



Machine Learning Based Prediction of Urban Flood Susceptibility from Selected Rivers in a Tropical Catchment Area

Benjamin Nnamdi Ekwueme^{1*} 

¹Department of Civil Engineering, Faculty of Engineering, University of Nigeria, Nsukka, Enugu State Nigeria.

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Abstract

Unexpected flood due to climate change has caused tremendous damage to both lives and properties, especially in tropical areas. Nigeria Southeastern region has been devastated by flood from extreme weather conditions. Flood mitigation involves accurate forecasting, precise prediction, evaluation, and intervention strategy. This study aims at using machine learning solutions to investigate and predict flood susceptibility from selected rivers in the south-eastern region of Nigeria. The regional hydrogeological data from 1981–2019 was collected and analysed. The remote sensing datasets from the National Aeronautics and Space Administration (NASA), Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2 & 3 platforms from five selected rivers were processed. With the data output of the hydrology, streamline flows, and exposed geology, the ARIMA model was built and used to forecast the flood. The result shows that the flooding pattern would increase by 15-150% within 2020-2024. The forecast indicated that within five years, the river discharge for Adada, Ajali, Imo, Ivo, and Otanmiri will increase within ranges 200-702 m³s⁻¹, 16-26 m³s⁻¹, 508-1280 m³s⁻¹, 43-68.5 m³s⁻¹, and 22-35.1 m³s⁻¹ respectively. Climate change has impacted severely on flood in the region. This knowledge will help the regional agencies and authorities in adapting to flood innuendoes and assessment of hydrologic extremes.

Keywords: Machine Learning; Flood Prediction; Susceptibility; Hydrologic Extremes; Autoregression; Climate Change.

1. Introduction

Surface water models are increasingly being used to determine the hydrologic response of watersheds with respect to changes in climate, changes in land-use application, and other variations in the structural features [1]. In arid and semi-arid regions, flash flood hazards have continuously caused huge problems economically, environmentally, and politically [1]. Flood is among the mostly regular, widely circulated and highly expensive natural disasters globally [2, 3]. The United Nations (UN) report indicates that floods result in the highest number of casualties when compared to any other disaster [3]. The expectation is that flood disasters will occur repeatedly and be devastating owing to climate change and global warming [4, 5]. In recent times, floods have occurred more frequently every year due to the increased variations in climate and anthropogenic activities [1]. This environmental change raises concerns because the increment in the frequency and magnitude of extreme rainfall events will result in higher flood risk [1]. As Luu et al. [6] reported, the Indian Himalaya in 2013 witnessed the terrible event of the Kedarnath flash flood, which was very disastrous and tragic, resulting in a serious stage modification of some geomorphological units in the watershed.

Floods occur when the quantity of precipitation is greater than the capacity of reservoirs and river channels [6]. In the coastal areas, floods develop because of the tropical cyclones and tsunamis' impact due to the ripples of waves [7, 8]. In a mountainous environment, flash floods occur because of the rapid melting of snow. The impact of climate change

* Corresponding author: benekwueme@gmail.com

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in an environment is considered a major cause of change in flood configurations, intensity, and magnitude [9, 10]. With strong forces, floods can distort the morphology of an environment, giving rise to rapid erosion and landslides [11, 12]. In tropical regions like Nigeria, high flood risks are caused by dense river networks and long coastal areas [13, 14]. In view of these major flood-flashing problems, spatial modeling of flood prediction is very important to help hinder and restrain the harmful risks of future flood disasters [15, 16]. Considering these changes in flooding patterns, cutting-edge modeling systems are required to precisely identify the highly susceptible flood risk areas for management. Several research works have been carried out to design reliable flood susceptibility mapping using different approach such as remote sensing method and Geographic Information System (GIS). Recently, Machine Learning (ML) methods are being implored in combination with GIS to solve most of the current environmental problems [17, 18]. This knowledge has improved flood susceptibility mapping [19]. Machine Learning solutions can be implied in any of the three main characterized flood activities that is: (a) rive plain inundations, formed by continuous rainfall over large catchment areas, (b) coastal floods, formed by coastal storms or cyclones and usually energized by tidal cycles, (c) flash floods, which normally develop within six hours of heavy precipitation [7, 3, 20].

Managing flood is important in reducing the severity of its effect on infrastructure and communities. Flood management has key steps, which include preparedness, prevention, recovery phase, and response [21]. The management measures are handled with both non-structural and structural approaches. The non-structural approach involves flood plain zoning, flood profiling, an early warning system, and evacuation plans. The structural approach is the formation of synthetic structures like water diversions, dams, channel improvements, and embankments [22]. Importantly, early warning systems depend on the availability of appropriate, timely, and accurate data [3, 23].

In the considerations of improved control measures and the phenomenal weather attributes, several methods of investigating stream flooding are known to exist. Group of models show better result when applied in finding the seriousness with which water level relates to flood. Learning algorithms and models like Artificial Neural Network, Random Forest, Support Vector Machine, and K-Nearest Neighbour Classifier have been implored for flood prediction and they have shown improvement when combined in their precise individual characteristic forecasting solutions. In several countries, multi-sensors provide records that are employed in identifying flood and water level situations. In the analysis of floods, the algorithms of machine learning applied are characteristically dynamic and non-linear [24, 25]. A lot of usual procedures like field visits, geologic mapping, topography, climate monitoring and GIS implementation provides data of the abstraction of water divides and streams in the watershed [1, 26].

Management of flood innuendos in many vulnerable areas is mostly hinged on emergency responses, disaster relief and rehabilitation activities. Researchers like Mogollon [27] suggest a change from this management response to approaches that reduce the risk and vulnerability [28]. For such activities, therefore, identification and recognition of high to low susceptibility areas are essential [28]. Even when there is sufficiently available data for identification of flood and water levels, the validity and character of the data are of primary concern since any disruption, corruption, and inaccuracy of data during application affects the value and quality of the result [24]. Attention must be given to accuracy in the construction of models for predicting and mapping flood susceptibility in urban areas. It is only an accurate model that will guarantee the formation of efficient and effective flood mitigation and control measures [6]. Significantly, remote data gathering and computerized investigation have become vital instruments in recent flood management approaches. Automated Computer Vision, which is an Artificial Intelligence (AI) system, can develop theories and algorithms containing visual information that is capable of being understood and interpreted automatically by the computer. This computerized approach is growingly very valuable in managing various stages of flood issues. Computer vision algorithms can effectively be implored to classify land use and evaluation of flood risks [3, 29]. This technology has successfully been used in flood risk identification [29], flood surface water velocity assessment [30], real-time observing [31], flood modeling [32], flood location and inundation mapping [33], management of flood debris [34], and post flood destruction assessment [35]. In view of this, it is specifically relevant to analyze the impending benefits of computer modeling approaches over the conventional observing ones to establish its appropriate use for flood risk management. Variations in climate conditions have adversely affected millions of Nigerians [36]. Natural flood lanes have been distorted by extreme weather events in Nigeria's southeast region. To effectively conserve soil and water in the region, a thorough study of the flood at gauging stations needs to be carried out and a precise model developed for its prediction [36].

According to Nkeki et al. [37], In Nigeria, the overriding issues with flood susceptibility prediction are based on intelligence and the capability to know the heterogeneous ecological effect on the watershed generating the flood, in relation to the prevalent dynamics and spatial disparity between them. Due to these complex factors, diverse flood risk models have been suggested in several literatures [37, 38]. Some of the suggested models aline with genetic factors (hydraulic flood models) while others put into consideration hydrographical factors (Integrated flood models). Interestingly hydraulic flood models can under-predict, and the integrated flood models can over-predict flood risks. A combination of these two procedures will built a novel hybrid model for predicting flood innuendos in the area [39]. This research work therefore is focused on development of a flood prediction system using Machine Learning classifier and Remote Sensing technique as an efficient tool in identifying areas in the urban city susceptible to flood, necessary for decision makers to manage the flood consequences in the watershed. The proposal of the use of Remote Sensing and Hydro-meteorological analysis is to strategically create a model that will predict flood susceptibility over expanded

coastal area which is prevalent in the Southeastern Nigeria river basin. This means that the study can establish sensible factors and risk indices for the occurrence of floods at the city level and be instrumental for outlining a long-term programme for developing smart cities in the zone. Southeast region is a major economic zone due to its enriched hydrogeology and coastal position in Nigeria. The methodology in this study will be able to draw specifics about the flash flood prone areas, planning rainwater harvesting and flood management approaches for the region. In addition, the prolong period of hydrogeological data collected when analysed and factored in the model will improve the accuracy and minimise error in prediction of flood zones in the river basin. This proposed combination model will strengthen the weakness of each separate method, while taking into account the complex ecological realities (urbanization, extreme weather events etc.) in the study area which has not been properly considered in most quoted traditional models contained in the global literature.

2. Study Area

The study area (Southeastern Nigeria) is one of the six geopolitical zones in Nigeria and falls into one River basin known as Anambra Imo River Basin Development Authority. It contains five states of Nigeria namely Imo, Abia, Enugu, Ebonyi and Anambra. It occupies an estimated area of 28658.8 km² and on a geographic coordinate of Longitude 6° 30' -8° 30'E and Latitude 5° - 7N (Figure 1-a). Major rivers in the Southeast drainage lines are River Niger, Ebony River, Urashi River, Adada River, Otanmiri River, Oguchie River, Imo River, Aba River, Ivo River, Afikpo River, and Njaba River, as shown in Figure 1-b. The geology is a cretaceous to tertiary sequences of Niger Delta basin with different number of formations (Figure 1-c).

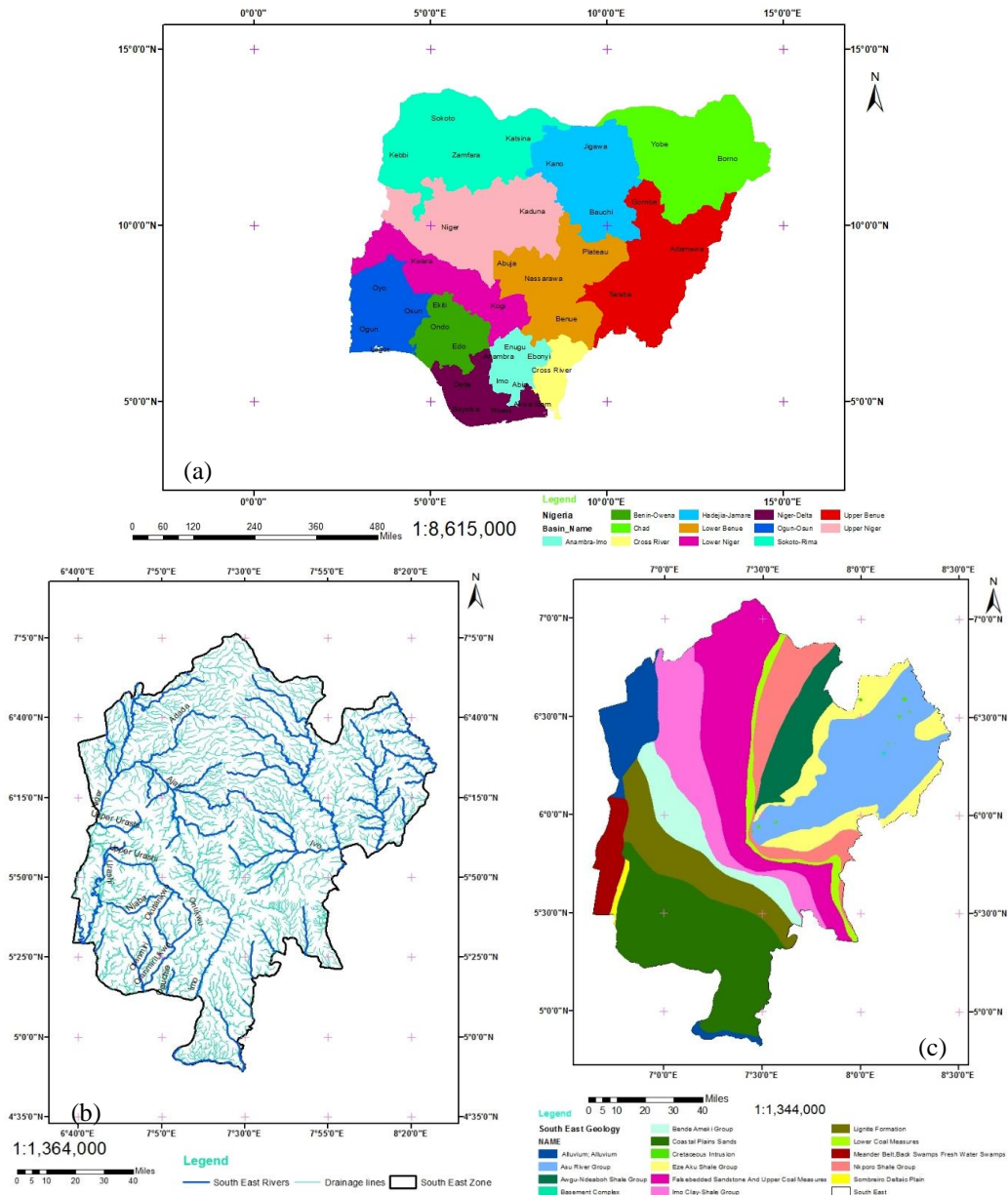


Figure 1. a) Map of Nigeria showing the States, river basins and study area, b) Map of the study area river basin showing the rivers and the drainage lines, c) Geological map of the study area

2.1. Geographical Location and Geologic Setting of Otamiri River

Otamiri River has a relatively low-lying topography of about 300 meters above the sea level. It lies within the latitude 5° 18' 00" to 5° 30' 00" N and longitude of 6° 50' to 7° 10' 00" E. The Otamiri River has a source from Owerri timber and runs from Egbu where it confluences with Nworie River. It moves down through Nekede to Ozuzu in Etche town of Rivers State where it combines with the Imo River and flows to the south into the Atlantic Ocean [40]. The geology of the area shows that the Benin Formation (which is an extensive stratigraphic unit in the Southern Nigeria) underlies it. According to Fagorite et al. [40], the thickness of the Benin Formation is variable. On land, the Benin Formation is covered by the Oligocene-Miocene, Ogwashi-Asaba Formation while the Petroleum bearing Agbada and Akata formation covers the subsurface layers [40, 41]. The sediments are upper deltaic plain deposits; the sands contain braided streams, point bars and channel-fills, while the thin shale intercalations are mainly back-swamp deposits. Underneath the surface, it is Oligocene in age, moving southwards it becomes progressively younger [41, 42]. Figure 2-a shows the Map of Otamiri River drainage line.

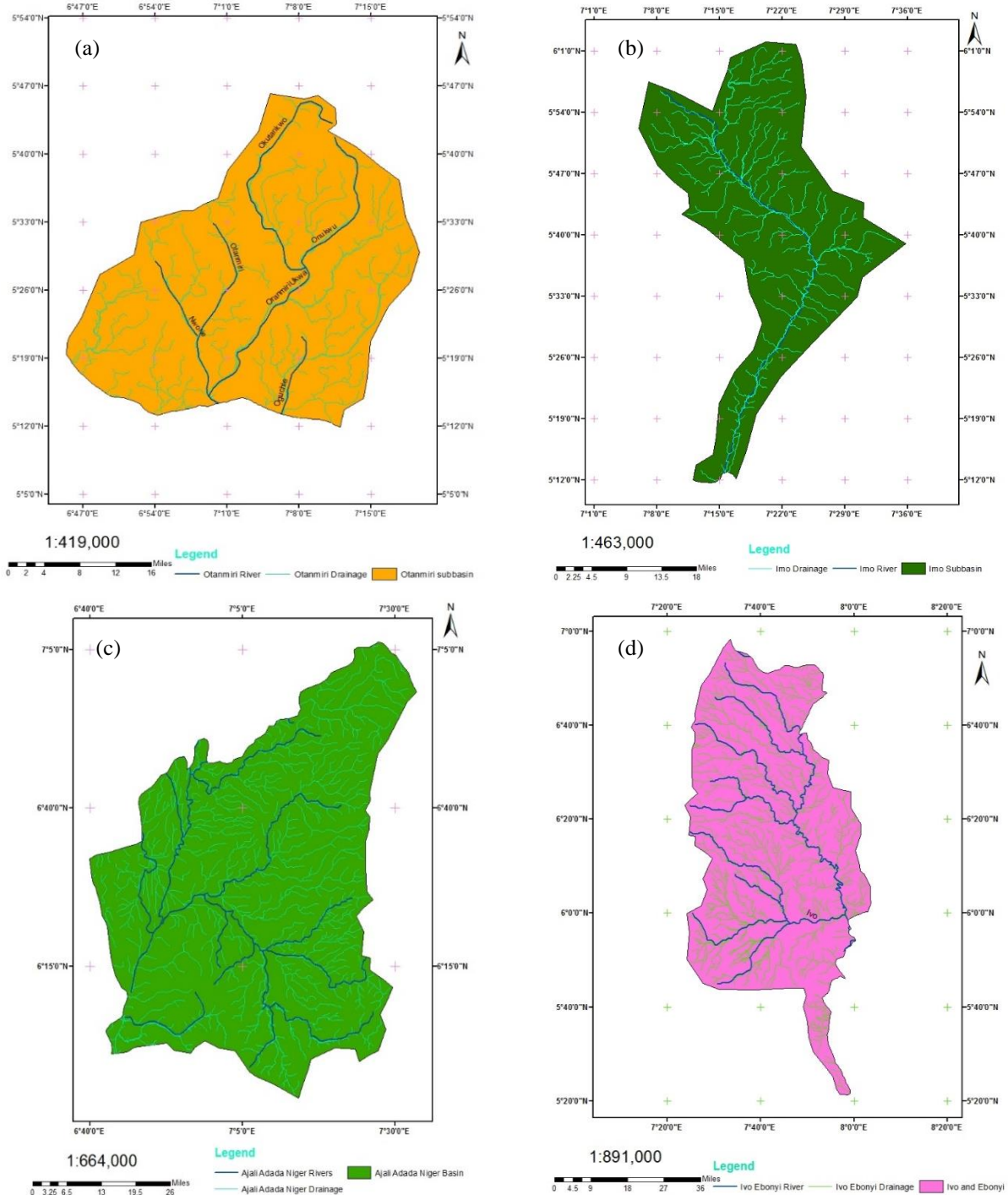


Figure 2. a) Map of Otamiri River Catchment basin showing the drainage lines, b) Map of Imo River catchment basin showing the drainage lines, c) Map of Ajali/Adada River catchment basin showing the drainage lines, d) Map of Ivo River catchment basin showing the drainage lines.

2.2. Geographical Location and Geologic Setting of the Imo River

Imo State got her name from Imo River, and it is the main river separating Imo, Abia and Rivers States. Imo river lies within the latitude $4^{\circ} 40' 00''$ N to $6^{\circ} 30' 00''$ N and longitude $5^{\circ} 00' 00''$ E to $7^{\circ} 30'$ E. The Imo River and tributaries drain the area, which is low lying-in feature (Figure 2-b). The tides influence the topography, which results in flash floods especially in rainy season [42]. The seasonal climatic conditions in the area are rainy (April to October) and dry (November to March) but with characteristically high relative humidity throughout the year. The structural features are underlain by the coastal plain sands of the Benin Formation which consists of fine to coarse grained sand with intercalation of clay lenses which are discontinuous. The annual groundwater recharge ranges from 24.0 to 31.0 % of the annual rainfall of about 2500 mm [43]. This knowledge of the aquifer property is important for the understanding of the dynamics and interaction between surface and groundwater since both mix and overlap considerably.

2.3. Geographical Location and Geologic setting of Adada River

The Adada River is an important River in the history of Enugu State and was the regional source of clean water in the olden days. It lies within the latitudes $6^{\circ} 27' 0''$ N and $6^{\circ} 45' 0''$ N and longitudes $7^{\circ} 0' 0''$ E and $7^{\circ} 24' 0''$ E as shown in Figure 2-c. The Adada River originated from the Lejja hills on the North of Nsukka in Enugu State [44, 45]. Adada River cut across Nkpologu and other communities to Eziora. From the southwestern part, it routes to Ogbosu, for about 75km forming the demarcation of Enugu and Anambra States and flows into the bigger River Niger. Out of its approximate total length of 876km, 314km is in Enugu State. 43,187sqkm is the estimated area of the catchment of Adada River. It has some primary tributaries such as Ukpotu, Adogwu and Awwa. The catchment area climate condition is a double spike rainy seasons with short and long dry periods. The rainy period is from March to middle of July and breaks till September to middle of November. The short dry season is the break time in the middle of July and from early December through March is the long dry season [45]. The yearly rainfall amount is between 1890mm and 2000mm on the average. The stratigraphy of Adada River catchment area are Ajali sandstone (Upper Maastrichtian), Imo Formations (Palaeocene) and Nsukka (Damian).

2.4. The Geographical and the Geologic Setting of Ivo River Basin

Ivo is the drainage sub-basin of the Cross-River basin in southern Nigeria. Geographically, the basin lies within the latitudes $5^{\circ} 50' 00''$ N and longitudes $7^{\circ} 30' 00''$ and $7^{\circ} 34' 00''$ E as shown in Figure 2-d. The basin is underlain by rocks which are predominantly of sedimentary formation [46]. The topography is uneven, consisting mainly of lowlands on the eastern parts, which is less than 100 m above sea level. Ivo River has also cuesta landscapes and conical hills which are up to 400 m above sea level on the western parts. The rugged topography of the basin's western section is the main cause of high surface runoff and low sub-surface runoff in the area. The geology of Ivo River catchment is constituted by shale, sandstones, and mudstones. From the headwaters to the middle of the basin are shale, mudstones and sandstones with extensive exposures of diorite intrusion mostly in the higher lying areas. There are scattered deposits of alluvium in the eastern sections. Soils in the catchment are moderately deep and vary between loam and sandy. Soil erosion is the biggest natural hazard in the upper, western section of the basin, where it poses serious threat to habitation.

2.5. The Geographical and the Geologic Setting of Ajali River

In Southeast Nigeria, the Anambra Basin is mostly lithostratigraphic units of Ajali Sandstone. Figure 2-c shows the Map of the drainage lines. The Anambra Basin is the sedimentary basin in Nigeria, formed by the Upper Cretaceous (Maastrichtian) layers on the southeast, outlined in the east by the Lower Benue Trough and on the southwest by the Basement Complex. The Anambra Basin evolution is similarly classified to the formation of Benue Trough. The Benue Trough is believed to be formed when Africa was separated from South American plate in the Mesozoic plane [47, 48].

3. Methodology

3.1. Data Source

One river was selected in each of the five states that made up the Southeastern River basin namely: Imo State (Otanmiri River), Abia State (Imo River), Enugu State (Adada River), Ebonyi State (Ivo River) and Anambra State (Ajali River).

The Streamflow data were collected from the Anambra Imo River Basin Development Authority (AIRBDA), the agency that operates and monitors gauging stations covering all the rivers. The Remote Sensing data spanning 30 years which includes Rainfall Intensity, Temperature, Relative Humidity, Solar Radiation, Cloud Covers, Sunshine hours, Evaporation, Wind Speed and Atmospheric Pressure were obtained from the National Aeronautics and Space Administration (NASA), Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2 & 3 platforms for five major rivers in south-east Nigeria. The dataset was sourced from four points along each river path as presented in Table 1. The pictorial view of each location is displayed in Appendix 3 (Figures A3-1 to A3-5). The datasets were from 1981 – 2019. River discharge and rainfall intensity are the parameters predominantly considered. These data are shown in the Appendix 1(A, B, C, D, E) and Appendix 2.

Table 1. Location of selected river points

River Location	Latitude (Degree)	Longitude (Degree)	Elevation (m)
Adada 1	7.08	6.475	32
Adada 2	7.077	6.472	29
Adada 3	7.069	6.474	35
Adada 4	7.061	6.478	33
Ajali 1	7.133	6.289	37
Ajali 2	7.129	6.293	41
Ajali 3	7.125	6.298	40
Ajali 4	7.121	6.305	44
Imo 1	5.537	7.413	74
Imo 2	5.531	7.406	53
Imo 3	5.529	7.4	53
Imo 4	5.522	7.393	46
Ivo 1	7.784	5.962	30
Ivo 2	7.763	5.97	34
Ivo 3	7.746	5.969	31
Ivo 4	7.729	5.967	33
Otanmiri 1	5.466	7.068	55
Otanmiri 2	5.471	7.053	55
Otanmiri 3	5.475	7.043	52
Otanmiri 4	5.466	7.034	45

Figure 3, shows the flowchart of the research methodology through which the objectives of this study were achieved.

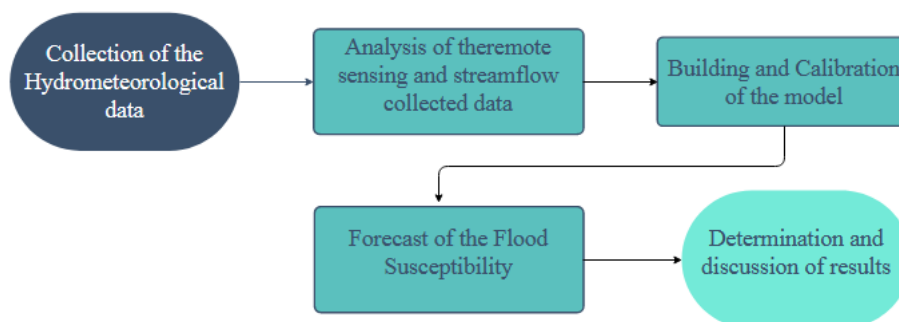


Figure 3. Flow chart of the research Methodology

3.2. Machine Learning Tool: ARIMA

Most studies use normal ARIMA model to specify a multiplicative seasonal ARIMA model (for monthly data) with no constant term [49-51]. In this arrangement, the lags of the stationered series are called “auto-regressive” (AR) terms, while lags of the forecast errors are called “moving average” (MA) terms. In seasonal ARIMA model which has a general term shown in Equation 1, SAR is the seasonal autoregressive coefficient.

$$ARIMA(p, d, q)(P, D, Q)_m \tag{1}$$

where m is the number of observations per year, p is the number of autoregressive terms, d is the number of non-seasonal differences, q is the number of moving-average terms, P is the number of seasonal autoregressive terms, D is the number of seasonal differences, Q is the number of seasonal moving-average terms.

According to Chandrasekhar et al. [52], the general formula for the ARIMA (p, d, q) process (which means that the AR is of the pth-order, the time series is integrated d number of times, and the moving average is of the qth-order) is given as:

$$(1 - \sum_{i=1}^p \phi_i L^i)(1 - L)^d X_t = \delta + (1 - \sum_{i=1}^q \theta_i L^i) \varepsilon_t \tag{2}$$

In this study, two ARIMA models were considered for the forecasting process i.e., ARIMA(2,0,2)(2,1,0)₁₂ and ARIMA(3,0,1)(2,1,0)₁₂.

The Minimum Mean Square Error (MMSE) forecast estimator was adapted for the study. MMSE estimation technique will minimize the mean square error (MSE) of the dependent variable fitted values. In practical terms, MMSE is used to analyze the estimator quality. Monte Carlo forecast estimators were applied to model probable different outcomes since the process due to random variable intervention cannot easily be predicted. This system is implored to understand the risks and uncertainty effect in the prediction and forecasting models. Unlike a traditional forecast, a prediction based on Monte Carlo approach produces a range of possible outcomes instead of a single outcome in a probability distribution.

4. Results and Discussion

ARIMA Model 1 and 2 forecast results of both the Rainfall and River Discharge were obtained in the four different locations in each of the selected rivers. This totalled 80 results for the study. The results of the Rainfall and River discharge observation, MMSE forecast, MMSE forecast interval, Monte Carlo forecast, and Monte Carlo forecast interval were plotted graphically against the month of the year. As shown in Appendix (Figures 4, A4-1 to A4-3, 5, A4-4 to A4-6, 6, A4-7 to A4-9, 7, A4-10 to A4-12, 8, A4-13 to A4-15), the graphs manifested the prevailing circumstances in the entire water basin. The outcome of the statistical Conditional Probability Distribution authenticated the forecast results as respectively presented in the tables.

The observed data i.e., remote sensing dataset shows that there were certain maximum peaks in rainfall intensity between 1980 and 2019. This observation coincides with high flooding trends as reported in several articles in Adada River [53-55]. Adada River extend through few communities and the effect of the flooding depend on the elevation the river. Due to the overflow of its natural boundaries during flooding, the width of the river has no significant impact. The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 314 mmh⁻¹ within 5 years i.e., 2024. However, the ARIMA model showed a slight increase over five years while ARIMA model 2 showed almost stable rainfall peaks of 302 mmh⁻¹. The MMSE and Monte Carlo forecast interval showed a worst-case scenario where the maximum rainfall intensity for 2022 would be almost like the maximum rainfall intensity peaks in 2018. More so, the rainfall intensity should attain worst scenario at 670 mmh⁻¹. In Adada location 1, it is clearly significant that the rainfall and river discharge are indicating almost same values. This implies that the same scenario will happen as the MMSE and Monte Carlo forecast showed that an average river discharge of 100 m³s⁻¹ is expected in the next five years. The MMSE and Monte Carlo forecast showed maximum river discharge peaks of 200 m³s⁻¹ while MMSE and Monte Carlo forecast interval was 702 m³s⁻¹ within 5 years i.e., 2024.

