	1903.64	0.04	0.1	14.06
31	02Apr2000 0000	4103.09	34.25	50.36	50.37	0.000023	0.35	11758	2447.43	0.05	0.38	16.11
31	02May2000 0000	4089.95	34.25	50.36	50.36	0.000023	0.35	11737	2442.91	0.05	0.37	16.1
31	02Jun2000 0000	16834.98	34.25	54.31	54.33	0.000089	0.6	28048	7154.08	0.1	2.05	20.06
31	02Jul2000 0000	20453.02	34.25	54.81	54.83	0.000105	0.64	31941	8399.52	0.1	2.51	20.56
31	02Aug2000 0000	19376.61	34.25	54.68	54.7	0.000101	0.63	30842	8089.5	0.1	2.37	20.43
31	02Sep2000 0000	22196.91	34.25	55.01	55.03	0.000107	0.66	33643	8552.69	0.11	2.71	20.76
31	02Oct2000 0000	10971.93	34.25	53.11	53.12	0.000055	0.52	21159	4688.35	0.08	1.26	18.85
31	02Nov2000 0000	3236.85	34.25	49.68	49.69	0.000021	0.32	10166	2254.37	0.05	0.29	15.43
31	02Dec2000 0000	2441.69	34.25	49.09	49.09	0.000017	0.28	8866.7	2102.02	0.04	0.19	14.84
31	02Jan2001 0000	1556.19	34.25	48.24	48.24	0.000012	0.22	7181.5	1886.11	0.04	0.1	13.99
31	02Feb2001 0000	1507.84	34.25	48.18	48.19	0.000012	0.21	7073.2	1871.39	0.04	0.09	13.93
31	02Mar2001 0000	1642.2	34.25	48.34	48.34	0.000013	0.22	7362.9	1910.53	0.04	0.11	14.09
31	02Apr2001 0000	1970.43	34.25	48.66	48.66	0.000015	0.25	7992.4	1992.94	0.04	0.14	14.41
31	02May2001 0000	2612.77	34.25	49.23	49.23	0.000018	0.29	9159.2	2137.29	0.04	0.21	14.98
31	02Jun2001 0000	8871.91	34.25	52.6	52.61	0.000042	0.47	18997	4005.65	0.07	0.9	18.35
31	02Jul2001 0000	17685.36	34.25	54.44	54.46	0.000092	0.61	28980	7395.99	0.1	2.15	20.19
31	02Aug2001 0000	15560.1	34.25	54.1	54.11	0.000082	0.59	26593	6621.72	0.09	1.88	19.85
31	02Sep2001 0000	21982.04	34.25	54.98	55.01	0.000107	0.66	33433	8540.84	0.11	2.69	20.74
30	17Oct1997 0000	9760.04	32.22	52.24	52.25	0.00002	0.31	31931	7292.99	0.05	0.26	20.02
30	02Nov1997 0000	3343.9	32.23	49.26	49.26	0.000004	0.17	19652	3323.29	0.02	0.04	17.03
30	02Dec1997 0000	2083.29	32.23	48.19	48.19	0.000003	0.13	16181	3175.63	0.02	0.02	15.96
30	02Jan1998 0000	1575.76	32.23	47.66	47.66	0.000002	0.11	14513	3102.19	0.02	0.01	15.43
30	02Feb1998 0000	1488.59	32.23	47.55	47.56	0.000002	0.1	14192	3087.84	0.02	0.01	15.33
30	02Mar1998 0000	1351.66	32.23	47.31	47.31	0.000002	0.1	13428	3053.47	0.02	0.01	15.08
30	02Apr1998 0000	3569.02	32.23	49.42	49.42	0.000004	0.18	20185	3346.14	0.02	0.05	17.19
30	02May1998 0000	3966.98	32.23	49.8	49.8	0.000004	0.18	21458	3400.7	0.02	0.05	17.57
30	02Jun1998 0000	16239.17	32.23	53.3	53.31	0.000036	0.38	42965	11094.24	0.06	0.51	21.08
30	02Jul1998 0000	20551.43	32.23	53.84	53.85	0.000038	0.42	48946	11195.54	0.06	0.68	21.61

29	02Sep2000 0000	22196.91	41.13	53.4	53.41	0.000049	0.39	56397	17458.96	0.07	0.62	12.27
29	02Oct2000 0000	10971.93	41.13	51.37	51.38	0.000123	0.43	25502	13724.97	0.1	0.97	10.24
29	02Nov2000 0000	3236.85	41.13	48.02	48.04	0.000174	0.72	4514.5	1460.78	0.13	3.77	6.89
29	02Dec2000 0000	2441.69	41.13	47.3	47.33	0.000176	0.69	3551.2	1235.44	0.13	3.41	6.18
29	02Jan2001 0000	1556.19	41.13	46.11	46.13	0.000202	0.68	2272.5	880.75	0.14	3.49	4.98
29	02Feb2001 0000	1507.84	41.13	46.04	46.06	0.000205	0.68	2214	874.56	0.14	3.46	4.91
29	02Mar2001 0000	1642.2	41.13	46.23	46.25	0.000202	0.69	2380.5	915.04	0.14	3.56	5.1
29	02Apr2001 0000	1970.43	41.13	46.63	46.65	0.00021	0.71	2776.9	1052.11	0.14	3.86	5.5
29	02May2001 0000	2612.77	41.13	47.51	47.54	0.000169	0.68	3816.3	1296.4	0.13	3.34	6.39
29	02Jun2001 0000	8871.91	41.13	50.91	50.92	0.000201	0.46	19273	13522.33	0.12	1.29	9.78
29	02Jul2001 0000	17685.36	41.13	52.79	52.8	0.000053	0.38	46289	15774.68	0.07	0.58	11.67
29	02Aug2001 0000	15560.1	41.13	52.47	52.47	0.000057	0.38	41211	15194.01	0.07	0.58	11.34
29	02Sep2001 0000	21982.04	41.13	53.37	53.37	0.00005	0.39	55842	17446.65	0.07	0.62	12.24
28	17Oct1997 0000	9760.04	36.85	50.24	50.25	0.000027	0.32	30265	7955.37	0.05	0.32	13.39
28	02Nov1997 0000	3343.9	36.85	47.18	47.18	0.000009	0.23	14320	2730.19	0.03	0.11	10.32
28	02Dec1997 0000	2083.29	36.86	46.05	46.05	0.000006	0.18	11517	2334.21	0.03	0.05	9.19
28	02Jan1998 0000	1575.76	36.86	45.48	45.48	0.000005	0.15	10221	2244.24	0.02	0.03	8.63
28	02Feb1998 0000	1488.59	36.86	45.37	45.37	0.000005	0.15	9972	2226.51	0.02	0.03	8.51
28	02Mar1998 0000	1351.66	36.86	45.18	45.18	0.000004	0.14	9545.7	2195.86	0.02	0.03	8.32
28	02Apr1998 0000	3569.02	36.86	47.34	47.34	0.000011	0.24	14772	2978.45	0.03	0.12	10.48
28	02May1998 0000	3966.98	36.86	47.59	47.59	0.000012	0.25	15560	3278.74	0.04	0.15	10.73
28	02Jun1998 0000	16239.17	36.86	52.17	52.18	0.000025	0.31	51627	13523.25	0.05	0.3	15.31
28	02Jul1998 0000	20551.43	36.86	52.79	52.8	0.000025	0.34	60026	13547.44	0.05	0.36	15.93
28	02Aug1998 0000	25025.09	36.86	53.35	53.36	0.000024	0.37	67628	13569.29	0.05	0.44	16.49
28	02Sep1998 0000	24535.63	36.86	53.29	53.3	0.000025	0.37	66777	13566.85	0.05	0.43	16.43
28	02Oct1998 0000	10639.45	36.86	50.47	50.48	0.000028	0.33	32158	8426.62	0.05	0.35	13.62
28	02Nov1998 0000	5943.19	36.86	48.7	48.71	0.000022	0.29	20474	5462.14	0.05	0.23	11.85
28	02Dec1998 0000	3025.89	36.86	46.94	46.94	0.000008	0.22	13679	2596.01	0.03	0.09	10.08
28	02Jan1999 0000	2682.84	36.86	46.68	46.68	0.000007	0.21	13024	2454.16	0.03	0.07	9.82
28	02Feb1999 0000	1016.6	36.86	44.55	44.55	0.000004	0.12	8195.3	2093.9	0.02	0.02	7.69
28	02Mar1999 0000	1675.45	36.86	45.57	45.58	0.000005	0.16	10428	2258.9	0.02	0.04	8.72
28	02Apr1999 0000	3886.6	36.86	47.52	47.53	0.000012	0.25	15337	3197.68	0.04	0.14	10.66
28	02May1999 0000	3860.72	36.86	47.51	47.51	0.000012	0.25	15281	3177.26	0.04	0.14	10.65
28	02Jun1999 0000	22.54	36.86	41.23	41.23	0	0.01	2452.2	1350.8	0	0	4.37
28	02Jul1999 0000	19776.95	36.86	52.68	52.69	0.000025	0.34	58518	13543.13	0.05	0.35	15.82
28	02Aug1999 0000	14700.76	36.86	51.86	51.87	0.000027	0.31	47428	13511.17	0.05	0.29	15

28	02Sep1999 0000	17567.32	36.86	52.36	52.36	52.36	0.000025	0.32	54157	13530.57	0.05	0.32	15.5
28	02Oct1999 0000	13622.8	36.86	51.52	51.53	51.53	0.00003	0.32	42942	12616.6	0.05	0.32	14.66
28	02Nov1999 0000	6945.28	36.86	49.2	49.2	49.2	0.000022	0.3	23348	5989.84	0.05	0.25	12.34
28	02Dec1999 0000	3256.33	36.86	47.08	47.08	47.08	0.000009	0.23	14043	2661.85	0.03	0.11	10.22
28	02Jan2000 0000	1967.94	36.86	45.87	45.88	45.88	0.000006	0.18	11104	2306.11	0.03	0.05	9.01
28	02Feb2000 0000	1590.46	36.86	45.45	45.45	45.45	0.000005	0.16	10135	2238.31	0.02	0.03	8.59
28	02Mar2000 0000	1612.66	36.86	45.47	45.48	45.48	0.000005	0.16	10195	2242.56	0.02	0.04	8.61
28	02Apr2000 0000	4103.09	36.86	47.64	47.64	47.64	0.000014	0.26	15715	3432.49	0.04	0.16	10.78
28	02May2000 0000	4089.95	36.86	47.63	47.63	47.63	0.000014	0.26	15684	3424.3	0.04	0.16	10.77
28	02Jun2000 0000	16834.98	36.86	52.24	52.25	52.25	0.000025	0.32	52595	13526.1	0.05	0.31	15.38
28	02Jul2000 0000	20453.02	36.86	52.76	52.77	52.77	0.000025	0.34	59611	13546.31	0.05	0.37	15.9
28	02Aug2000 0000	19376.61	36.86	52.62	52.62	52.62	0.000025	0.34	57660	13540.69	0.05	0.35	15.76
28	02Sep2000 0000	22196.91	36.86	52.98	52.99	52.99	0.000025	0.35	62550	13554.77	0.05	0.4	16.12
28	02Oct2000 0000	10971.93	36.86	50.54	50.55	50.55	0.000029	0.34	32696	8656.61	0.06	0.36	13.68
28	02Nov2000 0000	3236.85	36.86	47.05	47.05	47.05	0.000009	0.23	13951	2645.76	0.03	0.11	10.18
28	02Dec2000 0000	2441.69	36.86	46.42	46.42	46.42	0.000007	0.2	12384	2392.94	0.03	0.07	9.56
28	02Jan2001 0000	1556.19	36.86	45.37	45.37	45.37	0.000005	0.16	99599	2225.93	0.02	0.03	8.51
28	02Feb2001 0000	1507.84	36.86	45.3	45.3	45.3	0.000005	0.15	9807	2214.99	0.02	0.03	8.44
28	02Mar2001 0000	1642.2	36.86	45.48	45.48	45.48	0.000005	0.16	10200	2243.05	0.02	0.04	8.62
28	02Apr2001 0000	1970.43	36.86	45.85	45.85	45.85	0.000006	0.18	11038	2301.73	0.03	0.05	8.98
28	02May2001 0000	2612.77	36.86	46.59	46.59	46.59	0.000007	0.2	12783	2419.41	0.03	0.07	9.72
28	02Jun2001 0000	8871.91	36.87	49.94	49.94	49.94	0.000023	0.32	27935	6781.74	0.05	0.3	13.07
28	02Jul2001 0000	17685.36	36.87	52.36	52.37	52.37	0.000026	0.33	54155	13530.63	0.05	0.33	15.49
28	02Aug2001 0000	15560.1	36.87	52.02	52.02	52.02	0.000027	0.31	49534	13517.3	0.05	0.3	15.15
28	02Sep2001 0000	21982.04	36.87	52.94	52.95	52.95	0.000025	0.35	62036	13553.32	0.05	0.4	16.08
27	17Oct1997 0000	9760.04	34.74	50.03	50.03	50.03	0.000021	0.32	30867	7049.08	0.05	0.29	15.29
27	02Nov1997 0000	3343.9	34.74	47.09	47.09	47.09	0.000008	0.21	16250	3408.06	0.03	0.08	12.36
27	02Dec1997 0000	2083.29	34.74	45.99	45.99	45.99	0.000006	0.16	12698	3013.07	0.03	0.04	11.25
27	02Jan1998 0000	1575.76	34.74	45.43	45.43	45.43	0.000005	0.14	11083	2803.38	0.02	0.03	10.7
27	02Feb1998 0000	1488.59	34.74	45.32	45.32	45.32	0.000005	0.14	10780	2728.98	0.02	0.02	10.59
27	02Mar1998 0000	1351.66	34.74	45.13	45.13	45.13	0.000004	0.13	10285	2576.42	0.02	0.02	10.4
27	02Apr1998 0000	3569.02	34.74	47.25	47.25	47.25	0.000008	0.21	16777	3463.54	0.03	0.08	12.51
27	02May1998 0000	3966.98	34.74	47.49	47.49	47.49	0.000009	0.23	17624	3562.36	0.03	0.1	12.75
27	02Jun1998 0000	16239.17	34.74	52	52.01	52.01	0.00002	0.35	45784	8284.11	0.05	0.38	17.27
27	02Jul1998 0000	20551.43	34.74	52.61	52.62	52.62	0.000023	0.4	50865	8406.61	0.05	0.54	17.87
27	02Aug1998 0000	25025.09	34.74	53.16	53.17	53.17	0.000025	0.45	55519	8490.24	0.06	0.73	18.43

27	02Sep1998 0000	24535.63	34.74	53.1	53.11	0.000025	0.45	54991	8480.81	0.06	0.71	18.36
27	02Oct1998 0000	10639.45	34.74	50.25	50.25	0.000022	0.33	32457	7168.16	0.05	0.32	15.51
27	02Nov1998 0000	5943.19	34.74	48.55	48.55	0.000014	0.27	21813	4463.27	0.04	0.18	13.81
27	02Dec1998 0000	3025.89	34.74	46.86	46.86	0.000008	0.2	15470	3325.32	0.03	0.07	12.13
27	02Jan1999 0000	2682.84	34.74	46.61	46.61	0.000007	0.18	14650	3236.13	0.03	0.06	11.88
27	02Feb1999 0000	1016.6	34.74	44.51	44.51	0.000003	0.12	8790.9	2126.63	0.02	0.01	9.78
27	02Mar1999 0000	1675.45	34.74	45.52	45.52	0.000005	0.15	11340	2840.61	0.02	0.03	10.79
27	02Apr1999 0000	3886.6	34.74	47.42	47.42	0.000009	0.22	17393	3532.23	0.03	0.1	12.69
27	02May1999 0000	3860.72	34.74	47.41	47.41	0.000009	0.22	17335	3525.86	0.03	0.1	12.67
27	02Jun1999 0000	22.54	34.74	41.23	41.23	0	0.01	3586.6	1204.14	0	0	6.49
27	02Jul1999 0000	19776.95	34.74	52.5	52.51	0.000022	0.4	49950	8390.07	0.05	0.51	17.77
27	02Aug1999 0000	14700.76	34.74	51.69	51.69	0.000019	0.34	43200	8052.39	0.05	0.34	16.95
27	02Sep1999 0000	17567.32	34.74	52.19	52.19	0.000021	0.37	47316	8342.27	0.05	0.43	17.45
27	02Oct1999 0000	13622.8	34.74	51.33	51.34	0.000019	0.34	40401	7722.55	0.05	0.33	16.59
27	02Nov1999 0000	6945.28	34.74	49.02	49.03	0.000018	0.29	24151	5602.64	0.04	0.22	14.29
27	02Dec1999 0000	3256.33	34.74	46.99	47	0.000008	0.2	15919	3373.26	0.03	0.08	12.26
27	02Jan2000 0000	1967.94	34.74	45.81	45.82	0.000006	0.16	12184	2951.57	0.03	0.04	11.08
27	02Feb2000 0000	1590.46	34.74	45.4	45.4	0.000005	0.14	10985	2788.92	0.02	0.03	10.66
27	02Mar2000 0000	1612.66	34.74	45.42	45.42	0.000005	0.15	11058	2799.63	0.02	0.03	10.69
27	02Apr2000 0000	4103.09	34.74	47.53	47.53	0.00001	0.23	17780	3584.14	0.03	0.11	12.8
27	02May2000 0000	4089.95	34.74	47.52	47.53	0.00001	0.23	17750	3579.68	0.03	0.11	12.79
27	02Jun2000 0000	16834.98	34.74	52.07	52.08	0.00002	0.36	46365	8313.14	0.05	0.4	17.34
27	02Jul2000 0000	20453.02	34.74	52.58	52.59	0.000023	0.4	50607	8401.94	0.05	0.54	17.84
27	02Aug2000 0000	19376.61	34.74	52.44	52.45	0.000022	0.39	49437	8380.78	0.05	0.5	17.7
27	02Sep2000 0000	22196.91	34.74	52.79	52.8	0.000024	0.42	52399	8434.27	0.05	0.62	18.06
27	02Oct2000 0000	10971.93	34.74	50.31	50.31	0.000022	0.33	32880	7176.19	0.05	0.33	15.57
27	02Nov2000 0000	3236.85	34.74	46.96	46.96	0.000008	0.2	15811	3361.76	0.03	0.08	12.23
27	02Dec2000 0000	2441.69	34.74	46.35	46.36	0.000007	0.18	13833	3144.65	0.03	0.05	11.62
27	02Jan2001 0000	1556.19	34.74	45.32	45.32	0.000005	0.14	10776	2726.26	0.02	0.03	10.59
27	02Feb2001 0000	1507.84	34.74	45.25	45.25	0.000005	0.14	10596	2631.37	0.02	0.03	10.52
27	02Mar2001 0000	1642.2	34.74	45.43	45.43	0.000005	0.15	11068	2801.19	0.02	0.03	10.69
27	02Apr2001 0000	1970.43	34.74	45.79	45.79	0.000006	0.16	12107	2942.24	0.03	0.04	11.05
27	02May2001 0000	2612.77	34.74	46.52	46.52	0.000007	0.18	14352	3203.13	0.03	0.05	11.78
27	02Jun2001 0000	8871.91	34.74	49.73	49.73	0.000022	0.31	28763	7036.79	0.05	0.27	14.99
27	02Jul2001 0000	17685.36	34.74	52.19	52.19	0.000021	0.37	47312	8342.18	0.05	0.44	17.45
27	02Aug2001 0000	15560.1	34.74	51.85	51.85	0.000019	0.35	44492	8174.61	0.05	0.36	17.11
27	02Sep2001 0000	21982.04	34.74	52.75	52.76	0.000024	0.42	52081	8428.54	0.05	0.61	18.02

26	17Oct1997 0000	9760.04	31.99	49.11	49.15	0.000154	0.93	10534	2117.59	0.13	6.96	17.11
26	02Nov1997 0000	3343.9	31.99	46.41	46.43	0.000111	0.61	5495.6	1616.67	0.11	2.24	14.42
26	02Dec1997 0000	2083.29	31.99	45.34	45.36	0.000083	0.53	3922.8	1138.97	0.09	1.48	13.35
26	02Jan1998 0000	1575.76	31.99	44.85	44.86	0.000064	0.46	3410.2	999.11	0.08	0.98	12.86
26	02Feb1998 0000	1488.59	31.99	44.75	44.77	0.000061	0.45	3313.1	983.61	0.08	0.9	12.76
26	02Mar1998 0000	1351.66	31.99	44.58	44.59	0.000058	0.43	3147	956.54	0.08	0.8	12.59
26	02Apr1998 0000	3569.02	31.99	46.54	46.56	0.000113	0.63	5700.7	1637.84	0.11	2.42	14.55
26	02May1998 0000	3966.98	31.99	46.76	46.78	0.000117	0.65	6070.5	1675.48	0.11	2.71	14.77
26	02Jun1998 0000	16239.17	31.99	50.74	50.79	0.000354	1.01	16051	7246.86	0.22	11.85	18.74
26	02Jul1998 0000	20551.43	31.99	51.56	51.6	0.000337	0.9	22900	8695.36	0.18	7.81	19.58
26	02Aug1998 0000	25025.09	31.99	52.22	52.26	0.000252	0.87	28818	9230.4	0.16	6.68	20.24
26	02Sep1998 0000	24535.63	31.98	52.15	52.19	0.000259	0.87	28148	9168.86	0.16	6.8	20.16
26	02Oct1998 0000	10639.45	31.98	49.31	49.36	0.000162	0.97	10989	2145.74	0.14	7.86	17.33
26	02Nov1998 0000	5943.19	31.98	47.75	47.78	0.000128	0.76	7828.2	1843.88	0.12	4.03	15.77
26	02Dec1998 0000	3025.89	31.98	46.18	46.2	0.00011	0.59	5139.3	1578.95	0.1	2.06	14.2
26	02Jan1999 0000	2682.84	31.98	45.93	45.95	0.000108	0.56	4756.8	1537.49	0.1	1.84	13.95
26	02Feb1999 0000	1016.6	31.98	44.03	44.04	0.00005	0.38	2655.9	862.99	0.07	0.58	12.05
26	02Mar1999 0000	1675.45	31.98	44.92	44.93	0.000068	0.48	3490.1	1011.64	0.08	1.09	12.94
26	02Apr1999 0000	3886.6	31.98	46.69	46.71	0.000118	0.65	5971	1665.28	0.11	2.69	14.71
26	02May1999 0000	3860.72	31.98	46.67	46.69	0.000118	0.65	5943.3	1662.47	0.11	2.68	14.69
26	02Jun1999 0000	22.54	31.98	41.22	41.22	0	0.02	1021.1	305.57	0	0	9.24
26	02Jul1999 0000	19776.95	31.98	51.42	51.46	0.000365	0.91	21719	8566.54	0.18	8.26	19.44
26	02Aug1999 0000	14700.76	31.98	50.39	50.45	0.00044	1.05	13968	5099.3	0.2	12.43	18.41
26	02Sep1999 0000	17567.32	31.97	50.96	51.01	0.000509	0.98	17857	8050.95	0.21	10.89	18.99
26	02Oct1999 0000	13622.8	31.97	50.11	50.17	0.000257	1.06	12830	3082.9	0.17	11.11	18.14
26	02Nov1999 0000	6945.28	31.97	48.11	48.14	0.000147	0.82	8518.8	2004.94	0.13	5	16.14
26	02Dec1999 0000	3256.33	31.97	46.29	46.31	0.000114	0.61	5338.5	1599.83	0.11	2.27	14.32
26	02Jan2000 0000	1967.94	31.97	45.16	45.17	0.000078	0.53	3746.6	1057.8	0.09	1.42	13.19
26	02Feb2000 0000	1590.46	31.97	44.79	44.8	0.000067	0.47	3365.7	991.73	0.08	1.05	12.82
26	02Mar2000 0000	1612.66	31.97	44.81	44.82	0.000068	0.48	3388.7	995.4	0.08	1.07	12.84
26	02Apr2000 0000	4103.09	31.97	46.78	46.8	0.000121	0.67	6139.7	1682	0.11	2.89	14.81
26	02May2000 0000	4089.95	31.97	46.77	46.8	0.000121	0.67	6125.2	1680.55	0.11	2.89	14.8
26	02Jun2000 0000	16834.98	31.96	50.81	50.86	0.000532	1.01	16736	7540.88	0.22	11.64	18.85
26	02Jul2000 0000	20453.02	31.96	51.51	51.55	0.000346	0.9	22609	8650.67	0.18	8.02	19.55
26	02Aug2000 0000	19376.61	31.95	51.34	51.38	0.000381	0.92	21147	8525.73	0.19	8.48	19.38
26	02Sep2000 0000	22196.91	31.95	51.77	51.81	0.000303	0.89	24969	8878.14	0.17	7.43	19.82