Table 2 shows the statistics of Adada location 1. The data is not stationary, as the P-value is greater than 0.05, implying that the test result is significant, as shown in the table. The variance and the standard error were higher in model 2 than shown in model 1. Similarly, the P-value and T-statistics were lower in model 2 compared to model 1. The difference in the values of both models is significantly low. This conditional probability distribution (Table 2) supports the flooding forecast presented in Figure 4.

Table 2. Conditional Probability Distribution: Gaussian Adada 1

Parameter	Rainfall						
	P-Value		Standard Error		t-statistics		
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
AR	0.837	0.050	0.036	0.056	23.171	0.884	
SAR	0.078	0.070	0.037	0.038	2.110	1.846	
MA	-0.979	0.064	0.013	0.037	-76.813	1.731	
Variance	5918.340	6291.880	275.937	291.836	21.448	21.560	
Parameter	River Discharge						
	AR	0.889	0.111	0.033	0.053	27.050	2.093
	SAR	0.011	0.028	0.040	0.039	0.276	0.730
	MA	-0.977	0.125	0.016	0.038	-61.520	3.314
	Variance	491.824	497.478	24.074	24.783	20.430	20.073

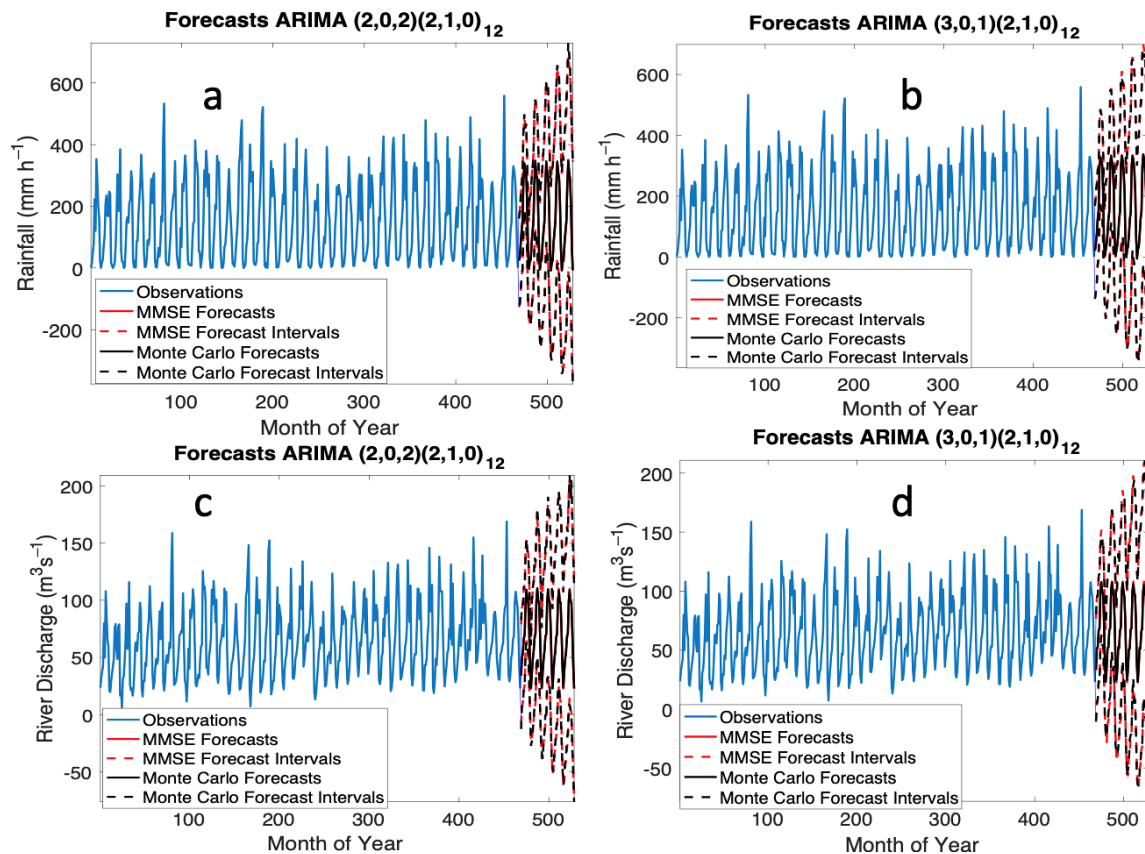


Figure 4. Forecast for Adada River 1 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

The rainfall pattern in Adada location 2 was found to be clearly different from Adada location 1 (Figure A4-1). Also, the rainfall intensity in location 2 was found to be lower as compared to location 1. However, the river discharge was found to be almost the same magnitude as observed in Adada river location 1. This result shows that not all communities along the river path have same rainfall intensity which is largely due to high updrafts, wind pattern, anthropogenic pollution, and vegetation [56, 57]. Location 2 forecast of Adada is presented in Appendix 4 Figure A4-1 (a, b, c, d).

It was observed that despite the lower rainfall intensity, since the river discharge from a higher elevation is high, the impact of flooding in both locations remain the same. The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 17 mmh^{-1} within 5 years i.e., 2024. The MMSE and Monte Carlo forecast interval showed a worst-case scenario that may equal to about 24 mmh^{-1} within 5 years. The river discharge forecast is almost the same as that of location 1. Like the Conditional Probability Distribution in location 1, the variance and the standard error were higher in model 2 than shown in model 1. In addition, the P-value and T-statistics were lower in model 2, compared to model 1. The difference in the values of both models is significantly low. This conditional probability distribution (Table 3) supports the flooding forecast presented in Figure A4-1. It is noted that the Conditional Probability Distribution for river discharge in location 1 & 2 were slightly different from each other. This supports the hypothesis that though the rainfall differs in river path location, the river discharge is almost the same only on the condition that it flows from higher elevations

Table 3. Conditional Probability Distribution: Gaussian Adada 2

Parameter	Rainfall						
	P-Value		Standard Error		t-statistics		
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
AR	-0.848	0.102	0.025	0.049	-34.509	2.066	
SAR	0.055	0.025	0.043	0.047	1.277	0.528	
MA	0.988	0.171	0.011	0.043	86.438	3.948	
Variance	2.050	2.107	0.121	0.120	16.895	17.588	
Parameter	River Discharge						
	AR	0.888	0.111	0.033	0.053	27.025	2.098
	SAR	0.011	0.029	0.040	0.039	0.283	0.737
	MA	-0.977	0.125	0.016	0.038	-61.514	3.303
	Variance	492.969	498.692	24.137	24.852	20.424	20.066

The rainfall intensity was observed to be low at location 3 as earlier observed in location 2 (Figure A4-2). Comparatively, location 3 had higher rainfall intensity than location 3. However, the MMSE and Monte Carlo forecast showed maximum rainfall peaks of 16-17 mmh⁻¹ within 5 years i.e., 2024. The MMSE and Monte Carlo forecast interval showed a worst-case scenario that may equal to about 26 mmh⁻¹ within 5 years. The river discharge reported to be almost the same as location 1 & 2. This result means that the driving force of floods prone areas are the elevations, as well as the rainfall intensity as observed above. More so, it was observed that the rainfall in locations 2 & 3 did not have significant difference in the Conditional Probability Distribution as seen in location 1 (Tables 3 and 4). Here, the MMSE and Monte Carlo forecast showed that an average river discharge of 100 m³s⁻¹ is expected for the next five years. The MMSE and Monte Carlo forecast showed maximum river discharge peaks of 200 m³s⁻¹ within 5 years i.e., 2024. The result of the Adada river location 3 forecast is shown in Appendix 4 Figure A4-2 (a, b, c, d).

Table 4. Conditional Probability Distribution: Gaussian Adada 3

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.848	0.102	0.024	0.049	-34.622	2.058
SAR	0.055	0.024	0.043	0.047	1.272	0.522
MA	0.988	0.171	0.011	0.043	86.728	3.943
Variance	2.055	2.112	0.122	0.120	16.900	17.593
River Discharge						
AR	0.888	0.111	0.033	0.053	26.993	2.101
SAR	0.011	0.028	0.040	0.039	0.276	0.728
MA	-0.977	0.124	0.016	0.038	-61.472	3.289
Variance	495.139	501.015	24.231	24.963	20.434	20.070

Like location 2 and 3, location 4 has a low rainfall intensity (Figure A4-3) with MMSE and Monte Carlo forecast showing maximum rainfall peaks of 16 mmh⁻¹ within 5 years i.e., 2024. The MMSE and Monte Carlo forecast interval showed a worst-case scenario that may equal to about 26 mmh⁻¹ within 5 years. The river discharge forecast showed a minimum of 100 m³s⁻¹ and a maximum river discharge peaks of 200 m³s⁻¹ respectively for the next five years i.e., 2024. Table 5 shows that the Conditional Probability Distribution gradually increased despite at very low magnitudes. However, the Conditional Probability Distribution supports the flood forecast within communities along Adada River. It is shown in Appendix 4 Figure A4-3 (a, b, c, d).

Table 5. Conditional Probability Distribution: Gaussian Adada 4

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.848	0.101	0.024	0.049	-34.761	2.052
SAR	0.055	0.024	0.043	0.047	1.268	0.516
MA	0.988	0.170	0.011	0.043	87.066	3.938
Variance	2.060	2.118	0.122	0.120	16.904	17.599
River Discharge						
AR	0.888	0.111	0.033	0.053	26.972	2.101
SAR	0.010	0.028	0.040	0.039	0.261	0.712
MA	-0.977	0.124	0.016	0.038	-61.416	3.280
Variance	497.189	503.207	24.311	25.057	20.451	20.083

Low rainfall intensity was observed at Ajali location 1. This culminated to a low river discharge as presented in Figure 5. The MMSE and Monte Carlo forecast was 16 m³s⁻¹ and MMSE and Monte Carlo forecast interval of 26 m³s⁻¹ within 5 years. Table 6 showed the statistics of the Ajali location 1. The data is not stationary, as the P-value is greater than 0.05, implying that the test result is significant, as shown in the table.

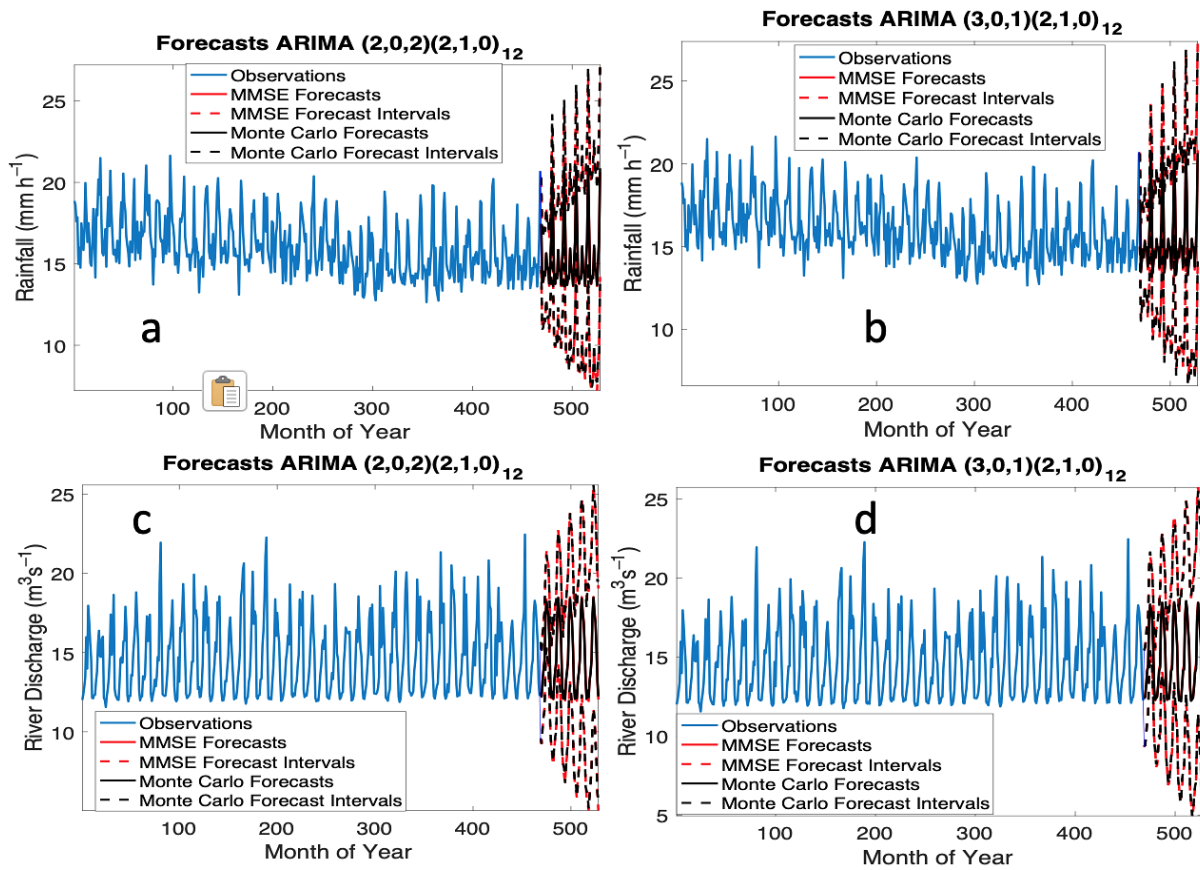


Figure 5. Forecast for Ajali River 1 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

Table 6. Conditional Probability Distribution: Gaussian Ajali 1

Parameter	Rainfall						
	P-Value		Standard Error		t-statistics		
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
AR	-0.843	0.101	0.026	0.049	-31.990	2.046	
SAR	0.053	0.030	0.044	0.047	1.221	0.645	
MA	0.986	0.169	0.012	0.043	81.517	3.899	
Variance	2.034	2.092	0.120	0.119	16.933	17.514	
Parameter	River Discharge						
	AR	0.837	0.059	0.035	0.056	24.252	1.059
	SAR	0.090	0.087	0.037	0.036	2.407	2.396
	MA	-0.982	0.054	0.012	0.038	-85.357	1.428
	Variance	2.317	2.466	0.105	0.111	22.058	22.115

The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 16 mmh^{-1} within 5 years i.e., 2024. However, the MMSE and Monte Carlo forecast interval gives a maximum of 26 mmh^{-1} within 5 years. Also, the MMSE and Monte Carlo forecast showed that an average river discharge of $17 \text{ m}^3\text{s}^{-1}$ is expected for the next five years. The MMSE and Monte Carlo forecast showed maximum river discharge peaks of $26 \text{ m}^3\text{s}^{-1}$ within 5 years i.e., 2024. It was observed that the flood pattern of 2017 and 2021 may likely be almost the same magnitude while significant increase is expected.

The rainfall intensity and river discharge for location 2 were found to be almost the same pattern as location 1 (Figure A4-4). Same forecast for location also applies to location 2. The Conditional Probability Distribution of both the rainfall intensity and river discharge was almost the same as location 1 (Table 7). It is displayed in Appendix 4 Figure A4-4 (a, b, c, d).

Table 7. Conditional Probability Distribution: Gaussian Ajali 2

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.843	0.101	0.026	0.049	-32.075	2.043
SAR	0.053	0.030	0.044	0.047	1.218	0.639
MA	0.987	0.169	0.012	0.043	81.693	3.898
Variance	2.036	2.094	0.120	0.120	16.937	17.520
River Discharge						
AR	0.837	0.059	0.035	0.055	24.243	1.063
SAR	0.090	0.087	0.037	0.037	2.402	2.390
MA	-0.982	0.053	0.012	0.037	-85.294	1.424
Variance	2.317	2.466	0.105	0.112	22.043	22.093

Location 3 of the Ajali River showed same trend as locations 1 and 2 (Figure A4-5). The Conditional Probability Distribution of both the rainfall intensity and river discharge was almost the same as locations 1 and 2 (Table 8). The forecast is presented in Appendix 4 Figure A4-5 (a, b, c, d).

Table 8. Conditional Probability Distribution: Gaussian Ajali 3

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.843	0.100	0.026	0.049	-32.170	2.041
SAR	0.053	0.030	0.044	0.047	1.215	0.632
MA	0.987	0.169	0.012	0.043	81.884	3.897
Variance	2.037	2.096	0.120	0.120	16.940	17.526
River Discharge						
AR	0.837	0.059	0.035	0.055	24.228	1.070
SAR	0.089	0.087	0.037	0.037	2.391	2.377
MA	-0.982	0.053	0.012	0.037	-85.198	1.420
Variance	2.317	2.466	0.105	0.112	22.030	22.073

Location 4 of the Ajali River showed same trend as locations 1, 2, and 3 (Figure A4-6). The Conditional Probability Distribution of both the rainfall intensity and river discharge was almost the same as locations 1, 2, and 3 (Table 9). It is presented in Appendix 4 Figure A4-6 (a, b, c, d).

Table 9. Conditional Probability Distribution: Gaussian Ajali 4

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.843	0.100	0.026	0.049	-32.282	2.039
SAR	0.053	0.029	0.044	0.047	1.214	0.625
MA	0.987	0.169	0.012	0.043	82.106	3.898
Variance	2.039	2.098	0.120	0.120	16.942	17.532
River Discharge						
AR	0.837	0.060	0.035	0.055	24.203	1.075
SAR	0.089	0.086	0.037	0.037	2.374	2.360
MA	-0.982	0.053	0.012	0.037	-85.039	1.420
Variance	2.315	2.464	0.105	0.112	22.016	22.049

Rainfall intensity at the selected points along Imo River is normal and range between 9-22 mmh-1 as presented in Figure 6.

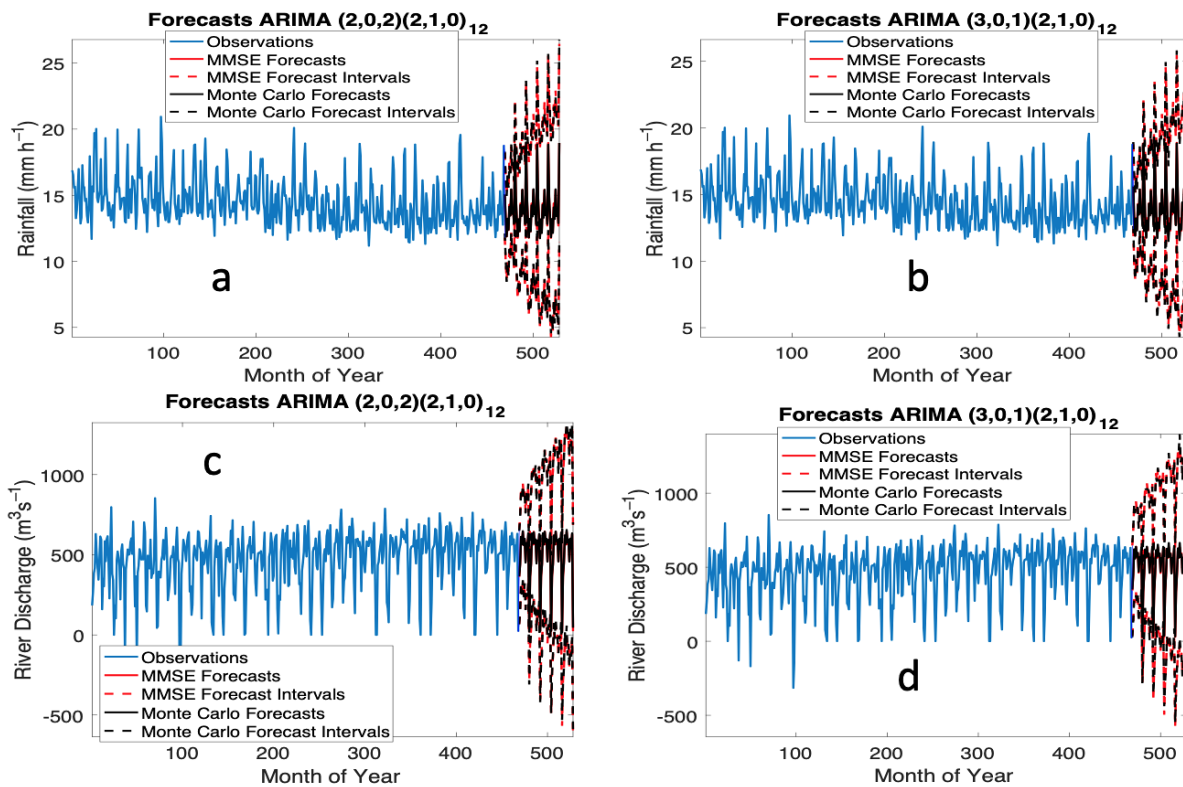


Figure 6. Forecast for Imo River 1 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 16 mmh^{-1} within 5 years and the MMSE and Monte Carlo forecast interval showed a maximum of 26 mmh^{-1} . The river discharge at location 1 of the Imo River is averagely given as $500 \text{ m}^3\text{s}^{-1}$. The MMSE and Monte Carlo forecast showed maximum river discharge peaks of $508 \text{ m}^3\text{s}^{-1}$ within 5 years i.e., 2024. The MMSE and Monte Carlo forecast interval gives worst scenario of about $1280 \text{ m}^3\text{s}^{-1}$ within 5 years (2020-2024). Just like findings from previous research works on Imo River [58], the rainfall intensity and the river discharge output in location 1, indicates that the flooding in the catchment is due more of non-climatic factors. The estuary of Imo River is around 40 kilometers (25 mi) wide and has an annual discharge of 4 cubic kilometers with 26,000 hectares of wetland [59], the flood susceptibility index is therefore high. This agrees with the Imo River flood characteristics as observed by Ezemonye & Emeribe [58] who reported that the velocity of the floodwaters under peak discharge between August and September is relatively moderate, but highly increased during recession in mid-October.

Table 10 shows the statistics of the Imo location 1. The data (considering the moving average) is not stationary, as the P-value is greater than 0.05, implying that the test result is significant, as shown in the table.

Table 10. Conditional Probability Distribution: Gaussian Imo 1

Parameter	Rainfall						
	P-Value		Standard Error		t-statistics		
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	
AR	-0.174	0.039	0.290	0.053	-0.601	0.744	
SAR	0.049	0.030	0.040	0.041	1.229	0.713	
MA	0.335	0.184	0.280	0.039	1.194	4.716	
Variance	2.687	2.638	0.142	0.133	18.966	19.907	
Parameter	River Discharge						
	AR	-0.814	0.020	0.031	0.056	-25.844	0.364
	SAR	-0.008	-0.029	0.039	0.038	-0.200	-0.749
	MA	0.986	0.104	0.010	0.035	95.137	2.927
	Variance	22473.200	24096.800	1079.260	1049.720	20.823	22.956

Also considering the P-value of the autoregressive and seasonal autoregressive coefficient that is less than 0.05, it can be inferred that the data is both stationary and non-stationary. This hypothesis had been supported by existing literature and the annual data trend.

Location 2 of the Imo River also shows same trend as location 1 both in rainfall intensity and river discharge (Figure A4-7). The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 15-16 mmh⁻¹ within 5 years, while the MMSE and Monte Carlo forecast interval showed a maximum of 26 mmh⁻¹. The maximum river discharged according to MMSE and Monte Carlo forecast was 502 m³s⁻¹ while the MMSE and Monte Carlo forecast interval gives worst scenario of about 1370 m³s⁻¹ within 5 years (2020-2024). Table 11 showed the statistics of the Imo location 1. This forecast is shown in Appendix 4 Figure A4-7 (a, b, c, d).

Table 11. Conditional Probability Distribution: Gaussian Imo 2

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.177	0.039	0.290	0.053	-0.609	0.739
SAR	0.048	0.029	0.040	0.041	1.223	0.709
MA	0.337	0.185	0.280	0.039	1.203	4.730
Variance	2.690	2.640	0.142	0.133	18.990	19.925
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.831	0.012	0.029	0.053	-28.433	0.221
SAR	0.019	-0.033	0.036	0.038	0.515	-0.866
MA	0.990	0.138	0.010	0.037	103.561	3.729
Variance	21278.100	22532.200	1080.370	1062.290	19.695	21.211

Like Table 10, the inference in Table 11 showed that the data is both stationary and non-stationary as the flooding pattern is proven to be from both climatic and non-climatic factors. The difference between the flood pattern as seen via comparative analysis of Tables 10 and 11 shows that the effect of the likely flooding pattern becomes more intense based on the topography of the surrounding communities.

Location 3 of the Imo River also shows same trend as locations 1 and 2 both in rainfall intensity and river discharge (Figure A4-8). The MMSE and Monte Carlo forecast shows maximum rainfall peaks of 15.5 mmh⁻¹ within 5 years, while the MMSE and Monte Carlo forecast interval showed a maximum of 26 mmh⁻¹. The maximum river discharged according to MMSE and Monte Carlo forecast was 502 m³s⁻¹ while the MMSE and Monte Carlo forecast interval gives worst scenario of about 1370 m³s⁻¹ within 5 years (2020-2024). Table 12 showed the statistics of the Imo location 1. Like Tables 10 and 11, the inference in Table 12 shows that the data is both stationary and non-stationary as the flooding pattern is proved to be from both climatic and non-climatic factors. The difference between the flood pattern as seen via comparative analysis of Tables 11 and 12 further confirmed that the effect of the likely flooding pattern becomes more intense based on the topography of the surrounding communities. The forecast is displayed in Appendix 4 Figure A4-8 (a, b, c, d).

Table 12. Conditional Probability Distribution: Gaussian Imo 3

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.178	0.039	0.290	0.053	-0.616	0.738
SAR	0.048	0.029	0.040	0.041	1.224	0.711
MA	0.339	0.185	0.280	0.039	1.211	4.737
Variance	2.690	2.641	0.142	0.132	19.005	19.934
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.872	0.023	0.020	0.054	-43.192	0.427
SAR	0.017	-0.049	0.037	0.038	0.459	-1.274
MA	1.000	0.098	0.009	0.038	109.351	2.592
Variance	21548.000	23026.400	1038.750	1052.300	20.744	21.882

Location 4 of the Imo River also shows same rainfall intensity and river discharge trend as reported for locations 1, 2 and 3 (Figure A4-9). The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 16 mmh⁻¹ while the MMSE and Monte Carlo forecast interval showed a maximum of 26 mmh⁻¹. The maximum river discharged according to MMSE and Monte Carlo forecast was 502 m³s⁻¹ while the MMSE and Monte Carlo forecast interval gives worst scenario of about 1370 m³s⁻¹ within 5 years (2020-2024). The statistics of the location 4 presented in Table 13 shows that the river discharge becomes more intense along the selected points. This result means that the location 4 will show

more flooding than location 3 etc. The increase in the river discharge which is expected to double in five years is largely due to non-climatic and climatic factor. Appendix 4 Table 13 (a, b, c, d) shows the Forecast of this location.

Table 13. Conditional Probability Distribution: Gaussian Imo 4

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.181	0.039	0.289	0.053	-0.627	0.732
SAR	0.048	0.029	0.040	0.041	1.215	0.704
MA	0.341	0.185	0.279	0.039	1.221	4.752
Variance	2.694	2.643	0.142	0.132	19.032	19.954
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.828	0.022	0.030	0.054	-27.643	0.410
SAR	-0.014	-0.049	0.039	0.038	-0.354	-1.270
MA	0.988	0.097	0.010	0.038	98.127	2.585
Variance	21618.500	23100.200	1070.840	1053.930	20.188	21.918

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 13). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 13). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor).

Flooding along Ivo River is perennial [60]. The average rainfall intensity at location 1 was observed be 14-22 mmh⁻¹ (Figure 7). The MMSE and Monte Carlo forecast showed maximum rainfall peaks of 15.6 mmh⁻¹ while the MMSE and Monte Carlo forecast interval shows a maximum 27 mmh⁻¹ within 5 years. The observed range for the river discharge is given as 10-58 m³s⁻¹. The MMSE and Monte Carlo forecast showed maximum river discharge of 43 m³s⁻¹ while the MMSE and Monte Carlo forecast interval showed a maximum 68.5 m³s⁻¹ within 5 years. Table 14 is the Conditional Probability Distribution of Ivo location 1. The data is not stationary, as the P-value is greater than 0.05, implying that the test result is significant, as shown in the table.

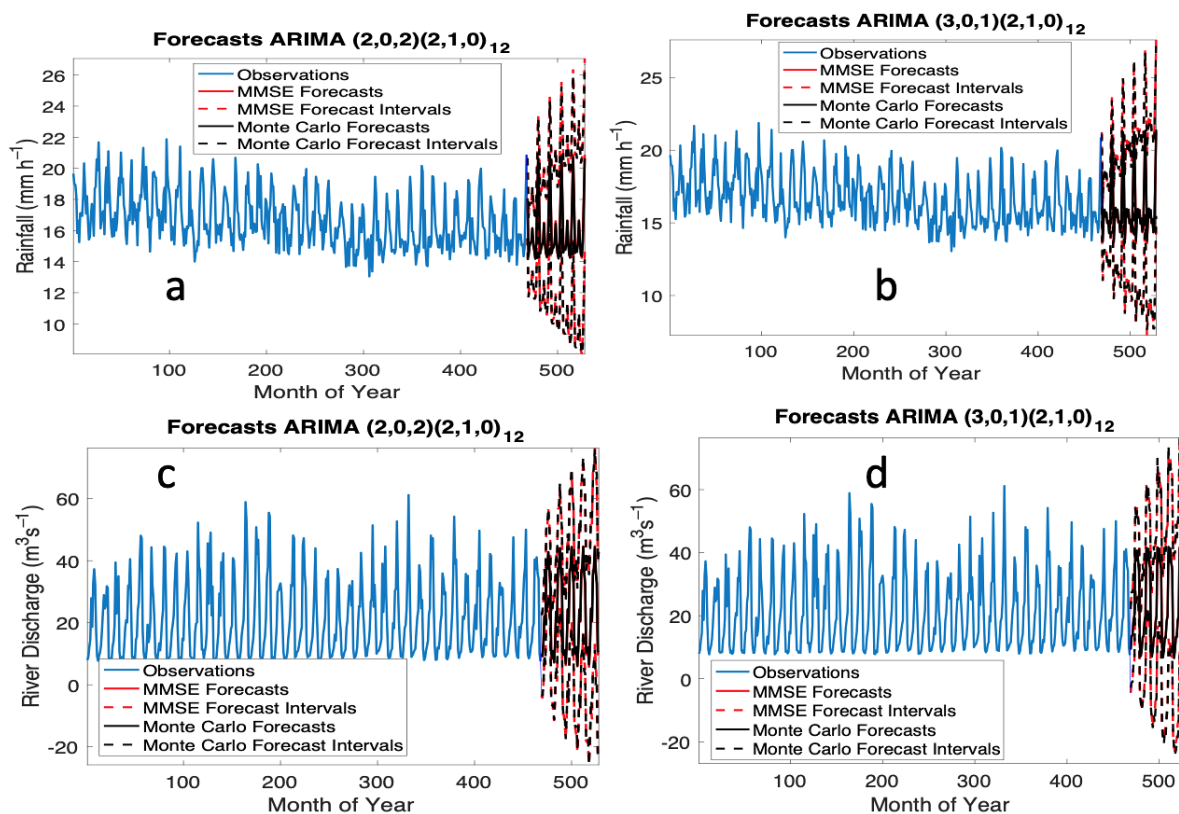


Figure 7. Forecast for Ivo River 1 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

Table 14. Conditional Probability Distribution: Gaussian Ivo 1

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.820	0.112	0.033	0.046	-25.140	2.439
SAR	0.107	0.093	0.047	0.048	2.305	1.920
MA	0.983	0.182	0.013	0.044	73.955	4.102
Variance	1.743	1.780	0.111	0.110	15.758	16.114
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.843	0.000	0.027	0.055	-30.864	-0.003
SAR	0.085	0.077	0.034	0.034	2.487	2.287
MA	0.991	0.066	0.009	0.033	114.562	1.994
Variance	47.363	50.662	2.296	2.246	20.632	22.556

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 14). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 14). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor).

Location 2, 3, and 4 along the Ivo river showed same trend as relating to the observation, MMSE forecast, Monte Carlo forecast, MMSE forecast interval, and Monte Carlo forecast interval (Figures A4-10 and 8). It was observed from the Conditional Probability Distribution presented in Tables 15 to 17 that the river discharge becomes more intense along the selected points. This result means that the location 4 will show more flooding than location 3 etc. The increase in the river discharge is expected to increase by 25% within five years. Flooding in that locality is largely prone to climatic factor than non-climatic factor. The forecast is presented in Appendix 4 Figure A4-10 (a, b, c, d).

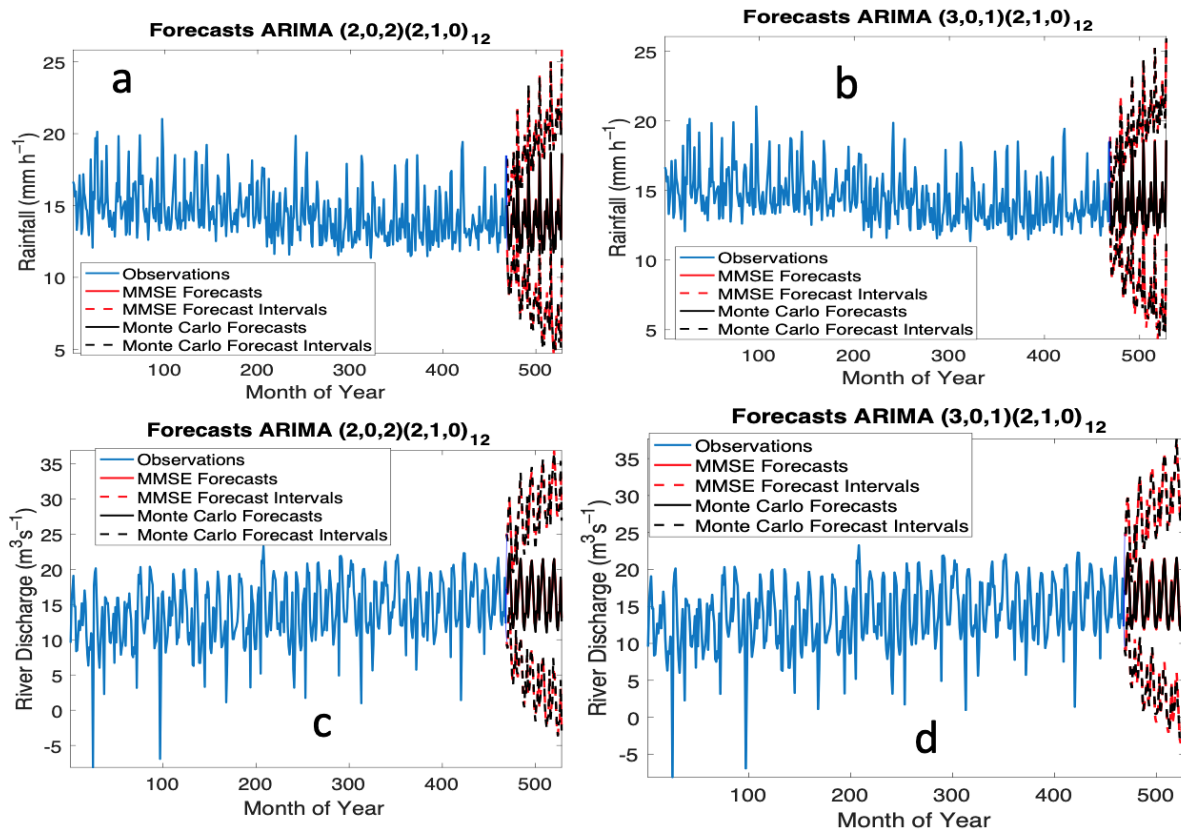


Figure 8. Forecast for Otanmiri River 1 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 15). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 15). The t-statistics

value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor). The forecast is shown in Appendix 4 Figure A4-11 (a, b, c, d).

Table 15. Conditional Probability Distribution: Gaussian Ivo 2

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.820	0.112	0.033	0.046	-25.183	2.438
SAR	0.105	0.090	0.046	0.048	2.262	1.871
MA	0.983	0.182	0.013	0.044	73.991	4.107
Variance	1.750	1.788	0.111	0.111	15.797	16.164
River Discharge						
AR	0.875	0.002	0.028	0.055	30.731	0.038
SAR	0.091	0.077	0.035	0.034	2.631	2.281
MA	-0.987	0.068	0.011	0.033	-92.485	2.047
Variance	48.229	50.614	2.227	2.248	21.656	22.511

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 16). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 16). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor). Forecast is presented in Appendix 4 Figure A4-12 (a, b, c, d).

Table 16. Conditional Probability Distribution: Gaussian Ivo 3

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.820	0.113	0.033	0.046	-25.195	2.437
SAR	0.103	0.088	0.046	0.048	2.221	1.828
MA	0.983	0.182	0.013	0.044	74.061	4.108
Variance	1.757	1.795	0.111	0.111	15.823	16.199
River Discharge						
AR	0.874	0.004	0.029	0.056	30.546	0.073
SAR	0.089	0.075	0.035	0.034	2.556	2.205
MA	-0.987	0.069	0.011	0.033	-92.023	2.088
Variance	48.275	50.666	2.234	2.255	21.608	22.468

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 17). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 17). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor).

Table 17. Conditional Probability Distribution: Gaussian Ivo 4

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.820	0.113	0.033	0.046	-25.207	2.436
SAR	0.101	0.086	0.046	0.048	2.178	1.784
MA	0.983	0.182	0.013	0.044	74.141	4.110
Variance	1.764	1.802	0.111	0.111	15.848	16.232
River Discharge						
AR	0.873	0.006	0.029	0.056	30.369	0.109
SAR	0.086	0.073	0.035	0.034	2.478	2.127
MA	-0.986	0.070	0.011	0.033	-91.564	2.129
Variance	48.369	50.768	2.243	2.264	21.562	22.428

Like other rivers, four locations were selected along the Otanmiri River. The observed rainfall intensity was within 13-21 mmh⁻¹. The MMSE and Monte Carlo forecast showed a maximum rainfall intensity of 15 mmh⁻¹ while the MMSE and Monte Carlo forecast interval showed a maximum rainfall intensity of 25.2 mmh⁻¹ within 5 years (Figure A4-9). The observed range for the river discharge is between 2 and 22 m³s⁻¹. Flooding along the Otanmiri River path is relatively critical [61, 62]. The MMSE and Monte Carlo forecasts showed a maximum river discharge of 22 m³s⁻¹ while the MMSE and Monte Carlo forecast interval showed a maximum of 35.1 m³s⁻¹ within the next 5 years. The implication of this result shows that flooding along the Otanmiri River is largely due to climatic factors which are highly enhanced by run-off water from different elevations. The conditional probability distribution presented in Table 18 shows that the dataset is non-stationary as the P-value is greater than 0.05, implying that the test result is significant, as shown in the table. The linear undulation of the river discharge is likely an indication that the causative factor of flooding along the river path may not be a climatic factor. It is largely due to gullies created over the years and the increasing rate of dumping refuse along the river path.

Table 18. Conditional Probability Distribution: Gaussian Otanmiri 1

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.810	0.041	0.027	0.055	-29.822	0.753
SAR	0.052	0.037	0.031	0.042	1.694	0.889
MA	1.000	0.193	0.004	0.039	259.811	4.993
Variance	2.522	2.653	0.135	0.131	18.675	20.181
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	0.405	0.024	0.399	0.069	1.016	0.349
SAR	-0.225	-0.212	0.029	0.028	-7.677	-7.511
MA	-0.244	0.157	0.417	0.032	-0.585	4.895
Variance	15.412	15.348	0.466	0.456	33.063	33.674

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 18). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2. The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor).

Location 2, 3, and 4 along the Otanmiri River showed same trend as relating to the observation, MMSE forecast, Monte Carlo forecast, MMSE forecast interval, and Monte Carlo forecast interval (Figures A4-13 to A15). It was observed from the Conditional Probability Distribution presented in Tables 19 to 21 that the river discharge becomes more intense along the selected points. This result means that the location 4 will show more flooding than location 3 etc. The increase in the river discharge is expected to increase by 85% within five years as the rate of refuse dumping linearly increase over five years. Flooding in that locality is largely prone to both climatic factor and non-climatic factors. The forecast is shown in Appendix 4 Figure A4-13 (a, b, c, d).

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics was lower in Model 1 than in Model 2 (Table 19). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error found to be lower in Model 1 than in Model 2 (Table 19). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (climatic factor) but diverse sources (non-climatic factor). Appendix 4 Figure A4-14 (a, b, c, d) shows the forecast.

Table 19. Conditional Probability Distribution: Gaussian Otanmiri 2

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.809	0.041	0.027	0.055	-29.727	0.753
SAR	0.052	0.038	0.031	0.042	1.683	0.906
MA	1.000	0.193	0.004	0.039	257.631	4.986
Variance	2.523	2.655	0.135	0.132	18.659	20.165
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	0.405	0.024	0.400	0.069	1.014	0.350
SAR	-0.225	-0.212	0.029	0.028	-7.677	-7.507
MA	-0.243	0.157	0.417	0.032	-0.583	4.892
Variance	15.430	15.366	0.466	0.456	33.111	33.677

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics were lower in Model 1 than in Model 2 (Table 20). It was observed that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error was found to be lower in Model 1 than in Model 2 (Table 20). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (a climatic factor) but from diverse sources (a non-climatic factor). The forecast is presented in Appendix 4 Figure A4-15 (a, b, c, d).

Table 20. Conditional Probability Distribution: Gaussian Otanmiri 3

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.809	0.042	0.027	0.055	-29.665	0.754
SAR	0.052	0.039	0.031	0.042	1.674	0.916
MA	1.000	0.193	0.004	0.039	256.316	4.983
Variance	2.524	2.656	0.135	0.132	18.650	20.156
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	0.405	0.024	0.399	0.069	1.013	0.349
SAR	-0.225	-0.212	0.029	0.028	-7.680	-7.507
MA	-0.243	0.157	0.417	0.032	-0.582	4.885
Variance	15.432	15.371	0.466	0.456	33.105	33.699

It was observed that the P-value for rainfall intensity is lower in Model 2 than in Model 1. The standard error and t-statistics were lower in Model 1 than in Model 2 (Table 21). It was noted that the P-value for river discharge is lower in Model 2 than in Model 1. The standard error was found to be lower in Model 1 than in Model 2 (Table 21). The t-statistics value was undulating. This result means that the homogeneity of the source of discharge is not from one source (a climatic factor) but from diverse sources (a non-climatic factor).

Table 21. Conditional Probability Distribution: Gaussian Otanmiri 4

Parameter	Rainfall					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	-0.809	0.042	0.027	0.055	-29.594	0.755
SAR	0.051	0.038	0.031	0.042	1.643	0.908
MA	1.000	0.194	0.004	0.039	256.979	4.999
Variance	2.525	2.657	0.135	0.132	18.657	20.176
Parameter	River Discharge					
	P-Value		Standard Error		t-statistics	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
AR	0.404	0.024	0.400	0.069	1.012	0.341
SAR	-0.225	-0.211	0.029	0.028	-7.675	-7.492
MA	-0.242	0.157	0.417	0.032	-0.581	4.888
Variance	15.392	15.332	0.465	0.454	33.118	33.735

5. Conclusion

The selected points in each river path have adequately shown that the intensity of flooding is slightly progressive along river paths. It was identified that in the next five years, flooding across all the rivers considered will minimally increase by 15% and maximally increase by 150%, respectively. This study revealed that floods from all rivers depend on both climatic and non-climatic factors. The climatic factors include vaporization, wind system, ground temperature, surface pressure, etc. It was clearly observed that in the Adada River, high rainfall intensity along bounding communities could initiate flooding processes that could have extreme impacts in other communities. It indicates that runoff (which depends on the topography of the communities along river paths) largely affects the flood pattern, as well as the river discharge over the area. Other non-climatic factors that influence flooding along river paths include an increased refuse dumping rate along river paths, drainage channels, and gullies. The MMSE and Monte Carlo forecasts revealed the minimum limit of the rainfall intensity and river discharge predictions. The MMSE and Monte Carlo forecast intervals revealed the maximum limit of the rainfall intensity and river discharge predictions. Significantly, both parameters identified the range of flooding magnitude. The Conditional Probability Distribution corroborated the validity of the forecast. Hence, the adoption of machine learning in flood prediction in southeast Nigeria was accurate with minimal standard error.

The scope of this study is an advancement to the data utilization approach in flood prediction. The outcome shows a prediction that covered a larger and extended area for the watershed. The combination of machine learning classifier with remote sensing and hydrogeological records provided a geospatial analysis for the entire area, thereby obtaining a spatially improved representation than results when otherwise a different or only one model is adopted. This research work has further exposed the reliability of satellite imagery as a veritable tool in investigating the reactions of excess precipitation to land-use and also to watershed hydrogeology. The visual information from satellite technology like remote sensing is the hope for solving the complex problems arising in our hydrodynamic ecosystems.

6. Declarations

6.1. Data Availability Statement

The 30-years Remote Sensing Hydrologic Data of the selected Rivers and locations are presented in Appendix 1 (A, B, C, D and E). The Annual Streamflow Data of the selected Rivers are provided in Appendix 2. Appendix 3 contains the pictorial view of the selected rivers showing the location points of study. The graphical Model 1 and 2 forecast results of other locations in the selected rivers are displayed in Appendix 4.

6.2. Funding

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6.3. Conflicts of Interest

The author declares no conflict of interest.

7. References

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Appendix 1A: ADADA River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.077
 # Site longitude (positive means East);6.472
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 29m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	64.56	989.59	0.52	0.52	1.64	18.71	24.05	23.35	23.45
2/28/1981	24:00:00	66.51	988.34	0.76	0.76	15.46	18.47	25.55	25.05	32.15
3/31/1981	24:00:00	77.13	988.55	2.82	2.82	48.47	17.40	26.32	26.26	37.80
4/30/1981	24:00:00	81.25	987.95	2.71	2.71	79.30	17.78	26.63	26.61	42.54
5/31/1981	24:00:00	85.43	989.23	2.39	2.39	223.35	14.79	25.47	25.33	79.86
6/30/1981	24:00:00	85.12	990.75	2.45	2.45	120.79	15.78	25.42	25.26	49.83
7/31/1981	24:00:00	87.41	991.23	3.02	3.02	352.75	14.56	24.02	23.83	107.87
8/31/1981	24:00:00	85.26	990.89	3.16	3.16	281.29	17.39	24.27	24.23	85.21
9/30/1981	24:00:00	86.34	990.87	2.65	2.65	199.68	16.42	24.41	24.33	64.85
10/31/1981	24:00:00	86.11	989.39	1.67	1.67	161.91	15.56	25.18	25.04	59.62
11/30/1981	24:00:00	78.12	989.26	0.79	0.79	22.32	16.74	23.92	23.41	20.84
12/31/1981	24:00:00	65.51	989.42	0.76	0.76	0.64	19.88	24.29	23.33	19.62
1/31/1982	24:00:00	70.63	988.65	0.34	0.34	17.59	17.94	25.20	24.81	29.01
2/28/1982	24:00:00	68.19	988.31	0.64	0.64	27.23	16.19	24.71	24.19	35.96
3/31/1982	24:00:00	76.98	987.87	1.71	1.71	74.96	17.39	25.66	25.46	42.12
4/30/1982	24:00:00	82.95	988.08	3.11	3.11	103.50	16.46	26.22	26.15	48.95
5/31/1982	24:00:00	85.26	989.22	2.29	2.29	208.95	14.92	25.60	25.44	76.25
6/30/1982	24:00:00	87.14	991.34	2.42	2.42	235.66	14.64	24.84	24.64	79.35
7/31/1982	24:00:00	86.75	991.2	3.06	3.06	170.38	15.95	23.95	23.81	55.79
8/31/1982	24:00:00	86.24	991.61	3.37	3.37	167.59	18.17	23.46	23.39	48.56
9/30/1982	24:00:00	86.89	990.67	2.69	2.69	247.42	16.48	24.42	24.30	77.01
10/31/1982	24:00:00	88.22	989.59	1.8	1.8	239.84	13.79	24.14	23.96	78.87
11/30/1982	24:00:00	77.05	989.42	1.04	1.04	18.05	18.29	23.84	23.31	16.65
12/31/1982	24:00:00	70.05	989.25	1.15	1.15	8.37	17.82	23.65	22.82	20.30
1/31/1983	24:00:00	62.43	990.65	4.19	4.19	0.01	20.07	19.86	19.18	6.27
2/28/1983	24:00:00	66.58	988.97	0.71	0.71	6.62	19.15	26.17	25.83	30.87
3/31/1983	24:00:00	64.44	988.24	1.14	1.14	17.50	21.45	26.78	26.65	33.26
4/30/1983	24:00:00	77.49	987.73	2.79	2.79	68.87	17.69	27.22	27.30	46.07
5/31/1983	24:00:00	85.74	988.49	2.71	2.71	167.62	15.49	25.85	25.71	64.30
6/30/1983	24:00:00	86.87	990.76	2.9	2.9	303.44	15.20	24.97	24.79	97.15
7/31/1983	24:00:00	88.03	991.23	3.42	3.42	184.51	16.16	23.87	23.65	57.38
8/31/1983	24:00:00	89.06	992.58	3.51	3.51	220.16	17.05	23.22	23.02	61.48
9/30/1983	24:00:00	88.16	991.05	2.47	2.47	384.41	14.56	24.07	23.90	115.92
10/31/1983	24:00:00	84.32	990.2	1.57	1.57	54.52	17.45	24.83	24.59	26.16
11/30/1983	24:00:00	78.04	990.62	0.94	0.94	21.12	18.89	25.29	25.01	21.27
12/31/1983	24:00:00	75.27	989.93	0.58	0.58	19.36	17.21	24.32	23.72	22.89
1/31/1984	24:00:00	58.59	989.32	1.77	1.77	0.12	20.61	22.50	21.15	16.54
2/28/1984	24:00:00	72.18	987.33	1	1	4.59	18.16	25.37	25.30	25.11
3/31/1984	24:00:00	80.83	987.05	2.9	2.9	69.96	16.84	26.08	26.15	40.88

4/30/1984	24:00:00	83.48	987.63	2.95	2.95	153.25	15.60	25.82	25.76	62.45
5/31/1984	24:00:00	84.76	988.27	2.53	2.53	164.95	15.33	25.40	25.30	63.31
6/30/1984	24:00:00	85.13	990.14	2.49	2.49	146.83	15.61	24.96	24.83	55.62
7/31/1984	24:00:00	85.63	990.18	2.75	2.75	212.03	15.00	24.20	24.07	71.37
8/31/1984	24:00:00	84.94	990.65	2.4	2.4	219.53	16.20	24.43	24.37	72.21
9/30/1984	24:00:00	85.9	989.87	2.3	2.3	313.26	15.84	24.51	24.43	97.70
10/31/1984	24:00:00	86.68	989.19	1.62	1.62	280.16	14.64	24.82	24.63	91.69
11/30/1984	24:00:00	78.39	989.23	0.8	0.8	28.13	17.50	24.66	24.14	23.09
12/31/1984	24:00:00	67.26	988.53	1.41	1.41	3.11	18.67	22.82	21.77	15.76
1/31/1985	24:00:00	73.52	988.05	1.06	1.06	23.31	17.06	25.02	24.74	29.60
2/28/1985	24:00:00	54.24	988.88	0.77	0.77	0.80	20.48	24.43	23.23	28.85
3/31/1985	24:00:00	75.78	987.27	2.74	2.74	86.90	18.59	25.96	25.95	45.40
4/30/1985	24:00:00	81.04	987.93	2.72	2.72	87.34	18.05	26.06	26.15	42.41
5/31/1985	24:00:00	84.26	988.84	3.25	3.25	175.62	16.51	25.52	25.37	64.18
6/30/1985	24:00:00	84.8	991.61	2.93	2.93	224.45	15.93	24.53	24.41	74.57
7/31/1985	24:00:00	85.93	991.52	2.93	2.93	273.51	15.51	23.63	23.53	84.39
8/31/1985	24:00:00	86.56	990.89	2.94	2.94	367.05	14.61	23.89	23.78	112.17
9/30/1985	24:00:00	85.59	990.04	2.51	2.51	286.52	16.07	24.22	24.20	89.31
10/31/1985	24:00:00	83.9	989.11	0.74	0.74	213.91	15.68	24.96	24.77	74.43
11/30/1985	24:00:00	79.89	988.79	1.04	1.04	46.03	15.43	25.59	25.32	35.74
12/31/1985	24:00:00	65.25	988.59	0.82	0.82	2.75	18.37	23.81	22.94	22.52
1/31/1986	24:00:00	64.29	989.12	0.46	0.46	5.61	20.16	25.06	24.87	26.59
2/28/1986	24:00:00	74.89	988.27	3.06	3.06	28.13	15.12	25.97	26.25	39.65
3/31/1986	24:00:00	77	988.65	3.32	3.32	89.89	17.25	25.88	26.08	48.61
4/30/1986	24:00:00	79.68	987.53	3.42	3.42	75.53	17.47	26.64	26.74	44.22
5/31/1986	24:00:00	83.05	989.23	2.64	2.64	97.00	15.60	25.74	25.58	47.06
6/30/1986	24:00:00	83.24	990.55	3.08	3.08	206.99	16.78	25.19	25.15	72.04
7/31/1986	24:00:00	85.24	992.4	3.44	3.44	287.82	15.22	23.79	23.69	90.26
8/31/1986	24:00:00	84.18	991.05	2.92	2.92	210.38	17.40	23.92	23.90	65.81
9/30/1986	24:00:00	84.59	991.07	2.29	2.29	296.73	16.47	24.31	24.26	92.31
10/31/1986	24:00:00	83.75	990.18	0.85	0.85	308.29	16.65	25.00	24.92	98.21
11/30/1986	24:00:00	76.94	988.91	0.31	0.31	29.47	16.80	24.94	24.54	27.90
12/31/1986	24:00:00	61.4	990.36	1.91	1.91	2.90	19.20	22.87	22.07	20.99
1/31/1987	24:00:00	58.89	990.05	0.38	0.38	1.76	21.02	25.25	24.93	28.98
2/28/1987	24:00:00	68.44	988.97	2.56	2.56	32.35	18.20	27.50	28.37	47.01
3/31/1987	24:00:00	69.73	987.94	2.46	2.46	65.16	18.08	27.08	27.45	51.87
4/30/1987	24:00:00	70.68	988.43	2.74	2.74	37.73	19.04	28.01	28.60	45.43
5/31/1987	24:00:00	77.47	988.4	3.14	3.14	85.09	16.59	26.94	27.13	52.40
6/30/1987	24:00:00	84.03	991.19	2.84	2.84	168.09	16.17	25.41	25.34	62.97
7/31/1987	24:00:00	84.6	990.07	2.67	2.67	151.53	15.54	25.14	25.06	58.41
8/31/1987	24:00:00	87.41	990.14	2.89	2.89	417.89	13.56	24.52	24.30	129.66
9/30/1987	24:00:00	86.6	990.27	2.52	2.52	533.48	15.69	25.06	24.94	158.84
10/31/1987	24:00:00	86.12	989.44	1.76	1.76	219.41	15.17	25.34	25.16	76.58
11/30/1987	24:00:00	75.6	989.2	0.3	0.3	21.35	18.67	25.90	25.42	25.89
12/31/1987	24:00:00	65.49	989.82	0.55	0.55	11.74	18.72	24.88	23.72	27.06
1/31/1988	24:00:00	67.84	989.1	0.15	0.15	9.19	18.64	25.46	25.02	28.57
2/28/1988	24:00:00	68.43	987.17	1.03	1.03	8.86	18.55	26.80	26.79	34.50
3/31/1988	24:00:00	79.23	988.31	2.8	2.8	57.86	16.60	26.94	26.94	42.76
4/30/1988	24:00:00	80.69	987.69	3.27	3.27	104.31	16.25	26.84	26.77	54.21
5/31/1988	24:00:00	84.01	989.2	2.77	2.77	180.82	16.22	26.29	26.19	69.54