26	02Oct2000 0000	10971.93	31.94	49.35	49.4	0.000165	0.98	11150	2154.8	0.14	8.22	17.41
26	02Nov2000 0000	3236.85	31.94	46.26	46.28	0.000113	0.61	5324.7	1598.2	0.11	2.25	14.32
26	02Dec2000 0000	2441.69	31.94	45.66	45.67	0.000107	0.56	4395.4	1448.83	0.1	1.77	13.72
26	02Jan2001 0000	1556.19	31.94	44.7	44.71	0.000067	0.47	3308.4	982.57	0.08	1.04	12.76
26	02Feb2001 0000	1507.84	31.94	44.64	44.65	0.000066	0.46	3250.4	975.03	0.08	1	12.7
26	02Mar2001 0000	1642.2	31.94	44.8	44.81	0.000069	0.48	3405.6	997.9	0.08	1.11	12.86
26	02Apr2001 0000	1970.43	31.94	45.12	45.14	0.000079	0.53	3738.8	1054.25	0.09	1.43	13.18
26	02May2001 0000	2612.77	31.94	45.82	45.84	0.000109	0.56	4644.5	1524.64	0.1	1.83	13.88
26	02Jun2001 0000	8871.91	31.94	48.78	48.82	0.000151	0.89	9957.5	2087.04	0.13	6.27	16.84
26	02Jul2001 0000	17685.36	31.93	50.95	51	0.000499	0.98	18074	8088.66	0.21	10.69	19.03
26	02Aug2001 0000	15560.1	31.92	50.54	50.59	0.000507	1.03	15088	6318.11	0.21	12.24	18.62
26	02Sep2001 0000	21982.04	31.91	51.72	51.76	0.000306	0.89	24731	8848.6	0.17	7.44	19.81
25	17Oct1997 0000	9760.04	33.99	48.74	48.74	0.000021	0.3	32379	7804.15	0.05	0.25	14.75
25	02Nov1997 0000	3343.9	33.99	46.11	46.12	0.000013	0.21	15673	4551.45	0.04	0.1	12.12
25	02Dec1997 0000	2083.29	33.99	45.08	45.08	0.000005	0.17	12300	2417.83	0.02	0.04	11.09
25	02Jan1998 0000	1575.76	33.99	44.63	44.63	0.000003	0.14	11292	2154.36	0.02	0.02	10.64
25	02Feb1998 0000	1488.59	33.99	44.54	44.54	0.000003	0.13	11093	2102.05	0.02	0.02	10.55
25	02Mar1998 0000	1351.66	33.99	44.37	44.37	0.000003	0.13	10750	2008.31	0.02	0.02	10.38
25	02Apr1998 0000	3569.02	33.99	46.23	46.24	0.000015	0.22	16231	4807.62	0.04	0.11	12.24
25	02May1998 0000	3966.98	33.99	46.45	46.45	0.000016	0.23	17327	5223.19	0.04	0.12	12.46
25	02Jun1998 0000	16239.17	33.99	50.27	50.28	0.000021	0.36	44989	8446.35	0.05	0.4	16.28
25	02Jul1998 0000	20551.43	34	51.18	51.19	0.000021	0.39	52750	8636.53	0.05	0.48	17.19
25	02Aug1998 0000	25025.09	34	51.87	51.88	0.000022	0.43	58718	8797.29	0.05	0.61	17.87
25	02Sep1998 0000	24535.63	34	51.79	51.8	0.000022	0.42	58006	8788.84	0.05	0.6	17.79
25	02Oct1998 0000	10639.45	34	48.93	48.93	0.000022	0.31	33791	8026.4	0.05	0.29	14.92
25	02Nov1998 0000	5943.19	34.01	47.45	47.45	0.000018	0.26	23136	6435.1	0.04	0.17	13.44
25	02Dec1998 0000	3025.89	34.01	45.88	45.88	0.000011	0.21	14624	3758.61	0.03	0.08	11.87
25	02Jan1999 0000	2682.84	34.01	45.63	45.64	0.000008	0.19	13783	3132.68	0.03	0.07	11.63
25	02Feb1999 0000	1016.6	34.01	43.8	43.8	0.000002	0.11	9648.2	1790.01	0.01	0.01	9.79
25	02Mar1999 0000	1675.45	34.01	44.68	44.68	0.000004	0.15	11369	2172.52	0.02	0.03	10.68
25	02Apr1999 0000	3886.6	34.01	46.37	46.37	0.000016	0.23	16830	5054.91	0.04	0.12	12.36
25	02May1999 0000	3860.72	34.01	46.35	46.36	0.000016	0.23	16742	5020.55	0.04	0.12	12.35
25	02Jun1999 0000	22.54	34.01	41.22	41.22	0	0	5464.9	1390.93	0	0	7.22
25	02Jul1999 0000	19776.95	34.01	51.02	51.03	0.000021	0.39	51286	8616.13	0.05	0.47	17.02
25	02Aug1999 0000	14700.76	34.01	49.93	49.93	0.000022	0.35	41952	8340.12	0.05	0.37	15.92
25	02Sep1999 0000	17567.32	34.01	50.49	50.5	0.000022	0.38	46655	8497.77	0.05	0.45	16.48

25	02Oct1999 0000	13622.8	34.02	49.7	49.71	0.000021	0.34	40024	8253.81	0.05	0.35	15.69
25	02Nov1999 0000	6945.28	34.02	47.79	47.79	0.00002	0.27	25292	6774.97	0.05	0.2	13.77
25	02Dec1999 0000	3256.33	34.02	45.98	45.98	0.000012	0.22	14965	3981.28	0.04	0.1	11.96
25	02Jan2000 0000	1967.94	34.02	44.89	44.89	0.000005	0.17	11806	2260.16	0.02	0.04	10.87
25	02Feb2000 0000	1590.46	34.02	44.54	44.55	0.000003	0.14	11046	2089.38	0.02	0.03	10.52
25	02Mar2000 0000	1612.66	34.02	44.57	44.57	0.000004	0.15	11091	2101.58	0.02	0.03	10.55
25	02Apr2000 0000	4103.09	34.02	46.45	46.46	0.000018	0.24	17189	5188.5	0.04	0.14	12.43
25	02May2000 0000	4089.95	34.02	46.45	46.45	0.000018	0.24	17141	5174.38	0.04	0.14	12.42
25	02Jun2000 0000	16834.98	34.03	50.33	50.34	0.000023	0.37	45214	8457	0.05	0.44	16.31
25	02Jul2000 0000	20453.02	34.03	51.12	51.13	0.000022	0.39	51941	8627.64	0.05	0.5	17.09
25	02Aug2000 0000	19376.61	34.04	50.93	50.94	0.000022	0.39	50184	8597.32	0.05	0.48	16.89
25	02Sep2000 0000	22196.91	34.04	51.39	51.4	0.000022	0.41	54188	8679.11	0.05	0.56	17.35
25	02Oct2000 0000	10971.93	34.04	48.96	48.96	0.000024	0.33	33699	8014.69	0.05	0.32	14.91
25	02Nov2000 0000	3236.85	34.05	45.93	45.94	0.000012	0.22	14691	3799.93	0.04	0.1	11.89
25	02Dec2000 0000	2441.69	34.05	45.34	45.34	0.000007	0.19	12821	2632.24	0.03	0.06	11.29
25	02Jan2001 0000	1556.19	34.05	44.45	44.45	0.000003	0.14	10791	2019.91	0.02	0.03	10.4
25	02Feb2001 0000	1507.84	34.05	44.39	44.39	0.000003	0.14	10667	1986.26	0.02	0.02	10.34
25	02Mar2001 0000	1642.2	34.05	44.54	44.54	0.000004	0.15	10980	2071.86	0.02	0.03	10.49
25	02Apr2001 0000	1970.43	34.05	44.85	44.85	0.000005	0.17	11638	2227.08	0.02	0.04	10.8
25	02May2001 0000	2612.77	34.05	45.5	45.51	0.000008	0.2	13274	2867.51	0.03	0.07	11.46
25	02Jun2001 0000	8871.91	34.05	48.39	48.4	0.000022	0.3	29346	7326	0.05	0.26	14.34
25	02Jul2001 0000	17685.36	34.05	50.47	50.48	0.000023	0.38	46184	8489.23	0.05	0.48	16.42
25	02Aug2001 0000	15560.1	34.07	50.05	50.06	0.000023	0.37	42525	8375.79	0.05	0.43	15.98
25	02Sep2001 0000	21982.04	34.07	51.34	51.35	0.000023	0.41	53485	8653.46	0.05	0.56	17.27
24	17Oct1997 0000	9760.04	35.44	48.53	48.55	0.000064	0.53	18346	4394.34	0.08	1.39	13.09
24	02Nov1997 0000	3343.9	35.44	45.91	45.92	0.000055	0.41	8173.6	2605.15	0.07	0.7	10.47
24	02Dec1997 0000	2083.29	35.44	44.99	44.99	0.000023	0.34	6054.8	1284.25	0.05	0.36	9.55
24	02Jan1998 0000	1575.76	35.44	44.57	44.57	0.000017	0.28	5530.6	1224.92	0.04	0.21	9.13
24	02Feb1998 0000	1488.59	35.44	44.48	44.48	0.000016	0.27	5421.2	1216.15	0.04	0.19	9.04
24	02Mar1998 0000	1351.66	35.44	44.32	44.32	0.000014	0.26	5225.5	1200.3	0.04	0.16	8.88
24	02Apr1998 0000	3569.02	35.44	46.02	46.03	0.000058	0.42	8458.3	2670.99	0.08	0.76	10.58
24	02May1998 0000	3966.98	35.44	46.23	46.24	0.000063	0.44	9025	2849.13	0.08	0.86	10.79
24	02Jun1998 0000	16239.17	35.44	50.07	50.09	0.000063	0.65	25103	4419.48	0.09	2.26	14.63
24	02Jul1998 0000	20551.43	35.44	50.98	51.01	0.000062	0.7	29154	4436.75	0.09	2.79	15.54
24	02Aug1998 0000	25025.09	35.44	51.65	51.68	0.000066	0.78	32131	4449.39	0.09	3.65	16.21
24	02Sep1998 0000	24535.63	35.44	51.58	51.61	0.000066	0.77	31796	4447.94	0.09	3.56	16.14

24	02Oct1998 0000	10639.45	35.44	48.72	48.73	0.000066	0.56	19168	4397.18	0.08	1.56	13.28
24	02Nov1998 0000	5943.19	35.44	47.22	47.24	0.000079	0.47	12637	4262.09	0.09	1.08	11.79
24	02Dec1998 0000	3025.89	35.44	45.69	45.7	0.000056	0.4	7606.2	2542.22	0.07	0.65	10.25
24	02Jan1999 0000	2682.84	35.44	45.47	45.48	0.000055	0.38	7051.6	2479.5	0.07	0.58	10.03
24	02Feb1999 0000	1016.6	35.44	43.76	43.76	0.000012	0.22	4572.1	1145.77	0.04	0.1	8.32
24	02Mar1999 0000	1675.45	35.44	44.61	44.62	0.000018	0.3	5589.7	1231.05	0.04	0.24	9.18
24	02Apr1999 0000	3886.6	35.44	46.14	46.15	0.000064	0.44	8794.9	2770	0.08	0.88	10.71
24	02May1999 0000	3860.72	35.44	46.12	46.13	0.000064	0.44	8746.4	2755.73	0.08	0.87	10.69
24	02Jun1999 0000	22.54	35.44	41.22	41.22	0	0.01	1963.1	912.38	0	0	5.79
24	02Jul1999 0000	19776.95	35.44	50.82	50.85	0.000062	0.7	28454	4433.73	0.09	2.7	15.39
24	02Aug1999 0000	14700.76	35.44	49.72	49.74	0.000063	0.62	23596	4413.02	0.09	2.06	14.29
24	02Sep1999 0000	17567.32	35.44	50.28	50.3	0.000065	0.67	26045	4423.48	0.09	2.54	14.84
24	02Oct1999 0000	13622.8	35.44	49.5	49.52	0.000062	0.6	22618	4409.07	0.08	1.89	14.07
24	02Nov1999 0000	6945.28	35.43	47.56	47.58	0.000077	0.49	14108	4346.33	0.09	1.2	12.13
24	02Dec1999 0000	3256.33	35.43	45.78	45.78	0.000059	0.42	7831	2566.52	0.08	0.74	10.34
24	02Jan2000 0000	1967.94	35.43	44.81	44.81	0.000022	0.34	5831.6	1258.95	0.05	0.34	9.37
24	02Feb2000 0000	1590.46	35.43	44.48	44.48	0.000018	0.29	5425.7	1216.46	0.04	0.23	9.04
24	02Mar2000 0000	1612.66	35.43	44.5	44.5	0.000018	0.3	5451	1218.49	0.04	0.23	9.06
24	02Apr2000 0000	4103.09	35.43	46.21	46.22	0.000068	0.46	8998.5	2829.49	0.08	0.96	10.78
24	02May2000 0000	4089.95	35.43	46.2	46.21	0.000068	0.46	8972.9	2821.59	0.08	0.96	10.77
24	02Jun2000 0000	16834.98	35.43	50.12	50.14	0.000065	0.66	25353	4420.49	0.09	2.44	14.69
24	02Jul2000 0000	20453.02	35.43	50.91	50.94	0.000063	0.71	28870	4435.47	0.09	2.84	15.48
24	02Aug2000 0000	19376.61	35.43	50.72	50.75	0.000062	0.69	28024	4431.87	0.09	2.67	15.29
24	02Sep2000 0000	22196.91	35.43	51.18	51.21	0.000065	0.74	30047	4440.45	0.09	3.18	15.74
24	02Oct2000 0000	10971.93	35.43	48.74	48.75	0.000069	0.57	19259	4397.47	0.09	1.69	13.3
24	02Nov2000 0000	3236.85	35.43	45.73	45.74	0.000061	0.42	7713.5	2553.66	0.08	0.76	10.3
24	02Dec2000 0000	2441.69	35.43	45.2	45.21	0.000047	0.38	6430	2012.1	0.07	0.55	9.77
24	02Jan2001 0000	1556.19	35.43	44.38	44.38	0.000018	0.29	5310.2	1207.06	0.04	0.23	8.95
24	02Feb2001 0000	1507.84	35.43	44.32	44.32	0.000018	0.29	5238.1	1201.21	0.04	0.22	8.89
24	02Mar2001 0000	1642.2	35.43	44.47	44.47	0.000019	0.3	5418.1	1215.77	0.05	0.25	9.04
24	02Apr2001 0000	1970.43	35.43	44.76	44.76	0.000023	0.34	5772.6	1252.1	0.05	0.36	9.32
24	02May2001 0000	2612.77	35.43	45.34	45.35	0.000038	0.39	6757.2	2411.44	0.07	0.61	9.91
24	02Jun2001 0000	8871.91	35.43	48.17	48.19	0.000071	0.53	16783	4388.9	0.09	1.41	12.74
24	02Jul2001 0000	17685.36	35.43	50.26	50.28	0.000067	0.68	25963	4423.07	0.09	2.61	14.82
24	02Aug2001 0000	15560.1	35.43	49.83	49.86	0.000066	0.65	24102	4415.14	0.09	2.28	14.4
24	02Sep2001 0000	21982.04	35.43	51.12	51.15	0.000065	0.74	29799	4439.39	0.09	3.18	15.69

23	17Oct1997 0000	9760.04	40.14	47.63	47.69	0.000228	1.05	9336.3	2104.66	0.16	10.37	7.49
23	02Nov1997 0000	3343.9	40.14	45.06	45.09	0.000196	0.73	4607.6	1600.48	0.14	4.01	4.93
23	02Dec1997 0000	2083.29	40.14	44.1	44.12	0.000249	0.67	3121	1471.17	0.15	3.45	3.96
23	02Jan1998 0000	1575.76	40.13	43.7	43.72	0.000265	0.62	2549	1414.66	0.15	2.9	3.56
23	02Feb1998 0000	1488.59	40.13	43.62	43.64	0.00027	0.61	2442.5	1403.91	0.15	2.81	3.49
23	02Mar1998 0000	1351.66	40.13	43.5	43.52	0.000276	0.59	2273.5	1379	0.15	2.65	3.37
23	02Apr1998 0000	3569.02	40.13	45.15	45.18	0.000204	0.75	4748.9	1613.57	0.14	4.42	5.02
23	02May1998 0000	3966.98	40.13	45.33	45.36	0.00021	0.79	5053.3	1642.55	0.14	4.96	5.2
23	02Jun1998 0000	16239.17	40.13	49.2	49.27	0.000326	1.2	13507	3225.4	0.19	16.09	9.07
23	02Jul1998 0000	20551.43	40.12	50.15	50.22	0.000367	1.2	17168	4507.5	0.2	16.38	10.03
23	02Aug1998 0000	25025.09	40.12	50.81	50.89	0.000328	1.24	20250	4661.58	0.19	17.26	10.7
23	02Sep1998 0000	24535.63	40.1	50.74	50.81	0.00033	1.23	19945	4647.21	0.19	17.09	10.63
23	02Oct1998 0000	10639.45	40.09	47.8	47.86	0.000237	1.09	9793.3	2143.27	0.16	11.53	7.71
23	02Nov1998 0000	5943.19	40.09	46.28	46.32	0.000206	0.88	6759.1	1829.85	0.15	6.56	6.19
23	02Dec1998 0000	3025.89	40.08	44.79	44.82	0.000203	0.71	4258.9	1569.87	0.14	3.84	4.71
23	02Jan1999 0000	2682.84	40.08	44.51	44.53	0.000222	0.7	3824.4	1534.6	0.14	3.8	4.43
23	02Feb1999 0000	1016.6	40.08	43.09	43.1	0.000313	0.56	1799.5	1293.71	0.15	2.41	3.01
23	02Mar1999 0000	1675.45	40.08	43.67	43.69	0.000284	0.65	2594.4	1418.75	0.15	3.29	3.6
23	02Apr1999 0000	3886.6	40.07	45.22	45.25	0.000213	0.78	4954.2	1631.57	0.14	4.97	5.14
23	02May1999 0000	3860.72	40.07	45.2	45.23	0.000214	0.78	4925.8	1628.65	0.14	4.97	5.13
23	02Jun1999 0000	22.54	40.07	41.21	41.21	0.000288	0.21	104.98	302.55	0.12	0.21	1.14
23	02Jul1999 0000	19776.95	40.05	49.98	50.05	0.000374	1.19	16624	4473.36	0.2	16.22	9.92
23	02Aug1999 0000	14700.76	40.04	48.84	48.91	0.000318	1.16	12621	3102.22	0.18	14.77	8.8
23	02Sep1999 0000	17567.32	40.02	49.4	49.47	0.000322	1.22	14448	3360.55	0.19	16.49	9.37
23	02Oct1999 0000	13622.8	40.01	48.62	48.69	0.00031	1.13	12039	3029.54	0.18	13.64	8.62
23	02Nov1999 0000	6945.28	40	46.6	46.65	0.00021	0.92	7520.2	1921.37	0.15	7.46	6.6
23	02Dec1999 0000	3256.33	40	44.84	44.87	0.000203	0.73	4470.2	1585.29	0.14	4.08	4.84
23	02Jan2000 0000	1967.94	40	43.83	43.86	0.000267	0.67	2937.6	1451.96	0.15	3.55	3.84
23	02Feb2000 0000	1590.46	39.99	43.53	43.55	0.000283	0.63	2509	1409.47	0.15	3.14	3.54
23	02Mar2000 0000	1612.66	39.99	43.55	43.57	0.000282	0.64	2535.7	1412.01	0.15	3.16	3.55
23	02Apr2000 0000	4103.09	39.99	45.26	45.29	0.00021	0.79	5164.3	1648.94	0.14	5.11	5.27
23	02May2000 0000	4089.95	39.98	45.25	45.28	0.00021	0.79	5153.6	1647.67	0.14	5.1	5.27
23	02Jun2000 0000	16834.98	39.97	49.23	49.31	0.000314	1.2	14045	3279.14	0.18	15.82	9.27
23	02Jul2000 0000	20453.02	39.95	50.08	50.15	0.000349	1.18	17361	4499.09	0.19	15.55	10.13
23	02Aug2000 0000	19376.61	39.93	49.88	49.95	0.000363	1.17	16544	4456.83	0.19	15.48	9.94
23	02Sep2000 0000	22196.91	39.92	50.34	50.41	0.000326	1.19	18705	4561.77	0.19	15.57	10.42
23	02Oct2000 0000	10971.93	39.91	47.8	47.86	0.000227	1.08	10146	2167.96	0.16	11.28	7.89

23	02Nov2000 0000	3236.85	39.91	44.77	44.8	0.000196	0.72	4501.8	1586.13	0.14	3.92	4.86
23	02Dec2000 0000	2441.69	39.9	44.17	44.2	0.000224	0.68	3580	1511.81	0.14	3.55	4.27
23	02Jan2001 0000	1556.19	39.9	43.43	43.45	0.000275	0.62	2498	1407.64	0.15	2.98	3.53
23	02Feb2001 0000	1507.84	39.9	43.38	43.4	0.000277	0.62	2441.7	1401.91	0.15	2.92	3.49
23	02Mar2001 0000	1642.2	39.89	43.49	43.51	0.00027	0.63	2600.4	1417.5	0.15	3.07	3.6
23	02Apr2001 0000	1970.43	39.89	43.75	43.78	0.000256	0.66	2978.5	1454.01	0.15	3.4	3.86
23	02May2001 0000	2612.77	39.89	44.31	44.34	0.000211	0.68	3816.5	1530.1	0.14	3.53	4.43
23	02Jun2001 0000	8871.91	39.88	47.18	47.23	0.000214	1	8900.1	2050.97	0.15	9.06	7.31
23	02Jul2001 0000	17685.36	39.86	49.37	49.44	0.000305	1.2	14773	3377.01	0.18	15.65	9.51
23	02Aug2001 0000	15560.1	39.85	48.94	49.01	0.000298	1.16	13421	3163.15	0.18	14.36	9.1
23	02Sep2001 0000	21982.04	39.84	50.28	50.35	0.000324	1.18	18627	4549.55	0.19	15.32	10.44
22	17Oct1997 0000	9760.04	32.89	44.44	44.5	0.000145	1.13	8663.3	1244.91	0.14	11.17	11.55
22	02Nov1997 0000	3343.9	32.92	41.96	41.97	0.000066	0.59	5633.4	1169.99	0.09	1.85	9.04
22	02Dec1997 0000	2083.29	32.92	41.17	41.18	0.000043	0.44	4724	1116.3	0.07	0.79	8.25
22	02Jan1998 0000	1575.76	32.92	40.76	40.77	0.000033	0.37	4273.4	1087.69	0.06	0.47	7.84
22	02Feb1998 0000	1488.59	32.93	40.67	40.68	0.000032	0.36	4176.9	1081.54	0.06	0.43	7.75
22	02Mar1998 0000	1351.66	32.93	40.54	40.54	0.000029	0.34	4026.2	1071.77	0.06	0.36	7.61
22	02Apr1998 0000	3569.02	32.93	42.09	42.1	0.00007	0.62	5767.7	1173.72	0.09	2.08	9.15
22	02May1998 0000	3966.98	32.93	42.33	42.35	0.000074	0.66	6046.9	1180.88	0.09	2.44	9.39
22	02Jun1998 0000	16239.17	32.94	46.02	46.14	0.000215	1.53	10614	1292.13	0.17	26.48	13.09
22	02Jul1998 0000	20551.43	32.94	47.04	47.19	0.000308	1.71	12011	1617.12	0.2	38.31	14.11
22	02Aug1998 0000	25025.09	32.93	47.94	48.11	0.000397	1.84	13629	2000.65	0.22	48.71	15
22	02Sep1998 0000	24535.63	32.93	47.85	48.02	0.000391	1.82	13463	1973.09	0.22	47.6	14.92
22	02Oct1998 0000	10639.45	32.93	44.68	44.75	0.000158	1.19	8920.4	1251.98	0.14	13.15	11.75
22	02Nov1998 0000	5943.19	32.93	43.18	43.22	0.000102	0.84	7074.7	1206.82	0.11	4.9	10.25
22	02Dec1998 0000	3025.89	32.93	41.77	41.78	0.000062	0.56	5394.6	1158.12	0.08	1.58	8.83
22	02Jan1999 0000	2682.84	32.94	41.56	41.57	0.000056	0.52	5145.2	1143.15	0.08	1.28	8.62
22	02Feb1999 0000	1016.6	32.94	40.2	40.2	0.000022	0.28	3651.4	1047.03	0.05	0.21	7.25
22	02Mar1999 0000	1675.45	32.94	40.85	40.86	0.000036	0.39	4350.2	1093.15	0.06	0.54	7.91
22	02Apr1999 0000	3886.6	32.95	42.29	42.31	0.000073	0.65	5992	1179.75	0.09	2.37	9.34
22	02May1999 0000	3860.72	32.95	42.28	42.3	0.000073	0.65	5978.3	1179.4	0.09	2.34	9.33
22	02Jun1999 0000	22.54	32.94	36.33	36.33	0.000002	0.04	529.41	403.61	0.01	0	3.39
22	02Jul1999 0000	19776.95	32.93	46.83	46.98	0.000266	1.69	11675	1432.9	0.19	36.04	13.9
22	02Aug1999 0000	14700.76	32.93	45.7	45.81	0.0002	1.44	10193	1282.6	0.16	22.43	12.77
22	02Sep1999 0000	17567.32	32.94	46.31	46.44	0.000227	1.6	10980	1301.02	0.18	30.01	13.38
22	02Oct1999 0000	13622.8	32.94	45.44	45.54	0.00019	1.38	9855.1	1274.67	0.16	19.93	12.5