6/30/1988	24:00:00	85.62	990.24	2.7	2.7	192.99	14.88	25.18	25.05	70.22
7/31/1988	24:00:00	86.48	991.3	3.41	3.41	232.21	16.06	24.13	23.98	73.18
8/31/1988	24:00:00	86.13	990.34	3.64	3.64	242.28	17.95	24.15	24.03	71.85
9/30/1988	24:00:00	87.16	989.89	2.74	2.74	346.98	15.50	24.51	24.33	106.14
10/31/1988	24:00:00	85.04	988.89	1.15	1.15	170.46	16.54	25.40	25.25	61.36
11/30/1988	24:00:00	75.36	989.46	0.41	0.41	40.92	18.39	25.43	24.81	29.89
12/31/1988	24:00:00	74.76	988.79	0.65	0.65	17.98	15.66	24.21	23.59	26.28
1/31/1989	24:00:00	56.63	990.37	3.07	3.07	0.01	21.53	21.14	19.92	11.50
2/28/1989	24:00:00	55.8	989.49	1.45	1.45	1.16	19.36	23.72	22.65	27.92
3/31/1989	24:00:00	78.47	987.49	2.98	2.98	130.10	17.56	26.13	26.20	57.84
4/30/1989	24:00:00	81.49	987.31	3.3	3.3	67.97	17.17	26.46	26.43	40.10
5/31/1989	24:00:00	84.5	989.57	2.74	2.74	271.93	16.20	25.70	25.63	91.57
6/30/1989	24:00:00	86.17	990.81	2.66	2.66	249.30	14.71	24.91	24.78	84.29
7/31/1989	24:00:00	86.95	991.48	3.05	3.05	299.91	15.51	24.17	24.00	92.38
8/31/1989	24:00:00	87.52	990.85	3.14	3.14	365.69	15.34	24.12	23.94	109.80
9/30/1989	24:00:00	87.87	989.35	2.3	2.3	317.83	14.18	24.32	24.14	100.04
10/31/1989	24:00:00	86.13	989.8	1.66	1.66	170.59	15.30	24.83	24.62	61.04
11/30/1989	24:00:00	76.64	988.65	0.32	0.32	27.09	17.54	25.38	24.83	26.99
12/31/1989	24:00:00	69.02	989.58	1.03	1.03	10.64	17.45	24.09	23.34	24.67
1/31/1990	24:00:00	69.18	988.52	0.46	0.46	12.17	17.84	25.26	24.64	28.76
2/28/1990	24:00:00	61.41	989.01	0.2	0.2	8.03	18.34	25.62	24.91	34.98
3/31/1990	24:00:00	63.82	988.71	0.65	0.65	7.97	20.26	26.45	25.95	31.79
4/30/1990	24:00:00	81.57	987.79	3.42	3.42	90.01	16.64	26.75	26.66	48.18
5/31/1990	24:00:00	84.23	989.47	2.79	2.79	146.69	15.79	25.90	25.80	59.68
6/30/1990	24:00:00	84.29	990.93	3.05	3.05	150.30	15.18	25.56	25.47	60.83
7/31/1990	24:00:00	85.73	991.1	3.62	3.62	412.53	15.41	24.41	24.28	125.28
8/31/1990	24:00:00	83.92	991.49	3.15	3.15	346.30	15.43	24.61	24.58	110.09
9/30/1990	24:00:00	84.53	990.31	2.3	2.3	340.48	14.27	24.92	24.90	111.88
10/31/1990	24:00:00	83.46	989.62	1.64	1.64	294.70	15.16	25.35	25.25	99.73
11/30/1990	24:00:00	79.05	988.9	1.4	1.4	54.26	15.42	25.91	25.89	40.75
12/31/1990	24:00:00	75.94	988.54	1.17	1.17	53.11	16.00	25.77	25.62	41.10
1/31/1991	24:00:00	56.85	989.14	0.96	0.96	1.38	19.70	25.34	25.20	34.94
2/28/1991	24:00:00	69.53	988.4	2.64	2.64	23.50	14.83	27.58	28.16	51.16
3/31/1991	24:00:00	69.39	987.05	2.69	2.69	55.07	16.47	28.06	28.65	57.71
4/30/1991	24:00:00	79.69	987.95	3.28	3.28	145.59	15.82	26.65	26.72	67.03
5/31/1991	24:00:00	82.38	988.75	2.57	2.57	316.91	15.67	26.21	26.19	109.08
6/30/1991	24:00:00	83.81	990.34	2.79	2.79	262.21	13.18	25.66	25.53	96.56
7/31/1991	24:00:00	86.72	991.45	3.23	3.23	380.04	14.99	24.48	24.36	116.82
8/31/1991	24:00:00	85.33	991.82	3.55	3.55	329.59	15.31	24.24	24.16	103.00
9/30/1991	24:00:00	84.69	990.84	2.29	2.29	232.37	15.19	25.07	25.05	80.88
10/31/1991	24:00:00	85.02	989.82	2.22	2.22	303.88	14.01	24.56	24.44	100.49
11/30/1991	24:00:00	76.46	989.16	0.36	0.36	34.44	16.21	25.66	25.32	34.03
12/31/1991	24:00:00	59.56	989.53	1.96	1.96	0.60	18.58	23.79	23.17	27.64
1/31/1992	24:00:00	50.66	989.3	1.79	1.79	0.95	19.55	24.36	24.30	37.71
2/28/1992	24:00:00	39.14	989.14	1.77	1.77	1.46	19.77	26.93	27.19	59.03
3/31/1992	24:00:00	64.6	987.23	2.21	2.21	71.90	18.05	28.32	28.98	64.20
4/30/1992	24:00:00	77.31	988.02	2.92	2.92	128.08	15.61	27.36	27.59	68.22
5/31/1992	24:00:00	83.9	988.97	2.73	2.73	205.07	15.11	26.11	26.01	78.17
6/30/1992	24:00:00	84.94	990.76	3.3	3.3	191.51	15.99	25.28	25.17	68.28
7/31/1992	24:00:00	87.37	992.08	3.47	3.47	363.07	14.70	23.96	23.77	110.17

8/31/1992	24:00:00	85.97	992.26	3.79	3.79	329.15	16.86	23.80	23.69	96.80
9/30/1992	24:00:00	86.15	990.02	2.45	2.45	343.47	14.67	24.33	24.16	107.51
10/31/1992	24:00:00	86.46	989.99	2.41	2.41	152.82	15.23	24.83	24.68	56.32
11/30/1992	24:00:00	77.54	989.24	0.34	0.34	42.39	17.07	24.09	23.65	26.83
12/31/1992	24:00:00	65.92	989.5	1.33	1.33	0.72	19.28	23.52	22.62	17.99
1/31/1993	24:00:00	58.67	990.24	2.02	2.02	0.41	20.17	22.82	21.87	19.99
2/28/1993	24:00:00	66.3	988.64	0.76	0.76	14.09	18.29	25.33	24.86	31.69
3/31/1993	24:00:00	74.83	988.75	2.31	2.31	69.23	17.44	26.19	26.06	44.78
4/30/1993	24:00:00	81.58	987.72	3.12	3.12	75.95	14.97	26.51	26.40	47.40
5/31/1993	24:00:00	84.72	988.36	3.12	3.12	119.65	15.86	26.38	26.26	53.53
6/30/1993	24:00:00	85.85	990.99	2.74	2.74	167.86	15.47	25.33	25.21	62.39
7/31/1993	24:00:00	86.9	991.33	3.56	3.56	255.14	15.69	24.25	24.06	80.20
8/31/1993	24:00:00	86.82	991.53	3.37	3.37	320.49	16.14	24.13	24.00	96.55
9/30/1993	24:00:00	86.83	990.39	2.07	2.07	207.36	14.95	24.60	24.49	70.59
10/31/1993	24:00:00	86.39	989.61	1.78	1.78	157.37	14.92	25.24	25.03	59.70
11/30/1993	24:00:00	84.39	988.13	1.74	1.74	94.50	15.12	25.43	25.27	45.03
12/31/1993	24:00:00	71.8	988.93	1.07	1.07	12.46	17.28	23.89	23.04	21.86
1/31/1994	24:00:00	71.19	988.44	0.23	0.23	12.59	18.32	24.43	23.88	22.83
2/28/1994	24:00:00	64.91	988.82	0.52	0.52	4.38	18.00	25.61	25.05	31.86
3/31/1994	24:00:00	80.99	987.87	2.8	2.8	37.42	17.21	26.70	26.68	33.13
4/30/1994	24:00:00	82.75	987.62	3.06	3.06	86.88	16.87	26.62	26.55	45.19
5/31/1994	24:00:00	85.14	989.3	2.54	2.54	127.74	15.41	25.85	25.69	54.23
6/30/1994	24:00:00	85.74	990.77	2.87	2.87	188.99	15.81	25.23	25.08	66.93
7/31/1994	24:00:00	87.32	991.47	3.27	3.27	340.05	15.37	24.28	24.08	103.55
8/31/1994	24:00:00	87.75	990.88	3.53	3.53	363.90	15.47	24.17	23.96	108.91
9/30/1994	24:00:00	88.04	990.65	3.01	3.01	434.09	15.44	24.43	24.23	128.63
10/31/1994	24:00:00	87.57	989.18	1.54	1.54	480.04	12.79	24.68	24.39	148.45
11/30/1994	24:00:00	77.74	989.71	0.78	0.78	27.20	16.64	24.20	23.65	23.70
12/31/1994	24:00:00	68.55	990.38	2.65	2.65	0.05	19.99	21.74	20.92	7.18
1/31/1995	24:00:00	62.7	990.07	1.4	1.4	4.64	18.90	23.97	23.12	24.92
2/28/1995	24:00:00	67.59	989.84	0.51	0.51	13.36	16.99	25.48	25.22	34.54
3/31/1995	24:00:00	80.66	987.7	2.54	2.54	71.71	15.88	26.52	26.36	44.80
4/30/1995	24:00:00	83.2	986.77	2.77	2.77	94.22	14.94	26.63	26.41	50.95
5/31/1995	24:00:00	85.13	988.57	2.12	2.12	172.26	14.91	26.07	25.94	68.35
6/30/1995	24:00:00	86.49	990.27	2.61	2.61	274.89	15.11	25.42	25.26	91.76
7/31/1995	24:00:00	88.44	989.9	3.2	3.2	401.08	14.96	24.37	24.14	120.19
8/31/1995	24:00:00	89.11	990.31	2.98	2.98	279.90	14.36	24.42	24.18	88.43
9/30/1995	24:00:00	88.16	990.57	2.77	2.77	307.20	15.49	24.85	24.63	95.66
10/31/1995	24:00:00	86.71	988.99	2	2	311.49	15.08	25.16	24.96	100.35
11/30/1995	24:00:00	77.54	989.3	1.41	1.41	20.60	17.71	24.11	23.60	19.35
12/31/1995	24:00:00	70.23	989.88	1.08	1.08	10.82	17.82	24.08	23.23	22.34
1/31/1996	24:00:00	66.66	987.94	0.11	0.11	9.75	18.81	25.12	24.25	26.89
2/28/1996	24:00:00	75.41	987.27	1.84	1.84	21.95	17.01	26.69	26.76	34.93
3/31/1996	24:00:00	80.74	987.28	2.65	2.65	81.32	16.09	26.48	26.44	47.01
4/30/1996	24:00:00	83.22	987.28	2.68	2.68	82.50	15.67	26.54	26.44	46.01
5/31/1996	24:00:00	84.86	988.75	2.58	2.58	181.60	16.29	26.26	26.11	68.49
6/30/1996	24:00:00	86.36	990.39	2.81	2.81	232.61	15.60	25.26	25.10	78.69
7/31/1996	24:00:00	86.77	991.74	3.31	3.31	336.97	16.14	24.21	24.02	101.16
8/31/1996	24:00:00	87.46	990.96	3.35	3.35	493.13	16.18	24.22	24.03	142.60
9/30/1996	24:00:00	87.7	989.97	2.94	2.94	521.70	15.65	24.47	24.30	152.35

10/31/1996	24:00:00	86.53	989.54	1.5	1.5	201.58	14.76	24.60	24.37	69.38
11/30/1996	24:00:00	71.53	988.89	1.32	1.32	10.02	19.17	23.94	23.26	17.61
12/31/1996	24:00:00	66.08	989.31	0.72	0.72	2.00	18.56	24.24	23.18	22.14
1/31/1997	24:00:00	70.42	988.9	0.17	0.17	16.24	16.83	24.70	24.12	29.07
2/28/1997	24:00:00	54.03	989.54	1.61	1.61	0.48	19.00	23.56	22.35	29.30
3/31/1997	24:00:00	77.54	987.91	1.76	1.76	65.36	15.73	26.19	25.98	45.00
4/30/1997	24:00:00	83.37	989.1	2.88	2.88	119.56	15.37	25.91	25.77	54.13
5/31/1997	24:00:00	85.94	989.98	2.3	2.3	205.56	15.02	25.76	25.58	75.00
6/30/1997	24:00:00	87.5	990.12	2.7	2.7	347.94	14.18	25.11	24.98	111.67
7/31/1997	24:00:00	86.65	991.85	3.81	3.81	231.20	17.42	24.33	24.15	70.17
8/31/1997	24:00:00	86.24	991.82	3.23	3.23	320.55	17.21	24.44	24.34	95.79
9/30/1997	24:00:00	85.9	990.32	2.17	2.17	263.23	15.14	25.25	25.13	88.55
10/31/1997	24:00:00	84.89	988.99	1.52	1.52	226.14	14.23	25.97	25.80	84.23
11/30/1997	24:00:00	78.63	988.81	0.56	0.56	89.62	16.68	26.15	25.84	47.66
12/31/1997	24:00:00	65.56	990	1.08	1.08	2.13	17.30	24.43	23.58	27.06
1/31/1998	24:00:00	62.94	989.04	1.68	1.68	1.71	19.21	23.61	22.84	22.05
2/28/1998	24:00:00	63.43	989.72	0.55	0.55	3.20	18.08	27.08	26.96	39.61
3/31/1998	24:00:00	62.37	987.59	1.26	1.26	25.81	18.28	27.73	27.57	48.65
4/30/1998	24:00:00	83.05	987.32	2.92	2.92	85.71	15.29	27.80	27.65	52.61
5/31/1998	24:00:00	83.89	989.32	2.65	2.65	145.46	16.03	27.20	27.04	63.83
6/30/1998	24:00:00	85.64	991.07	2.31	2.31	181.96	13.54	25.88	25.69	72.91
7/31/1998	24:00:00	85.48	991.07	3.54	3.54	238.08	15.83	24.91	24.82	79.40
8/31/1998	24:00:00	85.81	990.49	3.49	3.49	206.54	16.92	24.49	24.38	66.30
9/30/1998	24:00:00	86.31	990.01	2.56	2.56	401.26	13.80	24.99	24.81	127.52
10/31/1998	24:00:00	83.6	989.8	1.74	1.74	232.73	15.78	25.66	25.46	82.27
11/30/1998	24:00:00	77.73	988.36	0.18	0.18	26.83	16.04	25.94	25.57	32.11
12/31/1998	24:00:00	70.2	989.12	0.71	0.71	20.45	16.41	24.58	24.03	31.11
1/31/1999	24:00:00	67.81	988.09	0.17	0.17	23.08	17.40	25.37	25.19	35.74
2/28/1999	24:00:00	71.93	987.53	1.98	1.98	28.91	13.77	26.88	27.08	49.06
3/31/1999	24:00:00	73.61	986	3.28	3.28	53.45	16.10	27.79	28.12	52.38
4/30/1999	24:00:00	73.58	987.64	3.09	3.09	70.92	15.21	27.68	27.94	58.65
5/31/1999	24:00:00	74.78	988.64	2.58	2.58	123.51	15.36	27.23	27.53	69.70
6/30/1999	24:00:00	79.63	989.59	2.32	2.32	171.51	14.15	26.15	26.15	75.96
7/31/1999	24:00:00	78.71	991.03	3.31	3.31	321.00	15.06	25.28	25.41	112.17
8/31/1999	24:00:00	76.5	990.75	3.29	3.29	264.61	16.25	25.53	25.81	97.58
9/30/1999	24:00:00	81.32	989.48	2.63	2.63	252.22	14.49	25.21	25.25	91.90
10/31/1999	24:00:00	82.43	989.53	2.14	2.14	418.74	15.18	25.26	25.18	133.93
11/30/1999	24:00:00	72.46	988.57	1.37	1.37	37.21	16.77	26.47	26.66	41.95
12/31/1999	24:00:00	50.97	988.31	0.95	0.95	1.09	18.64	26.22	26.50	47.59
1/31/2000	24:00:00	51.08	986.95	0.82	0.82	7.91	18.14	27.65	28.35	57.16
2/28/2000	24:00:00	38.48	988.3	0.98	0.98	1.92	17.89	27.58	28.26	67.92
3/31/2000	24:00:00	50.38	986.52	1.46	1.46	31.45	17.24	28.65	29.33	70.13
4/30/2000	24:00:00	69.99	986.48	3.59	3.59	73.98	16.29	28.40	28.98	64.00
5/31/2000	24:00:00	70.9	988.18	2.97	2.97	114.91	16.68	28.23	28.85	72.66
6/30/2000	24:00:00	86.76	990.58	2.43	2.43	220.84	13.83	25.01	24.80	78.27
7/31/2000	24:00:00	87.47	990.43	2.9	2.9	300.43	14.75	24.26	24.06	94.11
8/31/2000	24:00:00	86.91	991.12	3.12	3.12	383.85	15.12	24.15	23.98	115.97
9/30/2000	24:00:00	86.95	989.88	2.82	2.82	281.94	14.14	24.54	24.40	92.32
10/31/2000	24:00:00	86.24	989.89	1.51	1.51	200.32	14.70	25.05	24.83	71.20
11/30/2000	24:00:00	77.38	988.54	0.16	0.16	9.65	18.18	25.29	24.73	19.66

12/31/2000	24:00:00	70.35	990.05	1.46	1.46	5.90	18.87	22.73	21.82	13.13
1/31/2001	24:00:00	56.9	989.89	1.81	1.81	0.24	20.48	22.81	21.35	19.35
2/28/2001	24:00:00	63.81	988.37	0.61	0.61	6.14	16.27	24.11	23.19	30.85
3/31/2001	24:00:00	79.39	987.74	2.57	2.57	44.45	15.09	26.73	26.63	41.53
4/30/2001	24:00:00	82.89	987.61	2.77	2.77	100.44	14.28	26.71	26.51	54.89
5/31/2001	24:00:00	84.72	989.04	2.59	2.59	132.14	14.98	26.38	26.16	58.67
6/30/2001	24:00:00	85.75	990.77	2.92	2.92	217.51	15.05	25.22	25.06	76.38
7/31/2001	24:00:00	85.22	991.25	3.32	3.32	216.93	15.93	24.59	24.52	72.54
8/31/2001	24:00:00	84.14	992.17	3.5	3.5	186.44	17.01	24.53	24.47	62.54
9/30/2001	24:00:00	85.49	990.36	2.54	2.54	271.07	14.58	24.58	24.44	89.83
10/31/2001	24:00:00	82.85	989.85	1.18	1.18	113.92	15.87	25.49	25.30	50.04
11/30/2001	24:00:00	77.75	989.29	0.96	0.96	15.49	17.60	25.61	25.38	24.50
12/31/2001	24:00:00	68.1	988.86	0.65	0.65	3.91	18.86	25.28	24.83	25.70
1/31/2002	24:00:00	49.51	989.63	2.11	2.11	1.14	19.03	23.49	22.65	34.58
2/28/2002	24:00:00	59.15	988.6	1.12	1.12	21.34	16.48	26.44	26.62	50.98
3/31/2002	24:00:00	73.53	987.29	2.62	2.62	50.58	16.19	27.83	28.20	51.70
4/30/2002	24:00:00	82.66	986.38	3.11	3.11	102.11	15.10	26.92	26.85	54.78
5/31/2002	24:00:00	83.56	988.88	2.67	2.67	80.70	16.04	26.73	26.55	44.80
6/30/2002	24:00:00	85.24	991.03	2.98	2.98	173.68	14.29	25.42	25.24	67.58
7/31/2002	24:00:00	87.02	991.64	3.04	3.04	392.80	14.17	25.00	24.79	123.66
8/31/2002	24:00:00	85.47	991.25	2.87	2.87	295.13	16.24	24.76	24.69	93.27
9/30/2002	24:00:00	85.61	990.75	2.52	2.52	182.99	14.87	25.00	24.89	66.91
10/31/2002	24:00:00	84.18	989.6	1.44	1.44	156.81	15.31	25.23	25.04	60.73
11/30/2002	24:00:00	76.09	989.77	0.51	0.51	42.35	17.68	25.66	25.33	33.00
12/31/2002	24:00:00	65.85	990.33	0.87	0.87	3.81	18.88	24.30	23.63	23.44
1/31/2003	24:00:00	63.85	990.04	0.1	0.1	7.65	17.56	25.11	24.60	33.05
2/28/2003	24:00:00	71.64	988.01	1.68	1.68	30.56	15.04	27.04	27.11	46.94
3/31/2003	24:00:00	76	987.53	1.76	1.76	37.67	13.80	27.00	26.89	46.99
4/30/2003	24:00:00	82.03	988.05	2.83	2.83	129.34	15.08	26.96	26.87	62.85
5/31/2003	24:00:00	84.36	989.32	2.53	2.53	176.13	14.33	26.44	26.22	72.70
6/30/2003	24:00:00	84.7	990.22	2.59	2.59	263.79	13.44	25.40	25.29	94.57
7/31/2003	24:00:00	85.03	991.4	3.29	3.29	237.86	15.94	24.82	24.72	79.12
8/31/2003	24:00:00	83.83	991.2	3.41	3.41	269.19	15.58	25.02	24.94	90.44
9/30/2003	24:00:00	85.25	990.87	1.99	1.99	247.61	14.24	25.11	24.94	86.43
10/31/2003	24:00:00	85.59	988.91	1.7	1.7	230.86	14.63	25.78	25.60	83.13
11/30/2003	24:00:00	80.64	988.47	1.01	1.01	70.48	14.86	25.74	25.33	43.15
12/31/2003	24:00:00	66.23	989.23	0.49	0.49	3.66	17.06	24.32	23.39	26.72
1/31/2004	24:00:00	68.25	988.14	0.4	0.4	5.09	16.83	25.18	24.65	30.12
2/28/2004	24:00:00	65.87	988.57	0.65	0.65	15.65	16.26	26.07	25.76	40.66
3/31/2004	24:00:00	68.67	987.47	1.85	1.85	48.08	15.56	27.56	27.52	54.93
4/30/2004	24:00:00	81.97	987.88	3.33	3.33	140.54	15.02	27.00	26.91	66.27
5/31/2004	24:00:00	85.25	989.65	2.77	2.77	235.00	14.61	26.30	26.15	86.74
6/30/2004	24:00:00	86.11	991.79	2.92	2.92	230.20	12.93	25.27	25.08	84.68
7/31/2004	24:00:00	86.37	990.97	3.01	3.01	359.81	13.22	24.53	24.34	115.93
8/31/2004	24:00:00	84.52	991.44	3.3	3.3	287.03	15.32	24.96	24.88	94.98
9/30/2004	24:00:00	85.63	990.16	2.05	2.05	213.92	13.28	25.14	24.97	79.41
10/31/2004	24:00:00	84.5	989.46	2.06	2.06	172.07	14.40	25.66	25.58	68.71
11/30/2004	24:00:00	79.81	988.64	1.32	1.32	66.25	13.83	25.88	25.67	46.42
12/31/2004	24:00:00	68.45	988.13	0.73	0.73	7.20	17.42	25.87	25.92	33.41
1/31/2005	24:00:00	51.59	988.7	1.26	1.26	6.68	16.72	24.55	24.05	44.57

2/28/2005	24:00:00	67.79	986.78	2.22	2.22	36.86	12.97	28.30	28.75	63.22
3/31/2005	24:00:00	76.08	987.71	2.76	2.76	64.51	12.95	27.82	27.92	59.99
4/30/2005	24:00:00	75.31	987.52	3.31	3.31	113.08	13.22	28.29	28.50	75.34
5/31/2005	24:00:00	74.29	989.04	2.89	2.89	160.81	14.40	27.60	27.96	84.17
6/30/2005	24:00:00	80.24	990.12	3.12	3.12	282.21	14.04	26.40	26.51	106.85
7/31/2005	24:00:00	79.05	991.57	3.04	3.04	303.40	14.60	25.73	25.87	109.92
8/31/2005	24:00:00	72.71	990.79	3.74	3.74	154.97	17.88	26.24	26.82	71.27
9/30/2005	24:00:00	83.78	990.25	2.1	2.1	302.51	15.87	25.75	25.75	101.65
10/31/2005	24:00:00	83.16	989.75	1.59	1.59	168.83	14.99	25.83	25.76	68.34
11/30/2005	24:00:00	73.26	988.28	0.81	0.81	24.44	16.89	26.28	26.15	35.74
12/31/2005	24:00:00	66.2	987.39	0.98	0.98	21.53	16.68	26.75	27.06	45.31
1/31/2006	24:00:00	66.29	987.04	1.74	1.74	25.54	14.75	27.68	28.18	55.10
2/28/2006	24:00:00	68.81	986.92	2.81	2.81	38.50	13.22	28.34	28.94	62.72
3/31/2006	24:00:00	71.84	987.86	2.84	2.84	54.82	12.79	27.75	28.02	62.07
4/30/2006	24:00:00	72.4	986.97	2.87	2.87	83.96	13.84	28.14	28.51	68.65
5/31/2006	24:00:00	80.57	989.39	2.64	2.64	357.75	14.86	26.68	26.69	125.69
6/30/2006	24:00:00	81.76	990.16	2.53	2.53	195.72	13.42	26.16	26.09	82.04
7/31/2006	24:00:00	82.81	991.07	3.14	3.14	218.81	14.66	25.62	25.55	82.29
8/31/2006	24:00:00	85.54	990.61	3.23	3.23	300.16	15.80	24.81	24.71	95.74
9/30/2006	24:00:00	86.42	990.65	2.23	2.23	261.96	13.35	24.91	24.70	90.47
10/31/2006	24:00:00	84.48	988.94	1.36	1.36	159.43	14.40	26.00	25.84	66.33
11/30/2006	24:00:00	71.08	988.87	0.39	0.39	12.68	16.65	25.15	24.50	29.43
12/31/2006	24:00:00	59.6	990.08	1.03	1.03	0.21	19.46	24.16	23.50	26.57
1/31/2007	24:00:00	53.42	989.91	2.08	2.08	0.82	18.54	23.42	22.87	32.50
2/28/2007	24:00:00	67.08	988.25	1.43	1.43	31.14	14.75	26.69	26.78	50.89
3/31/2007	24:00:00	68.01	987.08	2.47	2.47	37.96	15.77	27.76	28.01	53.97
4/30/2007	24:00:00	75.96	987.3	3.24	3.24	164.37	14.24	27.78	27.92	83.96
5/31/2007	24:00:00	83.57	988.6	2.55	2.55	152.68	14.18	26.64	26.45	68.31
6/30/2007	24:00:00	86.34	990.51	2.97	2.97	308.35	14.18	25.33	25.15	102.81
7/31/2007	24:00:00	86.77	991	3.19	3.19	269.78	14.63	24.69	24.49	88.45
8/31/2007	24:00:00	87.72	990.3	2.79	2.79	353.07	14.10	24.50	24.28	110.48
9/30/2007	24:00:00	87.85	990.53	1.94	1.94	428.22	13.74	24.96	24.72	133.14
10/31/2007	24:00:00	87.83	989.29	1.79	1.79	222.53	13.60	24.93	24.68	77.81
11/30/2007	24:00:00	81.84	988.23	0.95	0.95	144.17	15.18	25.50	25.00	59.95
12/31/2007	24:00:00	72.29	988.81	0.72	0.72	16.12	18.10	23.96	23.08	20.56
1/31/2008	24:00:00	66.24	988.86	1.49	1.49	8.42	17.08	23.06	22.20	23.46
2/28/2008	24:00:00	61.36	988.97	0.78	0.78	6.12	17.13	24.36	23.21	31.42
3/31/2008	24:00:00	82.28	986.97	2.85	2.85	72.67	14.77	26.47	26.35	46.13
4/30/2008	24:00:00	82.73	986.71	2.32	2.32	110.00	13.99	26.29	26.10	56.74
5/31/2008	24:00:00	83.64	988.18	2.19	2.19	161.38	13.97	26.26	25.97	69.36
6/30/2008	24:00:00	85.36	989.93	2.42	2.42	252.85	13.66	25.54	25.33	90.69
7/31/2008	24:00:00	85.91	991.06	2.84	2.84	392.75	14.32	24.75	24.56	123.45
8/31/2008	24:00:00	86.94	989.85	2.82	2.82	421.55	13.59	24.49	24.29	130.96
9/30/2008	24:00:00	86.43	990.27	2.13	2.13	315.55	14.26	25.01	24.81	103.13
10/31/2008	24:00:00	84.11	989.46	1.48	1.48	140.51	14.84	25.64	25.32	58.70
11/30/2008	24:00:00	75.43	988.48	0.17	0.17	27.84	17.63	26.01	25.49	30.60
12/31/2008	24:00:00	72.38	988.28	0.14	0.14	29.31	16.71	25.21	24.44	32.38
1/31/2009	24:00:00	72.24	988.51	0.93	0.93	25.16	14.76	25.66	25.08	38.40
2/28/2009	24:00:00	76.51	987.24	2.09	2.09	33.71	14.27	26.92	27.01	44.59
3/31/2009	24:00:00	77.85	986.67	2.37	2.37	42.94	13.80	27.13	27.02	47.17