22	02Nov1999 0000	6945.28	32.94	43.55	43.6	0.000115	0.93	7502.3	1217.69	0.12	6.46	10.62
22	02Dec1999 0000	3256.33	32.93	41.91	41.93	0.000066	0.59	5550.9	1167.98	0.09	1.79	8.98
22	02Jan2000 0000	1967.94	32.93	41.08	41.09	0.000042	0.43	4600.8	1108.9	0.07	0.73	8.14
22	02Feb2000 0000	1590.46	32.93	40.77	40.78	0.000034	0.37	4266.8	1087.44	0.06	0.49	7.84
22	02Mar2000 0000	1612.66	32.93	40.79	40.8	0.000035	0.38	4287.4	1088.8	0.06	0.5	7.86
22	02Apr2000 0000	4103.09	32.93	42.4	42.42	0.000076	0.67	6119	1182.88	0.09	2.6	9.46
22	02May2000 0000	4089.95	32.93	42.39	42.42	0.000076	-0.67	6113.2	1182.73	0.09	2.58	9.46
22	02Jun2000 0000	16834.98	32.93	46.17	46.29	0.000219	1.56	10799	1296.73	0.17	27.88	13.24
22	02Jul2000 0000	20453.02	32.93	47.06	47.21	0.000304	1.7	12034	1623.62	0.2	37.57	14.13
22	02Aug2000 0000	19376.61	32.93	46.72	46.86	0.000251	1.68	11519	1366.55	0.18	34.89	13.79
22	02Sep2000 0000	22196.91	32.94	47.43	47.59	0.000356	1.76	12646	1827.02	0.21	42.34	14.49
22	02Oct2000 0000	10971.93	32.93	44.78	44.86	0.000162	1.21	9030.6	1254.91	0.14	13.86	11.85
22	02Nov2000 0000	3236.85	32.93	41.9	41.92	0.000065	0.58	5536.2	1167.07	0.09	1.77	8.97
22	02Dec2000 0000	2441.69	32.93	41.41	41.42	0.000051	0.49	4969.4	1132.22	0.07	1.08	8.47
22	02Jan2001 0000	1556.19	32.93	40.74	40.75	0.000034	0.37	4228.7	1084.99	0.06	0.47	7.81
22	02Feb2001 0000	1507.84	32.93	40.69	40.7	0.000033	0.36	4176.8	1081.6	0.06	0.45	7.76
22	02Mar2001 0000	1642.2	32.93	40.82	40.83	0.000035	0.38	4319.3	1090.88	0.06	0.52	7.89
22	02Apr2001 0000	1970.43	32.93	41.08	41.09	0.000042	0.43	4598.7	1108.85	0.07	0.73	8.14
22	02May2001 0000	2612.77	32.93	41.51	41.53	0.000055	0.51	5090.3	1139.78	0.08	1.23	8.58
22	02Jun2001 0000	8871.91	32.93	44.21	44.27	0.000137	1.07	8315.7	1237.65	0.13	9.6	11.28
22	02Jul2001 0000	17685.36	32.93	46.35	46.48	0.000226	1.6	11035	1302.17	0.18	30.12	13.42
22	02Aug2001 0000	15560.1	32.93	45.91	46.02	0.000207	1.49	10458	1288.75	0.17	24.45	12.97
22	02Sep2001 0000	21982.04	32.93	47.38	47.53	0.000327	1.75	12556	1710.15	0.21	41.18	14.44
21	17Oct1997 0000	9760.04	35.22	43.74	43.76	0.000148	0.66	14720	4740.43	0.12	2.98	8.52
21	02Nov1997 0000	3343.9	35.22	41.63	41.64	0.000055	0.42	8025.4	2481.86	0.07	0.73	6.41
21	02Dec1997 0000	2083.29	35.22	40.96	40.97	0.000039	0.32	6432.7	2256.7	0.06	0.36	5.74
21	02Jan1998 0000	1575.76	35.22	40.6	40.61	0.000032	0.28	5648.8	2142.38	0.05	0.23	5.38
21	02Feb1998 0000	1488.59	35.22	40.52	40.53	0.000032	0.27	5480	2119	0.05	0.22	5.3
21	02Mar1998 0000	1351.66	35.22	40.4	40.4	0.00003	0.26	5212	2081.32	0.05	0.19	5.18
21	02Apr1998 0000	3569.02	35.22	41.74	41.75	0.000058	0.43	8297.2	2529.58	0.08	0.8	6.52
21	02May1998 0000	3966.98	35.22	41.97	41.98	0.00006	0.45	8874.4	2631.42	0.08	0.89	6.75
21	02Jun1998 0000	16239.17	35.23	45.17	45.2	0.000117	0.75	21607	4848.95	0.11	3.85	9.94
21	02Jul1998 0000	20551.43	35.24	45.97	46	0.000129	0.8	25614	5606.4	0.12	4.64	10.72
21	02Aug1998 0000	25025.09	35.26	46.74	46.78	0.000129	0.83	30115	6258.28	0.12	5.07	11.48
21	02Sep1998 0000	24535.63	35.27	46.67	46.71	0.00013	0.81	29609	6193.13	0.12	5.04	11.4
21	02Oct1998 0000	10639.45	35.27	43.94	43.96	0.000153	0.69	15437	4815.88	0.12	3.31	8.67

21	02Nov1998 0000	5943.19	35.27	42.7	42.71	0.00008	0.55	10748	2881.37	0.09	1.63	7.42
21	02Dec1998 0000	3025.89	35.27	41.46	41.47	0.000055	0.4	7488.8	2407.43	0.07	0.67	6.19
21	02Jan1999 0000	2682.84	35.27	41.29	41.29	0.000051	0.38	7063.8	2347.95	0.07	0.57	6.01
21	02Feb1999 0000	1016.6	35.27	40.08	40.09	0.000026	0.23	4473.5	1971.68	0.05	0.13	4.81
21	02Mar1999 0000	1675.45	35.27	40.68	40.69	0.000036	0.29	5706.7	2150.35	0.06	0.27	5.41
21	02Apr1999 0000	3886.6	35.27	41.93	41.94	0.000062	0.45	8645.8	2591.5	0.08	0.91	6.66
21	02May1999 0000	3860.72	35.27	41.92	41.93	0.000061	0.45	8617.4	2586.41	0.08	0.9	6.65
21	02Jun1999 0000	22.54	35.27	36.3	36.3	0.000047	0.11	209.32	439.66	0.05	0.02	1.03
21	02Jul1999 0000	19776.95	35.28	45.83	45.86	0.000131	0.8	24667	5462.87	0.12	4.65	10.55
21	02Aug1999 0000	14700.76	35.28	44.88	44.91	0.000125	0.74	19928	4840.59	0.12	3.74	9.6
21	02Sep1999 0000	17567.32	35.29	45.41	45.44	0.000121	0.78	22456	4874.07	0.12	4.29	10.12
21	02Oct1999 0000	13622.8	35.29	44.63	44.65	0.000134	0.73	18652	4833.7	0.12	3.7	9.33
21	02Nov1999 0000	6945.28	35.29	42.99	43.01	0.00009	0.6	11558	2976.15	0.1	2.06	7.7
21	02Dec1999 0000	3256.33	35.29	41.58	41.59	0.000058	0.42	7715.4	2438.6	0.08	0.76	6.29
21	02Jan2000 0000	1967.94	35.29	40.87	40.88	0.000041	0.32	6074.6	2203.29	0.06	0.36	5.58
21	02Feb2000 0000	1590.46	35.29	40.61	40.61	0.000036	0.29	5494.2	2120.99	0.06	0.26	5.31
21	02Mar2000 0000	1612.66	35.29	40.62	40.63	0.000036	0.29	5531.3	2126.15	0.06	0.27	5.33
21	02Apr2000 0000	4103.09	35.29	42.01	42.02	0.000066	0.47	8800.6	2618.93	0.08	1.01	6.72
21	02May2000 0000	4089.95	35.29	42.01	42.02	0.000066	0.47	8787.6	2616.72	0.08	1	6.71
21	02Jun2000 0000	16834.98	35.29	45.28	45.31	0.000122	0.77	21813	4851.06	0.12	4.15	9.99
21	02Jul2000 0000	20453.02	35.31	45.95	45.99	0.000134	0.81	25201	5572.8	0.12	4.82	10.65
21	02Aug2000 0000	19376.61	35.32	45.75	45.79	0.000134	0.81	24050	5380.49	0.12	4.74	10.44
21	02Sep2000 0000	22196.91	35.33	46.27	46.31	0.000135	0.83	26893	5821.62	0.12	5.04	10.94
21	02Oct2000 0000	10971.93	35.33	44.01	44.04	0.000161	0.71	15496	4816.62	0.13	3.59	8.68
21	02Nov2000 0000	3236.85	35.33	41.57	41.58	0.00006	0.43	7589	2421.32	0.08	0.79	6.24
21	02Dec2000 0000	2441.69	35.33	41.15	41.16	0.00005	0.37	6615	2283.16	0.07	0.53	5.82
21	02Jan2001 0000	1556.19	35.33	40.57	40.58	0.000037	0.29	5347.9	2100.44	0.06	0.27	5.24
21	02Feb2001 0000	1507.84	35.33	40.53	40.53	0.000037	0.29	5254.2	2087.23	0.06	0.26	5.2
21	02Mar2001 0000	1642.2	35.33	40.65	40.65	0.000038	0.3	5510.5	2123.16	0.06	0.29	5.32
21	02Apr2001 0000	1970.43	35.33	40.87	40.88	0.000043	0.33	5990.1	2190.35	0.06	0.38	5.54
21	02May2001 0000	2612.77	35.33	41.24	41.25	0.000053	0.38	6817.4	2312.43	0.07	0.59	5.91
21	02Jun2001 0000	8871.91	35.33	43.52	43.54	0.000146	0.67	13202	4142.37	0.12	3.08	8.19
21	02Jul2001 0000	17685.36	35.33	45.43	45.47	0.000124	0.79	22380	4872.23	0.12	4.43	10.1
21	02Aug2001 0000	15560.1	35.33	45.05	45.08	0.000129	0.76	20475	4844.26	0.12	4.05	9.71
21	02Sep2001 0000	21982.04	35.34	46.24	46.27	0.000135	0.82	26649	5787.16	0.12	5.03	10.9
20	17Oct1997 0000	9760.04	25.67	43.57	43.58	0.000011	0.43	22583	2005.82	0.04	0.54	17.9

20	02Nov1997 0000	3343.9	25.67	41.59	41.59	41.59	0.000002	0.18	18801	1772.03	0.02	0.04	15.92
20	02Dec1997 0000	2083.29	25.67	40.94	40.94	40.94	0.000001	0.12	17650	1747.07	0.01	0.01	15.27
20	02Jan1998 0000	1575.76	25.67	40.59	40.59	40.59	0.000001	0.09	17040	1733.72	0.01	0.01	14.92
20	02Feb1998 0000	1488.59	25.67	40.51	40.51	40.51	0.000001	0.09	16905	1730.74	0.01	0	14.84
20	02Mar1998 0000	1351.66	25.67	40.38	40.38	40.38	0	0.08	16687	1725.93	0.01	0	14.71
20	02Apr1998 0000	3569.02	25.67	41.7	41.7	41.7	0.000002	0.19	18988	1776.04	0.02	0.04	16.03
20	02May1998 0000	3966.98	25.67	41.92	41.92	41.92	0.000003	0.2	19377	-1784.39	-0.02	0.06	16.25
20	02Jun1998 0000	16239.17	25.67	44.86	44.86	44.86	0.000025	0.64	25297	2260.15	0.06	1.76	19.19
20	02Jul1998 0000	20551.43	25.67	45.57	45.57	45.57	0.000004	0.76	27029	2646.42	0.08	3.02	19.9
20	02Aug1998 0000	25025.09	25.68	46.25	46.25	46.25	0.000073	0.86	29220	3761.42	0.1	4.73	20.57
20	02Sep1998 0000	24535.63	25.68	46.19	46.19	46.22	0.00007	0.85	28966	3684.76	0.1	4.56	20.5
20	02Oct1998 0000	10639.45	25.69	43.76	43.76	43.77	0.000013	0.46	22922	2023.03	0.04	0.66	18.07
20	02Nov1998 0000	5943.19	25.69	42.62	42.62	42.62	0.000006	0.29	20625	1987.76	0.03	0.16	16.93
20	02Dec1998 0000	3025.89	25.69	41.43	41.43	41.43	0.000002	0.16	18476	1765.03	0.02	0.03	15.74
20	02Jan1999 0000	2682.84	25.69	41.25	41.25	41.26	0.000001	0.15	18170	1758.4	0.01	0.02	15.56
20	02Feb1999 0000	1016.6	25.69	40.07	40.07	40.08	0	0.06	16122	1713.4	0.01	0	14.38
20	02Mar1999 0000	1675.45	25.69	40.66	40.66	40.67	0.000001	0.1	17139	1735.91	0.01	0.01	14.97
20	02Apr1999 0000	3886.6	25.69	41.88	41.88	41.88	0.000003	0.2	19278	1782.3	0.02	0.06	16.19
20	02May1999 0000	3860.72	25.69	41.87	41.87	41.87	0.000003	0.2	19259	1781.89	0.02	0.05	16.18
20	02Jun1999 0000	22.54	25.69	36.3	36.3	36.3	0	0	9918	1582.41	0	0	10.61
20	02Jul1999 0000	19776.95	25.69	45.44	45.44	45.47	0.000038	0.74	26653	2610.95	0.07	2.81	19.75
20	02Aug1999 0000	14700.76	25.7	44.59	44.59	44.6	0.000022	0.6	24637	2192.64	0.06	1.42	18.89
20	02Sep1999 0000	17567.32	25.7	45.08	45.08	45.1	0.000029	0.68	25732	2307.47	0.07	2.13	19.38
20	02Oct1999 0000	13622.8	25.7	44.38	44.38	44.4	0.000019	0.56	24185	2144.49	0.05	1.19	18.68
20	02Nov1999 0000	6945.28	25.71	42.9	42.9	42.9	0.000007	0.33	21149	2002.39	0.03	0.24	17.19
20	02Dec1999 0000	3256.33	25.71	41.54	41.54	41.54	0.000002	0.17	18641	1768.63	0.02	0.04	15.83
20	02Jan2000 0000	1967.94	25.71	40.85	40.85	40.85	0.000001	0.11	17433	1742.37	0.01	0.01	15.14
20	02Feb2000 0000	1590.46	25.71	40.59	40.59	40.59	0.000001	0.09	16975	1732.31	0.01	0.01	14.88
20	02Mar2000 0000	1612.66	25.71	40.61	40.61	40.61	0.000001	0.09	17005	1732.97	0.01	0.01	14.9
20	02Apr2000 0000	4103.09	25.71	41.96	41.96	41.96	0.000003	0.21	19384	1784.59	0.02	0.06	16.25
20	02May2000 0000	4089.95	25.71	41.96	41.96	41.96	0.000003	0.21	19375	1784.41	0.02	0.06	16.24
20	02Jun2000 0000	16834.98	25.71	44.95	44.95	44.98	0.000027	0.66	25430	2278.42	0.06	1.94	19.24
20	02Jul2000 0000	20453.02	25.72	45.55	45.55	45.58	0.000004	0.76	26885	2638.72	0.08	3.03	19.84
20	02Aug2000 0000	19376.61	25.72	45.37	45.37	45.4	0.000037	0.73	26404	2559.34	0.07	2.71	19.65
20	02Sep2000 0000	22196.91	25.73	45.83	45.83	45.86	0.000053	0.8	27641	3087.55	0.09	3.72	20.1
20	02Oct2000 0000	10971.93	25.73	43.82	43.82	43.83	0.000014	0.48	22955	2025.45	0.05	0.73	18.09
20	02Nov2000 0000	3236.85	25.74	41.53	41.53	41.53	0.000002	0.17	18568	1767.07	0.02	0.04	15.79

20	02Dec2000 0000	2441.69	25.74	41.12	41.12	41.12	0.000001	0.14	17855	1751.62	0.01	0.02	15.38
20	02Jan2001 0000	1556.19	25.74	40.56	40.56	40.56	0.000001	0.09	16869	1730.01	0.01	0.01	14.82
20	02Feb2001 0000	1507.84	25.74	40.51	40.51	40.51	0.000001	0.09	16793	1728.32	0.01	0.01	14.77
20	02Mar2001 0000	1642.2	25.74	40.63	40.63	40.63	0.000001	0.1	17000	1732.9	0.01	0.01	14.89
20	02Apr2001 0000	1970.43	25.74	40.85	40.85	40.85	0.000001	0.11	17379	1741.22	0.01	0.01	15.11
20	02May2001 0000	2612.77	25.74	41.21	41.21	41.21	0.000001	0.15	18005	1754.88	0.01	0.02	15.47
20	02Jun2001 0000	8871.91	25.74	43.37	43.37	43.38	0.00001	0.4	22039	2004.59	-0.04	0.44	17.63
20	02Jul2001 0000	17685.36	25.74	45.09	45.09	45.12	0.000029	0.69	25680	2307.46	0.07	2.18	19.35
20	02Aug2001 0000	15560.1	25.75	44.73	44.73	44.75	0.000024	0.63	24852	2221.15	0.06	1.64	18.98
20	02Sep2001 0000	21982.04	25.75	45.8	45.8	45.83	0.000052	0.8	27481	3042.78	0.08	3.67	20.04
19	17Oct1997 0000	9760.04	33.34	43.22	43.22	43.24	0.000105	0.64	15153	3937.25	0.1	2.54	9.88
19	02Nov1997 0000	3343.9	33.34	41.52	41.52	41.52	0.000023	0.33	10161	2284.26	0.05	0.32	8.18
19	02Dec1997 0000	2083.29	33.34	40.9	40.9	40.9	0.000013	0.24	8787.7	2154.28	0.04	0.12	7.56
19	02Jan1998 0000	1575.76	33.34	40.56	40.56	40.56	0.000009	0.2	8073.7	2074.82	0.03	0.07	7.22
19	02Feb1998 0000	1488.59	33.34	40.48	40.48	40.49	0.000009	0.19	7916.1	2056.91	0.03	0.06	7.14
19	02Mar1998 0000	1351.66	33.34	40.36	40.36	40.36	0.000008	0.18	7664.7	2028.02	0.03	0.05	7.02
19	02Apr1998 0000	3569.02	33.34	41.61	41.61	41.62	0.000024	0.34	10385	2295.37	0.05	0.37	8.27
19	02May1998 0000	3966.98	33.34	41.82	41.82	41.82	0.000026	0.37	10852	2318.31	0.05	0.44	8.48
19	02Jun1998 0000	16239.17	33.34	44.15	44.15	44.19	0.000158	0.85	19087	4445.72	0.13	5.65	10.81
19	02Jul1998 0000	20551.43	33.34	44.67	44.67	44.72	0.000184	0.96	21456	4692.73	0.14	7.9	11.33
19	02Aug1998 0000	25025.09	33.34	45.1	45.1	45.16	0.000208	1.06	23521	4815.51	0.15	10.59	11.76
19	02Sep1998 0000	24535.63	33.33	45.06	45.06	45.11	0.000205	1.05	23330	4812.6	0.15	10.25	11.72
19	02Oct1998 0000	10639.45	33.33	43.37	43.37	43.39	0.000113	0.67	15800	4066.88	0.11	2.9	10.04
19	02Nov1998 0000	5943.19	33.33	42.43	42.43	42.44	0.000053	0.48	12371	2987.01	0.08	1.03	9.1
19	02Dec1998 0000	3025.89	33.33	41.36	41.36	41.37	0.00002	0.31	9840.5	2267.64	0.05	0.27	8.03
19	02Jan1999 0000	2682.84	33.33	41.2	41.2	41.2	0.000018	0.28	9472	2228.61	0.04	0.21	7.87
19	02Feb1999 0000	1016.6	33.33	40.06	40.06	40.06	0.000006	0.14	7086.7	1969.74	0.02	0.03	6.73
19	02Mar1999 0000	1675.45	33.33	40.64	40.64	40.64	0.00001	0.2	8254.9	2095.23	0.03	0.08	7.31
19	02Apr1999 0000	3886.6	33.33	41.78	41.78	41.79	0.000025	0.36	10805	2315.98	0.05	0.42	8.46
19	02May1999 0000	3860.72	33.33	41.77	41.77	41.78	0.000025	0.36	10783	2314.88	0.05	0.41	8.45
19	02Jun1999 0000	22.54	33.33	36.3	36.3	36.3	0	0.02	1201.8	785.33	0	0	2.97
19	02Jul1999 0000	19776.95	33.33	44.58	44.58	44.63	0.000178	0.94	21111	4658.3	0.14	7.41	11.26
19	02Aug1999 0000	14700.76	33.33	43.95	43.95	43.98	0.000147	0.81	18246	4368.78	0.13	4.84	10.62
19	02Sep1999 0000	17567.32	33.32	44.32	44.32	44.36	0.000166	0.88	19885	4536.83	0.13	6.29	10.99
19	02Oct1999 0000	13622.8	33.32	43.8	43.8	43.83	0.000139	0.77	17627	4311.7	0.12	4.31	10.48
19	02Nov1999 0000	6945.28	33.32	42.66	42.66	42.67	0.000072	0.53	13131	3458.47	0.09	1.41	9.34