4/30/2009	24:00:00	82.33	988.06	2.64	2.64	114.82	14.21	26.69	26.52	59.49
5/31/2009	24:00:00	85.04	988.58	2.25	2.25	148.92	14.12	26.13	25.90	63.97
6/30/2009	24:00:00	85.83	990.65	2.39	2.39	199.18	13.50	25.49	25.30	75.98
7/31/2009	24:00:00	86	991.08	2.9	2.9	431.90	14.35	25.08	24.87	135.04
8/31/2009	24:00:00	86.46	990.51	2.75	2.75	297.80	14.17	24.89	24.76	98.33
9/30/2009	24:00:00	85.74	990.91	2.15	2.15	221.72	13.86	25.35	25.23	80.96
10/31/2009	24:00:00	85.3	989.22	1.57	1.57	344.48	14.43	25.40	25.23	113.14
11/30/2009	24:00:00	75.2	989.09	0.14	0.14	57.13	17.20	25.09	24.38	35.73
12/31/2009	24:00:00	64.3	989.32	0.59	0.59	1.57	19.19	25.08	24.01	25.35
1/31/2010	24:00:00	66.37	989	0.59	0.59	8.72	18.29	25.84	25.27	31.78
2/28/2010	24:00:00	73.57	988.03	2.18	2.18	35.06	13.97	27.20	27.01	48.77
3/31/2010	24:00:00	72.24	988.43	2.11	2.11	46.14	14.86	27.63	27.68	53.21
4/30/2010	24:00:00	80.11	987.81	2.76	2.76	73.13	14.45	27.43	27.30	52.71
5/31/2010	24:00:00	83.68	988.73	2.66	2.66	180.92	14.57	26.95	26.78	76.14
6/30/2010	24:00:00	86.04	990.87	2.43	2.43	315.96	12.48	25.69	25.46	110.41
7/31/2010	24:00:00	85.99	990.87	2.8	2.8	340.07	14.29	24.86	24.69	109.69
8/31/2010	24:00:00	86.01	990.66	3.01	3.01	249.82	15.19	24.90	24.76	83.38
9/30/2010	24:00:00	86.26	989.92	2.22	2.22	324.36	14.18	24.92	24.73	105.58
10/31/2010	24:00:00	86.96	989.21	2.05	2.05	199.78	14.91	25.24	25.11	70.88
11/30/2010	24:00:00	81.34	988.02	0.95	0.95	102.23	15.87	25.94	25.64	49.67
12/31/2010	24:00:00	66.82	987.89	0.69	0.69	7.20	19.74	24.45	23.50	21.10
1/31/2011	24:00:00	61.24	987.82	1.28	1.28	0.89	19.89	23.74	22.53	20.99
2/28/2011	24:00:00	78.79	987.59	2.56	2.56	47.00	13.70	26.16	25.90	43.53
3/31/2011	24:00:00	78.96	987.12	2.71	2.71	54.79	15.94	26.90	26.71	43.07
4/30/2011	24:00:00	81.99	987.1	2.79	2.79	72.96	13.33	26.51	26.19	49.52
5/31/2011	24:00:00	85.4	988.73	2.52	2.52	157.93	12.97	26.25	25.95	69.10
6/30/2011	24:00:00	86.97	990.23	2.78	2.78	205.70	12.54	25.45	25.18	78.63
7/31/2011	24:00:00	86.39	990.46	2.8	2.8	480.88	14.85	24.92	24.76	146.23
8/31/2011	24:00:00	86.02	990.69	3.13	3.13	284.50	16.02	24.73	24.56	90.02
9/30/2011	24:00:00	86.62	990.9	2.25	2.25	310.59	13.87	24.81	24.62	101.84
10/31/2011	24:00:00	86.19	988.52	1.5	1.5	342.73	13.10	25.09	24.80	113.49
11/30/2011	24:00:00	75.96	988.81	0.52	0.52	22.44	18.26	25.36	24.73	24.35
12/31/2011	24:00:00	62.71	989.59	0.92	0.92	2.41	19.35	23.25	21.83	18.80
1/31/2012	24:00:00	66.81	989.23	0.23	0.23	14.68	17.38	24.33	23.33	28.17
2/28/2012	24:00:00	77.65	987.26	2.69	2.69	66.82	14.92	26.44	26.41	48.76
3/31/2012	24:00:00	75.68	988	2.04	2.04	35.11	14.65	26.74	26.46	43.11
4/30/2012	24:00:00	82.45	987.93	3.26	3.26	116.75	14.35	26.53	26.28	58.75
5/31/2012	24:00:00	83.79	989.67	2.34	2.34	223.90	13.97	25.93	25.70	85.05
6/30/2012	24:00:00	85.11	990.99	2.5	2.5	436.93	14.23	25.27	25.05	138.20
7/31/2012	24:00:00	85.66	990.89	3.09	3.09	345.69	15.64	24.71	24.58	107.83
8/31/2012	24:00:00	85.59	991.4	2.98	2.98	349.82	16.02	24.54	24.45	107.56
9/30/2012	24:00:00	86.32	991.33	2.47	2.47	337.13	14.33	24.74	24.58	108.03
10/31/2012	24:00:00	86.09	989.38	1.57	1.57	195.88	13.40	25.21	25.01	73.93
11/30/2012	24:00:00	80.54	988.84	0.72	0.72	61.27	15.18	25.86	25.46	40.44
12/31/2012	24:00:00	67.21	989.08	0.93	0.93	11.95	18.43	24.27	23.35	24.60
1/31/2013	24:00:00	68.38	989.51	0.09	0.09	25.19	16.54	25.15	24.36	35.24
2/28/2013	24:00:00	74.89	987.85	1.59	1.59	29.15	13.95	26.38	26.11	42.56
3/31/2013	24:00:00	80.83	988.19	3.2	3.2	85.52	14.06	26.90	26.73	54.20
4/30/2013	24:00:00	79.98	988.69	2.59	2.59	95.09	14.78	26.91	26.77	55.94
5/31/2013	24:00:00	84.58	989.7	2.48	2.48	179.21	13.05	26.04	25.78	74.76

6/30/2013	24:00:00	85.61	990.64	2.8	2.8	170.13	14.18	25.44	25.26	66.59
7/31/2013	24:00:00	85.82	991.44	2.86	2.86	425.51	14.57	24.66	24.51	131.54
8/31/2013	24:00:00	85.02	990.72	3.16	3.16	174.99	15.94	24.53	24.41	60.99
9/30/2013	24:00:00	86.12	990.77	2.09	2.09	354.71	14.01	24.99	24.83	114.65
10/31/2013	24:00:00	83.37	990.05	1.24	1.24	173.97	16.55	25.54	25.37	64.35
11/30/2013	24:00:00	82.99	988.37	1.67	1.67	59.60	15.79	25.74	25.57	36.46
12/31/2013	24:00:00	74.69	989.48	0.7	0.7	38.65	17.62	24.53	23.86	28.27
1/31/2014	24:00:00	70.32	989	1.12	1.12	22.48	17.55	25.47	24.73	31.63
2/28/2014	24:00:00	70.65	987.8	1.54	1.54	27.59	15.51	26.45	26.08	42.44
3/31/2014	24:00:00	79.31	988.12	2.98	2.98	77.97	14.17	26.73	26.51	52.55
4/30/2014	24:00:00	81.71	988.53	2.83	2.83	142.48	13.91	26.69	26.49	68.19
5/31/2014	24:00:00	82.48	988.85	2.05	2.05	195.92	15.31	26.68	26.46	78.34
6/30/2014	24:00:00	82.79	990.55	2.66	2.66	132.19	14.85	26.09	25.97	60.05
7/31/2014	24:00:00	83.85	992.26	3.06	3.06	226.95	15.51	25.35	25.25	80.33
8/31/2014	24:00:00	84.14	991.37	3.01	3.01	291.90	15.66	24.89	24.78	95.45
9/30/2014	24:00:00	84.65	990.89	2.2	2.2	392.85	14.82	24.96	24.88	124.54
10/31/2014	24:00:00	83.53	989.95	1.46	1.46	264.97	14.65	25.64	25.50	93.83
11/30/2014	24:00:00	77.65	989.29	1.19	1.19	109.01	15.90	26.07	25.88	55.81
12/31/2014	24:00:00	59.68	989.68	0.6	0.6	5.60	18.80	26.19	26.09	38.81
1/31/2015	24:00:00	52.51	990.53	0.98	0.98	7.40	18.72	25.14	25.19	42.89
2/28/2015	24:00:00	68.22	988.3	2.74	2.74	52.06	13.79	28.16	28.84	65.14
3/31/2015	24:00:00	71.24	988.02	2.63	2.63	75.05	15.21	27.82	28.18	62.79
4/30/2015	24:00:00	71.88	988.94	2.52	2.52	59.47	15.75	27.83	28.02	56.19
5/31/2015	24:00:00	76.6	989.56	2.87	2.87	198.49	13.65	27.36	27.48	92.32
6/30/2015	24:00:00	82.99	991.31	3.19	3.19	194.78	15.02	25.97	25.90	76.10
7/31/2015	24:00:00	83.79	991.22	2.97	2.97	240.21	14.45	25.56	25.48	87.37
8/31/2015	24:00:00	83.4	990.95	3.01	3.01	489.60	14.36	25.39	25.41	154.95
9/30/2015	24:00:00	85.14	990.68	2.65	2.65	343.31	14.01	25.44	25.41	114.65
10/31/2015	24:00:00	84.01	990.16	1.9	1.9	331.84	14.27	25.88	25.84	113.57
11/30/2015	24:00:00	70.37	989.42	0.56	0.56	47.16	17.82	26.75	26.96	45.16
12/31/2015	24:00:00	42.75	991.25	3.17	3.17	0.38	19.74	24.76	24.66	46.19
1/31/2016	24:00:00	40.89	990.15	1.74	1.74	1.39	20.28	26.67	26.99	55.29
2/28/2016	24:00:00	48.18	988.56	1.09	1.09	7.23	16.95	29.19	30.12	69.14
3/31/2016	24:00:00	71.06	988.58	3.21	3.21	200.10	15.13	28.80	29.21	100.80
4/30/2016	24:00:00	73.67	988.19	3.17	3.17	83.05	14.75	28.52	28.80	66.18
5/31/2016	24:00:00	80.14	990.28	2.74	2.74	231.43	15.21	27.11	27.14	92.83
6/30/2016	24:00:00	83.14	991.65	2.66	2.66	417.71	13.46	25.78	25.72	139.16
7/31/2016	24:00:00	85.27	991.25	2.95	2.95	224.11	14.39	25.10	25.00	79.95
8/31/2016	24:00:00	86.47	991.2	2.83	2.83	290.55	13.60	24.85	24.69	97.50
9/30/2016	24:00:00	86.28	990.97	2.24	2.24	284.63	13.96	25.13	25.01	96.35
10/31/2016	24:00:00	84.07	989.17	1.39	1.39	196.95	14.67	25.89	25.68	75.65
11/30/2016	24:00:00	75.58	988.76	0.38	0.38	57.61	17.24	26.52	26.04	41.48
12/31/2016	24:00:00	65.68	988.94	0.65	0.65	8.43	16.44	25.40	24.51	34.23
1/31/2017	24:00:00	65.07	988.72	0.79	0.79	15.99	16.56	26.24	25.78	41.02
2/28/2017	24:00:00	59.12	988.34	0.6	0.6	7.61	15.69	27.18	27.20	51.50
3/31/2017	24:00:00	75	987.72	2.74	2.74	56.88	15.14	27.78	27.83	53.41
4/30/2017	24:00:00	80.27	988.12	2.63	2.63	96.28	13.38	27.07	26.90	59.88
5/31/2017	24:00:00	83.35	989.48	2.39	2.39	142.92	15.18	26.71	26.57	63.89
6/30/2017	24:00:00	84.81	990.28	2.18	2.18	185.52	13.81	25.95	25.76	74.26
7/31/2017	24:00:00	86.23	991.85	2.88	2.88	264.98	15.09	25.03	24.89	88.00

8/31/2017	24:00:00	86.62	990.89	2.91	2.91	278.74	15.43	24.87	24.71	89.86
9/30/2017	24:00:00	86.64	990.68	2.1	2.1	223.64	13.29	25.13	24.88	80.77
10/31/2017	24:00:00	84.57	989.59	1.81	1.81	103.35	14.74	25.92	25.71	49.86
11/30/2017	24:00:00	78.39	988.89	1.05	1.05	58.05	15.48	25.87	25.37	40.69
12/31/2017	24:00:00	68.96	988.93	0.08	0.08	8.36	16.85	25.64	24.85	31.22
1/31/2018	24:00:00	53.53	989.52	1.3	1.3	0.90	18.74	23.77	22.25	30.37
2/28/2018	24:00:00	75.36	987.29	2.32	2.32	62.84	14.12	26.84	26.65	52.84
3/31/2018	24:00:00	79.73	988.32	3.1	3.1	92.04	15.35	26.96	26.87	54.38
4/30/2018	24:00:00	80.7	988.31	3.23	3.23	109.81	14.67	26.89	26.75	59.46
5/31/2018	24:00:00	83.29	989.3	2.92	2.92	138.52	14.69	26.38	26.20	62.63
6/30/2018	24:00:00	85.97	990.98	2.8	2.8	233.31	13.33	25.35	25.09	84.77
7/31/2018	24:00:00	86.27	991.47	2.63	2.63	285.58	14.74	24.99	24.79	94.01
8/31/2018	24:00:00	86.63	991.36	2.84	2.84	302.77	15.74	24.82	24.66	95.38
9/30/2018	24:00:00	87.46	989.65	2.17	2.17	558.63	13.95	25.10	24.89	168.85
10/31/2018	24:00:00	86.4	989.45	1.7	1.7	233.96	14.29	25.61	25.33	83.06
11/30/2018	24:00:00	78.83	988.5	0.75	0.75	40.01	16.37	26.36	25.90	35.20
12/31/2018	24:00:00	62.82	989.92	0.87	0.87	3.78	17.79	24.82	23.47	28.97
1/31/2019	24:00:00	68.58	989.62	0.92	0.92	21.35	17.25	25.52	24.75	33.82
2/28/2019	24:00:00	68.44	988.83	1.1	1.1	38.45	13.63	26.14	25.38	49.67
3/31/2019	24:00:00	79.86	988.53	2.58	2.58	73.70	13.75	27.11	26.86	53.20
4/30/2019	24:00:00	80.22	988.04	2.95	2.95	125.56	14.68	27.52	27.24	66.12
5/31/2019	24:00:00	83.05	988.88	2.5	2.5	149.16	14.08	26.74	26.48	68.29
6/30/2019	24:00:00	84.76	991.16	2.67	2.67	286.17	15.13	25.97	25.81	98.50
7/31/2019	24:00:00	85.84	991.07	2.66	2.66	330.56	14.68	25.22	25.03	107.61
8/31/2019	24:00:00	86.95	991.98	2.95	2.95	313.22	14.90	24.77	24.56	99.60
9/30/2019	24:00:00	88.08	990.73	2.35	2.35	281.84	13.44	25.08	24.83	94.57
10/31/2019	24:00:00	87.32	989.38	1.78	1.78	209.65	14.56	25.02	24.80	72.92
11/30/2019	24:00:00	80.03	988.36	0.57	0.57	59.42	16.28	26.57	26.05	40.10
12/31/2019	24:00:00	62.04	989.21	1.16	1.16	1.11	20.65	24.98	23.67	22.84

Appendix 1B: AJALI River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.129
 # Site longitude (positive means East);6.293
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 41m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	64.75	986.73	0.37	45.62	1.72	18.85	24.03	23.35	12.01
2/28/1981	24:00:00	66.16	985.5	0.80	239.75	15.25	18.60	25.53	25.05	12.36
3/31/1981	24:00:00	76.33	985.7	2.83	230.46	48.63	17.58	26.31	26.26	12.85
4/30/1981	24:00:00	80.89	985.11	2.73	224.50	78.29	17.86	26.54	26.61	13.45
5/31/1981	24:00:00	85.31	986.4	2.38	227.25	220.50	14.97	25.38	25.33	15.99
6/30/1981	24:00:00	85.05	987.92	2.44	230.71	117.14	15.99	25.32	25.26	13.99
7/31/1981	24:00:00	87.28	988.35	2.99	235.29	329.43	14.75	23.92	23.83	17.98
8/31/1981	24:00:00	85.17	988.02	3.13	233.15	269.49	17.49	24.16	24.23	16.99
9/30/1981	24:00:00	86.14	988	2.61	235.73	204.09	16.70	24.32	24.33	15.66
10/31/1981	24:00:00	85.93	986.55	1.59	220.14	149.70	15.83	25.08	25.04	14.63
11/30/1981	24:00:00	77.36	986.44	0.78	47.24	20.40	16.98	23.90	23.41	12.13
12/31/1981	24:00:00	65.14	986.58	0.69	40.57	0.65	19.96	24.28	23.33	12.10
1/31/1982	24:00:00	70.11	985.81	0.39	284.82	17.49	18.08	25.14	24.81	12.31
2/28/1982	24:00:00	68.2	985.47	0.75	254.45	26.26	16.33	24.68	24.19	12.33
3/31/1982	24:00:00	76.54	985.04	1.74	243.91	67.85	17.50	25.58	25.46	13.21
4/30/1982	24:00:00	82.73	985.25	3.11	231.31	102.49	16.54	26.13	26.15	13.79
5/31/1982	24:00:00	85.14	986.39	2.26	231.90	195.31	15.04	25.49	25.44	15.51
6/30/1982	24:00:00	87.07	988.5	2.37	233.04	244.28	14.86	24.73	24.64	16.39
7/31/1982	24:00:00	86.53	988.34	3.01	239.28	164.61	16.19	23.85	23.81	14.78
8/31/1982	24:00:00	86.01	988.73	3.37	239.03	157.71	18.38	23.34	23.39	14.72
9/30/1982	24:00:00	86.64	987.82	2.65	237.40	216.45	16.74	24.33	24.3	15.91
10/31/1982	24:00:00	87.95	986.74	1.76	235.09	230.31	14.14	24.07	23.96	16.02
11/30/1982	24:00:00	76.64	986.6	0.96	38.37	16.43	18.35	23.79	23.31	12.14
12/31/1982	24:00:00	69.66	986.43	1.10	34.50	8.47	17.96	23.61	22.82	12.00
1/31/1983	24:00:00	62.07	987.84	3.99	48.97	0.01	20.18	19.90	19.18	11.56
2/28/1983	24:00:00	66.36	986.14	0.80	219.77	6.30	19.23	26.14	25.83	12.26
3/31/1983	24:00:00	63.85	985.4	1.20	208.20	18.05	21.50	26.84	26.65	12.71
4/30/1983	24:00:00	76.46	984.9	2.80	220.20	69.69	17.85	27.23	27.3	13.37
5/31/1983	24:00:00	85.6	985.66	2.72	224.43	157.75	15.67	25.75	25.71	14.80
6/30/1983	24:00:00	86.61	987.91	2.86	228.18	293.14	15.50	24.90	24.79	17.41
7/31/1983	24:00:00	87.86	988.35	3.40	233.51	169.61	16.28	23.77	23.65	14.86
8/31/1983	24:00:00	88.95	989.68	3.48	232.63	223.93	17.13	23.10	23.02	15.93
9/30/1983	24:00:00	87.96	988.18	2.39	231.93	361.99	14.80	23.98	23.9	18.66
10/31/1983	24:00:00	84.25	987.37	1.52	223.48	49.58	17.57	24.71	24.59	12.73
11/30/1983	24:00:00	77.96	987.78	0.92	228.82	18.29	19.10	25.18	25.01	12.32
12/31/1983	24:00:00	75.18	987.09	0.62	244.47	17.95	17.29	24.24	23.72	12.16
1/31/1984	24:00:00	58.49	986.48	1.65	67.77	0.13	20.72	22.49	21.15	12.02
2/28/1984	24:00:00	71.77	984.49	1.01	209.20	4.31	18.32	25.28	25.3	12.01
3/31/1984	24:00:00	80.55	984.22	2.89	227.70	65.98	16.93	26.00	26.15	13.08

4/30/1984	24:00:00	83.33	984.8	2.95	224.87	149.09	15.60	25.73	25.76	14.62
5/31/1984	24:00:00	84.73	985.43	2.53	227.08	155.52	15.54	25.30	25.3	14.71
6/30/1984	24:00:00	84.98	987.3	2.45	229.09	138.41	15.86	24.88	24.83	14.36
7/31/1984	24:00:00	85.56	987.32	2.72	238.34	213.34	15.12	24.09	24.07	15.71
8/31/1984	24:00:00	84.9	987.8	2.37	237.23	208.92	16.41	24.31	24.37	15.74
9/30/1984	24:00:00	85.8	987.01	2.27	233.04	316.97	16.07	24.41	24.43	17.89
10/31/1984	24:00:00	86.36	986.36	1.54	232.30	251.42	15.02	24.75	24.63	16.58
11/30/1984	24:00:00	78.24	986.4	0.80	246.12	25.75	17.56	24.55	24.14	12.33
12/31/1984	24:00:00	66.71	985.69	1.35	41.73	3.52	18.78	22.81	21.77	11.92
1/31/1985	24:00:00	73.67	985.2	1.08	244.84	22.37	17.21	24.97	24.74	12.27
2/28/1985	24:00:00	54.55	986.03	0.65	91.78	0.86	20.54	24.44	23.23	12.25
3/31/1985	24:00:00	75.42	984.42	2.78	221.16	83.88	18.77	25.92	25.95	13.60
4/30/1985	24:00:00	80.63	985.09	2.73	219.83	84.19	18.25	26.00	26.15	13.54
5/31/1985	24:00:00	84.02	986	3.27	225.14	165.13	16.66	25.43	25.37	14.98
6/30/1985	24:00:00	84.61	988.75	2.91	229.88	214.77	16.13	24.44	24.41	15.85
7/31/1985	24:00:00	85.83	988.64	2.93	238.71	267.51	15.68	23.52	23.53	16.77
8/31/1985	24:00:00	86.46	988.01	2.93	235.24	370.83	14.82	23.78	23.78	18.80
9/30/1985	24:00:00	85.48	987.17	2.49	230.77	271.79	16.36	24.12	24.2	16.97
10/31/1985	24:00:00	83.82	986.29	0.68	186.95	197.55	15.82	24.83	24.77	15.61
11/30/1985	24:00:00	79.74	985.96	1.01	225.84	43.86	15.69	25.48	25.32	12.61
12/31/1985	24:00:00	64.49	985.76	0.83	16.05	2.52	18.50	23.79	22.94	11.98
1/31/1986	24:00:00	63.7	986.26	0.50	242.46	5.83	20.21	25.05	24.87	12.23
2/28/1986	24:00:00	73.91	985.41	3.06	229.45	28.37	15.21	25.97	26.25	12.22
3/31/1986	24:00:00	76.39	985.8	3.35	228.97	87.38	17.31	25.83	26.08	13.51
4/30/1986	24:00:00	79.19	984.7	3.44	227.29	71.91	17.59	26.58	26.74	13.29
5/31/1986	24:00:00	82.94	986.4	2.65	224.71	93.98	15.66	25.64	25.58	13.54
6/30/1986	24:00:00	83.09	987.7	3.07	227.24	190.79	16.93	25.10	25.15	15.48
7/31/1986	24:00:00	85.17	989.51	3.43	231.32	294.82	15.29	23.66	23.69	17.29
8/31/1986	24:00:00	84.11	988.18	2.88	235.54	207.19	17.57	23.79	23.9	15.72
9/30/1986	24:00:00	84.49	988.21	2.25	233.38	269.37	16.67	24.20	24.26	16.97
10/31/1986	24:00:00	83.6	987.35	0.82	232.95	284.93	16.93	24.90	24.92	17.43
11/30/1986	24:00:00	76.44	986.1	0.32	325.55	28.41	16.95	24.84	24.54	12.38
12/31/1986	24:00:00	60.7	987.52	1.78	47.53	2.33	19.30	22.94	22.07	11.94
1/31/1987	24:00:00	58.42	987.19	0.38	141.00	1.89	21.04	25.28	24.93	12.28
2/28/1987	24:00:00	67.22	986.11	2.53	221.87	29.16	18.30	27.52	28.37	12.60
3/31/1987	24:00:00	69.18	985.1	2.46	229.24	65.77	17.98	27.03	27.45	13.30
4/30/1987	24:00:00	69.77	985.58	2.71	216.98	36.54	19.22	28.02	28.6	12.86
5/31/1987	24:00:00	76.67	985.55	3.17	219.29	81.39	16.82	26.93	27.13	13.48
6/30/1987	24:00:00	83.94	988.34	2.82	225.68	154.85	16.22	25.30	25.34	14.74
7/31/1987	24:00:00	84.48	987.23	2.65	235.97	144.79	15.86	25.05	25.06	14.49
8/31/1987	24:00:00	87.32	987.27	2.85	235.00	405.45	13.71	24.42	24.3	19.49
9/30/1987	24:00:00	86.53	987.43	2.47	232.35	518.69	15.89	24.95	24.94	21.96
10/31/1987	24:00:00	85.89	986.6	1.69	227.57	211.07	15.43	25.25	25.16	15.85
11/30/1987	24:00:00	75.35	986.37	0.29	243.40	15.62	18.79	25.78	25.42	12.36
12/31/1987	24:00:00	65.13	986.98	0.53	22.04	10.24	18.90	24.84	23.72	12.30
1/31/1988	24:00:00	67.51	986.26	0.18	250.27	9.10	18.82	25.43	25.02	12.25
2/28/1988	24:00:00	68.24	984.34	1.05	240.42	9.52	18.68	26.73	26.79	12.29
3/31/1988	24:00:00	78.6	985.48	2.81	234.20	56.59	16.66	26.89	26.94	12.98
4/30/1988	24:00:00	80.12	984.85	3.28	228.66	103.98	16.34	26.79	26.77	13.88
5/31/1988	24:00:00	83.79	986.37	2.79	224.11	184.69	16.45	26.21	26.19	15.44

6/30/1988	24:00:00	85.55	987.4	2.67	233.62	185.21	15.07	25.07	25.05	15.25
7/31/1988	24:00:00	86.44	988.43	3.44	240.79	220.13	16.21	24.01	23.98	15.89
8/31/1988	24:00:00	86.12	987.46	3.68	233.95	255.86	17.96	24.00	24.03	16.71
9/30/1988	24:00:00	87.06	987.03	2.73	238.41	340.34	15.60	24.40	24.33	18.31
10/31/1988	24:00:00	85	986.05	1.11	217.45	168.36	16.91	25.30	25.25	15.12
11/30/1988	24:00:00	75.17	986.64	0.38	4.29	41.91	18.41	25.34	24.81	12.83
12/31/1988	24:00:00	74.57	985.96	0.66	3.12	18.09	15.73	24.14	23.59	12.05
1/31/1989	24:00:00	56.13	987.54	2.92	41.80	0.01	21.63	21.21	19.92	11.92
2/28/1989	24:00:00	55.86	986.67	1.30	52.52	1.20	19.40	23.72	22.65	12.06
3/31/1989	24:00:00	77.9	984.63	2.98	229.60	143.91	17.61	26.08	26.2	14.71
4/30/1989	24:00:00	81.02	984.47	3.33	225.77	66.70	17.31	26.41	26.43	13.15
5/31/1989	24:00:00	84.34	986.72	2.75	222.72	245.28	16.54	25.62	25.63	16.60
6/30/1989	24:00:00	86.17	987.95	2.66	224.07	241.44	14.93	24.80	24.78	16.33
7/31/1989	24:00:00	86.86	988.61	2.99	233.01	299.01	15.69	24.07	24	17.45
8/31/1989	24:00:00	87.51	987.97	3.11	236.42	394.45	15.43	24.00	23.94	19.33
9/30/1989	24:00:00	87.75	986.5	2.23	236.15	293.48	14.43	24.22	24.14	17.30
10/31/1989	24:00:00	86.06	986.96	1.62	233.17	155.64	15.55	24.72	24.62	14.70
11/30/1989	24:00:00	76.54	985.84	0.30	46.86	23.95	17.76	25.28	24.83	12.41
12/31/1989	24:00:00	69.1	986.74	0.92	50.20	13.08	17.54	24.11	23.34	12.12
1/31/1990	24:00:00	68.78	985.7	0.49	280.07	11.70	17.90	25.18	24.64	12.21
2/28/1990	24:00:00	61.48	986.16	0.11	122.83	8.50	18.36	25.62	24.91	12.29
3/31/1990	24:00:00	63.25	985.87	0.68	216.61	8.13	20.35	26.48	25.95	12.46
4/30/1990	24:00:00	81.17	984.96	3.45	226.75	88.89	16.62	26.68	26.66	13.58
5/31/1990	24:00:00	84.07	986.63	2.77	230.04	137.94	16.03	25.81	25.8	14.44
6/30/1990	24:00:00	84.05	988.08	3.04	230.21	141.41	15.42	25.48	25.47	14.43
7/31/1990	24:00:00	85.7	988.22	3.63	236.56	423.11	15.45	24.29	24.28	19.92
8/31/1990	24:00:00	83.84	988.62	3.12	238.27	299.92	15.58	24.50	24.58	17.50
9/30/1990	24:00:00	84.41	987.45	2.25	233.85	309.68	14.57	24.85	24.9	17.69
10/31/1990	24:00:00	83.29	986.78	1.61	220.41	274.60	15.42	25.25	25.25	17.12
11/30/1990	24:00:00	78.71	986.06	1.37	222.74	48.64	15.64	25.83	25.89	12.70
12/31/1990	24:00:00	75.43	985.71	1.16	239.04	53.59	16.00	25.67	25.62	12.85
1/31/1991	24:00:00	56.37	986.3	0.86	90.94	1.50	19.74	25.40	25.2	12.17
2/28/1991	24:00:00	68.6	985.55	2.64	225.69	22.28	14.79	27.57	28.16	12.24
3/31/1991	24:00:00	68.38	984.21	2.69	223.47	51.42	16.54	28.09	28.65	12.99
4/30/1991	24:00:00	79.37	985.11	3.29	227.01	135.66	15.80	26.57	26.72	14.44
5/31/1991	24:00:00	82.3	985.91	2.56	231.70	324.14	15.70	26.11	26.19	18.18
6/30/1991	24:00:00	83.66	987.5	2.76	234.59	247.48	13.23	25.55	25.53	16.42
7/31/1991	24:00:00	86.73	988.57	3.19	230.79	386.99	15.04	24.36	24.36	19.18
8/31/1991	24:00:00	85.46	988.93	3.56	231.17	342.43	15.29	24.08	24.16	18.27
9/30/1991	24:00:00	84.67	988	2.21	238.38	203.37	15.43	24.96	25.05	15.63
10/31/1991	24:00:00	84.92	986.97	2.17	236.00	290.22	14.19	24.47	24.44	17.25
11/30/1991	24:00:00	76.19	986.35	0.35	193.33	28.99	16.37	25.50	25.32	12.41
12/31/1991	24:00:00	59.24	986.71	1.81	52.43	0.64	18.65	23.80	23.17	11.92
1/31/1992	24:00:00	50.32	986.49	1.71	50.89	0.68	19.60	24.30	24.3	12.02
2/28/1992	24:00:00	39.08	986.32	1.63	69.57	1.55	19.78	26.90	27.19	12.34
3/31/1992	24:00:00	64.14	984.4	2.20	226.39	71.26	18.15	28.24	28.98	13.54
4/30/1992	24:00:00	76.99	985.19	2.93	226.38	123.53	15.73	27.27	27.59	14.27
5/31/1992	24:00:00	83.78	986.14	2.74	229.53	200.75	15.31	26.00	26.01	15.67
6/30/1992	24:00:00	84.92	987.92	3.26	231.62	173.02	16.17	25.16	25.17	15.06
7/31/1992	24:00:00	87.29	989.19	3.45	234.71	340.83	14.91	23.86	23.77	18.20