19	02Dec1999 0000	3256.33	33.32	41.47	41.47	0.000022	0.32	10090	2280.69	0.05	0.31	8.15
19	02Jan2000 0000	1967.94	33.32	40.82	40.82	0.000012	0.23	8649.2	2138.8	0.04	0.11	7.49
19	02Feb2000 0000	1590.46	33.32	40.56	40.56	0.00001	0.2	8112.7	2079.08	0.03	0.07	7.24
19	02Mar2000 0000	1612.66	33.32	40.58	40.58	0.00001	0.2	8147.4	2082.99	0.03	0.07	7.26
19	02Apr2000 0000	4103.09	33.32	41.85	41.86	0.000027	0.37	10983	2335.93	0.05	0.46	8.53
19	02May2000 0000	4089.95	33.32	41.85	41.86	0.000027	0.37	10973	2333.91	0.05	0.46	8.53
19	02Jun2000 0000	16834.98	33.32	44.23	44.26	-0.00016	-0.86	19490	4481.34	0.13	5.89	10.9
19	02Jul2000 0000	20453.02	33.32	44.66	44.7	0.000182	0.95	21475	4691.82	0.14	7.76	11.34
19	02Aug2000 0000	19376.61	33.32	44.53	44.58	0.000176	0.93	20893	4635.55	0.14	7.2	11.21
19	02Sep2000 0000	22196.91	33.32	44.84	44.89	0.000192	0.99	22346	4774.09	0.15	8.74	11.52
19	02Oct2000 0000	10971.93	33.32	43.42	43.44	0.000116	0.68	16026	4099.73	0.11	3.04	10.1
19	02Nov2000 0000	3236.85	33.32	41.45	41.46	0.000022	0.32	10061	2279.24	0.05	0.3	8.13
19	02Dec2000 0000	2441.69	33.32	41.07	41.08	0.000016	0.27	9212.2	2200.43	0.04	0.17	7.75
19	02Jan2001 0000	1556.19	33.32	40.53	40.53	0.000009	0.19	8050.2	2071.94	0.03	0.07	7.21
19	02Feb2001 0000	1507.84	33.32	40.49	40.49	0.000009	0.19	7961	2061.81	0.03	0.06	7.17
19	02Mar2001 0000	1642.2	33.32	40.6	40.6	0.00001	0.2	8204.4	2089.33	0.03	0.08	7.28
19	02Apr2001 0000	1970.43	33.32	40.81	40.81	0.000012	0.23	8647.9	2138.56	0.04	0.11	7.49
19	02May2001 0000	2612.77	33.32	41.15	41.16	0.000017	0.28	9390.3	2219.61	0.04	0.2	7.84
19	02Jun2001 0000	8871.91	33.32	43.05	43.07	0.000094	0.61	14583	3817.91	0.1	2.15	9.74
19	02Jul2001 0000	17685.36	33.32	44.33	44.37	0.000166	0.89	19960	4543.08	0.13	6.34	11.01
19	02Aug2001 0000	15560.1	33.32	44.06	44.1	0.000152	0.83	18767	4414.62	0.13	5.25	10.74
19	02Sep2001 0000	21982.04	33.32	44.82	44.87	0.000191	0.99	22241	4763.86	0.15	8.62	11.5
18	17Oct1997 0000	9760.04	33.1	42.88	42.88	0.000018	0.21	46143	17227.94	0.04	0.1	9.78
18	02Nov1997 0000	3343.9	33.1	41.41	41.41	0.000007	0.13	25731	10016.6	0.03	0.02	8.31
18	02Dec1997 0000	2083.29	33.1	40.83	40.83	0.000005	0.1	20512	8129.84	0.02	0.01	7.73
18	02Jan1998 0000	1575.76	33.1	40.51	40.51	0.000004	0.09	18003	7459.48	0.02	0.01	7.41
18	02Feb1998 0000	1488.59	33.1	40.43	40.43	0.000003	0.09	17456	7253.39	0.02	0.01	7.33
18	02Mar1998 0000	1351.66	33.1	40.32	40.32	0.000003	0.08	16633	6738.53	0.02	0.01	7.22
18	02Apr1998 0000	3569.02	33.1	41.5	41.5	0.000008	0.13	26681	10464.98	0.03	0.03	8.4
18	02May1998 0000	3966.98	33.1	41.69	41.7	0.000009	0.14	28835	11573.78	0.03	0.03	8.59
18	02Jun1998 0000	16239.17	33.1	43.59	43.6	0.000026	0.27	59210	19447.51	0.05	0.21	10.49
18	02Jul1998 0000	20551.43	33.1	43.97	43.97	0.000029	0.31	66595	20183.59	0.05	0.29	10.86
18	02Aug1998 0000	25025.09	33.1	44.31	44.31	0.000032	0.34	73494	20314.92	0.06	0.38	11.21
18	02Sep1998 0000	24535.63	33.1	44.27	44.28	0.000032	0.34	72753	20309.9	0.06	0.37	11.17
18	02Oct1998 0000	10639.45	33.1	43	43	0.00002	0.22	48138	17798.24	0.04	0.12	9.9
18	02Nov1998 0000	5943.19	33.1	42.24	42.24	0.000013	0.17	35922	14599.59	0.03	0.05	9.13

18	02Dec1998 0000	3025.89	33.1	41.26	41.26	41.26	0.000007	0.12	24270	9533.1	0.02	0.02	8.16
18	02Jan1999 0000	2682.84	33.1	41.11	41.11	41.11	0.000006	0.12	22862	9043.28	0.02	0.02	8
18	02Feb1999 0000	1016.6	33.1	40.03	40.03	40.03	0.000002	0.07	14816	5535.79	0.01	0	6.92
18	02Mar1999 0000	1675.45	33.1	40.58	40.58	40.58	0.000004	0.09	18507	7604.08	0.02	0.01	7.48
18	02Apr1999 0000	3886.6	33.1	41.66	41.66	41.66	0.000008	0.14	28424	11354.6	0.03	0.03	8.56
18	02May1999 0000	3860.72	33.1	41.65	41.66	41.66	0.000008	0.14	28324	11290.92	0.03	0.03	8.55
18	02Jun1999 0000	22.54	33.1	36.3	36.3	36.3	0	0.01	2996	1626.58	0	0	3.19
18	02Jul1999 0000	19776.95	33.1	43.9	43.9	43.9	0.000029	0.3	65198	20140.63	0.05	0.28	10.8
18	02Aug1999 0000	14700.76	33.11	43.44	43.44	43.44	0.000024	0.26	56178	18873.54	0.05	0.19	10.33
18	02Sep1999 0000	17567.32	33.11	43.71	43.71	43.71	0.000027	0.29	61393	19587.07	0.05	0.24	10.6
18	02Oct1999 0000	13622.8	33.11	43.33	43.33	43.33	0.000023	0.25	54070	18592.89	0.05	0.17	10.22
18	02Nov1999 0000	6945.28	33.11	42.43	42.43	42.43	0.000014	0.18	38743	15024.76	0.04	0.06	9.32
18	02Dec1999 0000	3256.33	33.11	41.36	41.36	41.36	0.000007	0.13	25191	9837.02	0.03	0.02	8.25
18	02Jan2000 0000	1967.94	33.11	40.75	40.75	40.75	0.000004	0.1	19821	7929.84	0.02	0.01	7.64
18	02Feb2000 0000	1590.46	33.11	40.51	40.51	40.51	0.000004	0.09	17952	7444.87	0.02	0.01	7.4
18	02Mar2000 0000	1612.66	33.11	40.52	40.53	40.53	0.000004	0.09	18072	7479.49	0.02	0.01	7.42
18	02Apr2000 0000	4103.09	33.11	41.73	41.73	41.73	0.000009	0.14	29144	11699.35	0.03	0.03	8.62
18	02May2000 0000	4089.95	33.11	41.72	41.73	41.73	0.000009	0.14	29099	11681.16	0.03	0.03	8.62
18	02Jun2000 0000	16834.98	33.11	43.64	43.65	43.65	0.000027	0.28	60071	19501.63	0.05	0.23	10.54
18	02Jul2000 0000	20453.02	33.11	43.95	43.96	43.96	0.00003	0.31	66232	20175.68	0.05	0.3	10.85
18	02Aug2000 0000	19376.61	33.11	43.87	43.87	43.87	0.000029	0.3	64421	20039.64	0.05	0.28	10.76
18	02Sep2000 0000	22196.91	33.11	44.09	44.1	44.1	0.000031	0.32	69028	20249.94	0.06	0.33	10.98
18	02Oct2000 0000	10971.93	33.11	43.04	43.04	43.04	0.00002	0.23	48650	17891.07	0.04	0.12	9.92
18	02Nov2000 0000	3236.85	33.11	41.34	41.34	41.34	0.000007	0.13	25001	9776.79	0.03	0.02	8.23
18	02Dec2000 0000	2441.69	33.11	40.99	40.99	40.99	0.000006	0.11	21755	8596.9	0.02	0.02	7.88
18	02Jan2001 0000	1556.19	33.11	40.48	40.48	40.48	0.000004	0.09	17673	7359.09	0.02	0.01	7.36
18	02Feb2001 0000	1507.84	33.11	40.43	40.43	40.43	0.000004	0.09	17369	7196.51	0.02	0.01	7.32
18	02Mar2001 0000	1642.2	33.11	40.55	40.55	40.55	0.000004	0.09	18210	7519.3	0.02	0.01	7.44
18	02Apr2001 0000	1970.43	33.11	40.75	40.75	40.75	0.000004	0.1	19748	7912.77	0.02	0.01	7.64
18	02May2001 0000	2612.77	33.11	41.07	41.07	41.07	0.000006	0.12	22405	8881.94	0.02	0.02	7.95
18	02Jun2001 0000	8871.91	33.11	42.75	42.75	42.75	0.000017	0.2	43669	16442.55	0.04	0.09	9.64
18	02Jul2001 0000	17685.36	33.11	43.72	43.72	43.72	0.000028	0.29	61407	19590.25	0.05	0.24	10.6
18	02Aug2001 0000	15560.1	33.11	43.52	43.53	43.53	0.000026	0.27	57618	19250.29	0.05	0.2	10.41
18	02Sep2001 0000	21982.04	33.11	44.08	44.08	44.08	0.000031	0.32	68566	20239.12	0.06	0.33	10.96
17	17Oct1997 0000	9760.04	34.84	42.11	42.13	42.13	0.000336	0.62	15645	10215.25	0.16	3.14	7.27
17	02Nov1997 0000	3343.9	34.84	40.8	40.81	40.81	0.000338	0.57	5867.7	4408.75	0.16	2.51	5.96

17	02Dec1997 0000	2083.29	34.84	40.29	40.31	0.000325	0.52	3985.6	3309.91	0.15	2	5.45
17	02Jan1998 0000	1575.76	34.84	40.01	40.02	0.000349	0.51	3102.1	2835.5	0.16	1.9	5.17
17	02Feb1998 0000	1488.59	34.84	39.95	39.96	0.000356	0.51	2938.8	2740.32	0.16	1.89	5.11
17	02Mar1998 0000	1351.66	34.84	39.83	39.85	0.000372	0.51	2640.7	2507.58	0.16	1.97	5
17	02Apr1998 0000	3569.02	34.84	40.87	40.89	0.000347	0.58	6192.3	4668.46	0.16	2.6	6.03
17	02May1998 0000	3966.98	34.84	41.04	41.06	0.000357	0.56	7122.5	5777.94	0.16	2.4	6.21
17	02Jun1998 0000	16239.17	34.84	42.74	42.77	0.000346	0.71	22863	12575.77	0.17	4.38	7.91
17	02Jul1998 0000	20551.43	34.84	43.08	43.11	0.000342	0.75	27329	13692.5	0.17	5.04	8.25
17	02Aug1998 0000	25025.09	34.84	43.4	43.43	0.000328	0.79	31876	14496.92	0.17	5.55	8.57
17	02Sep1998 0000	24535.63	34.84	43.37	43.4	0.000331	0.78	31403	14476.31	0.17	5.5	8.53
17	02Oct1998 0000	10639.45	34.83	42.22	42.24	0.000341	0.63	16777	10829.87	0.16	3.29	7.38
17	02Nov1998 0000	5943.19	34.83	41.54	41.55	0.00034	0.57	10438	7891.99	0.16	2.51	6.7
17	02Dec1998 0000	3025.89	34.83	40.66	40.68	0.000334	0.57	5310.9	3961.12	0.16	2.5	5.83
17	02Jan1999 0000	2682.84	34.83	40.53	40.55	0.00032	0.55	4835.4	3627.42	0.15	2.32	5.7
17	02Feb1999 0000	1016.6	34.83	39.61	39.62	0.000413	0.48	2102.5	2351.17	0.16	1.75	4.77
17	02Mar1999 0000	1675.45	34.83	40.07	40.09	0.000338	0.51	3317.5	2992.41	0.15	1.86	5.24
17	02Apr1999 0000	3886.6	34.83	41.02	41.03	0.000359	0.56	6997.7	5716.14	0.16	2.39	6.18
17	02May1999 0000	3860.72	34.83	41.01	41.03	0.000358	0.55	6965.2	5700.6	0.16	2.38	6.18
17	02Jun1999 0000	22.54	34.77	36.15	36.16	0.0003	0.35	65.09	94.48	0.13	0.7	1.38
17	02Jul1999 0000	19776.95	34.77	43.02	43.05	0.000342	0.74	26566	13495.89	0.17	4.91	8.25
17	02Aug1999 0000	14700.76	34.77	42.6	42.63	0.000345	0.69	21173	12020.76	0.17	4.13	7.83
17	02Sep1999 0000	17567.32	34.77	42.85	42.88	0.000347	0.72	24256	12974.43	0.17	4.6	8.07
17	02Oct1999 0000	13622.8	34.77	42.5	42.52	0.000345	0.68	19956	11617.67	0.17	3.96	7.72
17	02Nov1999 0000	6945.28	34.77	41.71	41.72	0.000346	0.58	11883	8752.92	0.16	2.69	6.93
17	02Dec1999 0000	3256.33	34.77	40.75	40.77	0.000337	0.57	5700.1	4256.84	0.16	2.52	5.98
17	02Jan2000 0000	1967.94	34.77	40.21	40.22	0.000338	0.52	3758.6	3205.3	0.15	2.03	5.44
17	02Feb2000 0000	1590.46	34.77	40	40.01	0.00035	0.51	3118.5	2841.49	0.16	1.92	5.23
17	02Mar2000 0000	1612.66	34.77	40.01	40.03	0.000349	0.51	3157.2	2863.53	0.16	1.92	5.24
17	02Apr2000 0000	4103.09	34.77	41.06	41.08	0.000359	0.56	7290.8	5843.64	0.16	2.47	6.29
17	02May2000 0000	4089.95	34.77	41.06	41.08	0.000359	0.56	7273.2	5835.79	0.16	2.47	6.29
17	02Jun2000 0000	16834.98	34.77	42.79	42.81	0.000346	0.72	23495	12762.45	0.17	4.48	8.02
17	02Jul2000 0000	20453.02	34.77	43.07	43.1	0.000341	0.75	27251	13654.8	0.17	5.01	8.3
17	02Aug2000 0000	19376.61	34.77	42.99	43.02	0.000342	0.74	26154	13399.88	0.17	4.85	8.22
17	02Sep2000 0000	22196.91	34.77	43.2	43.23	0.000343	0.76	29057	14221.88	0.17	5.24	8.43
17	02Oct2000 0000	10971.93	34.77	42.24	42.26	0.000345	0.64	17080	10906.63	0.16	3.41	7.47
17	02Nov2000 0000	3236.85	34.77	40.73	40.75	0.000339	0.57	5632.8	4190.09	0.16	2.57	5.96
17	02Dec2000 0000	2441.69	34.77	40.43	40.44	0.00032	0.54	4497.4	3491.21	0.15	2.19	5.66

17	02Jan2001 0000	1556.19	34.77	39.97	39.98	0.000357	0.51	3041.4	2797.14	0.16	1.94	5.2
17	02Feb2001 0000	1507.84	34.77	39.94	39.95	0.000362	0.51	2946.7	2741.54	0.16	1.95	5.17
17	02Mar2001 0000	1642.2	34.77	40.04	40.05	0.000343	0.51	3234.2	2923.63	0.15	1.89	5.27
17	02Apr2001 0000	1970.43	34.77	40.2	40.21	0.000346	0.53	3728.9	3191.95	0.16	2.09	5.43
17	02May2001 0000	2612.77	34.77	40.49	40.5	0.000326	0.56	4700.6	3567.01	0.15	2.34	5.72
17	02Jun2001 0000	8871.91	34.77	41.98	42	0.000341	0.62	14417	9726.78	0.16	3.05	7.21
17	02Jul2001 0000	17685.36	34.77	42.85	42.87	0.000349	0.73	24299	12978.25	0.17	4.67	8.08
17	02Aug2001 0000	15560.1	34.77	42.67	42.7	0.000347	0.7	22078	12311.04	0.17	4.3	7.9
17	02Sep2001 0000	21982.04	34.77	43.18	43.21	0.000346	0.76	28751	14164.29	0.17	5.27	8.41
16	17Oct1997 0000	9760.04	30.73	39.39	39.41	0.000148	0.55	17613	7423.01	0.11	1.9	8.66
16	02Nov1997 0000	3343.9	30.73	36.88	36.9	0.000238	0.63	5289.1	2613.33	0.14	2.98	6.15
16	02Dec1997 0000	2083.29	30.73	36.14	36.16	0.00022	0.57	3635.6	1968.31	0.13	2.29	5.41
16	02Jan1998 0000	1575.76	30.73	35.74	35.75	0.000231	0.55	2886.4	1739.32	0.14	2.05	5.01
16	02Feb1998 0000	1488.59	30.73	35.63	35.65	0.000245	0.55	2704.7	1681.98	0.14	2.12	4.9
16	02Mar1998 0000	1351.66	30.73	35.5	35.51	0.000253	0.54	2481	1608.52	0.14	2.09	4.76
16	02Apr1998 0000	3569.02	30.73	36.97	37	0.000241	0.64	5545	2694.75	0.14	3.13	6.24
16	02May1998 0000	3966.98	30.73	37.16	37.18	0.000239	0.66	6050.2	2847.43	0.14	3.27	6.43
16	02Jun1998 0000	16239.17	30.73	40.61	40.62	0.000135	0.57	28263	10524.16	0.11	2.04	9.87
16	02Jul1998 0000	20551.43	30.73	41.17	41.19	0.00013	0.59	34732	12029.73	0.11	2.17	10.44
16	02Aug1998 0000	25025.09	30.73	41.63	41.65	0.000122	0.62	40271	12368.77	0.11	2.42	10.89
16	02Sep1998 0000	24535.63	30.73	41.58	41.6	0.000121	0.62	39726	12294.24	0.11	2.38	10.85
16	02Oct1998 0000	10639.45	30.73	39.6	39.62	0.000138	0.55	19185	7695.78	0.11	1.88	8.87
16	02Nov1998 0000	5943.19	30.74	38.04	38.06	0.000256	0.65	9140.2	4577.72	0.15	3.26	7.3
16	02Dec1998 0000	3025.89	30.74	36.7	36.72	0.000243	0.63	4827.9	2461.8	0.14	2.93	5.96
16	02Jan1999 0000	2682.84	30.74	36.5	36.52	0.000224	0.61	4371.2	2158.86	0.14	2.73	5.77
16	02Feb1999 0000	1016.6	30.73	35.14	35.15	0.000285	0.52	1936.5	1450.07	0.15	1.96	4.41
16	02Mar1999 0000	1675.45	30.73	35.82	35.83	0.000231	0.55	3020.3	1780.54	0.14	2.14	5.08
16	02Apr1999 0000	3886.6	30.73	37.12	37.14	0.000241	0.65	5938.2	2813.1	0.14	3.26	6.39
16	02May1999 0000	3860.72	30.73	37.11	37.13	0.000241	0.65	5900.4	2801.81	0.14	3.26	6.37
16	02Jun1999 0000	22.54	30.73	32.07	32.07	0.000217	0.29	78.23	117.26	0.11	0.41	1.33
16	02Jul1999 0000	19776.95	30.73	41.07	41.09	0.000135	0.59	33505	11988.04	0.11	2.18	10.34
16	02Aug1999 0000	14700.76	30.73	40.37	40.39	0.000131	0.57	25896	9646.19	0.11	1.96	9.64
16	02Sep1999 0000	17567.32	30.73	40.79	40.8	0.000134	0.58	30179	10994.7	0.11	2.1	10.05
16	02Oct1999 0000	13622.8	30.73	40.2	40.22	0.00013	0.56	24284	9159.2	0.11	1.9	9.47
16	02Nov1999 0000	6945.28	30.73	38.45	38.47	0.000237	0.61	11299	5808.37	0.14	2.77	7.72
16	02Dec1999 0000	3256.33	30.73	36.82	36.84	0.000242	0.63	5137.4	2563.25	0.14	3.01	6.09

16	02Jan2000 0000	1967.94	30.73	36.05	36.07	0.000223	0.57	3467.7	1918.66	0.13	2.24	5.32
16	02Feb2000 0000	1590.46	30.73	35.75	35.77	0.00023	0.55	2908.9	1746.06	0.14	2.06	5.02
16	02Mar2000 0000	1612.66	30.73	35.77	35.78	0.00023	0.55	2943	1756.3	0.14	2.07	5.04
16	02Apr2000 0000	4103.09	30.73	37.21	37.23	0.00024	0.66	6202.1	2887.8	0.14	3.35	6.48
16	02May2000 0000	4089.95	30.73	37.2	37.22	0.00024	0.66	6185.1	2882.88	0.14	3.34	6.47
16	02Jun2000 0000	16834.98	30.73	40.68	40.7	0.000136	0.58	29067	10780.72	0.11	2.08	9.95
16	02Jul2000 0000	20453.02	30.73	41.15	41.17	0.000132	0.59	34444	12020.11	0.11	2.2	10.42
16	02Aug2000 0000	19376.61	30.73	41.01	41.03	0.000138	0.59	32800	11964.29	0.11	2.2	10.28
16	02Sep2000 0000	22196.91	30.73	41.35	41.37	0.000126	0.6	36799	12100.42	0.11	2.26	10.62
16	02Oct2000 0000	10971.93	30.73	39.66	39.68	0.000139	0.56	19645	7839.22	0.11	1.91	8.93
16	02Nov2000 0000	3236.85	30.73	36.81	36.83	0.000244	0.64	5092.4	2547.25	0.14	3.04	6.07
16	02Dec2000 0000	2441.69	30.73	36.37	36.38	0.000223	0.6	4083.9	2093.84	0.14	2.55	5.63
16	02Jan2001 0000	1556.19	30.74	35.72	35.73	0.000233	0.55	2846.6	1726.55	0.14	2.06	4.98
16	02Feb2001 0000	1507.84	30.74	35.65	35.66	0.000246	0.55	2725	1688.21	0.14	2.15	4.91
16	02Mar2001 0000	1642.2	30.74	35.8	35.81	0.000229	0.55	2984.2	1769.29	0.14	2.09	5.06
16	02Apr2001 0000	1970.43	30.74	36.05	36.07	0.000225	0.57	3454.6	1915.01	0.14	2.27	5.32
16	02May2001 0000	2612.77	30.74	36.46	36.48	0.000226	0.61	4278.1	2141.88	0.14	2.7	5.72
16	02Jun2001 0000	8871.91	30.74	39.04	39.06	0.000186	0.59	15044	6878.11	0.13	2.36	8.3
16	02Jul2001 0000	17685.36	30.74	40.79	40.81	0.000136	0.59	30179	11000.15	0.11	2.14	10.05
16	02Aug2001 0000	15560.1	30.74	40.49	40.51	0.000133	0.58	26990	9917.87	0.11	2.05	9.75
16	02Sep2001 0000	21982.04	30.74	41.32	41.34	0.000128	0.6	36390	12088.51	0.11	2.28	10.58
15	17Oct1997 0000	9760.04	27.92	39.05	39.06	0.000066	0.44	22286	7286.62	0.08	0.86	11.13
15	02Nov1997 0000	3343.9	27.92	36.24	36.24	0.000057	0.37	8923.9	3324.2	0.07	0.56	8.32
15	02Dec1997 0000	2083.29	27.92	35.37	35.38	0.000068	0.34	6169	3068.29	0.08	0.46	7.45
15	02Jan1998 0000	1575.76	27.92	34.84	34.84	0.000076	0.34	4632.4	2455.72	0.08	0.48	6.92
15	02Feb1998 0000	1488.59	27.92	34.73	34.73	0.000079	0.34	4369.1	2393.63	0.08	0.48	6.81
15	02Mar1998 0000	1351.66	27.92	34.57	34.57	0.000084	0.34	3990.9	2301.48	0.08	0.48	6.65
15	02Apr1998 0000	3569.02	27.92	36.34	36.34	0.000059	0.39	9252.3	3362.37	0.07	0.61	8.42
15	02May1998 0000	3966.98	27.92	36.54	36.55	0.000059	0.4	9960	3449.63	0.07	0.66	8.62
15	02Jun1998 0000	16239.17	27.92	40.19	40.2	0.000086	0.49	32944	11003.86	0.09	1.24	12.27
15	02Jul1998 0000	20551.43	27.92	40.7	40.72	0.000101	0.52	39203	13542.13	0.1	1.51	12.78
15	02Aug1998 0000	25025.09	27.92	41.13	41.15	0.000103	0.55	45406	14758	0.1	1.72	13.21
15	02Sep1998 0000	24535.63	27.92	41.09	41.11	0.000104	0.55	44803	14758	0.1	1.69	13.17
15	02Oct1998 0000	10639.45	27.92	39.25	39.26	0.000073	0.45	23858	8225.23	0.08	0.93	11.33
15	02Nov1998 0000	5943.19	27.92	37.58	37.59	0.000061	0.43	13892	4445.78	0.08	0.8	9.66
15	02Dec1998 0000	3025.89	27.92	36.02	36.03	0.00006	0.37	8209	3251.86	0.07	0.55	8.1

15	02Jan1999 0000	2682.84	27.92	35.8	35.8	0.000063	0.36	7484.8	3187.94	0.07	0.52	7.87
15	02Feb1999 0000	1016.6	27.92	34.11	34.12	0.000102	0.34	3006.5	2018.93	0.09	0.51	6.19
15	02Mar1999 0000	1675.45	27.92	34.91	34.92	0.000077	0.35	4814.1	2497.71	0.08	0.51	6.99
15	02Apr1999 0000	3886.6	27.92	36.49	36.49	0.00006	0.4	9761	3425.45	0.08	0.66	8.56
15	02May1999 0000	3860.72	27.92	36.47	36.48	0.00006	0.4	9706.2	3418.75	0.08	0.66	8.55
15	02Jun1999 0000	22.54	27.92	29.54	29.55	0.000273	0.37	61.36	75.88	0.13	0.79	1.62
15	02Jul1999 0000	19776.95	27.92	40.6	40.62	0.000098	0.52	37856	-12772.25	-0.1	1.48	12.68
15	02Aug1999 0000	14700.76	27.92	39.96	39.97	0.000085	0.48	30502	10500.47	0.09	1.17	12.04
15	02Sep1999 0000	17567.32	27.92	40.35	40.36	0.00009	0.51	34773	11638.63	0.09	1.34	12.43
15	02Oct1999 0000	13622.8	27.92	39.8	39.81	0.000083	0.47	28833	10013.09	0.09	1.11	11.88
15	02Nov1999 0000	6945.28	27.92	38.03	38.04	0.000062	0.43	16059	5097.72	0.08	0.82	10.11
15	02Dec1999 0000	3256.33	27.92	36.14	36.15	0.000061	0.38	8594.1	3288.88	0.07	0.59	8.22
15	02Jan2000 0000	1967.94	27.92	35.23	35.23	0.000077	0.34	5717.8	3026.3	0.08	0.49	7.31
15	02Feb2000 0000	1590.46	27.92	34.8	34.81	0.000081	0.35	4548.3	2436.13	0.08	0.52	6.88
15	02Mar2000 0000	1612.66	27.92	34.82	34.83	0.000081	0.35	4596.9	2447.52	0.08	0.52	6.9
15	02Apr2000 0000	4103.09	27.92	36.58	36.59	0.000061	0.41	10076	3463.94	0.08	0.71	8.66
15	02May2000 0000	4089.95	27.92	36.57	36.58	0.000061	0.41	10045	3460.31	0.08	0.71	8.65
15	02Jun2000 0000	16834.98	27.92	40.25	40.27	0.000088	0.5	33674	11272.3	0.09	1.29	12.33
15	02Jul2000 0000	20453.02	27.92	40.68	40.69	0.000102	0.53	38799	13352.96	0.1	1.53	12.75
15	02Aug2000 0000	19376.61	27.92	40.55	40.56	0.000097	0.52	37167	12524.27	0.1	1.47	12.63
15	02Sep2000 0000	22196.91	27.92	40.87	40.88	0.000106	0.54	41452	14341.13	0.1	1.61	12.94
15	02Oct2000 0000	10971.93	27.92	39.3	39.31	0.000076	0.45	24229	8381.85	0.09	0.97	11.38
15	02Nov2000 0000	3236.85	27.92	36.11	36.12	0.000062	0.38	8486.4	3277.91	0.08	0.6	8.18
15	02Dec2000 0000	2441.69	27.92	35.56	35.57	0.000072	0.36	6737	3120.68	0.08	0.55	7.64
15	02Jan2001 0000	1556.19	27.92	34.75	34.76	0.000084	0.35	4418	2405.38	0.08	0.53	6.83
15	02Feb2001 0000	1507.84	27.92	34.7	34.7	0.000086	0.35	4284.3	2373.39	0.08	0.53	6.77
15	02Mar2001 0000	1642.2	27.92	34.83	34.84	0.000083	0.36	4616.6	2452.17	0.08	0.54	6.91
15	02Apr2001 0000	1970.43	27.92	35.19	35.19	0.000083	0.35	5589.5	3002.92	0.08	0.53	7.26
15	02May2001 0000	2612.77	27.92	35.68	35.69	0.00007	0.37	7105.2	3154.1	0.08	0.57	7.75
15	02Jun2001 0000	8871.91	27.92	38.65	38.66	0.00007	0.45	19504	6328.12	0.08	0.96	10.72
15	02Jul2001 0000	17685.36	27.93	40.35	40.36	0.000092	0.51	34718	11624.71	0.09	1.37	12.42
15	02Aug2001 0000	15560.1	27.93	40.07	40.08	0.000087	0.49	31609	10689.51	0.09	1.24	12.14
15	02Sep2001 0000	21982.04	27.93	40.83	40.85	0.000106	0.54	40970	14158.16	0.1	1.62	12.91
14	17Oct1997 0000	9760.04	24.43	37.58	37.6	0.000164	0.62	15632	5938.12	0.12	2.63	13.15
14	02Nov1997 0000	3343.9	24.43	34.54	34.56	0.000076	0.54	6223.3	1665.55	0.09	1.49	10.11
14	02Dec1997 0000	2083.29	24.42	33.49	33.5	0.000055	0.44	4691.8	1302.12	0.07	0.85	9.07

14	02Jan1998 0000	1575.76	24.42	32.97	32.97	32.97	0.000049	0.39	4022.3	1234.64	0.07	0.61	8.54
14	02Feb1998 0000	1488.59	24.42	32.8	32.8	32.81	0.000051	0.39	3816.9	1214.32	0.07	0.6	8.38
14	02Mar1998 0000	1351.66	24.42	32.62	32.62	32.63	0.000049	0.38	3599.3	1192.42	0.07	0.55	8.2
14	02Apr1998 0000	3569.02	24.42	34.68	34.68	34.7	0.000079	0.55	6469.8	1718.73	0.09	1.61	10.26
14	02May1998 0000	3966.98	24.42	34.92	34.92	34.94	0.000085	0.58	6897.8	1803.13	0.09	1.82	10.5
14	02Jun1998 0000	16239.17	24.42	38.8	38.8	38.82	0.000186	0.68	23991	8892.22	0.13	3.32	14.37
14	02Jul1998 0000	20551.43	24.42	39.28	39.28	39.31	0.000192	0.72	28629	9963.92	0.14	3.88	14.86
14	02Aug1998 0000	25025.09	24.42	39.77	39.77	39.8	0.000194	0.74	33800	11316.26	0.14	4.21	15.35
14	02Sep1998 0000	24535.63	24.42	39.72	39.72	39.75	0.000193	0.74	33286	11163.83	0.14	4.15	15.3
14	02Oct1998 0000	10639.45	24.42	37.74	37.74	37.76	0.000163	0.64	16615	6053.15	0.12	2.8	13.32
14	02Nov1998 0000	5943.19	24.42	36.07	36.07	36.09	0.000125	0.63	9365.7	2838.43	0.11	2.56	11.65
14	02Dec1998 0000	3025.89	24.42	34.28	34.28	34.29	0.000072	0.52	5815.1	1568.96	0.09	1.36	9.86
14	02Jan1999 0000	2682.84	24.42	34	34	34.01	0.000067	0.5	5389.4	1465.94	0.08	1.19	9.58
14	02Feb1999 0000	1016.6	24.42	32.1	32.1	32.11	0.000044	0.34	3019.4	1078.68	0.06	0.4	7.69
14	02Mar1999 0000	1675.45	24.42	33.05	33.05	33.06	0.000051	0.41	4126.2	1244.97	0.07	0.67	8.63
14	02Apr1999 0000	3886.6	24.42	34.87	34.87	34.88	0.000084	0.57	6799.3	1785.01	0.09	1.79	10.45
14	02May1999 0000	3860.72	24.42	34.85	34.85	34.87	0.000084	0.57	6772.5	1779.53	0.09	1.77	10.43
14	02Jun1999 0000	22.54	24.42	27.16	27.16	27.16	0.000037	0.14	165.8	201.21	0.05	0.04	2.75
14	02Jul1999 0000	19776.95	24.42	39.19	39.19	39.21	0.000194	0.71	27714	9805.67	0.14	3.84	14.77
14	02Aug1999 0000	14700.76	24.42	38.53	38.53	38.56	0.000171	0.67	21830	7656.29	0.13	3.21	14.11
14	02Sep1999 0000	17567.32	24.42	38.95	38.95	38.97	0.000193	0.69	25426	9388.75	0.13	3.53	14.53
14	02Oct1999 0000	13622.8	24.42	38.36	38.36	38.39	0.000161	0.66	20594	7081.66	0.12	3.03	13.95
14	02Nov1999 0000	6945.28	24.42	36.5	36.5	36.52	0.000145	0.65	10742	3527.5	0.12	2.78	12.08
14	02Dec1999 0000	3256.33	24.41	34.45	34.45	34.47	0.000075	0.53	6102.4	1637.13	0.09	1.46	10.04
14	02Jan2000 0000	1967.94	24.41	33.36	33.36	33.37	0.000054	0.44	4521.9	1283.22	0.07	0.81	8.94
14	02Feb2000 0000	1590.46	24.42	32.96	32.96	32.97	0.00005	0.4	4015	1234.24	0.07	0.63	8.54
14	02Mar2000 0000	1612.66	24.42	32.99	32.99	32.99	0.00005	0.4	4046	1237.48	0.07	0.64	8.56
14	02Apr2000 0000	4103.09	24.43	34.99	34.99	35.01	0.000087	0.58	7027.2	1830.68	0.1	1.9	10.57
14	02May2000 0000	4089.95	24.43	34.99	34.99	35	0.000087	0.58	7012.7	1827.71	0.1	1.89	10.56
14	02Jun2000 0000	16834.98	24.42	38.87	38.87	38.89	0.000192	0.68	24672	9246.87	0.13	3.42	14.44
14	02Jul2000 0000	20453.02	24.42	39.26	39.26	39.28	0.000194	0.72	28422	9925.47	0.14	3.92	14.83
14	02Aug2000 0000	19376.61	24.42	39.14	39.14	39.17	0.000194	0.71	27282	9726.04	0.14	3.79	14.72
14	02Sep2000 0000	22196.91	24.42	39.45	39.45	39.48	0.000194	0.73	30413	10381.57	0.14	4.05	15.03
14	02Oct2000 0000	10971.93	24.42	37.81	37.81	37.83	0.000159	0.64	17103	6100.47	0.12	2.79	13.39
14	02Nov2000 0000	3236.85	24.42	34.44	34.44	34.46	0.000075	0.53	6082	1635.03	0.09	1.45	10.02
14	02Dec2000 0000	2441.69	24.42	33.79	33.79	33.8	0.000063	0.48	5091	1393.7	0.08	1.07	9.37
14	02Jan2001 0000	1556.19	24.42	32.92	32.92	32.92	0.000049	0.39	3964	1229.49	0.07	0.61	8.5

14	02Feb2001 0000	1507.84	24.42	32.86	32.87	0.000049	0.39	3894.2	1222.78	0.07	0.59	8.44
14	02Mar2001 0000	1642.2	24.43	33.03	33.04	0.00005	0.4	4094.7	1242.66	0.07	0.65	8.6
14	02Apr2001 0000	1970.43	24.43	33.37	33.38	0.000054	0.44	4524.5	1284.92	0.07	0.81	8.94
14	02May2001 0000	2612.77	24.43	33.94	33.95	0.000066	0.49	5298.5	1449.79	0.08	1.16	9.51
14	02Jun2001 0000	8871.91	24.43	37.24	37.26	0.000153	0.64	13856	4822.1	0.12	2.76	12.81
14	02Jul2001 0000	17685.36	24.43	38.95	38.98	0.000194	0.69	25493	9399.37	0.13	3.57	14.52
14	02Aug2001 0000	15560.1	24.43	38.67	38.69	0.000183	0.68	22963	8395.65	0.13	3.32	14.24
14	02Sep2001 0000	21982.04	24.43	39.42	39.45	0.000195	0.73	30096	10304.27	0.14	4.07	14.99
13	17Oct1997 0000	9760.04	23.84	35.13	35.16	0.000183	0.76	12908	4004.09	0.13	4.37	11.29
13	02Nov1997 0000	3343.9	23.84	32.73	32.74	0.000087	0.53	6358.8	1950.84	0.09	1.46	8.89
13	02Dec1997 0000	2083.29	23.85	31.87	31.88	0.000074	0.44	4770.7	1711.72	0.08	0.88	8.02
13	02Jan1998 0000	1575.76	23.86	31.44	31.45	0.000066	0.39	4052.7	1591.63	0.08	0.64	7.59
13	02Feb1998 0000	1488.59	23.85	31.29	31.3	0.000057	0.39	3837.5	1356.31	0.07	0.62	7.44
13	02Mar1998 0000	1351.66	23.87	31.18	31.18	0.000054	0.37	3666.4	1331.87	0.07	0.53	7.31
13	02Apr1998 0000	3569.02	23.87	32.91	32.92	0.000087	0.53	6675	1999.35	0.09	1.53	9.04
13	02May1998 0000	3966.98	23.86	33.1	33.12	0.000093	0.56	7066.5	2061.83	0.1	1.75	9.24
13	02Jun1998 0000	16239.17	23.86	36.37	36.41	0.000273	0.83	19586	7146.39	0.16	6.08	12.51
13	02Jul1998 0000	20551.43	23.86	36.95	36.98	0.000282	0.85	24235	8761.92	0.16	6.48	13.09
13	02Aug1998 0000	25025.09	23.86	37.49	37.52	0.000283	0.85	29414	10623.39	0.16	6.54	13.63
13	02Sep1998 0000	24535.63	23.85	37.43	37.47	0.00028	0.85	28842	10333.3	0.16	6.52	13.58
13	02Oct1998 0000	10639.45	23.85	35.37	35.4	0.000189	0.76	13921	4353.16	0.14	4.52	11.52
13	02Nov1998 0000	5943.19	23.85	33.91	33.94	0.000129	0.66	8938.5	2586.85	0.11	2.9	10.06
13	02Dec1998 0000	3025.89	23.85	32.63	32.64	0.000078	0.49	6156.2	1925.02	0.09	1.2	8.78
13	02Jan1999 0000	2682.84	23.85	32.34	32.35	0.000079	0.48	5614.1	1845.12	0.09	1.12	8.49
13	02Feb1999 0000	1016.6	23.86	30.86	30.86	0.000042	0.31	3264.6	1271.63	0.06	0.33	7
13	02Mar1999 0000	1675.45	23.87	31.68	31.69	0.000059	0.38	4433.4	1660.1	0.07	0.58	7.81
13	02Apr1999 0000	3886.6	23.87	33.09	33.1	0.00009	0.55	7043.4	2062.59	0.1	1.67	9.22
13	02May1999 0000	3860.72	23.87	33.08	33.1	0.00009	0.55	7027.4	2059.94	0.09	1.64	9.21
13	02Jun1999 0000	22.54	23.87	26.64	26.64	0.000035	0.14	164.15	191.17	0.05	0.04	2.77
13	02Jul1999 0000	19776.95	23.87	36.86	36.89	0.000283	0.84	23519	8644.51	0.16	6.35	12.99
13	02Aug1999 0000	14700.76	23.86	36.12	36.16	0.000246	0.82	18005	6222.06	0.15	5.7	12.26
13	02Sep1999 0000	17567.32	23.86	36.57	36.61	0.000281	0.83	21190	7906.15	0.16	6.12	12.71
13	02Oct1999 0000	13622.8	23.86	35.95	35.98	0.000236	0.8	16991	5843.03	0.15	5.39	12.09
13	02Nov1999 0000	6945.28	23.86	34.29	34.31	0.000142	0.7	9979	2896	0.12	3.33	10.43
13	02Dec1999 0000	3256.33	23.85	32.79	32.8	0.000079	0.5	6477.1	1974.17	0.09	1.28	8.94
13	02Jan2000 0000	1967.94	23.86	31.92	31.93	0.000063	0.41	4857.1	1730.65	0.08	0.7	8.06

13	02Feb2000 0000	1590.46	23.87	31.63	31.64	0.000036	0.37	4356.5	1648.57	0.07	0.53	7.76
13	02Mar2000 0000	1612.66	23.87	31.67	31.67	0.000055	0.37	4408.8	1657.47	0.07	0.53	7.8
13	02Apr2000 0000	4103.09	23.87	33.22	33.24	0.000091	0.56	7321.6	2111.94	0.1	1.74	9.35
13	02May2000 0000	4089.95	23.87	33.22	33.23	0.000091	0.56	7312.9	2110.27	0.1	1.73	9.34
13	02Jun2000 0000	16834.98	23.87	36.47	36.51	0.000271	0.82	20442	7492.16	0.16	5.96	12.6
13	02Jul2000 0000	20453.02	23.87	36.95	36.98	0.000274	0.84	24401	8776.77	0.16	6.25	13.08
13	02Aug2000 0000	19376.61	23.86	36.82	36.85	0.000279	0.83	23297	8596.7	0.16	6.16	12.95
13	02Sep2000 0000	22196.91	23.86	37.16	37.19	0.000265	0.84	26341	9165.09	0.16	6.28	13.3
13	02Oct2000 0000	10971.93	23.86	35.49	35.52	0.000207	0.75	14585	5002.53	0.14	4.45	11.64
13	02Nov2000 0000	3236.85	23.86	32.81	32.83	0.000077	0.5	6524.2	1983.59	0.09	1.23	8.96
13	02Dec2000 0000	2441.69	23.86	32.27	32.28	0.00007	0.45	5484.9	1831.1	0.08	0.91	8.41
13	02Jan2001 0000	1556.19	23.86	31.63	31.64	0.000053	0.36	4361.3	1650.02	0.07	0.49	7.77
13	02Feb2001 0000	1507.84	23.87	31.58	31.59	0.000053	0.35	4280.6	1636.52	0.07	0.47	7.72
13	02Mar2001 0000	1642.2	23.87	31.74	31.75	0.000053	0.36	4537	1680.22	0.07	0.51	7.87
13	02Apr2001 0000	1970.43	23.87	31.99	32	0.00006	0.4	4961.9	1750.21	0.08	0.66	8.12
13	02May2001 0000	2612.77	23.87	32.41	32.42	0.000072	0.46	5716.6	1868.01	0.08	0.98	8.54
13	02Jun2001 0000	8871.91	23.88	34.98	35	0.000166	0.72	12339	3837.4	0.13	3.76	11.1
13	02Jul2001 0000	17685.36	23.88	36.6	36.64	0.000277	0.82	21526	8045.98	0.16	5.96	12.73
13	02Aug2001 0000	15560.1	23.87	36.29	36.32	0.000257	0.81	19176	6902.4	0.16	5.67	12.41
13	02Sep2001 0000	21982.04	23.87	37.14	37.18	0.000261	0.84	26203	9085.58	0.16	6.19	13.27
12	17Oct1997 0000	9760.04	23.73	33.76	33.78	0.000132	0.56	17350	6568.61	0.11	1.92	10.03
12	02Nov1997 0000	3343.9	23.73	30.96	30.97	0.000088	0.47	7149.6	2632.52	0.09	1.09	7.23
12	02Dec1997 0000	2083.29	23.73	29.85	29.86	0.000117	0.46	4510.3	2095.89	0.1	1.14	6.12
12	02Jan1998 0000	1575.76	23.73	29.26	29.28	0.000135	0.47	3382	1729.14	0.11	1.21	5.53
12	02Feb1998 0000	1488.59	23.73	29.15	29.17	0.000139	0.47	3194.5	1673.17	0.11	1.22	5.42
12	02Mar1998 0000	1351.66	23.73	28.95	28.96	0.000136	0.47	2872.2	1456.87	0.11	1.24	5.21
12	02Apr1998 0000	3569.02	23.73	31.16	31.17	0.000082	0.46	7680.5	2707.04	0.09	1.06	7.42
12	02May1998 0000	3966.98	23.74	31.41	31.42	0.000079	0.47	8372.6	2780.65	0.09	1.1	7.68
12	02Jun1998 0000	16239.17	23.74	35.04	35.06	0.000125	0.59	27642	9447.72	0.11	2.11	11.31
12	02Jul1998 0000	20551.43	23.74	35.64	35.66	0.000116	0.61	33470	10088.51	0.11	2.32	11.9
12	02Aug1998 0000	25025.09	23.74	36.24	36.26	0.000106	0.63	39733	10766.81	0.1	2.41	12.51
12	02Sep1998 0000	24535.63	23.74	36.18	36.2	0.000107	0.63	39059	10691.63	0.1	2.4	12.44
12	02Oct1998 0000	10639.45	23.74	33.99	34.01	0.00013	0.56	18849	7044.3	0.11	1.93	10.25
12	02Nov1998 0000	5943.19	23.74	32.33	32.34	0.000082	0.54	11010	3118.85	0.09	1.54	8.59
12	02Dec1998 0000	3025.89	23.74	30.72	30.73	0.000093	0.47	6507.2	2529.58	0.09	1.09	6.98
12	02Jan1999 0000	2682.84	23.75	30.44	30.45	0.000101	0.46	5812.4	2417.64	0.1	1.09	6.7