8/31/1992	24:00:00	86.05	989.37	3.77	232.60	298.11	16.84	23.65	23.69	17.44
9/30/1992	24:00:00	86.25	987.15	2.39	227.80	356.10	14.64	24.20	24.16	18.56
10/31/1992	24:00:00	86.39	987.14	2.36	230.38	147.73	15.45	24.73	24.68	14.50
11/30/1992	24:00:00	77.31	986.41	0.32	49.36	41.75	17.24	24.03	23.65	12.60
12/31/1992	24:00:00	65.89	986.66	1.23	54.83	0.80	19.36	23.50	22.62	11.96
1/31/1993	24:00:00	58.64	987.4	1.88	50.31	0.45	20.26	22.82	21.87	11.97
2/28/1993	24:00:00	65.63	985.8	0.77	201.64	14.24	18.39	25.30	24.86	12.30
3/31/1993	24:00:00	74.14	985.9	2.33	228.09	66.28	17.51	26.17	26.06	13.23
4/30/1993	24:00:00	81.02	984.88	3.13	225.74	74.09	15.05	26.46	26.4	13.17
5/31/1993	24:00:00	84.56	985.53	3.12	227.96	115.93	15.99	26.29	26.26	14.03
6/30/1993	24:00:00	85.84	988.15	2.74	228.57	158.96	15.59	25.22	25.21	14.77
7/31/1993	24:00:00	86.94	988.46	3.54	232.93	252.95	15.70	24.11	24.06	16.51
8/31/1993	24:00:00	86.74	988.65	3.36	230.54	287.29	16.40	24.02	24	17.25
9/30/1993	24:00:00	86.78	987.53	2.04	231.79	214.60	15.08	24.50	24.49	15.79
10/31/1993	24:00:00	86.35	986.78	1.74	221.24	153.88	15.04	25.12	25.03	14.66
11/30/1993	24:00:00	84.11	985.3	1.71	223.52	86.20	15.43	25.35	25.27	13.37
12/31/1993	24:00:00	71.38	986.1	0.99	42.36	11.17	17.38	23.91	23.04	12.05
1/31/1994	24:00:00	71.15	985.6	0.15	59.08	12.26	18.36	24.37	23.88	12.17
2/28/1994	24:00:00	65.42	985.97	0.61	197.59	4.42	18.00	25.53	25.05	12.11
3/31/1994	24:00:00	80.72	985.04	2.81	234.22	36.76	17.17	26.61	26.68	12.58
4/30/1994	24:00:00	82.57	984.79	3.07	228.01	83.71	16.97	26.52	26.55	13.48
5/31/1994	24:00:00	85.16	986.47	2.54	227.23	123.07	15.49	25.74	25.69	14.11
6/30/1994	24:00:00	85.62	987.92	2.82	232.88	174.87	15.94	25.12	25.08	15.10
7/31/1994	24:00:00	87.28	988.59	3.23	234.55	353.26	15.44	24.16	24.08	18.52
8/31/1994	24:00:00	87.73	987.99	3.55	230.29	377.40	15.49	24.04	23.96	18.98
9/30/1994	24:00:00	88.05	987.77	2.99	231.76	438.06	15.50	24.29	24.23	20.24
10/31/1994	24:00:00	87.45	986.34	1.49	238.26	462.76	13.08	24.58	24.39	20.66
11/30/1994	24:00:00	77.6	986.89	0.76	46.33	23.61	16.63	24.12	23.65	12.19
12/31/1994	24:00:00	68.17	987.56	2.52	42.20	0.05	20.10	21.78	20.92	11.77
1/31/1995	24:00:00	63.11	987.22	1.25	43.33	5.79	18.94	23.97	23.12	12.09
2/28/1995	24:00:00	68.1	986.98	0.56	209.24	14.79	16.93	25.44	25.22	12.20
3/31/1995	24:00:00	80.2	984.87	2.53	233.42	69.07	15.92	26.45	26.36	13.16
4/30/1995	24:00:00	83.02	983.96	2.78	231.40	92.71	14.92	26.52	26.41	13.54
5/31/1995	24:00:00	85.16	985.76	2.10	226.68	168.59	15.03	25.95	25.94	15.02
6/30/1995	24:00:00	86.47	987.42	2.59	226.85	298.42	15.28	25.32	25.26	17.55
7/31/1995	24:00:00	88.44	987.03	3.18	231.80	433.42	15.08	24.23	24.14	20.10
8/31/1995	24:00:00	89.08	987.44	3.00	236.47	270.24	14.52	24.30	24.18	16.81
9/30/1995	24:00:00	88.14	987.71	2.77	235.40	304.34	15.59	24.73	24.63	17.62
10/31/1995	24:00:00	86.54	986.16	1.95	236.78	288.13	15.36	25.06	24.96	17.35
11/30/1995	24:00:00	77.05	986.48	1.34	39.88	20.34	18.07	24.10	23.6	12.21
12/31/1995	24:00:00	69.88	987.05	1.01	36.40	10.42	17.80	24.04	23.23	12.07
1/31/1996	24:00:00	66.68	985.1	0.14	260.24	10.17	18.91	25.07	24.25	12.29
2/28/1996	24:00:00	75.05	984.44	1.81	238.41	20.71	17.05	26.61	26.76	12.31
3/31/1996	24:00:00	80.35	984.45	2.63	228.25	76.75	16.25	26.42	26.44	13.31
4/30/1996	24:00:00	82.98	984.45	2.68	224.02	80.40	15.72	26.45	26.44	13.34
5/31/1996	24:00:00	84.76	985.92	2.58	226.24	186.45	16.44	26.17	26.11	15.48
6/30/1996	24:00:00	86.29	987.53	2.78	226.68	239.78	15.80	25.16	25.1	16.39
7/31/1996	24:00:00	86.78	988.87	3.29	231.77	339.92	16.14	24.09	24.02	18.29
8/31/1996	24:00:00	87.39	988.08	3.33	230.60	479.89	16.23	24.10	24.03	21.10
9/30/1996	24:00:00	87.61	987.09	2.89	234.06	538.21	15.70	24.35	24.3	22.26

10/31/1996	24:00:00	86.38	986.71	1.44	234.84	191.70	15.03	24.50	24.37	15.37
11/30/1996	24:00:00	71.29	986.06	1.23	40.28	9.00	19.31	23.95	23.26	12.11
12/31/1996	24:00:00	65.94	986.47	0.65	53.71	2.05	18.72	24.23	23.18	12.05
1/31/1997	24:00:00	70.25	986.05	0.22	325.65	16.05	16.96	24.66	24.12	12.19
2/28/1997	24:00:00	53.7	986.71	1.48	43.16	0.55	19.09	23.60	22.35	12.04
3/31/1997	24:00:00	77.04	985.07	1.77	238.41	66.12	15.84	26.15	25.98	13.12
4/30/1997	24:00:00	83.29	986.26	2.88	229.82	117.95	15.35	25.80	25.77	14.00
5/31/1997	24:00:00	86	987.16	2.28	228.73	201.74	15.07	25.63	25.58	15.64
6/30/1997	24:00:00	87.4	987.25	2.63	224.77	345.18	14.45	25.04	24.98	18.39
7/31/1997	24:00:00	86.62	988.97	3.80	232.85	223.19	17.60	24.21	24.15	16.05
8/31/1997	24:00:00	86.07	988.95	3.20	236.64	295.81	17.51	24.34	24.34	17.53
9/30/1997	24:00:00	85.76	987.47	2.11	225.61	236.25	15.43	25.15	25.13	16.32
10/31/1997	24:00:00	84.85	986.18	1.44	230.89	200.40	14.49	25.86	25.8	15.64
11/30/1997	24:00:00	78.35	985.99	0.54	231.20	77.93	16.80	26.05	25.84	13.45
12/31/1997	24:00:00	65.44	987.16	0.97	47.25	2.26	17.28	24.45	23.58	11.95
1/31/1998	24:00:00	62.49	986.21	1.54	51.56	1.65	19.30	23.70	22.84	12.00
2/28/1998	24:00:00	62.81	986.88	0.60	165.55	3.30	18.24	27.14	26.96	12.25
3/31/1998	24:00:00	61.63	984.76	1.31	226.78	25.44	18.09	27.77	27.57	12.72
4/30/1998	24:00:00	82.6	984.5	2.92	229.83	83.11	15.39	27.73	27.65	13.49
5/31/1998	24:00:00	83.68	986.5	2.63	231.93	137.13	16.32	27.11	27.04	14.58
6/30/1998	24:00:00	85.5	988.24	2.26	235.30	175.70	13.78	25.79	25.69	15.06
7/31/1998	24:00:00	85.4	988.2	3.53	237.52	226.28	16.07	24.81	24.82	16.08
8/31/1998	24:00:00	85.78	987.62	3.49	239.87	196.36	17.03	24.35	24.38	15.50
9/30/1998	24:00:00	86.23	987.15	2.52	240.18	392.71	13.94	24.88	24.81	19.31
10/31/1998	24:00:00	83.48	986.96	1.69	233.23	252.13	15.88	25.55	25.46	16.74
11/30/1998	24:00:00	77.44	985.55	0.12	180.97	25.07	16.09	25.81	25.57	12.35
12/31/1998	24:00:00	69.86	986.28	0.64	39.97	19.28	16.53	24.56	24.03	12.20
1/31/1999	24:00:00	67.16	985.24	0.24	246.73	24.66	17.40	25.39	25.19	12.44
2/28/1999	24:00:00	70.56	984.69	1.95	239.11	29.04	13.74	26.88	27.08	12.29
3/31/1999	24:00:00	72.41	983.16	3.29	229.46	52.96	16.13	27.82	28.12	12.95
4/30/1999	24:00:00	72.52	984.8	3.07	226.08	68.68	15.16	27.69	27.94	13.20
5/31/1999	24:00:00	73.76	985.8	2.58	218.97	120.49	15.45	27.24	27.53	14.22
6/30/1999	24:00:00	78.93	986.76	2.30	227.08	163.32	14.22	26.10	26.15	14.89
7/31/1999	24:00:00	78.18	988.15	3.32	231.84	340.02	15.00	25.22	25.41	18.35
8/31/1999	24:00:00	76.01	987.87	3.31	237.21	280.44	16.20	25.46	25.81	17.25
9/30/1999	24:00:00	80.62	986.62	2.59	234.27	258.08	14.65	25.17	25.25	16.70
10/31/1999	24:00:00	81.77	986.69	2.11	232.71	363.14	15.31	25.22	25.18	18.88
11/30/1999	24:00:00	71.28	985.73	1.36	202.44	36.01	16.85	26.51	26.66	12.63
12/31/1999	24:00:00	50.14	985.47	0.84	122.95	1.06	18.76	26.33	26.5	12.18
1/31/2000	24:00:00	50.29	984.13	0.77	165.78	7.98	18.21	27.70	28.35	12.36
2/28/2000	24:00:00	37.99	985.47	0.75	107.83	1.94	17.71	27.60	28.26	12.27
3/31/2000	24:00:00	49.71	983.7	1.42	211.19	31.20	17.12	28.61	29.33	12.81
4/30/2000	24:00:00	70	983.66	3.60	223.43	71.19	16.33	28.28	28.98	13.33
5/31/2000	24:00:00	70.83	985.36	2.95	221.88	110.10	16.84	28.12	28.85	14.15
6/30/2000	24:00:00	86.75	987.74	2.39	233.21	210.01	13.94	24.88	24.8	15.66
7/31/2000	24:00:00	87.5	987.56	2.88	236.48	275.70	14.91	24.14	24.06	16.94
8/31/2000	24:00:00	86.92	988.25	3.05	237.86	358.98	15.20	24.02	23.98	18.61
9/30/2000	24:00:00	86.82	987.02	2.77	235.80	247.51	14.39	24.45	24.4	16.38
10/31/2000	24:00:00	86.08	987.06	1.50	241.11	178.74	15.03	24.96	24.83	15.15
11/30/2000	24:00:00	77.37	985.71	0.15	152.43	9.16	18.36	25.20	24.73	12.15

12/31/2000	24:00:00	70.24	987.21	1.35	48.93	5.41	18.81	22.75	21.82	11.92
1/31/2001	24:00:00	57.24	987.04	1.62	49.67	0.30	20.38	22.82	21.35	12.05
2/28/2001	24:00:00	63.78	985.53	0.48	61.66	6.26	16.22	24.10	23.19	11.95
3/31/2001	24:00:00	79.02	984.9	2.58	226.74	44.71	15.04	26.65	26.63	12.62
4/30/2001	24:00:00	82.65	984.79	2.77	226.85	98.36	14.29	26.62	26.51	13.63
5/31/2001	24:00:00	84.59	986.22	2.58	225.10	128.24	15.06	26.26	26.16	14.24
6/30/2001	24:00:00	85.66	987.93	2.89	229.61	195.35	15.24	25.11	25.06	15.46
7/31/2001	24:00:00	85.04	988.37	3.30	227.61	212.83	16.11	24.50	24.52	15.79
8/31/2001	24:00:00	83.97	989.29	3.50	239.25	181.14	17.24	24.41	24.47	15.22
9/30/2001	24:00:00	85.37	987.51	2.50	234.36	262.79	14.62	24.47	24.44	16.72
10/31/2001	24:00:00	82.76	987.02	1.16	208.06	108.03	16.21	25.39	25.3	13.89
11/30/2001	24:00:00	77.38	986.45	1.00	201.60	14.63	17.79	25.53	25.38	12.19
12/31/2001	24:00:00	67.75	986.01	0.67	149.76	4.38	18.72	25.31	24.83	12.13
1/31/2002	24:00:00	48.37	986.77	1.86	78.93	1.49	18.98	23.74	22.65	12.07
2/28/2002	24:00:00	57.8	985.74	1.19	190.87	22.24	16.48	26.62	26.62	12.44
3/31/2002	24:00:00	72.92	984.46	2.61	220.83	50.06	16.14	27.80	28.2	12.91
4/30/2002	24:00:00	82.39	983.56	3.11	226.66	100.68	15.18	26.84	26.85	13.73
5/31/2002	24:00:00	83.52	986.06	2.65	226.78	77.70	16.06	26.59	26.55	13.32
6/30/2002	24:00:00	85.09	988.19	2.98	232.51	164.37	14.45	25.32	25.24	14.81
7/31/2002	24:00:00	86.93	988.77	3.01	234.67	394.42	14.27	24.89	24.79	19.35
8/31/2002	24:00:00	85.41	988.38	2.83	232.98	277.08	16.48	24.65	24.69	17.13
9/30/2002	24:00:00	85.5	987.9	2.44	234.35	171.04	15.11	24.91	24.89	14.96
10/31/2002	24:00:00	84.14	986.77	1.42	233.61	149.27	15.45	25.11	25.04	14.62
11/30/2002	24:00:00	75.92	986.93	0.50	222.28	42.56	17.91	25.55	25.33	12.79
12/31/2002	24:00:00	65.79	987.49	0.73	69.92	3.94	18.85	24.30	23.63	12.06
1/31/2003	24:00:00	63.41	987.19	0.16	307.63	8.35	17.44	25.11	24.6	12.15
2/28/2003	24:00:00	71.16	985.17	1.71	226.35	30.64	15.04	27.03	27.11	12.44
3/31/2003	24:00:00	75.58	984.7	1.75	219.96	37.86	13.80	26.96	26.89	12.49
4/30/2003	24:00:00	81.9	985.23	2.82	229.83	129.25	15.10	26.87	26.87	14.31
5/31/2003	24:00:00	84.24	986.49	2.52	225.00	178.65	14.17	26.32	26.22	15.19
6/30/2003	24:00:00	84.32	987.36	2.53	227.72	255.69	13.76	25.34	25.29	16.61
7/31/2003	24:00:00	84.91	988.53	3.26	241.22	241.51	16.13	24.72	24.72	16.39
8/31/2003	24:00:00	83.63	988.33	3.40	238.26	234.35	15.81	24.92	24.94	16.24
9/30/2003	24:00:00	85.15	988.02	1.93	242.63	233.51	14.43	25.00	24.94	16.19
10/31/2003	24:00:00	85.46	986.08	1.64	228.92	234.29	14.98	25.69	25.6	16.33
11/30/2003	24:00:00	80.56	985.66	1.02	232.69	64.91	14.81	25.61	25.33	12.99
12/31/2003	24:00:00	66.11	986.39	0.37	55.05	3.64	17.00	24.31	23.39	11.97
1/31/2004	24:00:00	67.71	985.3	0.46	213.70	5.13	16.91	25.18	24.65	12.02
2/28/2004	24:00:00	65.3	985.74	0.68	197.60	16.19	16.16	26.11	25.76	12.26
3/31/2004	24:00:00	67.59	984.65	1.88	230.38	48.27	15.51	27.57	27.52	12.91
4/30/2004	24:00:00	81.51	985.05	3.33	227.49	139.08	15.14	26.95	26.91	14.51
5/31/2004	24:00:00	85.21	986.82	2.73	225.48	240.87	14.75	26.20	26.15	16.45
6/30/2004	24:00:00	86.07	988.94	2.88	231.76	212.87	13.10	25.18	25.08	15.67
7/31/2004	24:00:00	86.26	988.11	2.98	237.92	359.68	13.45	24.43	24.34	18.55
8/31/2004	24:00:00	84.48	988.57	3.25	234.18	257.92	15.44	24.84	24.88	16.68
9/30/2004	24:00:00	85.64	987.33	1.97	224.99	193.35	13.35	25.01	24.97	15.31
10/31/2004	24:00:00	84.33	986.63	2.01	225.79	160.46	14.71	25.58	25.58	14.80
11/30/2004	24:00:00	79.47	985.81	1.31	221.75	64.73	13.84	25.82	25.67	12.92
12/31/2004	24:00:00	67.89	985.28	0.77	206.08	7.82	17.32	25.92	25.92	12.10
1/31/2005	24:00:00	50.23	985.86	1.04	79.95	6.29	16.69	24.65	24.05	12.06

2/28/2005	24:00:00	66.94	983.95	2.23	225.06	37.55	12.99	28.33	28.75	12.53
3/31/2005	24:00:00	75.55	984.89	2.76	226.31	64.50	12.90	27.79	27.92	12.98
4/30/2005	24:00:00	74.79	984.69	3.33	225.51	113.27	13.19	28.25	28.5	13.99
5/31/2005	24:00:00	73.72	986.21	2.87	218.16	162.66	14.40	27.55	27.96	15.00
6/30/2005	24:00:00	79.74	987.27	3.06	227.44	279.29	14.20	26.35	26.51	17.19
7/31/2005	24:00:00	78.75	988.7	3.02	232.26	312.16	14.64	25.64	25.87	17.81
8/31/2005	24:00:00	72.47	987.92	3.74	234.22	153.00	17.88	26.13	26.82	14.85
9/30/2005	24:00:00	83.62	987.41	2.03	232.98	317.76	16.04	25.65	25.75	18.04
10/31/2005	24:00:00	83.03	986.92	1.51	219.47	178.07	15.17	25.72	25.76	15.22
11/30/2005	24:00:00	72.97	985.45	0.85	205.36	24.54	16.91	26.24	26.15	12.42
12/31/2005	24:00:00	65.86	984.56	1.02	202.36	23.37	16.55	26.75	27.06	12.41
1/31/2006	24:00:00	65.76	984.21	1.74	224.58	26.57	14.70	27.66	28.18	12.38
2/28/2006	24:00:00	68.36	984.09	2.83	225.25	37.83	13.16	28.29	28.94	12.49
3/31/2006	24:00:00	71.39	985.02	2.85	224.15	55.71	12.74	27.71	28.02	12.78
4/30/2006	24:00:00	71.84	984.14	2.87	217.54	84.20	13.87	28.11	28.51	13.46
5/31/2006	24:00:00	80.14	986.56	2.61	219.28	374.74	15.00	26.61	26.69	19.20
6/30/2006	24:00:00	81.41	987.33	2.48	225.55	188.67	13.46	26.10	26.09	15.33
7/31/2006	24:00:00	82.48	988.22	3.11	236.21	199.52	14.80	25.54	25.55	15.56
8/31/2006	24:00:00	85.49	987.73	3.20	231.27	313.99	15.89	24.69	24.71	17.82
9/30/2006	24:00:00	86.44	987.81	2.16	235.44	245.71	13.32	24.76	24.7	16.32
10/31/2006	24:00:00	84.31	986.12	1.27	229.12	143.99	14.69	25.90	25.84	14.54
11/30/2006	24:00:00	71.04	986.03	0.31	86.53	12.78	16.65	25.12	24.5	12.14
12/31/2006	24:00:00	59.41	987.22	0.83	82.56	0.26	19.44	24.26	23.5	12.06
1/31/2007	24:00:00	52.29	987.08	1.87	69.57	0.85	18.55	23.60	22.87	11.95
2/28/2007	24:00:00	66.36	985.41	1.48	229.10	31.53	14.63	26.71	26.78	12.44
3/31/2007	24:00:00	67.12	984.26	2.48	221.38	38.19	15.65	27.76	28.01	12.68
4/30/2007	24:00:00	75.34	984.47	3.26	229.09	158.20	14.25	27.75	27.92	14.92
5/31/2007	24:00:00	83.06	985.78	2.53	225.47	134.91	14.36	26.59	26.45	14.37
6/30/2007	24:00:00	86.13	987.66	2.97	227.59	301.63	14.38	25.25	25.15	17.54
7/31/2007	24:00:00	86.73	988.13	3.16	230.77	257.52	14.66	24.58	24.49	16.60
8/31/2007	24:00:00	87.83	987.43	2.79	233.64	369.39	14.04	24.36	24.28	18.78
9/30/2007	24:00:00	87.78	987.68	1.87	231.57	434.19	13.82	24.84	24.72	20.14
10/31/2007	24:00:00	87.76	986.46	1.73	220.06	195.95	13.85	24.85	24.68	15.39
11/30/2007	24:00:00	81.73	985.41	0.93	223.26	134.09	15.35	25.40	25	14.40
12/31/2007	24:00:00	72.03	985.97	0.65	14.54	17.08	18.09	23.95	23.08	12.23
1/31/2008	24:00:00	65.96	986.02	1.38	33.27	7.44	17.07	23.04	22.2	11.88
2/28/2008	24:00:00	61.72	986.13	0.61	51.75	6.32	17.02	24.38	23.21	12.07
3/31/2008	24:00:00	81.86	984.14	2.85	227.47	71.85	14.75	26.41	26.35	13.10
4/30/2008	24:00:00	82.15	983.88	2.32	220.50	106.75	14.19	26.24	26.1	13.77
5/31/2008	24:00:00	83.19	985.36	2.20	224.35	152.49	13.95	26.20	25.97	14.67
6/30/2008	24:00:00	85.02	987.09	2.37	226.95	237.01	13.78	25.47	25.33	16.26
7/31/2008	24:00:00	85.8	988.2	2.81	233.98	378.25	14.40	24.65	24.56	19.02
8/31/2008	24:00:00	86.87	986.97	2.82	237.83	433.67	13.71	24.38	24.29	20.05
9/30/2008	24:00:00	86.4	987.42	2.08	227.98	323.55	14.36	24.90	24.81	17.97
10/31/2008	24:00:00	84.11	986.64	1.43	230.92	133.24	14.93	25.51	25.32	14.31
11/30/2008	24:00:00	75.29	985.67	0.19	273.37	28.22	17.69	25.89	25.49	12.56
12/31/2008	24:00:00	72.16	985.46	0.16	337.46	28.89	16.65	25.12	24.44	12.47
1/31/2009	24:00:00	71.89	985.68	0.94	248.06	25.55	14.81	25.60	25.08	12.28
2/28/2009	24:00:00	75.99	984.41	2.08	230.56	33.28	14.28	26.89	27.01	12.39
3/31/2009	24:00:00	77.06	983.85	2.36	229.87	42.36	13.80	27.12	27.02	12.57