12	02Feb1999 0000	1016.6	23.75	28.35	28.36	0.000135	0.48	2123	1042.04	0.11	1.29	4.6
12	02Mar1999 0000	1675.45	23.75	29.39	29.4	0.000134	0.47	3566.5	1792.41	0.11	1.23	5.64
12	02Apr1999 0000	3886.6	23.75	31.35	31.36	0.000082	0.48	8141.8	2758.63	0.09	1.13	7.59
12	02May1999 0000	3860.72	23.76	31.33	31.34	0.000082	0.48	8085.7	2753.09	0.09	1.13	7.57
12	02Jun1999 0000	22.54	23.76	24.84	24.85	0.000318	0.23	96.41	263.78	0.12	0.27	1.08
12	02Jul1999 0000	19776.95	23.76	35.54	35.55	0.000118	0.61	32331	9958.5	0.11	2.31	11.78
12	02Aug1999 0000	14700.76	23.76	34.83	34.85	0.000125	0.57	25627	9038.85	0.11	1.99	11.07
12	02Sep1999 0000	17567.32	23.76	35.21	35.23	0.000125	0.6	29179	9591.14	0.11	2.25	11.45
12	02Oct1999 0000	13622.8	23.76	34.63	34.65	0.000128	0.57	23837	8638.01	0.11	1.99	10.87
12	02Nov1999 0000	6945.28	23.76	32.74	32.76	0.000089	0.56	12340	3469.63	0.1	1.74	8.98
12	02Dec1999 0000	3256.33	23.76	30.9	30.91	0.000091	0.47	6916.8	2599.94	0.09	1.12	7.13
12	02Jan2000 0000	1967.94	23.77	29.71	29.72	0.000129	0.48	4133.7	1980.81	0.11	1.26	5.94
12	02Feb2000 0000	1590.46	23.77	29.29	29.3	0.00014	0.47	3356.5	1722.03	0.11	1.27	5.52
12	02Mar2000 0000	1612.66	23.77	29.32	29.33	0.00014	0.47	3402.3	1738.31	0.11	1.27	5.54
12	02Apr2000 0000	4103.09	23.78	31.49	31.5	0.000081	0.48	8498	2799.57	0.09	1.16	7.72
12	02May2000 0000	4089.95	23.78	31.48	31.5	0.000081	0.48	8467.3	2796.9	0.09	1.16	7.7
12	02Jun2000 0000	16834.98	23.78	35.12	35.14	0.000127	0.6	28196	9509.93	0.11	2.21	11.33
12	02Jul2000 0000	20453.02	23.78	35.63	35.65	0.000118	0.62	33196	10070.16	0.11	2.34	11.84
12	02Aug2000 0000	19376.61	23.78	35.48	35.5	0.00012	0.61	31719	9891.94	0.11	2.31	11.7
12	02Sep2000 0000	22196.91	23.78	35.86	35.88	0.000113	0.62	35597	10294.07	0.11	2.39	12.08
12	02Oct2000 0000	10971.93	23.78	34.07	34.08	0.000131	0.57	19285	7144.18	0.11	1.97	10.28
12	02Nov2000 0000	3236.85	23.78	30.89	30.9	0.000093	0.47	6847.3	2592.29	0.09	1.14	7.11
12	02Dec2000 0000	2441.69	23.79	30.25	30.26	0.000112	0.46	5254	2346.79	0.1	1.14	6.46
12	02Jan2001 0000	1556.19	23.79	29.25	29.26	0.000145	0.48	3254.9	1692.27	0.11	1.31	5.46
12	02Feb2001 0000	1507.84	23.79	29.19	29.2	0.000148	0.48	3153.7	1664.02	0.11	1.32	5.4
12	02Mar2001 0000	1642.2	23.8	29.36	29.37	0.000142	0.48	3435.3	1751.96	0.11	1.3	5.56
12	02Apr2001 0000	1970.43	23.8	29.73	29.74	0.000131	0.48	4120.9	1983.86	0.11	1.28	5.93
12	02May2001 0000	2612.77	23.8	30.4	30.42	0.000107	0.47	5601.9	2396.37	0.1	1.14	6.6
12	02Jun2001 0000	8871.91	23.81	33.49	33.51	0.000126	0.57	15498	5531.57	0.11	1.98	9.69
12	02Jul2001 0000	17685.36	23.81	35.23	35.25	0.000127	0.61	29201	9601.25	0.11	2.29	11.42
12	02Aug2001 0000	15560.1	23.81	34.95	34.97	0.000129	0.58	26606	9333.46	0.11	2.1	11.15
12	02Sep2001 0000	21982.04	23.81	35.83	35.85	0.000114	0.62	35239	10266.19	0.11	2.4	12.03
11	17Oct1997 0000	9760.04	22.03	31.77	31.8	0.000149	0.74	13108	3566.7	0.12	3.99	9.74
11	02Nov1997 0000	3343.9	22.03	29.2	29.22	0.000123	0.59	5666.1	1899.38	0.11	2.13	7.17
11	02Dec1997 0000	2083.29	22.03	28.33	28.34	0.000103	0.5	4164.6	1558.4	0.1	1.35	6.3
11	02Jan1998 0000	1575.76	22.03	27.8	27.82	0.000097	0.46	3394.1	1365.9	0.09	1.1	5.77

11	02Feb1998 0000	1488.59	22.03	27.69	27.7	0.000098	0.46	3238.9	1324.38	0.09	1.07	5.66
11	02Mar1998 0000	1351.66	22.03	27.52	27.53	0.000096	0.45	3023.5	1276.87	0.09	1	5.49
11	02Apr1998 0000	3569.02	22.03	29.34	29.36	0.000141	0.6	5944.7	2151.42	0.12	2.3	7.31
11	02May1998 0000	3966.98	22.03	29.56	29.58	0.000147	0.62	6434	2299.21	0.12	2.48	7.53
11	02Jun1998 0000	16239.17	22.03	33.31	33.35	0.000173	0.81	19959	5331.42	0.13	5.17	11.28
11	02Jul1998 0000	20551.43	22.03	34.11	34.15	0.000182	0.83	24613	6569.62	0.14	5.59	12.08
11	02Aug1998 0000	25025.09	22.03	34.84	34.88	0.000211	0.83	30300	9172.73	0.15	5.64	12.81
11	02Sep1998 0000	24535.63	22.03	34.77	34.81	0.000208	0.83	29664	8873.35	0.14	5.65	12.74
11	02Oct1998 0000	10639.45	22.03	32.03	32.06	0.000144	0.76	14069	3650.73	0.12	4.11	10.01
11	02Nov1998 0000	5943.19	22.02	30.47	30.49	0.000162	0.67	8827.4	2977.81	0.12	3.17	8.45
11	02Dec1998 0000	3025.89	22.02	29.02	29.04	0.000118	0.57	5344.5	1839.78	0.11	1.9	7
11	02Jan1999 0000	2682.84	22.02	28.81	28.82	0.00011	0.54	4965.9	1744.48	0.1	1.66	6.79
11	02Feb1999 0000	1016.6	22.02	26.94	26.95	0.000107	0.44	2335.2	1111.28	0.1	0.96	4.92
11	02Mar1999 0000	1675.45	22.02	27.93	27.94	0.000097	0.47	3579.8	1417.74	0.09	1.12	5.91
11	02Apr1999 0000	3886.6	22.02	29.52	29.54	0.000144	0.61	6364.7	2277.89	0.12	2.41	7.5
11	02May1999 0000	3860.72	22.02	29.51	29.53	0.000144	0.61	6335	2269.11	0.12	2.4	7.49
11	02Jun1999 0000	22.54	22.02	22.78	22.78	0.000466	0.31	73.26	176.76	0.15	0.58	0.76
11	02Jul1999 0000	19776.95	22.02	33.97	34.01	0.000177	0.83	23758	6225.95	0.14	5.51	11.96
11	02Aug1999 0000	14700.76	22.02	33.01	33.04	0.000183	0.8	18392	5267.01	0.14	5.02	10.99
11	02Sep1999 0000	17567.32	22.02	33.57	33.6	0.000168	0.82	21371	5490.48	0.13	5.27	11.55
11	02Oct1999 0000	13622.8	22.02	32.77	32.8	0.000175	0.79	17208	4817.07	0.13	4.84	10.76
11	02Nov1999 0000	6945.28	22.02	30.84	30.87	0.000165	0.7	9991.5	3253.64	0.13	3.45	8.83
11	02Dec1999 0000	3256.33	22.02	29.16	29.18	0.000119	0.58	5620.1	1890.57	0.11	2.02	7.15
11	02Jan2000 0000	1967.94	22.02	28.23	28.24	0.0001	0.49	4032.8	1534.11	0.1	1.26	6.21
11	02Feb2000 0000	1590.46	22.02	27.83	27.84	0.000095	0.46	3449.7	1381.79	0.09	1.08	5.81
11	02Mar2000 0000	1612.66	22.02	27.86	27.87	0.000096	0.46	3487.1	1392.3	0.09	1.09	5.84
11	02Apr2000 0000	4103.09	22.02	29.64	29.66	0.000145	0.62	6656.4	2361.97	0.12	2.47	7.63
11	02May2000 0000	4089.95	22.02	29.64	29.66	0.000145	0.62	6642.4	2358.15	0.12	2.47	7.62
11	02Jun2000 0000	16834.98	22.02	33.43	33.46	0.000168	0.82	20637	5359.98	0.13	5.17	11.41
11	02Jul2000 0000	20453.02	22.02	34.1	34.14	0.000181	0.83	24589	6554.63	0.14	5.52	12.08
11	02Aug2000 0000	19376.61	22.02	33.91	33.94	0.000177	0.83	23362	6147.83	0.14	5.45	11.89
11	02Sep2000 0000	22196.91	22.01	34.4	34.44	0.000195	0.83	26702	7552.08	0.14	5.63	12.39
11	02Oct2000 0000	10971.93	22.01	32.12	32.15	0.000143	0.76	14445	3710.45	0.12	4.16	10.11
11	02Nov2000 0000	3236.85	22.01	29.16	29.18	0.000118	0.58	5620.6	1891.06	0.11	1.98	7.15
11	02Dec2000 0000	2441.69	22.01	28.65	28.66	0.000103	0.52	4707.5	1677.9	0.1	1.48	6.64
11	02Jan2001 0000	1556.19	22.02	27.79	27.8	0.000095	0.46	3391.5	1365.55	0.09	1.06	5.77
11	02Feb2001 0000	1507.84	22.02	27.73	27.74	0.000095	0.46	3313.3	1343.14	0.09	1.04	5.71

11	02Mar2001 0000	1642.2	22.02	27.9	27.91	0.000096	0.46	3543.4	1408.35	0.09	1.09	5.88
11	02Apr2001 0000	1970.43	22.02	28.24	28.25	0.000099	0.49	4048.8	1538.08	0.1	1.25	6.22
11	02May2001 0000	2612.77	22.02	28.78	28.79	0.000107	0.53	4915.5	1734.13	0.1	1.58	6.76
11	02Jun2001 0000	8871.91	22.02	31.5	31.53	0.000151	0.73	12203	3478.92	0.12	3.77	9.48
11	02Jul2001 0000	17685.36	22.02	33.59	33.63	0.000167	0.82	21530	5524.72	0.13	5.25	11.57
11	02Aug2001 0000	15560.1	22.02	33.19	33.22	0.000174	0.8	19388	5307.12	0.13	5.01	11.17
--11	02Sep2001 0000	21982.04	22.02	34.37	34.4	0.000194	0.83	26459	7449.18	0.14	5.61	12.35
10	17Oct1997 0000	9760.04	18.41	31.12	31.15	0.000135	0.68	14309	4139.11	0.12	3.13	12.71
10	02Nov1997 0000	3343.9	18.41	28.53	28.54	0.000097	0.51	6495.1	2236.97	0.1	1.43	10.12
10	02Dec1997 0000	2083.29	18.41	27.53	27.54	0.000072	0.45	4657.7	1572.27	0.08	0.93	9.12
10	02Jan1998 0000	1575.76	18.41	26.89	26.9	0.000065	0.42	3744.2	1281.89	0.08	0.78	8.48
10	02Feb1998 0000	1488.59	18.41	26.78	26.79	0.000063	0.41	3600.8	1248.23	0.08	0.74	8.37
10	02Mar1998 0000	1351.66	18.41	26.58	26.59	0.000061	0.4	3365.8	1190.98	0.08	0.68	8.17
10	02Apr1998 0000	3569.02	18.41	28.67	28.68	0.000102	0.52	6812.3	2360.11	0.1	1.51	10.26
10	02May1998 0000	3966.98	18.41	28.92	28.93	0.000103	0.53	7429.2	2527.17	0.1	1.59	10.51
10	02Jun1998 0000	16239.17	18.41	32.68	32.71	0.000129	0.74	21949	5407.91	0.12	3.79	14.27
10	02Jul1998 0000	20551.43	18.41	33.5	33.53	0.000121	0.78	26445	5770.56	0.12	4.22	15.08
10	02Aug1998 0000	25025.09	18.41	34.22	34.26	0.000134	0.81	31012	6902.11	0.12	4.75	15.81
10	02Sep1998 0000	24535.63	18.41	34.15	34.18	0.000133	0.8	30509	6801.75	0.12	4.7	15.74
10	02Oct1998 0000	10639.45	18.42	31.39	31.41	0.000134	0.69	15406	4331.75	0.12	3.22	12.97
10	02Nov1998 0000	5943.19	18.42	29.86	29.88	0.000108	0.59	10051	3047.14	0.1	2.07	11.44
10	02Dec1998 0000	3025.89	18.42	28.32	28.33	0.000088	0.5	6032.3	2007.36	0.09	1.3	9.9
10	02Jan1999 0000	2682.84	18.42	28.06	28.07	0.000081	0.48	5539	1816.48	0.09	1.17	9.64
10	02Feb1999 0000	1016.6	18.42	26.06	26.07	0.000053	0.37	2781	1016.79	0.07	0.52	7.65
10	02Mar1999 0000	1675.45	18.42	27.02	27.03	0.000066	0.43	3909.6	1318.35	0.08	0.82	8.61
10	02Apr1999 0000	3886.6	18.42	28.87	28.88	0.000103	0.53	7286.3	2482.6	0.1	1.58	10.45
10	02May1999 0000	3860.72	18.42	28.85	28.86	0.000103	0.53	7245.1	2472.37	0.1	1.58	10.43
10	02Jun1999 0000	22.54	18.42	22.64	22.64	0	0.03	725.43	291.65	0.01	0	4.22
10	02Jul1999 0000	19776.95	18.42	33.36	33.39	0.000122	0.77	25624	5700.98	0.12	4.16	14.94
10	02Aug1999 0000	14700.76	18.42	32.36	32.38	0.000136	0.73	20159	5303.06	0.12	3.71	13.94
10	02Sep1999 0000	17567.32	18.42	32.94	32.97	0.000124	0.75	23326	5449.87	0.12	3.92	14.53
10	02Oct1999 0000	13622.8	18.42	32.12	32.14	0.000141	0.72	18894	5177.57	0.12	3.63	13.7
10	02Nov1999 0000	6945.28	18.42	30.22	30.24	0.00011	0.62	11150	3165.85	0.11	2.37	11.8
10	02Dec1999 0000	3256.33	18.42	28.47	28.48	0.000096	0.51	6337	2173.65	0.1	1.42	10.05
10	02Jan2000 0000	1967.94	18.42	27.41	27.42	0.000071	0.44	4448.4	1514.26	0.08	0.9	8.98
10	02Feb2000 0000	1590.46	18.42	26.91	26.92	0.000065	0.42	3751.2	1283.64	0.08	0.8	8.49

10	02Mar2000 0000	1612.66	18.42	26.94	26.95	0.000066	0.43	3788.9	1292.16	0.08	0.8	8.52
10	02Apr2000 0000	4103.09	18.42	28.99	29.01	0.000106	0.54	7596.5	2590.02	0.1	1.64	10.57
10	02May2000 0000	4089.95	18.42	28.99	29	0.000106	0.54	7575.5	2582.49	0.1	1.64	10.56
10	02Jun2000 0000	16834.98	18.42	32.8	32.83	0.000127	0.75	22522	5425.91	0.12	3.88	14.38
10	02Jul2000 0000	20453.02	18.42	33.47	33.51	0.000122	0.78	26269	5759.35	0.12	4.25	15.05
10	02Aug2000 0000	19376.61	18.43	33.28	33.31	0.000124	0.77	25152	5658.5	0.12	4.15	14.86
10	02Sep2000 0000	22196.91	18.43	33.78	33.81	0.000122	0.79	28011	5990.31	0.12	4.44	15.35
10	02Oct2000 0000	10971.93	18.43	31.47	31.49	0.000135	0.7	15707	4384.34	0.12	3.32	13.04
10	02Nov2000 0000	3236.85	18.43	28.45	28.47	0.000097	0.51	6286.8	2153.33	0.1	1.42	10.02
10	02Dec2000 0000	2441.69	18.43	27.84	27.85	0.000079	0.48	5132.5	1699.51	0.09	1.11	9.41
10	02Jan2001 0000	1556.19	18.43	26.86	26.87	0.000066	0.42	3681.5	1267.45	0.08	0.79	8.43
10	02Feb2001 0000	1507.84	18.43	26.8	26.81	0.000065	0.42	3602.5	1248.81	0.08	0.77	8.37
10	02Mar2001 0000	1642.2	18.43	26.97	26.98	0.000067	0.43	3824.8	1300.11	0.08	0.82	8.54
10	02Apr2001 0000	1970.43	18.43	27.41	27.42	0.000072	0.44	4434.9	1512.35	0.08	0.91	8.98
10	02May2001 0000	2612.77	18.43	27.99	28	0.000081	0.48	5394.8	1765.92	0.09	1.17	9.56
10	02Jun2001 0000	8871.91	18.43	30.83	30.86	0.000119	0.68	13143	3501.17	0.11	2.95	12.4
10	02Jul2001 0000	17685.36	18.43	32.96	32.99	0.000125	0.76	23370	5451.97	0.12	3.98	14.53
10	02Aug2001 0000	15560.1	18.43	32.54	32.56	0.000135	0.74	21050	5381.36	0.12	3.82	14.1
10	02Sep2001 0000	21982.04	18.43	33.74	33.77	0.000121	0.79	27749	5880.5	0.12	4.42	15.3
9	17Oct1997 0000	9760.04	17.2	30.63	30.65	0.000033	0.55	17711	2438.5	0.07	1.29	13.43
9	02Nov1997 0000	3343.9	17.2	28.17	28.17	0.000014	0.28	11777	2371.43	0.04	0.2	10.97
9	02Dec1997 0000	2083.29	17.2	27.22	27.22	0.000011	0.22	9533.8	2344.93	0.03	0.1	10.02
9	02Jan1998 0000	1575.76	17.2	26.58	26.58	0.000011	0.2	8045	2306.37	0.03	0.07	9.38
9	02Feb1998 0000	1488.59	17.2	26.47	26.47	0.000011	0.19	7797.7	2291.11	0.03	0.07	9.27
9	02Mar1998 0000	1351.66	17.2	26.28	26.28	0.000011	0.18	7363	2264.01	0.03	0.06	9.08
9	02Apr1998 0000	3569.02	17.2	28.3	28.3	0.000015	0.3	12084	2375.03	0.04	0.22	11.1
9	02May1998 0000	3966.98	17.2	28.53	28.53	0.000016	0.31	12629	2381.41	0.04	0.27	11.33
9	02Jun1998 0000	16239.17	17.2	32.1	32.13	0.00005	0.76	21291	2450.71	0.08	3.22	14.9
9	02Jul1998 0000	20551.43	17.2	32.87	32.91	0.00006	0.89	23196	2457.18	0.09	4.91	15.67
9	02Aug1998 0000	25025.09	17.2	33.54	33.59	0.000071	1.01	24832	2462.73	0.1	7.07	16.34
9	02Sep1998 0000	24535.63	17.2	33.47	33.52	0.00007	0.99	24671	2462.18	0.1	6.81	16.27
9	02Oct1998 0000	10639.45	17.2	30.87	30.89	0.000035	0.58	18299	2440.51	0.07	1.5	13.67
9	02Nov1998 0000	5943.19	17.2	29.45	29.46	0.000022	0.4	14835	2407.08	0.05	0.52	12.25
9	02Dec1998 0000	3025.89	17.2	27.96	27.97	0.000014	0.27	11297	2365.79	0.04	0.17	10.76
9	02Jan1999 0000	2682.84	17.2	27.72	27.72	0.000013	0.25	10719	2358.96	0.04	0.14	10.52
9	02Feb1999 0000	1016.6	17.2	25.81	25.81	0.00001	0.16	6311.2	2197.07	0.03	0.04	8.61

9	02Mar1999 0000	1675.45	17.2	26.71	26.71	26.71	0.000011	0.2	8341.3	2324.55	0.03	0.08	9.51
9	02Apr1999 0000	3886.6	17.2	28.47	28.48	28.48	0.000016	0.31	12502	2379.93	0.04	0.26	11.27
9	02May1999 0000	3860.72	17.2	28.46	28.46	28.46	0.000016	0.31	12464	2379.49	0.04	0.26	11.26
9	02Jun1999 0000	22.54	17.2	22.64	22.64	22.64	0	0.01	1985.9	727.26	0	0	5.44
9	02Jul1999 0000	19776.95	17.2	32.74	32.78	32.78	0.000058	0.86	22869	2456.07	0.09	4.59	15.54
9	02Aug1999 0000	14700.76	17.2	31.78	31.81	31.81	0.000046	0.72	20513	2448.06	0.08	2.7	14.58
9	02Sep1999 0000	17567.32	17.2	32.35	32.38	32.38	0.000053	0.8	21906	-2452.8	0.09	3.71	15.15
9	02Oct1999 0000	13622.8	17.2	31.55	31.57	31.57	0.000043	0.68	19947	2446.13	0.08	2.36	14.35
9	02Nov1999 0000	6945.28	17.2	29.79	29.8	29.8	0.000025	0.44	15660	2416.59	0.06	0.7	12.59
9	02Dec1999 0000	3256.33	17.2	28.11	28.11	28.11	0.000014	0.28	11629	2369.67	0.04	0.19	10.91
9	02Jan2000 0000	1967.94	17.2	27.09	27.09	27.09	0.000011	0.21	9229.3	2341.3	0.03	0.09	9.89
9	02Feb2000 0000	1590.46	17.2	26.59	26.59	26.59	0.000011	0.2	8072.7	2308.02	0.03	0.08	9.39
9	02Mar2000 0000	1612.66	17.2	26.62	26.62	26.62	0.000011	0.2	8138	2312.03	0.03	0.08	9.42
9	02Apr2000 0000	4103.09	17.2	28.6	28.6	28.6	0.000017	0.32	12795	2383.35	0.04	0.28	11.4
9	02May2000 0000	4089.95	17.2	28.59	28.59	28.59	0.000017	0.32	12777	2383.13	0.04	0.28	11.39
9	02Jun2000 0000	16834.98	17.2	32.21	32.24	32.24	0.000051	0.78	21553	2451.6	0.08	3.44	15.01
9	02Jul2000 0000	20453.02	17.2	32.85	32.89	32.89	0.00006	0.88	23137	2456.98	0.09	4.88	15.65
9	02Aug2000 0000	19376.61	17.2	32.67	32.7	32.7	0.000057	0.85	22682	2455.44	0.09	4.43	15.47
9	02Sep2000 0000	22196.91	17.2	33.14	33.18	33.18	0.000064	0.93	23835	2459.36	0.1	5.65	15.94
9	02Oct2000 0000	10971.93	17.2	30.95	30.96	30.96	0.000036	0.59	18467	2441.09	0.07	1.59	13.74
9	02Nov2000 0000	3236.85	17.2	28.09	28.09	28.09	0.000014	0.28	11585	2369.16	0.04	0.19	10.89
9	02Dec2000 0000	2441.69	17.2	27.51	27.52	27.52	0.000012	0.24	10225	2353.13	0.04	0.12	10.31
9	02Jan2001 0000	1556.19	17.2	26.54	26.55	26.55	0.000011	0.2	7962.7	2301.24	0.03	0.07	9.34
9	02Feb2001 0000	1507.84	17.2	26.48	26.49	26.49	0.000011	0.19	7825.5	2292.77	0.03	0.07	9.28
9	02Mar2001 0000	1642.2	17.2	26.65	26.65	26.65	0.000011	0.2	8209.7	2316.44	0.03	0.08	9.45
9	02Apr2001 0000	1970.43	17.2	27.08	27.09	27.09	0.000011	0.21	9217.7	2341.17	0.03	0.09	9.88
9	02May2001 0000	2612.77	17.2	27.65	27.66	27.66	0.000013	0.25	10555	2357.02	0.04	0.14	10.45
9	02Jun2001 0000	8871.91	17.2	30.37	30.38	30.38	0.000031	0.52	17063	2432.73	0.06	1.1	13.17
9	02Jul2001 0000	17685.36	17.2	32.36	32.4	32.4	0.000053	0.81	21933	2452.9	0.09	3.77	15.16
9	02Aug2001 0000	15560.1	17.2	31.95	31.98	31.98	0.000048	0.74	20913	2449.43	0.08	3.01	14.75
9	02Sep2001 0000	21982.04	17.2	33.1	33.14	33.14	0.000064	0.93	23740	2459.04	0.1	5.56	15.9
8	17Oct1997 0000	9760.04	19.04	30.07	30.11	30.11	0.000447	0.91	10679	4879.5	0.2	8.77	11.03
8	02Nov1997 0000	3343.9	19.03	27.72	27.77	27.77	0.000536	1.01	3298.2	1477.12	0.22	11.89	8.68
8	02Dec1997 0000	2083.29	19.03	26.86	26.9	26.9	0.000301	0.89	2329.7	816.23	0.17	7.52	7.83
8	02Jan1998 0000	1575.76	19.03	26.26	26.3	26.3	0.000186	0.81	1940.5	547.76	0.14	5.24	7.23
8	02Feb1998 0000	1488.59	19.03	26.16	26.19	26.19	0.00017	0.79	1886.5	519.85	0.13	4.77	7.13