4/30/2009	24:00:00	82.05	985.24	2.64	227.37	110.89	14.28	26.60	26.52	13.88
5/31/2009	24:00:00	84.86	985.76	2.23	229.00	143.71	14.25	26.03	25.9	14.48
6/30/2009	24:00:00	85.78	987.81	2.37	226.76	195.34	13.61	25.38	25.3	15.39
7/31/2009	24:00:00	85.97	988.23	2.87	233.49	407.89	14.40	24.96	24.87	19.64
8/31/2009	24:00:00	86.35	987.65	2.73	237.07	266.72	14.40	24.78	24.76	16.79
9/30/2009	24:00:00	85.65	988.07	2.07	228.76	212.58	14.09	25.24	25.23	15.76
10/31/2009	24:00:00	85.25	986.38	1.50	225.23	348.67	14.66	25.30	25.23	18.56
11/30/2009	24:00:00	74.79	986.28	0.12	27.16	55.00	17.25	25.04	24.38	13.01
12/31/2009	24:00:00	64.46	986.49	0.48	50.96	1.77	19.22	25.05	24.01	12.17
1/31/2010	24:00:00	66.09	986.16	0.67	223.24	8.70	18.22	25.84	25.27	12.25
2/28/2010	24:00:00	72.68	985.2	2.22	229.17	34.36	14.05	27.22	27.01	12.47
3/31/2010	24:00:00	71.19	985.6	2.13	222.83	46.72	14.89	27.68	27.68	12.81
4/30/2010	24:00:00	79.45	984.99	2.80	226.58	70.43	14.58	27.40	27.3	13.18
5/31/2010	24:00:00	83.34	985.92	2.65	224.59	174.52	14.65	26.87	26.78	15.20
6/30/2010	24:00:00	85.79	988.03	2.38	223.39	302.41	12.63	25.62	25.46	17.50
7/31/2010	24:00:00	85.96	988	2.79	230.31	340.39	14.30	24.74	24.69	18.26
8/31/2010	24:00:00	85.97	987.79	3.00	228.05	237.23	15.33	24.78	24.76	16.26
9/30/2010	24:00:00	86.24	987.06	2.18	227.87	305.00	14.30	24.79	24.73	17.58
10/31/2010	24:00:00	86.72	986.36	1.97	219.56	192.38	15.20	25.17	25.11	15.43
11/30/2010	24:00:00	81.07	985.2	0.91	221.84	90.51	16.03	25.82	25.64	13.60
12/31/2010	24:00:00	66.46	985.05	0.59	49.52	7.05	19.82	24.45	23.5	12.23
1/31/2011	24:00:00	60.93	984.99	1.12	60.03	0.96	19.79	23.77	22.53	12.09
2/28/2011	24:00:00	78.09	984.76	2.55	235.67	46.04	13.65	26.10	25.9	12.53
3/31/2011	24:00:00	78.18	984.3	2.71	228.33	52.34	15.98	26.88	26.71	12.88
4/30/2011	24:00:00	81.17	984.27	2.80	225.82	71.94	13.44	26.49	26.19	13.05
5/31/2011	24:00:00	84.9	985.91	2.50	226.37	148.52	13.05	26.20	25.95	14.52
6/30/2011	24:00:00	86.74	987.39	2.74	227.26	194.67	12.72	25.36	25.18	15.31
7/31/2011	24:00:00	86.23	987.59	2.74	232.39	492.44	14.99	24.82	24.76	21.36
8/31/2011	24:00:00	85.97	987.83	3.10	237.20	266.60	16.03	24.59	24.56	16.88
9/30/2011	24:00:00	86.55	988.03	2.20	229.65	298.62	14.02	24.71	24.62	17.43
10/31/2011	24:00:00	85.98	985.68	1.43	219.77	331.77	13.33	25.01	24.8	18.11
11/30/2011	24:00:00	75.72	985.98	0.55	238.10	21.02	18.28	25.28	24.73	12.39
12/31/2011	24:00:00	62.09	986.74	0.76	53.95	2.41	19.36	23.33	21.83	12.08
1/31/2012	24:00:00	65.95	986.38	0.28	197.45	14.62	17.33	24.39	23.33	12.23
2/28/2012	24:00:00	76.66	984.42	2.69	230.67	64.45	14.99	26.45	26.41	13.01
3/31/2012	24:00:00	74.44	985.17	2.05	233.58	35.27	14.64	26.75	26.46	12.49
4/30/2012	24:00:00	81.82	985.1	3.29	230.39	111.84	14.46	26.49	26.28	13.89
5/31/2012	24:00:00	83.44	986.84	2.34	230.92	214.91	14.09	25.85	25.7	15.88
6/30/2012	24:00:00	84.86	988.14	2.47	234.25	449.97	14.26	25.18	25.05	20.52
7/31/2012	24:00:00	85.61	988.01	3.08	233.99	373.73	15.80	24.59	24.58	19.00
8/31/2012	24:00:00	85.58	988.52	2.94	237.35	370.31	16.09	24.41	24.45	18.94
9/30/2012	24:00:00	86.32	988.46	2.42	231.32	328.55	14.38	24.62	24.58	18.03
10/31/2012	24:00:00	85.94	986.55	1.51	218.41	184.06	13.85	25.14	25.01	15.20
11/30/2012	24:00:00	80.18	986.02	0.70	221.02	59.75	15.38	25.79	25.46	12.96
12/31/2012	24:00:00	66.72	986.25	0.79	51.37	12.18	18.52	24.29	23.35	12.22
1/31/2013	24:00:00	67.89	986.67	0.14	212.06	25.85	16.54	25.15	24.36	12.44
2/28/2013	24:00:00	74.49	985.02	1.61	233.40	29.22	13.88	26.32	26.11	12.28
3/31/2013	24:00:00	80.34	985.35	3.23	224.97	81.80	14.04	26.85	26.73	13.30
4/30/2013	24:00:00	79.28	985.86	2.60	223.04	95.16	14.97	26.89	26.77	13.66
5/31/2013	24:00:00	84.07	986.88	2.48	229.36	169.19	13.27	25.99	25.78	14.92

6/30/2013	24:00:00	85.32	987.8	2.80	232.60	165.05	14.44	25.36	25.26	14.83
7/31/2013	24:00:00	85.65	988.57	2.83	237.42	415.63	14.77	24.56	24.51	19.78
8/31/2013	24:00:00	84.82	987.84	3.15	235.03	166.93	16.09	24.41	24.41	14.87
9/30/2013	24:00:00	85.98	987.91	2.02	227.18	359.84	14.14	24.89	24.83	18.68
10/31/2013	24:00:00	83.22	987.22	1.22	218.76	158.18	16.74	25.43	25.37	14.93
11/30/2013	24:00:00	82.54	985.53	1.67	220.72	58.55	16.01	25.69	25.57	12.90
12/31/2013	24:00:00	73.88	986.64	0.75	200.75	37.74	17.70	24.55	23.86	12.64
1/31/2014	24:00:00	69.55	986.15	1.19	214.03	22.66	17.57	25.51	24.73	12.44
2/28/2014	24:00:00	69.61	984.97	1.57	222.28	27.72	15.49	26.49	26.08	12.43
3/31/2014	24:00:00	78.23	985.27	3.01	225.49	77.20	14.20	26.73	26.51	13.23
4/30/2014	24:00:00	81.02	985.69	2.84	224.56	145.24	13.98	26.66	26.49	14.56
5/31/2014	24:00:00	81.98	986.02	2.04	221.13	194.79	15.40	26.62	26.46	15.67
6/30/2014	24:00:00	82.18	987.71	2.62	228.62	126.41	14.95	26.05	25.97	14.18
7/31/2014	24:00:00	83.41	989.39	3.05	228.58	226.42	15.57	25.28	25.25	16.12
8/31/2014	24:00:00	84.09	988.5	3.00	233.68	279.11	15.73	24.77	24.78	17.13
9/30/2014	24:00:00	84.6	988.02	2.15	228.54	412.35	15.02	24.86	24.88	19.78
10/31/2014	24:00:00	83.3	987.12	1.40	221.77	251.35	14.96	25.55	25.5	16.67
11/30/2014	24:00:00	77.22	986.46	1.20	218.63	94.34	15.92	26.01	25.88	13.69
12/31/2014	24:00:00	58.61	986.84	0.56	161.99	5.74	18.86	26.24	26.09	12.27
1/31/2015	24:00:00	51.77	987.69	0.83	92.71	8.09	18.74	25.23	25.19	12.23
2/28/2015	24:00:00	67.38	985.46	2.74	226.29	53.46	13.83	28.16	28.84	12.84
3/31/2015	24:00:00	70.81	985.18	2.64	224.77	73.34	15.27	27.79	28.18	13.32
4/30/2015	24:00:00	71.58	986.11	2.52	226.69	58.70	15.83	27.76	28.02	13.08
5/31/2015	24:00:00	76.3	986.74	2.89	224.37	193.62	13.77	27.28	27.48	15.56
6/30/2015	24:00:00	82.74	988.47	3.18	226.95	184.12	15.13	25.86	25.9	15.29
7/31/2015	24:00:00	83.79	988.36	2.93	232.80	229.00	14.55	25.44	25.48	16.11
8/31/2015	24:00:00	83.48	988.08	2.98	230.25	467.48	14.48	25.26	25.41	20.85
9/30/2015	24:00:00	85.09	987.82	2.59	230.95	324.23	14.16	25.33	25.41	17.98
10/31/2015	24:00:00	83.81	987.33	1.83	226.68	308.69	14.50	25.80	25.84	17.78
11/30/2015	24:00:00	69.79	986.59	0.57	198.41	47.82	17.97	26.73	26.96	13.00
12/31/2015	24:00:00	42.46	988.44	2.98	60.08	0.34	19.74	24.80	24.66	12.09
1/31/2016	24:00:00	40.9	987.32	1.57	73.05	1.56	20.21	26.66	26.99	12.33
2/28/2016	24:00:00	47.84	985.74	1.16	218.00	7.37	16.94	29.16	30.12	12.37
3/31/2016	24:00:00	70.88	985.76	3.22	232.60	211.44	15.13	28.69	29.21	16.12
4/30/2016	24:00:00	73.62	985.37	3.19	226.06	85.28	14.84	28.41	28.8	13.55
5/31/2016	24:00:00	80.45	987.46	2.75	228.54	219.87	15.35	26.95	27.14	16.14
6/30/2016	24:00:00	83.23	988.81	2.68	237.01	381.48	13.64	25.64	25.72	19.13
7/31/2016	24:00:00	85.39	988.38	2.95	234.47	210.96	14.57	24.98	25	15.70
8/31/2016	24:00:00	86.43	988.33	2.82	230.82	274.53	13.76	24.75	24.69	16.90
9/30/2016	24:00:00	86.24	988.12	2.18	233.24	272.01	14.15	25.02	25.01	16.93
10/31/2016	24:00:00	83.99	986.35	1.38	222.64	182.56	15.00	25.79	25.68	15.32
11/30/2016	24:00:00	75.51	985.94	0.42	214.16	47.95	17.35	26.40	26.04	12.96
12/31/2016	24:00:00	65.83	986.12	0.52	72.92	8.18	16.44	25.34	24.51	12.10
1/31/2017	24:00:00	64.87	985.88	0.89	232.07	15.77	16.60	26.19	25.78	12.29
2/28/2017	24:00:00	59.66	985.53	0.71	207.48	8.47	15.50	27.09	27.2	12.14
3/31/2017	24:00:00	74.64	984.89	2.75	221.74	57.84	15.23	27.71	27.83	13.01
4/30/2017	24:00:00	80.03	985.29	2.66	221.81	94.78	13.46	26.99	26.9	13.55
5/31/2017	24:00:00	83.33	986.66	2.39	224.48	136.57	15.38	26.59	26.57	14.46
6/30/2017	24:00:00	84.73	987.45	2.14	231.78	177.31	13.99	25.83	25.76	15.11
7/31/2017	24:00:00	86.24	988.98	2.87	231.94	247.08	15.31	24.92	24.89	16.47

8/31/2017	24:00:00	86.67	988.03	2.89	233.12	274.24	15.55	24.74	24.71	17.01
9/30/2017	24:00:00	86.57	987.83	2.04	231.69	209.41	13.45	25.02	24.88	15.64
10/31/2017	24:00:00	84.45	986.76	1.75	228.44	104.15	14.94	25.83	25.71	13.74
11/30/2017	24:00:00	78.57	986.07	1.10	238.06	56.49	15.48	25.74	25.37	12.90
12/31/2017	24:00:00	69.27	986.11	0.06	298.03	8.40	16.89	25.53	24.85	12.14
1/31/2018	24:00:00	53.79	986.69	1.11	64.78	1.00	18.64	23.74	22.25	12.07
2/28/2018	24:00:00	75.31	984.46	2.33	234.90	63.58	14.04	26.71	26.65	12.97
3/31/2018	24:00:00	79.36	985.48	3.12	229.29	90.60	15.47	26.88	26.87	13.57
4/30/2018	24:00:00	80.72	985.48	3.25	223.67	108.34	14.63	26.77	26.75	13.85
5/31/2018	24:00:00	83.32	986.47	2.92	227.15	134.86	14.86	26.27	26.2	14.35
6/30/2018	24:00:00	86.08	988.13	2.80	231.58	228.13	13.42	25.23	25.09	16.01
7/31/2018	24:00:00	86.22	988.61	2.62	238.88	268.64	14.83	24.88	24.79	16.88
8/31/2018	24:00:00	86.67	988.48	2.83	234.18	299.22	15.84	24.68	24.66	17.53
9/30/2018	24:00:00	87.58	986.8	2.14	227.25	549.42	14.00	24.96	24.89	22.46
10/31/2018	24:00:00	86.33	986.63	1.64	226.67	205.30	14.48	25.52	25.33	15.70
11/30/2018	24:00:00	78.74	985.68	0.74	244.44	37.47	16.53	26.23	25.9	12.65
12/31/2018	24:00:00	62.93	987.1	0.77	25.64	3.83	17.81	24.72	23.47	12.10
1/31/2019	24:00:00	68.6	986.79	1.02	253.28	21.21	17.27	25.41	24.75	12.37
2/28/2019	24:00:00	68.62	986.02	1.20	239.99	37.93	13.50	26.01	25.38	12.50
3/31/2019	24:00:00	79.3	985.71	2.59	233.11	72.57	13.86	27.04	26.86	13.15
4/30/2019	24:00:00	79.86	985.23	2.97	226.38	119.09	14.74	27.44	27.24	14.17
5/31/2019	24:00:00	82.83	986.07	2.50	228.84	142.62	14.32	26.65	26.48	14.53
6/30/2019	24:00:00	84.73	988.32	2.65	232.05	290.05	15.36	25.86	25.81	17.45
7/31/2019	24:00:00	85.82	988.21	2.65	231.19	337.68	14.79	25.11	25.03	18.28
8/31/2019	24:00:00	87	989.1	2.94	230.02	319.35	14.96	24.65	24.56	17.87
9/30/2019	24:00:00	88.07	987.87	2.31	228.48	268.33	13.59	24.97	24.83	16.81
10/31/2019	24:00:00	87.41	986.53	1.75	219.27	205.10	14.74	24.90	24.8	15.64
11/30/2019	24:00:00	80.06	985.55	0.53	241.82	56.40	16.47	26.43	26.05	13.04
12/31/2019	24:00:00	62.56	986.39	1.00	32.42	1.26	20.69	24.94	23.67	12.27

Appendix 1C: IMO River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);5.531
 # Site longitude (positive means East);7.406
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 53m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	73.41	1000.68	1.09	348.2	55.70	16.87	24.23	23.73	183.35
2/28/1981	24:00:00	73.99	999.5	1.19	271.81	38.96	16.54	25.74	25.48	266.59
3/31/1981	24:00:00	81.31	999.96	2.08	230.86	85.30	15.55	26.18	26.20	386.87
4/30/1981	24:00:00	83.75	999.27	2.01	221.17	127.93	15.65	26.57	26.57	418.03
5/31/1981	24:00:00	86.91	1000.5	1.97	225.42	464.26	13.26	25.56	25.46	628.39
6/30/1981	24:00:00	86.7	1002.1	2.07	226	231.96	13.89	25.44	25.30	508.82
7/31/1981	24:00:00	88.2	1002.78	2.86	229.07	366.37	15.47	24.21	24.15	423.53
8/31/1981	24:00:00	85.91	1002.47	2.88	227.71	340.58	17.00	24.30	24.36	344.73
9/30/1981	24:00:00	88.09	1002.31	2.55	238.24	340.42	14.76	24.50	24.41	469.09
10/31/1981	24:00:00	89.04	1000.78	2.04	224.48	388.59	12.85	24.91	24.76	614.70
11/30/1981	24:00:00	84.28	1000.3	0.48	331.51	324.21	13.29	24.20	23.92	594.74
12/31/1981	24:00:00	74.64	1000.46	0.74	339.95	8.06	17.27	24.85	24.20	160.38
1/31/1982	24:00:00	77.57	999.85	0.69	289.08	42.72	15.70	25.33	25.04	349.45
2/28/1982	24:00:00	73.09	999.41	0.97	306.7	105.84	15.60	24.98	24.58	301.99
3/31/1982	24:00:00	81.32	999.15	1.39	236.49	580.13	14.56	25.65	25.48	583.18
4/30/1982	24:00:00	85.79	999.44	2.37	224.74	177.19	14.74	26.10	26.08	459.67
5/31/1982	24:00:00	87.29	1000.47	1.99	230.65	396.60	13.46	25.64	25.52	596.54
6/30/1982	24:00:00	89.62	1002.75	2.47	230.43	480.68	12.93	24.67	24.54	616.33
7/31/1982	24:00:00	89.49	1002.7	2.82	241.46	296.42	14.18	23.93	23.80	460.80
8/31/1982	24:00:00	88.06	1003.2	2.88	237.41	164.34	17.97	23.59	23.57	226.94
9/30/1982	24:00:00	89.32	1002.13	2.61	236.11	539.23	14.43	24.31	24.20	543.82
10/31/1982	24:00:00	89.97	1000.87	1.94	237.46	806.62	11.69	24.28	24.11	797.23
11/30/1982	24:00:00	83.06	1000.43	1.05	352.28	172.65	15.68	24.21	23.90	379.55
12/31/1982	24:00:00	77.79	1000.25	0.9	356.97	135.24	15.25	24.30	23.86	342.79
1/31/1983	24:00:00	67.47	1001.27	4.09	30.65	0.01	19.71	20.79	20.49	0.00
2/28/1983	24:00:00	71.74	1000.11	1.03	280.39	28.76	18.63	26.41	26.27	185.06
3/31/1983	24:00:00	70.82	999.45	1.05	249.57	33.70	20.03	26.98	26.76	103.50
4/30/1983	24:00:00	83.11	999.08	2.15	219.87	129.45	14.81	26.84	26.90	466.11
5/31/1983	24:00:00	87.09	999.81	2.2	220.01	325.23	14.47	25.88	25.80	521.57
6/30/1983	24:00:00	88.39	1002.26	2.73	222.16	426.84	14.99	24.92	24.84	484.67
7/31/1983	24:00:00	88.31	1002.75	2.92	228.61	409.61	15.38	24.13	24.04	431.41
8/31/1983	24:00:00	88.25	1004.22	3.02	227.82	151.21	17.75	23.47	23.43	221.18
9/30/1983	24:00:00	89	1002.53	2.42	232.31	340.15	13.83	24.15	24.05	522.07
10/31/1983	24:00:00	87.66	1001.54	1.62	222.48	392.94	13.97	24.57	24.40	563.41
11/30/1983	24:00:00	83.83	1001.93	1.23	232.5	136.86	14.84	25.11	24.90	442.02
12/31/1983	24:00:00	80.55	1001.15	0.62	271.5	197.68	15.06	24.27	23.87	412.30
1/31/1984	24:00:00	67.36	1000.38	1.52	25.74	2.63	19.32	23.01	22.05	0.00
2/28/1984	24:00:00	79.68	998.56	1.14	231.26	33.49	15.59	25.51	25.57	408.17
3/31/1984	24:00:00	83.89	998.43	2.26	227.24	165.09	14.58	25.81	25.87	467.63

4/30/1984	24:00:00	85.68	999.01	2.19	224.02	228.74	13.44	25.54	25.48	534.03
5/31/1984	24:00:00	85.77	999.57	1.88	227.79	230.41	14.46	25.50	25.44	499.91
6/30/1984	24:00:00	86.97	1001.55	2.12	229.75	203.49	13.77	24.89	24.80	504.13
7/31/1984	24:00:00	87.78	1001.62	2.35	239.2	407.09	13.08	24.25	24.13	575.39
8/31/1984	24:00:00	87.75	1002.02	2.42	246.14	581.98	13.75	24.45	24.38	602.67
9/30/1984	24:00:00	87.96	1001.28	2.05	237.76	309.99	14.26	24.50	24.36	504.74
10/31/1984	24:00:00	89.4	1000.54	1.8	233.2	625.15	12.56	24.62	24.44	706.77
11/30/1984	24:00:00	83.68	1000.42	1.03	240.96	186.07	14.62	24.98	24.74	471.08
12/31/1984	24:00:00	76.37	999.53	1.11	4.09	16.41	16.54	23.37	22.80	177.05
1/31/1985	24:00:00	78.62	999.26	1.19	268.91	87.72	15.25	25.26	24.98	364.83
2/28/1985	24:00:00	60.09	999.99	0.98	357.27	1.49	19.97	25.01	23.90	0.00
3/31/1985	24:00:00	80.43	998.67	2.08	226.78	165.11	15.67	25.91	25.90	388.70
4/30/1985	24:00:00	84.26	999.38	2.12	212.18	182.58	15.52	25.70	25.76	433.05
5/31/1985	24:00:00	87.02	1000.27	2.41	220.52	359.05	13.93	25.36	25.27	535.36
6/30/1985	24:00:00	86.87	1003.05	2.47	230.66	375.25	14.24	24.61	24.57	515.00
7/31/1985	24:00:00	87.16	1002.97	2.41	238.65	344.25	14.78	23.89	23.85	469.21
8/31/1985	24:00:00	87.64	1002.35	2.45	235.25	321.31	14.73	24.12	24.08	470.26
9/30/1985	24:00:00	87.53	1001.51	2.29	235.22	308.41	14.85	24.24	24.19	469.09
10/31/1985	24:00:00	87.64	1000.39	1.43	212.88	627.72	13.01	24.76	24.61	702.63
11/30/1985	24:00:00	85.52	999.99	1.16	231.52	399.54	12.92	25.50	25.30	644.73
12/31/1985	24:00:00	74.37	999.67	1	336.72	53.68	16.50	24.16	23.51	184.50
1/31/1986	24:00:00	73.56	1000.35	0.87	276.86	34.14	18.84	25.30	24.99	144.44
2/28/1986	24:00:00	80.97	999.71	2.28	231.35	74.44	13.26	25.53	25.66	496.48
3/31/1986	24:00:00	82.81	1000.12	2.24	225.8	175.47	15.21	25.38	25.48	431.92
4/30/1986	24:00:00	84.4	998.98	2.58	220.84	184.19	15.45	26.10	26.14	414.99
5/31/1986	24:00:00	85.99	1000.59	1.94	217.2	460.53	13.66	25.42	25.30	596.21
6/30/1986	24:00:00	84.76	1002.07	2.47	218.45	192.20	16.45	25.05	25.09	354.82
7/31/1986	24:00:00	85.61	1003.99	2.91	227.56	325.65	15.98	24.11	24.17	385.40
8/31/1986	24:00:00	85.7	1002.62	2.81	233.72	329.95	16.15	23.92	23.99	382.58
9/30/1986	24:00:00	86.91	1002.59	2.42	233.24	398.54	14.86	24.20	24.18	488.99
10/31/1986	24:00:00	89	1001.53	2	229.93	1144.41	12.45	24.49	24.31	853.10
11/30/1986	24:00:00	85.59	1000.03	0.88	271.13	354.58	13.53	25.10	24.94	615.97
12/31/1986	24:00:00	73.01	1001.37	1.76	11.37	24.64	17.43	22.91	22.21	41.64
1/31/1987	24:00:00	72.64	1001.24	0.59	282.69	9.87	19.98	25.43	24.91	52.29
2/28/1987	24:00:00	80.57	1000.46	2.07	225.87	80.24	16.32	26.54	26.82	396.80
3/31/1987	24:00:00	80.48	999.38	1.8	227.68	133.08	16.28	26.27	26.28	374.81
4/30/1987	24:00:00	82.09	999.92	1.83	211.97	94.09	17.10	26.84	26.95	358.26
5/31/1987	24:00:00	85.65	999.84	2.28	214.23	211.60	14.74	26.20	26.14	468.68
6/30/1987	24:00:00	86.44	1002.68	2.37	226.25	287.78	14.32	25.18	25.13	495.95
7/31/1987	24:00:00	87.14	1001.45	2.58	235.99	549.45	13.66	25.14	25.05	593.64
8/31/1987	24:00:00	88.21	1001.59	2.75	233.25	343.47	14.75	24.84	24.76	468.02
9/30/1987	24:00:00	89.14	1001.73	2.62	230.92	382.73	13.92	24.97	24.83	527.63
10/31/1987	24:00:00	89.17	1000.76	1.95	227.23	454.07	12.21	25.16	24.96	668.86
11/30/1987	24:00:00	84.3	1000.42	0.93	228.64	301.98	14.03	25.65	25.33	544.03
12/31/1987	24:00:00	75.1	1000.93	0.81	301.74	105.93	16.45	25.25	24.47	215.08
1/31/1988	24:00:00	75.75	1000.32	0.7	292.87	38.93	16.65	25.39	24.98	266.24
2/28/1988	24:00:00	76.83	998.37	1.35	252.82	28.48	16.78	26.93	26.93	330.60
3/31/1988	24:00:00	83.19	999.62	2.06	231.63	113.20	14.61	26.83	26.87	473.01
4/30/1988	24:00:00	84.97	999.08	2.43	225.83	183.61	14.01	26.55	26.51	495.20
5/31/1988	24:00:00	86.05	1000.52	2.09	214.47	210.19	14.67	26.27	26.20	485.01

6/30/1988	24:00:00	87.27	1001.56	2.24	235.73	360.52	13.86	25.33	25.25	552.12
7/31/1988	24:00:00	87.92	1002.78	2.92	241.5	377.59	15.78	24.40	24.33	407.14
8/31/1988	24:00:00	87.48	1001.83	3.01	235.79	225.19	17.96	24.58	24.57	254.94
9/30/1988	24:00:00	89.33	1001.34	2.65	241.29	500.56	13.78	24.58	24.44	562.82
10/31/1988	24:00:00	88.93	1000.17	1.68	233.32	502.69	12.65	25.08	24.86	670.10
11/30/1988	24:00:00	82.48	1000.54	0.51	274.2	238.80	15.16	25.60	25.26	474.46
12/31/1988	24:00:00	81.04	999.89	0.87	335.46	124.48	13.67	24.20	23.81	451.08
1/31/1989	24:00:00	64.33	1001.24	3.22	23.41	0.74	20.95	21.27	20.58	0.00
2/28/1989	24:00:00	61.02	1000.46	1.56	12.86	5.48	19.15	24.16	23.20	0.00
3/31/1989	24:00:00	81.9	998.87	2.32	228.75	86.36	15.68	26.02	26.13	384.04
4/30/1989	24:00:00	85.25	998.76	2.47	219.8	170.58	14.37	26.07	26.08	472.50
5/31/1989	24:00:00	86.47	1000.98	2.09	224.24	417.06	13.61	25.57	25.51	593.89
6/30/1989	24:00:00	87.75	1002.2	2.22	225.53	311.42	13.11	24.89	24.76	562.56
7/31/1989	24:00:00	88.85	1002.99	2.66	229.99	504.07	14.37	24.23	24.09	522.96
8/31/1989	24:00:00	89.24	1002.28	2.86	232.1	345.85	14.49	24.34	24.19	459.84
9/30/1989	24:00:00	89.33	1000.75	2.4	238.12	382.44	12.96	24.50	24.33	576.51
10/31/1989	24:00:00	88.16	1001.1	1.61	241.66	370.59	12.96	24.90	24.73	618.81
11/30/1989	24:00:00	83.83	999.71	0.53	280.55	460.81	13.65	25.60	25.33	640.42
12/31/1989	24:00:00	75.86	1000.62	1.01	4.31	27.77	15.00	24.53	23.88	269.89
1/31/1990	24:00:00	76.92	999.59	1.22	279	57.44	16.19	25.65	25.39	305.23
2/28/1990	24:00:00	67.89	1000.14	0.86	343.07	14.59	17.17	25.36	24.69	123.51
3/31/1990	24:00:00	73.07	999.83	1.07	258.83	22.74	18.42	26.82	26.57	187.51
4/30/1990	24:00:00	84.53	999.16	2.44	221.18	196.73	14.35	26.60	26.59	485.11
5/31/1990	24:00:00	86.48	1000.85	2.26	230.72	345.81	13.86	25.88	25.83	557.35
6/30/1990	24:00:00	86.77	1002.35	2.52	226.56	228.57	13.18	25.38	25.28	525.11
7/31/1990	24:00:00	86.79	1002.68	3.06	230.81	407.08	14.25	24.56	24.49	482.65
8/31/1990	24:00:00	85.58	1002.99	2.94	237.63	414.85	15.00	24.80	24.81	465.11
9/30/1990	24:00:00	87.09	1001.79	2.51	235.23	575.78	12.82	24.79	24.73	647.53
10/31/1990	24:00:00	86.18	1000.95	1.87	225.79	584.13	13.90	25.37	25.33	640.63
11/30/1990	24:00:00	84.54	1000.14	1.44	226.83	179.77	13.43	25.77	25.65	549.50
12/31/1990	24:00:00	83.54	999.81	1.29	241.9	245.08	13.92	25.54	25.36	530.66
1/31/1991	24:00:00	70.81	1000.34	0.47	10.93	6.12	18.40	25.03	24.41	101.79
2/28/1991	24:00:00	81.45	999.81	2.14	234.71	88.49	13.71	26.70	26.86	516.45
3/31/1991	24:00:00	81.85	998.52	2.12	225.43	131.19	15.44	26.93	27.04	438.57
4/30/1991	24:00:00	84.16	999.39	2.39	220.78	204.81	15.15	26.25	26.29	449.44
5/31/1991	24:00:00	85.44	1000.11	2.16	231.58	433.80	15.12	26.16	26.15	530.55
6/30/1991	24:00:00	86.64	1001.72	2.43	231.97	465.29	13.62	25.63	25.56	588.60
7/31/1991	24:00:00	87.45	1003.02	2.86	224.15	323.83	14.46	24.54	24.48	463.86
8/31/1991	24:00:00	86.25	1003.42	3.06	227.46	300.92	15.64	24.48	24.47	384.89
9/30/1991	24:00:00	86.73	1002.26	2.87	232.65	533.36	14.58	25.02	24.99	530.47
10/31/1991	24:00:00	87.35	1001.22	2.39	239.55	551.43	13.67	24.66	24.57	597.15
11/30/1991	24:00:00	84.23	1000.25	1.24	236.58	785.49	13.84	25.87	25.86	743.28
12/31/1991	24:00:00	70.82	1000.51	1.65	18.29	23.37	16.85	23.80	23.08	76.62
1/31/1992	24:00:00	70.2	1000.41	1.05	24.69	12.85	18.79	23.68	23.13	33.29
2/28/1992	24:00:00	62.5	1000.31	0.61	6.15	5.94	18.84	25.49	24.65	0.00
3/31/1992	24:00:00	81.39	998.75	1.99	226.12	138.25	15.88	26.85	26.98	424.86
4/30/1992	24:00:00	84.57	999.42	2.22	220.84	215.28	13.75	26.65	26.64	535.19
5/31/1992	24:00:00	86.74	1000.29	2.16	226.9	347.13	13.42	26.02	25.98	592.28
6/30/1992	24:00:00	86.99	1002.26	2.98	223.3	381.74	14.38	25.10	25.03	484.64
7/31/1992	24:00:00	89.15	1003.65	3.13	227.51	565.28	13.65	23.97	23.86	554.08