8	02Mar1998 0000	1351.66	19.03	25.98	26	0.000157	0.75	1791.7	496.97	0.13	4.18	6.94
8	02Apr1998 0000	3569.02	19.03	27.83	27.89	0.000557	1.03	3477.1	1573.56	0.22	12.38	8.8
8	02May1998 0000	3966.98	19.03	28.04	28.09	0.000582	1.04	3821.6	1757.55	0.22	12.88	9.01
8	02Jun1998 0000	16239.17	19.02	31.51	31.55	0.000258	0.88	18414	5869.78	0.16	6.99	12.49
8	02Jul1998 0000	20551.43	19.02	32.27	32.31	0.000234	0.89	23143	6794.61	0.15	6.94	13.24
8	02Aug1998 0000	25025.09	19.02	32.9	32.94	0.00023	0.9	27819	7912.43	0.15	7.14	13.87
8	02Sep1998 0000	24535.63	19.02	32.84	32.88	-0.000232	-0.9	27348	7847.56	0.15	7.1	13.81
8	02Oct1998 0000	10639.45	19.02	30.31	30.35	0.000384	0.89	11912	5022.1	0.19	7.97	11.28
8	02Nov1998 0000	5943.19	19.02	28.88	28.94	0.000677	1.01	5862.1	3128.52	0.24	12.61	9.86
8	02Dec1998 0000	3025.89	19.02	27.53	27.58	0.000492	0.99	3051.2	1323.78	0.21	11.01	8.51
8	02Jan1999 0000	2682.84	19.02	27.3	27.35	0.000457	0.97	2767.6	1176.47	0.2	10.22	8.28
8	02Feb1999 0000	1016.6	19.02	25.53	25.55	0.000126	0.64	1580.9	473.81	0.11	2.65	6.51
8	02Mar1999 0000	1675.45	19.02	26.38	26.42	0.000201	0.83	2016.5	584.31	0.14	5.66	7.37
8	02Apr1999 0000	3886.6	19.02	27.99	28.05	0.000573	1.03	3756.5	1716.13	0.22	12.72	8.97
8	02May1999 0000	3860.72	19.02	27.98	28.03	0.000572	1.03	3733	1703.68	0.22	12.7	8.96
8	02Jun1999 0000	22.54	19.01	22.63	22.63	0.000001	0.05	460.92	227.7	0.01	0	3.62
8	02Jul1999 0000	19776.95	19.01	32.14	32.18	0.000232	0.89	22319	6355.27	0.15	6.89	13.13
8	02Aug1999 0000	14700.76	19.01	31.2	31.24	0.000274	0.88	16679	5577.69	0.16	7.09	12.19
8	02Sep1999 0000	17567.32	19.01	31.76	31.8	0.000241	0.88	19949	6062.19	0.15	6.85	12.75
8	02Oct1999 0000	13622.8	19.01	30.97	31.01	0.000296	0.88	15440	5462.07	0.17	7.25	11.96
8	02Nov1999 0000	6945.28	19	29.23	29.28	0.000608	0.98	7101	3688.64	0.23	11.22	10.23
8	02Dec1999 0000	3256.33	18.99	27.66	27.71	0.000512	0.99	3274.3	1457.98	0.21	11.2	8.67
8	02Jan2000 0000	1967.94	18.99	26.75	26.78	0.000268	0.87	2270.8	765.99	0.16	6.76	7.75
8	02Feb2000 0000	1590.46	18.99	26.28	26.31	0.000186	0.81	1970.6	562.08	0.14	5.16	7.29
8	02Mar2000 0000	1612.66	18.99	26.3	26.34	0.00019	0.81	1985.7	569.43	0.14	5.27	7.31
8	02Apr2000 0000	4103.09	18.98	28.1	28.15	0.000575	1.02	4006.3	1862.21	0.22	12.41	9.12
8	02May2000 0000	4089.95	18.97	28.09	28.15	0.00057	1.02	4005.5	1859.7	0.22	12.3	9.12
8	02Jun2000 0000	16834.98	18.97	31.62	31.66	0.000246	0.88	19190	5956.48	0.16	6.82	12.64
8	02Jul2000 0000	20453.02	18.97	32.25	32.29	0.00023	0.88	23162	6765.45	0.15	6.81	13.27
8	02Aug2000 0000	19376.61	18.97	32.07	32.11	0.000228	0.88	22007	6419.67	0.15	6.75	13.1
8	02Sep2000 0000	22196.91	18.97	32.52	32.56	0.000233	0.88	25110	7395.23	0.15	6.86	13.55
8	02Oct2000 0000	10971.93	18.96	30.38	30.42	0.000356	0.88	12450	5064.5	0.18	7.56	11.41
8	02Nov2000 0000	3236.85	18.96	27.65	27.7	0.0005	0.98	3290.6	1464.87	0.21	10.84	8.68
8	02Dec2000 0000	2441.69	18.96	27.12	27.17	0.000365	0.93	2637.5	1014.65	0.18	8.61	8.17
8	02Jan2001 0000	1536.19	18.95	26.23	26.26	0.000179	0.79	1965.7	559.45	0.13	4.87	7.28
8	02Feb2001 0000	1507.84	18.95	26.18	26.21	0.00017	0.78	1934.6	544	0.13	4.63	7.22
8	02Mar2001 0000	1642.2	18.95	26.33	26.37	0.000193	0.81	2023.6	587.15	0.14	5.28	7.38

8	02Apr2001 0000	1970.43	18.95	26.74	26.78	0.000268	0.86	2297.6	785.97	0.16	6.58	7.79
8	02May2001 0000	2612.77	18.95	27.24	27.28	0.000431	0.94	2768.2	1171.26	0.2	9.42	8.29
8	02Jun2001 0000	8871.91	18.95	29.8	29.84	0.000487	0.92	9656.7	4666.38	0.2	9.08	10.86
8	02Jul2001 0000	17685.36	18.94	31.77	31.81	0.000234	0.87	20238	6077.99	0.15	6.67	12.83
8	02Aug2001 0000	15560.1	18.94	31.36	31.4	0.000252	0.87	17829	5685.85	0.16	6.77	12.42
8	02Sep2001 0000	21982.04	18.94	32.48	32.52	0.000231	0.88	24952	7341.28	0.15	6.78	13.55
7	17Oct1997 0000	9760.04	20.21	29.58	29.58	0.000021	0.33	29470	6304.88	0.05	0.32	9.37
7	02Nov1997 0000	3343.9	20.21	27.41	27.41	0.000011	0.19	17351	5170.37	0.03	0.07	7.2
7	02Dec1997 0000	2083.29	20.21	26.62	26.62	0.00001	0.16	13359	4897.45	0.03	0.04	6.4
7	02Jan1998 0000	1575.76	20.21	26.07	26.07	0.00001	0.15	10810	4391.64	0.03	0.03	5.86
7	02Feb1998 0000	1488.59	20.21	25.98	25.98	0.00001	0.14	10407	4323.24	0.03	0.03	5.76
7	02Mar1998 0000	1351.66	20.21	25.79	25.79	0.00001	0.14	9605.3	4212.18	0.03	0.03	5.58
7	02Apr1998 0000	3569.02	20.21	27.51	27.52	0.000012	0.2	17901	5204.33	0.03	0.08	7.3
7	02May1998 0000	3966.98	20.21	27.7	27.7	0.000012	0.21	18840	5254.99	0.04	0.09	7.48
7	02Jun1998 0000	16239.17	20.21	30.99	30.99	0.00004	0.4	40771	10556.2	0.06	0.6	10.77
7	02Jul1998 0000	20551.43	20.22	31.73	31.74	0.000044	0.41	49926	13310.96	0.07	0.67	11.52
7	02Aug1998 0000	25025.09	20.22	32.37	32.38	0.000043	0.43	58802	14564.92	0.07	0.72	12.15
7	02Sep1998 0000	24535.63	20.22	32.31	32.32	0.000043	0.42	57925	14412.46	0.07	0.71	12.09
7	02Oct1998 0000	10639.45	20.22	29.81	29.81	0.000024	0.34	30900	6731.09	0.05	0.37	9.59
7	02Nov1998 0000	5943.19	20.22	28.49	28.49	0.000015	0.26	23070	5550.45	0.04	0.16	8.27
7	02Dec1998 0000	3025.89	20.22	27.23	27.24	0.000011	0.18	16402	5112.59	0.03	0.06	7.01
7	02Jan1999 0000	2682.84	20.22	27.02	27.03	0.000011	0.17	15334	5039.39	0.03	0.06	6.8
7	02Feb1999 0000	1016.6	20.22	25.35	25.35	0.000009	0.13	7826	3602.09	0.03	0.03	5.13
7	02Mar1999 0000	1675.45	20.22	26.18	26.18	0.00001	0.15	11254	4480.17	0.03	0.04	5.96
7	02Apr1999 0000	3886.6	20.22	27.66	27.66	0.000012	0.21	18584	5241.92	0.04	0.09	7.43
7	02May1999 0000	3860.72	20.22	27.64	27.65	0.000012	0.21	18518	5238.54	0.04	0.09	7.42
7	02Jun1999 0000	22.54	20.23	22.63	22.63	0	0.01	1530.4	1392.63	0	0	2.4
7	02Jul1999 0000	19776.95	20.23	31.62	31.63	0.000044	0.41	48325	12992.25	0.07	0.66	11.39
7	02Aug1999 0000	14700.76	20.23	30.68	30.69	0.000035	0.39	37629	9122.18	0.06	0.55	10.45
7	02Sep1999 0000	17567.32	20.23	31.24	31.25	0.000044	0.4	43513	11984.15	0.07	0.64	11.01
7	02Oct1999 0000	13622.8	20.23	30.45	30.46	0.000031	0.38	35677	8072.23	0.06	0.51	10.22
7	02Nov1999 0000	6945.28	20.23	28.79	28.8	0.000017	0.28	24718	5683.34	0.04	0.2	8.56
7	02Dec1999 0000	3256.33	20.23	27.35	27.36	0.000011	0.19	16958	5147.51	0.03	0.07	7.12
7	02Jan2000 0000	1967.94	20.24	26.5	26.5	0.00001	0.16	12690	4827.53	0.03	0.04	6.27
7	02Feb2000 0000	1590.46	20.24	26.08	26.08	0.00001	0.15	10745	4379.06	0.03	0.04	5.84
7	02Mar2000 0000	1612.66	20.24	26.1	26.1	0.00001	0.15	10850	4400.25	0.03	0.04	5.87

7	02Apr2000 0000	4103.09	20.24	27.75	27.75	0.000013	0.22	18996	5264.6	0.04	0.1	7.51
7	02May2000 0000	4089.95	20.24	27.74	27.74	0.000013	0.22	18952	5262.61	0.04	0.1	7.5
7	02Jun2000 0000	16834.98	20.24	31.09	31.1	0.000043	0.4	41724	11192.77	0.07	0.63	10.85
7	02Jul2000 0000	20453.02	20.24	31.71	31.72	0.000045	0.41	49441	13242.81	0.07	0.68	11.47
7	02Aug2000 0000	19376.61	20.24	31.54	31.55	0.000045	0.41	47244	12863.14	0.07	0.67	11.3
7	02Sep2000 0000	22196.91	20.24	31.99	32	0.000044	0.42	53128	13828.95	0.07	0.69	11.74
7	02Oct2000 0000	10971.93	20.25	29.87	29.88	0.000025	0.35	31181	6811.38	0.05	0.39	9.63
7	02Nov2000 0000	3236.85	20.25	27.34	27.34	0.000012	0.19	16794	5138.29	0.03	0.07	7.09
7	02Dec2000 0000	2441.69	20.25	26.86	26.86	0.000011	0.17	14360	4971.23	0.03	0.05	6.61
7	02Jan2001 0000	1556.19	20.25	26.04	26.04	0.00001	0.15	10500	4335.11	0.03	0.04	5.79
7	02Feb2001 0000	1507.84	20.25	25.98	25.98	0.00001	0.15	10274	4308	0.03	0.04	5.73
7	02Mar2001 0000	1642.2	20.25	26.13	26.13	0.00001	0.15	10899	4410.68	0.03	0.04	5.88
7	02Apr2001 0000	1970.43	20.25	26.49	26.5	0.00001	0.16	12578	4795.39	0.03	0.04	6.24
7	02May2001 0000	2612.77	20.25	26.96	26.96	0.000011	0.18	14853	5006.96	0.03	0.06	6.71
7	02Jun2001 0000	8871.91	20.25	29.33	29.34	0.00002	0.32	27714	5955.85	0.05	0.29	9.08
7	02Jul2001 0000	17685.36	20.26	31.25	31.26	0.000045	0.41	43483	12008.1	0.07	0.65	11
7	02Aug2001 0000	15560.1	20.26	30.84	30.85	0.00004	0.4	38961	10083.91	0.06	0.61	10.58
7	02Sep2001 0000	21982.04	20.26	31.95	31.96	0.000045	0.42	52501	13762.82	0.07	0.7	11.69
6	17Oct1997 0000	9760.04	21.73	29.13	29.14	0.000053	0.41	23556	7072.55	0.07	0.71	7.4
6	02Nov1997 0000	3343.9	21.73	26.95	26.96	0.000056	0.31	10663	5088.42	0.07	0.36	5.22
6	02Dec1997 0000	2083.29	21.73	26.13	26.14	0.000067	0.3	6923.3	4018.76	0.07	0.34	4.4
6	02Jan1998 0000	1575.76	21.73	25.6	25.61	0.000077	0.31	5052.5	3109.98	0.08	0.38	3.87
6	02Feb1998 0000	1488.59	21.73	25.51	25.51	0.00008	0.31	4757.9	2994.29	0.08	0.39	3.78
6	02Mar1998 0000	1351.66	21.73	25.31	25.32	0.000076	0.32	4232.5	2474.82	0.08	0.41	3.58
6	02Apr1998 0000	3569.02	21.73	27.06	27.06	0.000055	0.32	11201	5160.71	0.07	0.37	5.33
6	02May1998 0000	3966.98	21.73	27.24	27.24	0.000054	0.33	12145	5284.98	0.07	0.39	5.51
6	02Jun1998 0000	16239.17	21.73	30.51	30.52	0.000057	0.47	34713	9293.53	0.08	0.98	8.78
6	02Jul1998 0000	20551.43	21.73	31.26	31.27	0.000062	0.48	42698	11663.75	0.08	1.08	9.53
6	02Aug1998 0000	25025.09	21.73	31.93	31.94	0.000059	0.49	50811	12770.98	0.08	1.12	10.2
6	02Sep1998 0000	24535.63	21.73	31.87	31.88	0.000058	0.49	50061	12658.55	0.08	1.11	10.14
6	02Oct1998 0000	10639.45	21.73	29.35	29.36	0.000053	0.42	25132	7396.22	0.07	0.75	7.62
6	02Nov1998 0000	5943.19	21.73	28.04	28.05	0.000048	0.36	16628	5838.33	0.07	0.48	6.31
6	02Dec1998 0000	3023.89	21.73	26.77	26.77	0.000059	0.31	9743.5	4901.4	0.07	0.36	5.04
6	02Jan1999 0000	2682.84	21.73	26.54	26.55	0.000061	0.31	8682.5	4518.44	0.07	0.35	4.81
6	02Feb1999 0000	1016.6	21.73	24.87	24.87	0.000082	0.31	3235.1	2056.48	0.08	0.4	3.14
6	02Mar1999 0000	1675.45	21.73	25.72	25.72	0.000073	0.31	5431.6	3264.53	0.08	0.37	3.99

6	02Apr1999 0000	3886.6	21.73	27.2	27.2	0.000054	0.33	11925	5255.65	0.07	0.39	5.47
6	02May1999 0000	3860.72	21.73	27.18	27.19	0.000054	0.33	11863	5247.56	0.07	0.39	5.46
6	02Jun1999 0000	22.54	21.73	22.49	22.49	0.000247	0.16	143.17	586.18	0.1	0.09	0.76
6	02Jul1999 0000	19776.95	21.73	31.14	31.15	0.000062	0.48	41348	11333.93	0.08	1.06	9.41
6	02Aug1999 0000	14700.76	21.73	30.21	30.22	0.000057	0.46	32028	8748.95	0.08	0.94	8.48
6	02Sep1999 0000	17567.32	21.73	30.75	30.76	0.000062	0.47	37060	10245.38	0.08	1.04	9.02
6	02Oct1999 0000	13622.8	21.73	29.98	29.99	0.000056	0.45	30119	8292.85	0.08	0.9	8.26
6	02Nov1999 0000	6945.28	21.73	28.33	28.34	0.000051	0.38	18373	6154.15	0.07	0.56	6.61
6	02Dec1999 0000	3256.33	21.73	26.89	26.9	0.000058	0.31	10355	5046.01	0.07	0.37	5.16
6	02Jan2000 0000	1967.94	21.73	26.01	26.01	0.00007	0.31	6439.1	3772.89	0.07	0.36	4.28
6	02Feb2000 0000	1590.46	21.73	25.6	25.61	0.000079	0.31	5060.8	3111.47	0.08	0.39	3.88
6	02Mar2000 0000	1612.66	21.73	25.63	25.63	0.000078	0.31	5142.3	3144.88	0.08	0.39	3.9
6	02Apr2000 0000	4103.09	21.73	27.28	27.29	0.000054	0.33	12387	5315.76	0.07	0.41	5.56
6	02May2000 0000	4089.95	21.73	27.28	27.28	0.000054	0.33	12351	5311.12	0.07	0.41	5.55
6	02Jun2000 0000	16834.98	21.73	30.6	30.61	0.00006	0.47	35594	9653.82	0.08	1.02	8.87
6	02Jul2000 0000	20453.02	21.73	31.23	31.24	0.000063	0.48	42388	11630.3	0.08	1.09	9.5
6	02Aug2000 0000	19376.61	21.73	31.06	31.07	0.000062	0.48	40461	11093.3	0.08	1.06	9.34
6	02Sep2000 0000	22196.91	21.73	31.52	31.54	0.00006	0.48	45848	12052.52	0.08	1.08	9.8
6	02Oct2000 0000	10971.93	21.73	29.4	29.41	0.000055	0.43	25560	7497.5	0.07	0.78	7.68
6	02Nov2000 0000	3236.85	21.73	26.86	26.87	0.000059	0.32	10216	5027.09	0.07	0.37	5.14
6	02Dec2000 0000	2441.69	21.73	26.36	26.36	0.000066	0.31	7859	4305.86	0.07	0.37	4.63
6	02Jan2001 0000	1556.19	21.73	25.55	25.56	0.000081	0.32	4912.3	3049.61	0.08	0.4	3.83
6	02Feb2001 0000	1507.84	21.73	25.5	25.5	0.000083	0.32	4741.4	2985.74	0.08	0.41	3.77
6	02Mar2001 0000	1642.2	21.73	25.65	25.66	0.000078	0.31	5217	3175.14	0.08	0.39	3.93
6	02Apr2001 0000	1970.43	21.73	25.99	25.99	0.000071	0.31	6380.5	3741.47	0.08	0.37	4.26
6	02May2001 0000	2612.77	21.73	26.46	26.47	0.000064	0.31	8329.8	4423.08	0.07	0.37	4.74
6	02Jun2001 0000	8871.91	21.73	28.87	28.87	0.000052	0.41	21762	6655.45	0.07	0.68	7.14
6	02Jul2001 0000	17685.36	21.73	30.75	30.77	0.000063	0.48	37141	10398.01	0.08	1.05	9.03
6	02Aug2001 0000	15560.1	21.73	30.36	30.37	0.000058	0.47	33363	9030.69	0.08	0.98	8.63
6	02Sep2001 0000	21982.04	21.73	31.48	31.49	0.000061	0.48	45328	11990.85	0.08	1.09	9.75
5	17Oct1997 0000	9760.04	18.94	27.48	27.52	0.000247	0.96	10203	2787.35	0.16	8.47	8.54
5	02Nov1997 0000	3343.9	18.94	24.95	24.98	0.000338	0.81	4116.8	1820.92	0.17	6.09	6.01
5	02Dec1997 0000	2083.29	18.94	24.12	24.15	0.000324	0.74	2796.6	1364.61	0.17	4.85	5.19
5	02Jan1998 0000	1575.76	18.94	23.65	23.67	0.000284	0.71	2216.3	1050.08	0.16	4.18	4.71
5	02Feb1998 0000	1488.59	18.93	23.53	23.56	0.000281	0.71	2099.9	991.16	0.16	4.14	4.6
5	02Mar1998 0000	1351.66	18.93	23.38	23.41	0.000267	0.69	1956	922.24	0.15	3.83	4.45

5	02Apr1998 0000	3569.02	18.93	25.07	25.11	0.000331	0.82	4358.3	1875.14	0.17	6.18	6.14
5	02May1998 0000	3966.98	18.93	25.29	25.33	0.000323	0.83	4777.3	1973.77	0.17	6.36	6.36
5	02Jun1998 0000	16239.17	18.93	29.05	29.11	0.000269	1.07	15114	3700.43	0.17	11.58	10.11
5	02Jul1998 0000	20551.43	18.93	29.82	29.88	0.000301	1.13	18241	4526.65	0.18	13.4	10.89
5	02Aug1998 0000	25025.09	18.93	30.56	30.63	0.000372	1.11	22450	6631.63	0.19	13.76	11.64
5	02Sep1998 0000	24535.63	18.92	30.5	30.56	0.00037	1.11	22025	6483.69	0.19	13.72	11.57
5	02Oct1998 0000	10639.45	18.92	27.72	27.77	0.00024	0.97	10923	2843.92	0.16	8.8	8.8
5	02Nov1998 0000	5943.19	18.92	26.21	26.25	0.000286	0.86	6904.5	2466.22	0.16	6.75	7.29
5	02Dec1998 0000	3025.89	18.92	24.75	24.78	0.000342	0.8	3797.5	1743.43	0.17	5.82	5.83
5	02Jan1999 0000	2682.84	18.92	24.53	24.56	0.000346	0.78	3424.9	1627.75	0.17	5.6	5.61
5	02Feb1999 0000	1016.6	18.92	22.96	22.98	0.000221	0.63	1619.6	767.21	0.14	2.88	4.04
5	02Mar1999 0000	1675.45	18.92	23.77	23.79	0.000292	0.71	2366	1151.4	0.16	4.17	4.85
5	02Apr1999 0000	3886.6	18.92	25.24	25.27	0.000321	0.83	4701.5	1949.5	0.17	6.28	6.32
5	02May1999 0000	3860.72	18.92	25.23	25.26	0.000322	0.83	4674	1941.78	0.17	6.27	6.31
5	02Jun1999 0000	22.54	18.92	20.03	20.03	0.000222	0.24	94.1	189.22	0.11	0.26	1.11
5	02Jul1999 0000	19776.95	18.92	29.69	29.75	0.000298	1.12	17703	4418.53	0.18	13.09	10.77
5	02Aug1999 0000	14700.76	18.91	28.71	28.77	0.000256	1.05	14004	3415.7	0.17	10.78	9.81
5	02Sep1999 0000	17567.32	18.9	29.28	29.34	0.000267	1.09	16104	3831.75	0.17	12	10.38
5	02Oct1999 0000	13622.8	18.89	28.46	28.52	0.000243	1.03	13219	3194.4	0.16	10.17	9.57
5	02Nov1999 0000	6945.28	18.89	26.58	26.62	0.000261	0.88	7928.5	2577.05	0.16	6.89	7.7
5	02Dec1999 0000	3256.33	18.89	24.88	24.91	0.000328	0.8	4080.2	1809.98	0.17	5.78	5.99
5	02Jan2000 0000	1967.94	18.88	24.01	24.04	0.000309	0.72	2716	1331	0.16	4.47	5.13
5	02Feb2000 0000	1590.46	18.88	23.65	23.67	0.00028	0.7	2270.6	1087.62	0.15	4.01	4.76
5	02Mar2000 0000	1612.66	18.88	23.67	23.7	0.000282	0.7	2302.2	1108.75	0.16	4.02	4.79
5	02Apr2000 0000	4103.09	18.88	25.35	25.38	0.000312	0.82	4998.1	2048.78	0.17	6.13	6.47
5	02May2000 0000	4089.95	18.88	25.34	25.38	0.000311	0.82	4989.3	2044.53	0.17	6.1	6.47
5	02Jun2000 0000	16834.98	18.87	29.15	29.21	0.000262	1.07	15685	3769.18	0.17	11.47	10.28
5	02Jul2000 0000	20453.02	18.86	29.79	29.85	0.000292	1.12	18336	4512.98	0.18	12.98	10.93
5	02Aug2000 0000	19376.61	18.85	29.61	29.67	0.000283	1.1	17555	4285.31	0.17	12.54	10.76
5	02Sep2000 0000	22196.91	18.84	30.12	30.18	0.000327	1.11	20021	5412.61	0.18	13.15	11.27
5	02Oct2000 0000	10971.93	18.84	27.79	27.84	0.000228	0.97	11339	2870.91	0.16	8.55	8.95
5	02Nov2000 0000	3236.85	18.83	24.85	24.88	0.000314	0.78	4128.6	1818.96	0.17	5.47	6.02
5	02Dec2000 0000	2441.69	18.83	24.34	24.37	0.000316	0.75	3258.2	1545.2	0.16	4.9	5.51
5	02Jan2001 0000	1556.19	18.83	23.59	23.61	0.000269	0.69	2264.4	1082.73	0.15	3.79	4.76
5	02Feb2001 0000	1507.84	18.83	23.51	23.53	0.000265	0.69	2184.9	1028.85	0.15	3.81	4.68
5	02Mar2001 0000	1642.2	18.82	23.7	23.72	0.000275	0.69	2392.4	1165.65	0.15	3.8	4.87
5	02Apr2001 0000	1970.43	18.82	23.99	24.02	0.000295	0.71	2770.6	1348.84	0.16	4.22	5.17

5	02May2001 0000	2612.77	18.82	24.46	24.49	0.000322	0.75	3461.5	1645.29	0.17	5.01	5.64
5	02Jun2001 0000	8871.91	18.82	27.19	27.24	0.000235	0.91	9710.3	2738.98	0.15	7.46	8.38
5	02Jul2001 0000	17685.36	18.81	29.29	29.35	0.000257	1.08	16407	3857.65	0.17	11.53	10.49
5	02Aug2001 0000	15560.1	18.8	28.89	28.94	0.00025	1.04	14917	3617.84	0.16	10.56	10.09
5	02Sep2001 0000	21982.04	18.8	30.07	30.13	0.000313	1.11	19891	5229.27	0.18	12.9	11.27
4	17Oct1997 0000	9760.04	13.08	26.42	26.43	0.000017	0.31	31942	6626.34	0.04	0.25	13.34
4	02Nov1997 0000	3343.9	13.08	23.86	23.86	0.000011	0.19	17204	4851.9	0.03	0.07	10.78
4	02Dec1997 0000	2083.29	13.08	22.86	22.86	0.00001	0.17	12604	4309.5	0.03	0.05	9.78
4	02Jan1998 0000	1575.76	13.08	22.32	22.32	0.000009	0.15	10367	3865.69	0.03	0.04	9.23
4	02Feb1998 0000	1488.59	13.08	22.21	22.21	0.000009	0.15	9966.9	3774.72	0.03	0.04	9.13
4	02Mar1998 0000	1351.66	13.08	22.01	22.01	0.000009	0.15	9226.7	3599.93	0.03	0.03	8.93
4	02Apr1998 0000	3569.02	13.08	24.01	24.01	0.000011	0.2	17902	4916.54	0.03	0.08	10.92
4	02May1998 0000	3966.98	13.08	24.25	24.25	0.000011	0.21	19115	5062.43	0.03	0.09	11.17
4	02Jun1998 0000	16239.17	13.09	27.84	27.85	0.000024	0.39	41957	7717.85	0.05	0.49	14.75
4	02Jul1998 0000	20551.43	13.09	28.6	28.6	0.000029	0.43	48167	8768.74	0.06	0.66	15.51
4	02Aug1998 0000	25025.09	13.09	29.25	29.26	0.000034	0.46	54301	10069.33	0.06	0.83	16.15
4	02Sep1998 0000	24535.63	13.1	29.18	29.19	0.000034	0.46	53624	9933.39	0.06	0.81	16.09
4	02Oct1998 0000	10639.45	13.1	26.65	26.65	0.000018	0.32	33325	6746.11	0.05	0.29	13.55
4	02Nov1998 0000	5943.19	13.1	25.19	25.19	0.000014	0.25	24136	5839.22	0.04	0.14	12.09
4	02Dec1998 0000	3025.89	13.1	23.65	23.65	0.000011	0.19	16073	4744.96	0.03	0.07	10.54
4	02Jan1999 0000	2682.84	13.1	23.38	23.38	0.00001	0.18	14831	4610.38	0.03	0.06	10.28
4	02Feb1999 0000	1016.6	13.1	21.48	21.48	0.000009	0.14	7392.5	3076.77	0.03	0.03	8.38
4	02Mar1999 0000	1675.45	13.1	22.43	22.43	0.00001	0.16	10732	3947.82	0.03	0.04	9.33
4	02Apr1999 0000	3886.6	13.1	24.2	24.2	0.000011	0.21	18780	5015.01	0.03	0.09	11.1
4	02May1999 0000	3860.72	13.1	24.19	24.19	0.000011	0.21	18699	5004.22	0.03	0.08	11.08
4	02Jun1999 0000	22.54	13.09	15.81	15.81	0.000044	0.2	115.07	92.54	0.06	0.1	2.72
4	02Jul1999 0000	19776.95	13.09	28.47	28.48	0.000028	0.42	46935	8498.54	0.06	0.63	15.38
4	02Aug1999 0000	14700.76	13.09	27.53	27.54	0.000023	0.37	39471	7415.01	0.05	0.44	14.44
4	02Sep1999 0000	17567.32	13.09	28.09	28.1	0.000026	0.4	43783	8125.79	0.06	0.55	15
4	02Oct1999 0000	13622.8	13.1	27.31	27.32	0.000021	0.36	37805	7126.69	0.05	0.4	14.21
4	02Nov1999 0000	6945.28	13.1	25.57	25.57	0.000015	0.26	26308	6061.71	0.04	0.17	12.47
4	02Dec1999 0000	3256.33	13.1	23.8	23.81	0.000011	0.19	16739	4809.65	0.03	0.07	10.7
4	02Jan2000 0000	1967.94	13.1	22.75	22.75	0.00001	0.16	11964	4201.14	0.03	0.05	9.65
4	02Feb2000 0000	1590.46	13.11	22.33	22.34	0.00001	0.15	10282	3847.17	0.03	0.04	9.23
4	02Mar2000 0000	1612.66	13.11	22.36	22.36	0.00001	0.16	10378	3869.14	0.03	0.04	9.25
4	02Apr2000 0000	4103.09	13.11	24.33	24.33	0.000012	0.21	19318	5095.76	0.03	0.09	11.22

4	02May2000 0000	4089.95	13.11	24.32	24.32	0.000012	0.21	19275	5089.71	0.03	0.09	11.21
4	02Jun2000 0000	1634.98	13.11	27.97	27.97	0.000025	0.39	42655	7937.37	0.05	0.52	14.86
4	02Jul2000 0000	20453.02	13.11	28.58	28.59	0.000029	0.43	47742	8713.87	0.06	0.67	15.47
4	02Aug2000 0000	19376.61	13.12	28.4	28.41	0.000028	0.42	46133	8351.68	0.06	0.63	15.28
4	02Sep2000 0000	22196.91	13.12	28.85	28.86	0.000032	0.44	50097	9362.39	0.06	0.74	15.73
4	02Oct2000 0000	10971.93	13.13	26.73	26.73	0.000019	0.33	33576	6768.19	0.05	0.31	13.6
4	02Nov2000 0000	3236.85	13.13	23.79	23.8	-0.000011	-0.2	16553	4793.52	0.03	0.07	10.66
4	02Dec2000 0000	2441.69	13.13	23.19	23.19	0.000011	0.18	13736	4467.16	0.03	0.06	10.05
4	02Jan2001 0000	1556.19	13.13	22.3	22.3	0.00001	0.16	10032	3790.95	0.03	0.04	9.16
4	02Feb2001 0000	1507.84	13.13	22.24	22.24	0.00001	0.15	9818.8	3741.69	0.03	0.04	9.11
4	02Mar2001 0000	1642.2	13.13	22.4	22.4	0.00001	0.16	10406	3876.71	0.03	0.04	9.26
4	02Apr2001 0000	1970.43	13.14	22.76	22.76	0.00001	0.17	11858	4183.04	0.03	0.05	9.62
4	02May2001 0000	2612.77	13.14	23.33	23.33	0.000011	0.18	14350	4550.4	0.03	0.06	10.19
4	02Jun2001 0000	8871.91	13.14	26.19	26.19	0.000017	0.3	29952	6433.35	0.04	0.23	13.05
4	02Jul2001 0000	17685.36	13.14	28.12	28.13	0.000027	0.4	43697	8134.88	0.06	0.56	14.98
4	02Aug2001 0000	15560.1	13.14	27.71	27.72	0.000024	0.38	40442	7560.29	0.05	0.49	14.57
4	02Sep2001 0000	21982.04	13.15	28.82	28.83	0.000032	0.44	49659	9298.09	0.06	0.74	15.68
3	17Oct1997 0000	9760.04	11.51	25.93	25.94	0.000027	0.41	23655	4389.1	0.06	0.6	14.42
3	02Nov1997 0000	3343.9	11.51	23.58	23.58	0.000009	0.22	15036	3105.43	0.03	0.1	12.07
3	02Dec1997 0000	2083.29	11.51	22.63	22.64	0.000006	0.17	12228	2861.68	0.03	0.05	11.12
3	02Jan1998 0000	1575.76	11.51	22.1	22.11	0.000005	0.15	10740	2740.36	0.02	0.03	10.59
3	02Feb1998 0000	1488.59	11.51	22	22.01	0.000005	0.14	10468	2694.05	0.02	0.03	10.49
3	02Mar1998 0000	1351.66	11.51	21.81	21.81	0.000005	0.14	9945.2	2602.44	0.02	0.02	10.3
3	02Apr1998 0000	3569.02	11.51	23.72	23.72	0.00001	0.23	15471	3160.62	0.03	0.11	12.21
3	02May1998 0000	3966.98	11.51	23.95	23.95	0.000011	0.24	16201	3251.26	0.04	0.13	12.44
3	02Jun1998 0000	16239.17	11.51	27.22	27.23	0.000052	0.54	30138	6071.69	0.08	1.37	15.71
3	02Jul1998 0000	20551.43	11.51	27.88	27.89	0.000078	0.59	34890	8317.94	0.09	1.89	16.37
3	02Aug1998 0000	25025.09	11.51	28.46	28.48	0.000094	0.62	40298	10197.48	0.1	2.26	16.95
3	02Sep1998 0000	24535.63	11.51	28.4	28.42	0.000093	0.62	39629	9987.54	0.1	2.24	16.89
3	02Oct1998 0000	10639.45	11.51	26.14	26.15	0.000031	0.43	24569	4592.71	0.06	0.69	14.63
3	02Nov1998 0000	5943.19	11.51	24.82	24.82	0.000016	0.31	19211	3690.63	0.04	0.25	13.31
3	02Dec1998 0000	3025.89	11.51	23.38	23.38	0.000008	0.21	14408	3028.59	0.03	0.08	11.87
3	02Jan1999 0000	2682.84	11.51	23.13	23.13	0.000008	0.2	13670	2955.16	0.03	0.07	11.62
3	02Feb1999 0000	1016.6	11.51	21.31	21.31	0.000004	0.12	8687.8	2427.6	0.02	0.02	9.8
3	02Mar1999 0000	1675.45	11.51	22.21	22.22	0.000006	0.15	11046	2785	0.02	0.03	10.71
3	02Apr1999 0000	3886.6	11.51	23.9	23.91	0.000011	0.24	16057	3233.16	0.03	0.12	12.39

3	02May1999 0000	3860.72	11.51	23.89	23.89	23.89	0.00001	0.24	16009	3227.32	0.03	0.12	12.38
3	02Jun1999 0000	22.54	11.51	15.65	15.65	15.65	0.000002	0.04	516.55	443	0.01	0	4.14
3	02Jul1999 0000	19776.95	11.51	27.76	27.76	27.78	0.000073	0.58	33947	7803.11	0.09	1.81	16.25
3	02Aug1999 0000	14700.76	11.51	26.95	26.95	26.96	0.000044	0.51	28614	5403.52	0.07	1.16	15.44
3	02Sep1999 0000	17567.32	11.51	27.43	27.43	27.45	0.000061	0.56	31565	6804.96	0.08	1.54	15.92
3	02Oct1999 0000	13622.8	11.51	26.75	26.75	26.76	0.000004	0.49	27543	5170.57	0.07	1.03	15.24
3	02Nov1999 0000	6945.28	11.51	25.16	25.16	25.17	0.000019	0.34	20505	3889.93	0.05	0.33	13.65
3	02Dec1999 0000	3256.33	11.51	23.53	23.53	23.53	0.000009	0.22	14869	3083.57	0.03	0.09	12.02
3	02Jan2000 0000	1967.94	11.51	22.53	22.53	22.53	0.000006	0.17	11925	2843.04	0.03	0.04	11.02
3	02Feb2000 0000	1590.46	11.51	22.12	22.12	22.12	0.000005	0.15	10788	2748.5	0.02	0.03	10.61
3	02Mar2000 0000	1612.66	11.51	22.15	22.15	22.15	0.000005	0.15	10855	2759.79	0.02	0.03	10.64
3	02Apr2000 0000	4103.09	11.51	24.02	24.02	24.02	0.000011	0.25	16439	3279.89	0.04	0.14	12.51
3	02May2000 0000	4089.95	11.51	24.01	24.01	24.02	0.000011	0.25	16418	3277.29	0.04	0.13	12.5
3	02Jun2000 0000	16834.98	11.51	27.32	27.32	27.34	0.000058	0.55	30805	6544.7	0.08	1.45	15.81
3	02Jul2000 0000	20453.02	11.51	27.86	27.86	27.88	0.000078	0.59	34789	8289.06	0.09	1.88	16.36
3	02Aug2000 0000	19376.61	11.51	27.7	27.7	27.72	0.00007	0.58	33488	7558	0.09	1.76	16.19
3	02Sep2000 0000	22196.91	11.51	28.09	28.09	28.11	0.000085	0.6	36758	8979.78	0.1	2.05	16.58
3	02Oct2000 0000	10971.93	11.51	26.21	26.21	26.22	0.000032	0.44	24909	4665.05	0.06	0.73	14.7
3	02Nov2000 0000	3236.85	11.51	23.51	23.51	23.52	0.000009	0.22	14830	3078.64	0.03	0.09	12.01
3	02Dec2000 0000	2441.69	11.51	22.95	22.95	22.95	0.000007	0.19	13136	2916.5	0.03	0.06	11.44
3	02Jan2001 0000	1556.19	11.51	22.08	22.08	22.08	0.000005	0.15	10689	2731.75	0.02	0.03	10.58
3	02Feb2001 0000	1507.84	11.51	22.03	22.03	22.03	0.000005	0.14	10544	2707	0.02	0.03	10.52
3	02Mar2001 0000	1642.2	11.51	22.18	22.18	22.18	0.000005	0.15	10949	2775.5	0.02	0.03	10.67
3	02Apr2001 0000	1970.43	11.51	22.53	22.53	22.53	0.000006	0.17	11937	2843.73	0.03	0.04	11.02
3	02May2001 0000	2612.77	11.51	23.08	23.08	23.08	0.000007	0.19	13524	2941.94	0.03	0.06	11.57
3	02Jun2001 0000	8871.91	11.51	25.71	25.71	25.72	0.000024	0.39	22720	4155.9	0.05	0.5	14.2
3	02Jul2001 0000	17685.36	11.51	27.45	27.45	27.47	0.000062	0.56	31711	6940.19	0.08	1.56	15.95
3	02Aug2001 0000	15560.1	11.51	27.1	27.1	27.11	0.000048	0.53	29465	5751.14	0.07	1.27	15.59
3	02Sep2001 0000	21982.04	11.51	28.06	28.06	28.08	0.000084	0.6	36518	8924.8	0.09	2.03	16.56
2	17Oct1997 0000	9760.04	14.7	25.51	25.51	25.51	0.000011	0.27	35848	6183.74	0.04	0.17	10.81
2	02Nov1997 0000	3343.9	14.7	23.36	23.36	23.36	0.000005	0.15	23006	5714.45	0.02	0.03	8.66
2	02Dec1997 0000	2083.29	14.7	22.47	22.47	22.47	0.000004	0.11	18158	5142.6	0.02	0.01	7.77
2	02Jan1998 0000	1575.76	14.7	21.96	21.96	21.96	0.000003	0.1	15687	4668.85	0.02	0.01	7.26
2	02Feb1998 0000	1488.59	14.7	21.86	21.86	21.86	0.000003	0.1	15244	4616.19	0.02	0.01	7.16
2	02Mar1998 0000	1351.66	14.7	21.66	21.66	21.66	0.000003	0.09	14350	4508.08	0.02	0.01	6.96
2	02Apr1998 0000	3569.02	14.7	23.49	23.49	23.49	0.000005	0.15	23740	5801.9	0.02	0.03	8.79

2	02May1998 0000	3966.98	14.7	23.69	23.69	0.000006	0.16	24938	5849.98	0.02	0.04	8.99
2	02Jun1998 0000	16239.17	14.7	26.6	26.6	0.000018	0.38	42898	6730.4	0.05	0.44	11.9
2	02Jul1998 0000	20551.43	14.7	27.11	27.12	0.000024	0.44	46455	7117.64	0.06	0.69	12.41
2	02Aug1998 0000	25025.09	14.7	27.56	27.57	0.000046	0.5	50127	10295.81	0.07	1.1	12.85
2	02Sep1998 0000	24535.63	14.7	27.51	27.52	0.000043	0.49	49667	9814.16	0.07	1.05	12.81
2	02Oct1998 0000	10639.45	14.7	25.69	25.69	0.000012	0.29	36951	6249.21	0.04	0.2	10.99
2	02Nov1998 0000	5943.19	14.7	24.49	24.49	0.000007	0.2	29644	5988.75	0.03	0.07	9.79
2	02Dec1998 0000	3025.89	14.7	23.17	23.17	0.000005	0.14	21929	5542.95	0.02	0.02	8.47
2	02Jan1999 0000	2682.84	14.7	22.94	22.94	0.000004	0.13	20644	5462.18	0.02	0.02	8.23
2	02Feb1999 0000	1016.6	14.7	21.19	21.19	0.000003	0.08	12233	4235.58	0.02	0.01	6.48
2	02Mar1999 0000	1675.45	14.7	22.06	22.06	0.000003	0.1	16156	4720.71	0.02	0.01	7.36
2	02Apr1999 0000	3886.6	14.7	23.65	23.65	0.000006	0.16	24672	5842.06	0.02	0.04	8.95
2	02May1999 0000	3860.72	14.7	23.64	23.64	0.000006	0.16	24593	5839.72	0.02	0.04	8.93
2	02Jun1999 0000	22.54	14.61	14.9	14.97	0.027526	1.13	20.01	146.88	0.97	41.43	0.29
2	02Jul1999 0000	19776.95	14.61	27.03	27.04	0.000023	0.43	45849	6986.33	0.05	0.64	12.42
2	02Aug1999 0000	14700.76	14.61	26.38	26.39	0.000017	0.35	41433	6674.65	0.05	0.36	11.77
2	02Sep1999 0000	17567.32	14.61	26.77	26.78	0.00002	0.4	44040	6790.51	0.05	0.51	12.16
2	02Oct1999 0000	13622.8	14.61	26.21	26.22	0.000016	0.34	40330	6634.86	0.04	0.32	11.6
2	02Nov1999 0000	6945.28	14.61	24.81	24.81	0.000008	0.22	31537	6043.2	0.03	0.09	10.19
2	02Dec1999 0000	3256.33	14.61	23.31	23.31	0.000005	0.14	22687	5673.79	0.02	0.03	8.69
2	02Jan2000 0000	1967.94	14.61	22.37	22.37	0.000003	0.11	17624	4891.37	0.02	0.01	7.75
2	02Feb2000 0000	1590.46	14.61	21.97	21.97	0.000003	0.1	15741	4672.87	0.02	0.01	7.36
2	02Mar2000 0000	1612.66	14.61	21.99	21.99	0.000003	0.1	15850	4684.86	0.02	0.01	7.38
2	02Apr2000 0000	4103.09	14.61	23.76	23.76	0.000006	0.16	25289	5859.95	0.02	0.04	9.14
2	02May2000 0000	4089.95	14.61	23.75	23.75	0.000006	0.16	25253	5858.89	0.02	0.04	9.14
2	02Jun2000 0000	16834.98	14.61	26.67	26.68	0.000019	0.39	43396	6733.83	0.05	0.47	12.06
2	02Jul2000 0000	20453.02	14.61	27.1	27.11	0.000024	0.44	46343	7089.26	0.06	0.69	12.49
2	02Aug2000 0000	19376.61	14.62	26.98	26.99	0.000022	0.43	45494	6933.28	0.05	0.62	12.37
2	02Sep2000 0000	22196.91	14.62	27.29	27.3	0.00003	0.47	47674	7907.53	0.06	0.83	12.67
2	02Oct2000 0000	10971.93	14.62	25.75	25.76	0.000012	0.29	37322	6270.44	0.04	0.21	11.14
2	02Nov2000 0000	3236.85	14.62	23.3	23.3	0.000005	0.14	22591	5654.96	0.02	0.03	8.68
2	02Dec2000 0000	2441.69	14.62	22.76	22.77	0.000004	0.12	19671	5370.67	0.02	0.02	8.15
2	02Jan2001 0000	1556.19	14.62	21.94	21.94	0.000003	0.1	15549	4650.27	0.02	0.01	7.32
2	02Feb2001 0000	1507.84	14.62	21.88	21.89	0.000003	0.1	15315	4622.4	0.02	0.01	7.27
2	02Mar2001 0000	1642.2	14.62	22.03	22.03	0.000003	0.1	15969	4698.03	0.02	0.01	7.41
2	02Apr2001 0000	1970.43	14.62	22.37	22.37	0.000003	0.11	17610	4888.45	0.02	0.01	7.75
2	02May2001 0000	2612.77	14.62	22.89	22.89	0.000004	0.13	20350	5433.56	0.02	0.02	8.27

2	02Jun2001 0000	8871.91	14.62	25.31	25.31	0.000001	0.26	34562	612541	0.03	0.14	10.69
2	02Jul2001 0000	17685.36	14.62	26.78	26.79	0.000002	0.4	44089	679467	0.05	0.52	12.16
2	02Aug2001 0000	15560.1	14.62	26.5	26.51	0.000018	0.37	42197	670448	0.05	0.41	11.88
2	02Sep2001 0000	21982.04	14.62	27.26	27.27	0.000029	0.46	47476	774695	0.06	0.81	12.64

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