8/31/1992	24:00:00	87.19	1003.95	3.33	222.79	225.72	17.62	23.86	23.87	242.41
9/30/1992	24:00:00	88.5	1001.49	2.51	230.28	527.32	13.86	24.33	24.24	574.09
10/31/1992	24:00:00	89.04	1001.4	2.24	237.5	376.11	13.20	24.79	24.63	577.27
11/30/1992	24:00:00	82.26	1000.36	0.38	311.08	119.18	14.96	24.42	24.07	430.55
12/31/1992	24:00:00	74.02	1000.51	1.05	8.39	6.91	17.52	24.02	23.40	114.98
1/31/1993	24:00:00	67.38	1001.2	2.1	17.42	8.66	19.29	23.19	22.55	0.00
2/28/1993	24:00:00	74.2	999.8	1.08	242.4	36.28	16.47	26.07	25.84	288.80
3/31/1993	24:00:00	80.32	1000.12	1.8	232.97	121.90	15.14	25.95	25.83	399.16
4/30/1993	24:00:00	85.26	999.08	2.18	221.5	156.45	13.36	26.35	26.32	534.99
5/31/1993	24:00:00	86.57	999.73	2.49	222.49	235.31	14.34	26.28	26.21	490.27
6/30/1993	24:00:00	87.39	1002.43	2.43	226.42	377.54	13.94	25.21	25.15	544.22
7/31/1993	24:00:00	88.57	1002.84	3.05	233.08	420.30	14.61	24.46	24.37	474.30
8/31/1993	24:00:00	88.72	1003.1	2.92	230.04	351.15	14.66	24.18	24.09	454.04
9/30/1993	24:00:00	88.87	1001.73	2.04	235.48	598.40	13.31	24.70	24.56	651.31
10/31/1993	24:00:00	88.35	1000.96	1.88	223.64	301.50	13.45	25.25	25.07	563.11
11/30/1993	24:00:00	87.88	999.41	1.64	226.42	513.89	11.93	25.29	25.09	713.97
12/31/1993	24:00:00	78.04	999.95	1.14	5.22	30.90	15.33	24.18	23.53	253.75
1/31/1994	24:00:00	76.46	999.53	0.74	346.26	43.88	17.06	24.63	24.26	241.66
2/28/1994	24:00:00	71.2	999.98	0.56	279.41	14.70	17.18	25.88	25.44	214.14
3/31/1994	24:00:00	83.22	999.17	2.14	229.31	104.67	14.95	26.72	26.74	442.91
4/30/1994	24:00:00	84.26	999	2.27	223.49	175.94	15.82	26.61	26.63	416.49
5/31/1994	24:00:00	86.6	1000.57	2.02	224.72	419.59	13.88	26.08	26.05	600.65
6/30/1994	24:00:00	88.16	1002.23	2.64	231.62	323.30	13.42	25.13	25.01	534.88
7/31/1994	24:00:00	88.93	1002.98	2.9	230.8	408.58	14.57	24.46	24.37	483.93
8/31/1994	24:00:00	88.85	1002.44	2.96	225.36	322.73	15.62	24.44	24.32	394.08
9/30/1994	24:00:00	89.32	1002.13	2.74	227.79	449.75	14.41	24.65	24.51	510.89
10/31/1994	24:00:00	89.46	1000.49	2.03	235.45	587.32	12.75	24.84	24.65	674.79
11/30/1994	24:00:00	83.79	1000.76	0.43	343.07	183.63	14.20	24.39	24.09	505.25
12/31/1994	24:00:00	74.13	1001.19	2.49	21.64	0.23	18.46	22.49	21.98	0.00
1/31/1995	24:00:00	68.32	1001.12	1.75	14.73	43.60	17.63	23.86	23.07	8.97
2/28/1995	24:00:00	71.59	1001.03	0.54	296.09	74.55	15.52	25.33	24.78	290.57
3/31/1995	24:00:00	83.63	998.96	1.99	233.32	156.44	14.12	26.60	26.62	510.29
4/30/1995	24:00:00	85.88	998.03	2.09	222.23	191.72	13.30	26.57	26.52	558.42
5/31/1995	24:00:00	86.65	999.83	2	224.52	329.24	13.84	26.10	26.01	566.08
6/30/1995	24:00:00	88.22	1001.64	2.43	223.81	576.35	13.73	25.43	25.30	612.05
7/31/1995	24:00:00	89.56	1001.38	2.8	227.17	370.40	14.52	24.64	24.48	475.41
8/31/1995	24:00:00	89.98	1001.76	2.66	231.6	459.88	13.74	24.69	24.53	554.21
9/30/1995	24:00:00	89.62	1002.02	2.74	236.68	457.78	14.51	24.94	24.79	513.62
10/31/1995	24:00:00	88.98	1000.35	2.07	234.32	709.87	12.87	25.04	24.86	705.81
11/30/1995	24:00:00	82.91	1000.25	0.89	351.24	314.63	14.63	24.68	24.48	514.15
12/31/1995	24:00:00	78.16	1000.86	0.88	341.84	63.24	15.53	24.73	24.32	323.74
1/31/1996	24:00:00	75.14	999.03	0.83	293.2	29.03	16.56	25.40	24.93	245.29
2/28/1996	24:00:00	79.85	998.5	1.74	248.22	153.56	15.39	26.64	26.73	447.93
3/31/1996	24:00:00	83.83	998.61	2.04	224.23	182.32	14.50	26.41	26.52	510.18
4/30/1996	24:00:00	85.02	998.58	2.01	214.43	207.77	14.35	26.47	26.46	514.04
5/31/1996	24:00:00	86.64	1000.05	2.07	218.88	264.71	14.57	26.27	26.19	510.13
6/30/1996	24:00:00	88.39	1001.82	2.49	223	321.59	13.87	25.23	25.11	522.90
7/31/1996	24:00:00	88.13	1003.31	2.85	226.79	277.68	15.25	24.25	24.15	401.48
8/31/1996	24:00:00	88.72	1002.57	2.97	220.61	405.46	15.37	24.28	24.18	430.93
9/30/1996	24:00:00	89.28	1001.46	2.88	231.95	555.37	14.51	24.57	24.44	529.48

10/31/1996	24:00:00	88.64	1000.81	1.82	244.69	494.04	13.16	24.78	24.63	638.59
11/30/1996	24:00:00	77.96	999.92	1.19	3.1	30.08	16.29	24.20	23.65	218.98
12/31/1996	24:00:00	75.07	1000.34	0.58	324.28	125.59	16.17	24.78	24.08	254.37
1/31/1997	24:00:00	76.08	1000	0.76	300.79	42.86	15.88	25.04	24.55	283.98
2/28/1997	24:00:00	61.31	1000.52	2.04	4.83	1.62	18.30	23.56	22.51	0.00
3/31/1997	24:00:00	81.08	999.14	1.4	246.45	153.53	14.21	26.25	26.12	488.49
4/30/1997	24:00:00	85.53	1000.5	2.26	225.98	209.79	13.91	25.94	25.95	519.65
5/31/1997	24:00:00	87.1	1001.26	2.1	229.5	592.17	13.92	25.93	25.84	635.51
6/30/1997	24:00:00	88.74	1001.64	2.8	221.65	575.12	14.14	24.94	24.87	573.96
7/31/1997	24:00:00	88.1	1003.44	3.26	230.68	347.92	16.52	24.45	24.36	338.69
8/31/1997	24:00:00	87.98	1003.47	3.03	231.35	363.17	16.41	24.43	24.38	368.33
9/30/1997	24:00:00	87.89	1001.73	2.38	230.81	474.48	13.84	25.26	25.18	582.18
10/31/1997	24:00:00	87.21	1000.28	1.91	233.56	424.52	13.60	25.98	25.87	610.07
11/30/1997	24:00:00	85.01	999.97	1.21	235.25	429.60	13.89	26.18	26.06	625.40
12/31/1997	24:00:00	74.46	1001.02	1.29	7.47	8.10	16.35	24.58	23.90	164.38
1/31/1998	24:00:00	70.79	1000.01	2.02	18.99	6.63	17.75	23.60	22.92	7.35
2/28/1998	24:00:00	70.83	1000.84	0.58	315.5	12.97	17.18	27.25	26.86	245.11
3/31/1998	24:00:00	72.44	998.83	1	264.53	77.04	17.75	27.28	26.87	217.62
4/30/1998	24:00:00	85.15	998.61	2.25	222.54	189.87	14.41	27.80	27.80	519.22
5/31/1998	24:00:00	86.42	1000.62	2.25	227.54	412.58	13.90	27.09	26.99	589.34
6/30/1998	24:00:00	87.56	1002.42	2.15	234.55	387.63	12.20	25.87	25.76	657.49
7/31/1998	24:00:00	88.19	1002.66	2.98	238.42	298.59	13.70	24.85	24.74	490.13
8/31/1998	24:00:00	87.04	1002.02	3.05	240.59	221.88	16.55	24.80	24.78	323.77
9/30/1998	24:00:00	89.11	1001.48	2.59	238.21	507.19	12.51	24.97	24.81	635.94
10/31/1998	24:00:00	87.93	1001.18	1.94	234.57	472.66	13.52	25.50	25.36	617.07
11/30/1998	24:00:00	85.5	999.52	0.9	236.32	371.08	12.47	25.84	25.65	682.55
12/31/1998	24:00:00	76.77	1000.19	0.94	349.29	102.63	15.08	24.51	23.90	305.20
1/31/1999	24:00:00	75.99	999.27	0.76	310.83	63.54	16.07	25.24	24.90	311.58
2/28/1999	24:00:00	82.68	998.89	1.78	248.73	69.22	11.97	26.35	26.34	590.83
3/31/1999	24:00:00	83.62	997.4	2.3	227.52	125.40	14.29	26.81	26.88	487.65
4/30/1999	24:00:00	84.67	999.1	2.16	223.87	164.11	13.34	26.50	26.48	540.30
5/31/1999	24:00:00	84.45	1000.01	1.9	219.36	200.34	15.09	26.35	26.35	475.93
6/30/1999	24:00:00	86.58	1000.95	1.95	220.84	412.47	12.90	25.68	25.61	638.13
7/31/1999	24:00:00	85.7	1002.56	2.6	233.41	263.10	15.18	24.85	24.83	425.39
8/31/1999	24:00:00	84.78	1002.3	2.55	238.11	221.98	15.88	25.04	25.04	381.00
9/30/1999	24:00:00	86.87	1000.94	2.52	238.83	379.02	13.63	24.91	24.88	552.20
10/31/1999	24:00:00	87.94	1001	2.3	234.02	691.05	12.88	24.84	24.72	686.72
11/30/1999	24:00:00	84.87	999.95	1.27	225.44	304.26	12.78	25.55	25.44	630.03
12/31/1999	24:00:00	75.53	999.61	0.17	338.83	12.03	14.79	24.98	24.26	318.22
1/31/2000	24:00:00	76.39	998.35	0.74	262.93	32.64	15.74	25.72	25.33	322.64
2/28/2000	24:00:00	65.85	999.78	0.63	7.71	7.61	16.40	24.95	24.15	129.35
3/31/2000	24:00:00	78.32	998	1.58	230.25	67.06	14.92	26.36	26.23	399.60
4/30/2000	24:00:00	82.91	998.08	2.48	212.98	213.94	15.00	26.79	26.81	453.10
5/31/2000	24:00:00	84.53	999.76	2.28	215.76	279.75	14.25	26.53	26.47	513.84
6/30/2000	24:00:00	89.43	1001.95	2.3	234.36	467.68	11.62	24.97	24.77	681.50
7/31/2000	24:00:00	90.11	1001.91	2.62	235.87	460.43	13.44	24.30	24.11	560.39
8/31/2000	24:00:00	89.16	1002.66	2.92	232.07	495.29	14.77	24.17	24.05	489.13
9/30/2000	24:00:00	89.65	1001.37	2.7	235.39	447.04	12.16	24.43	24.26	621.00
10/31/2000	24:00:00	88.33	1001.17	1.83	245.37	828.33	13.72	25.12	24.95	710.99
11/30/2000	24:00:00	84.89	999.66	0.89	245.28	177.53	14.26	25.64	25.37	509.48

12/31/2000	24:00:00	77.68	1001.06	1.4	12.75	30.87	17.92	23.19	22.58	91.14
1/31/2001	24:00:00	66.63	1000.88	2.03	17.14	1.70	20.09	23.15	22.28	0.00
2/28/2001	24:00:00	71.44	999.45	0.98	8.41	12.88	15.08	24.22	23.50	215.52
3/31/2001	24:00:00	83.5	999.09	2.06	220.27	125.97	13.45	26.67	26.63	521.21
4/30/2001	24:00:00	85.76	998.95	2.05	218.52	221.23	13.46	26.54	26.41	545.38
5/31/2001	24:00:00	87.28	1000.36	2.13	215.2	257.85	13.87	26.29	26.17	537.57
6/30/2001	24:00:00	88.94	1002.23	2.54	223.62	388.38	12.33	24.92	24.72	602.78
7/31/2001	24:00:00	88.2	1002.84	2.93	223.44	301.17	14.63	24.32	24.18	429.91
8/31/2001	24:00:00	87.7	1003.74	3.2	228.37	471.62	15.90	24.41	24.32	408.09
9/30/2001	24:00:00	88.4	1001.81	2.69	230.38	622.47	14.53	24.58	24.50	564.00
10/31/2001	24:00:00	86.94	1001.11	1.57	228.96	514.93	13.55	25.59	25.45	645.19
11/30/2001	24:00:00	85.6	1000.5	1.38	234.61	239.52	13.81	25.76	25.55	541.17
12/31/2001	24:00:00	78.12	999.99	0.29	317.5	19.57	17.58	25.82	25.25	229.65
1/31/2002	24:00:00	64.04	1000.7	2.29	26.96	28.22	18.92	23.18	22.15	0.00
2/28/2002	24:00:00	71.6	999.91	0.53	270.86	32.42	15.73	25.86	25.22	260.96
3/31/2002	24:00:00	82.98	998.71	1.99	222.21	112.18	14.15	26.95	26.98	499.56
4/30/2002	24:00:00	85.73	997.71	2.26	222.78	231.94	13.88	26.74	26.70	534.87
5/31/2002	24:00:00	86.19	1000.15	2.14	221.03	182.94	15.00	26.77	26.66	459.95
6/30/2002	24:00:00	88.68	1002.42	2.55	232.39	408.99	12.36	25.33	25.16	618.65
7/31/2002	24:00:00	89.7	1003.1	2.78	230.61	551.41	12.26	24.96	24.80	654.73
8/31/2002	24:00:00	88.84	1002.76	2.75	233.84	500.41	14.85	24.67	24.54	502.17
9/30/2002	24:00:00	88.23	1002.13	2.66	244.63	414.29	13.98	25.07	24.98	536.93
10/31/2002	24:00:00	86.79	1000.86	1.44	234.94	697.82	13.89	25.35	25.21	685.52
11/30/2002	24:00:00	82.55	1001.01	0.85	239.94	144.88	15.20	25.73	25.44	436.38
12/31/2002	24:00:00	75.31	1001.42	1.12	11.86	25.21	16.82	24.25	23.67	172.90
1/31/2003	24:00:00	74.74	1001.27	0.89	324.63	34.91	16.18	25.01	24.38	223.48
2/28/2003	24:00:00	79.47	999.27	1.35	243.42	69.90	14.33	26.87	26.69	451.63
3/31/2003	24:00:00	82.94	998.79	1.6	227.1	73.33	12.47	26.91	26.81	572.03
4/30/2003	24:00:00	85.44	999.37	2.19	226.78	323.75	13.52	26.70	26.64	579.22
5/31/2003	24:00:00	88.11	1000.61	2.15	222.82	387.49	12.25	26.26	26.11	658.26
6/30/2003	24:00:00	87.93	1001.64	2.41	229.57	439.95	12.45	25.25	25.13	634.43
7/31/2003	24:00:00	87.87	1002.9	2.92	242.25	419.73	14.76	24.90	24.82	479.79
8/31/2003	24:00:00	87.16	1002.74	3.12	234.29	310.34	15.05	25.05	24.95	414.75
9/30/2003	24:00:00	88.03	1002.17	2.19	240.89	723.72	12.77	25.19	25.06	714.05
10/31/2003	24:00:00	88.54	1000.17	1.92	229.26	790.34	12.32	25.77	25.61	782.10
11/30/2003	24:00:00	86.07	999.61	1.2	237.37	281.22	13.31	26.00	25.76	592.16
12/31/2003	24:00:00	75.08	1000.31	0.84	356.95	14.04	15.66	24.68	23.82	200.15
1/31/2004	24:00:00	77.01	999.32	0.73	308.47	24.92	14.53	25.35	24.72	336.21
2/28/2004	24:00:00	76.06	999.74	0.69	272.01	24.55	15.12	25.95	25.55	355.38
3/31/2004	24:00:00	80.1	998.8	1.46	241.05	75.13	13.65	26.80	26.62	485.04
4/30/2004	24:00:00	86.19	999.26	2.43	223.34	347.36	12.82	26.63	26.57	611.89
5/31/2004	24:00:00	87.24	1000.97	2.47	223.23	411.98	13.91	26.29	26.23	573.38
6/30/2004	24:00:00	87.87	1003.19	2.76	228.29	443.50	13.07	25.35	25.22	582.60
7/31/2004	24:00:00	88.66	1002.39	2.79	236.43	656.18	12.36	24.70	24.58	676.72
8/31/2004	24:00:00	87.88	1002.96	3.12	228.83	450.28	14.57	24.90	24.80	483.49
9/30/2004	24:00:00	88.54	1001.51	2.4	229.79	426.85	12.75	25.13	25.00	615.19
10/31/2004	24:00:00	88.25	1000.77	1.94	226.56	663.27	12.49	25.46	25.29	724.17
11/30/2004	24:00:00	86.27	999.91	1.33	223.88	294.84	11.66	25.68	25.35	652.40
12/31/2004	24:00:00	79.5	999.36	0.52	266.36	21.11	15.80	26.01	25.45	322.70
1/31/2005	24:00:00	71.88	999.83	1.51	25.92	17.06	15.52	23.36	22.55	133.71

2/28/2005	24:00:00	81.64	998.09	1.54	238.04	61.61	11.81	27.07	26.94	595.18
3/31/2005	24:00:00	84.35	999.03	2.01	220.72	111.07	12.34	27.17	27.11	587.93
4/30/2005	24:00:00	85.69	998.89	2.35	215.57	193.73	12.19	27.19	27.08	600.87
5/31/2005	24:00:00	85.96	1000.45	2.32	214.38	270.91	13.37	26.38	26.28	553.18
6/30/2005	24:00:00	86.79	1001.56	2.7	222.19	434.47	13.14	25.78	25.65	580.97
7/31/2005	24:00:00	85.69	1003.05	2.7	232.58	474.84	14.58	25.30	25.26	519.65
8/31/2005	24:00:00	83.85	1002.5	3.16	228.01	286.46	17.82	25.24	25.29	272.28
9/30/2005	24:00:00	87.37	1001.73	2.64	228.14	508.63	14.67	25.51	25.47	543.49
10/31/2005	24:00:00	88.23	1001.12	1.92	224.92	395.24	12.34	25.37	25.19	648.18
11/30/2005	24:00:00	83.89	999.48	0.9	231.02	67.84	14.70	26.21	25.92	453.73
12/31/2005	24:00:00	80.73	998.72	0.81	231.76	47.92	14.88	25.91	25.48	391.65
1/31/2006	24:00:00	82.82	998.41	1.62	242.84	53.84	13.46	26.41	26.23	489.18
2/28/2006	24:00:00	83.14	998.35	2.05	226.74	86.86	12.24	26.97	26.98	584.78
3/31/2006	24:00:00	84.17	999.27	2.13	220.51	113.62	12.31	26.63	26.55	568.03
4/30/2006	24:00:00	84.99	998.38	2.16	207.86	130.74	12.72	26.82	26.72	555.62
5/31/2006	24:00:00	86.72	1000.77	2.27	214.13	417.51	13.10	26.15	26.00	605.70
6/30/2006	24:00:00	86.97	1001.55	2.26	221.01	299.24	12.40	25.69	25.56	603.32
7/31/2006	24:00:00	87.57	1002.62	2.96	227.48	449.98	13.08	25.16	25.04	568.84
8/31/2006	24:00:00	87.44	1002.19	3.06	225.88	331.67	15.95	24.81	24.76	384.95
9/30/2006	24:00:00	89.86	1002.05	2.52	234.13	380.28	12.78	24.86	24.67	585.14
10/31/2006	24:00:00	88.45	1000.23	1.85	230.03	517.93	12.35	25.76	25.58	697.32
11/30/2006	24:00:00	79.23	999.99	0.23	328.77	101.25	15.01	25.50	24.90	386.01
12/31/2006	24:00:00	69.13	1001.26	1.54	27.59	2.24	18.89	24.00	22.85	0.00
1/31/2007	24:00:00	67.55	1001	2.17	30.39	2.22	17.97	22.84	22.00	-78.69
2/28/2007	24:00:00	77.82	999.52	1.21	251.34	46.10	13.66	26.41	26.06	436.37
3/31/2007	24:00:00	81.17	998.47	1.85	224.08	74.28	14.27	26.76	26.69	456.40
4/30/2007	24:00:00	84.6	998.72	2.27	223.77	163.75	13.83	26.89	26.89	519.26
5/31/2007	24:00:00	86.02	999.86	2.15	221.18	334.30	14.08	26.64	26.60	562.33
6/30/2007	24:00:00	88.61	1001.93	2.67	223.89	456.28	12.31	25.24	25.08	627.98
7/31/2007	24:00:00	87.84	1002.49	2.77	228.81	260.78	14.62	24.86	24.78	446.39
8/31/2007	24:00:00	88.95	1001.78	2.68	230.22	326.05	14.08	24.76	24.61	491.71
9/30/2007	24:00:00	89.54	1001.93	2.14	232.29	433.66	12.90	25.07	24.90	622.43
10/31/2007	24:00:00	89.25	1000.62	1.86	230.51	659.70	11.18	25.03	24.82	786.02
11/30/2007	24:00:00	86.55	999.46	1.32	228.58	361.27	12.87	25.51	25.24	620.11
12/31/2007	24:00:00	78.56	999.87	1	344.55	38.36	17.01	24.43	23.87	201.80
1/31/2008	24:00:00	73.05	999.87	1.82	14.78	32.43	15.55	23.42	22.83	167.84
2/28/2008	24:00:00	66.19	1000	1.08	2.24	8.84	15.83	24.64	23.56	77.60
3/31/2008	24:00:00	84.43	998.33	2.3	217.23	105.26	13.60	26.39	26.38	499.52
4/30/2008	24:00:00	84.79	997.95	1.91	214.74	343.58	12.96	26.36	26.32	623.27
5/31/2008	24:00:00	85.53	999.45	1.66	218.43	268.76	12.95	26.29	26.15	600.90
6/30/2008	24:00:00	87.4	1001.31	2.38	216.93	403.77	12.87	25.48	25.37	605.98
7/31/2008	24:00:00	86.2	1002.52	2.6	223.58	407.67	14.88	25.04	24.98	484.15
8/31/2008	24:00:00	87.11	1001.27	2.59	235.65	333.28	13.97	24.92	24.83	507.30
9/30/2008	24:00:00	87.75	1001.62	2	229.82	342.27	13.22	25.22	25.05	577.90
10/31/2008	24:00:00	87.62	1000.77	1.73	234.66	357.84	12.90	25.60	25.39	613.81
11/30/2008	24:00:00	83.01	999.58	0.95	234.72	288.12	14.46	26.26	26.03	536.57
12/31/2008	24:00:00	78.5	999.34	0.49	291.35	156.61	15.74	25.56	25.14	379.80
1/31/2009	24:00:00	80.27	999.69	1.29	258.21	80.41	12.92	25.92	25.60	492.73
2/28/2009	24:00:00	81.85	998.51	1.86	230.92	59.87	13.05	26.68	26.74	541.58
3/31/2009	24:00:00	83.58	997.9	1.84	231.31	95.64	12.76	26.95	26.91	566.31

4/30/2009	24:00:00	85.75	999.36	2.1	224.81	407.74	12.42	26.50	26.42	661.18
5/31/2009	24:00:00	86.56	999.83	1.8	221.37	302.94	12.95	26.20	26.07	609.83
6/30/2009	24:00:00	87.78	1001.96	2.21	225.18	410.44	12.36	25.51	25.39	645.75
7/31/2009	24:00:00	87.73	1002.53	2.83	227.34	610.83	13.80	25.12	25.05	597.80
8/31/2009	24:00:00	88.28	1001.89	2.86	231.4	670.37	13.68	25.13	25.05	621.91
9/30/2009	24:00:00	87.78	1002.28	2.34	231.98	359.89	13.44	25.50	25.43	576.28
10/31/2009	24:00:00	88.1	1000.53	1.9	234.27	595.98	12.18	25.40	25.24	721.62
11/30/2009	24:00:00	82.03	1000.15	0.6	276.89	235.02	15.31	25.56	25.21	455.15
12/31/2009	24:00:00	72	1000.33	0.71	342.74	10.23	17.89	25.73	24.77	73.13
1/31/2010	24:00:00	73.78	1000.12	0.63	281.61	23.31	16.86	26.20	25.53	208.77
2/28/2010	24:00:00	80.83	999.26	1.61	236.35	69.16	12.78	27.10	26.95	535.08
3/31/2010	24:00:00	81.81	999.71	1.66	221.98	79.13	12.81	27.14	27.05	552.00
4/30/2010	24:00:00	84.66	999.01	2	217.43	154.21	13.22	27.36	27.26	554.57
5/31/2010	24:00:00	86.14	999.97	2.26	214.57	317.85	14.00	26.94	26.84	550.00
6/30/2010	24:00:00	87.5	1002.19	2.24	215.75	445.57	12.58	25.79	25.69	650.25
7/31/2010	24:00:00	87.28	1002.29	2.49	224.81	359.62	13.99	25.05	24.95	521.62
8/31/2010	24:00:00	87.5	1002.13	2.85	222.53	319.75	14.99	25.10	25.03	445.22
9/30/2010	24:00:00	88.21	1001.34	2.33	224.46	467.22	13.56	25.06	24.96	591.91
10/31/2010	24:00:00	88.81	1000.58	2.06	222.04	256.56	13.41	25.27	25.08	542.34
11/30/2010	24:00:00	86.19	999.23	1.19	231.58	517.85	12.78	25.81	25.59	692.55
12/31/2010	24:00:00	74.6	998.9	0.83	354.95	26.50	18.02	25.01	24.23	100.77
1/31/2011	24:00:00	68.05	998.77	1.51	18.88	4.40	18.52	24.53	23.85	-3.67
2/28/2011	24:00:00	82.02	998.85	1.95	235.37	94.22	11.78	26.35	26.37	599.66
3/31/2011	24:00:00	82.62	998.43	2.13	226.86	116.79	13.84	26.80	26.85	507.59
4/30/2011	24:00:00	84.95	998.41	2.11	217.56	160.92	12.07	26.55	26.44	594.08
5/31/2011	24:00:00	87.61	999.93	2.08	217.13	344.05	11.45	26.28	26.11	683.92
6/30/2011	24:00:00	88.29	1001.55	2.46	221.29	416.34	11.42	25.54	25.39	679.79
7/31/2011	24:00:00	87.8	1001.91	2.74	224.43	397.70	14.37	25.03	24.98	511.39
8/31/2011	24:00:00	88.28	1002.16	2.97	231.03	503.59	13.96	24.84	24.72	537.47
9/30/2011	24:00:00	88.29	1002.32	2.17	229.86	290.86	13.42	25.00	24.86	546.93
10/31/2011	24:00:00	88.89	999.81	1.72	227.11	500.48	11.62	25.15	24.97	728.74
11/30/2011	24:00:00	82.68	999.99	0.84	263.17	215.69	14.72	25.62	25.23	463.46
12/31/2011	24:00:00	70.26	1000.6	1.45	6.21	10.31	18.83	23.94	22.95	-68.94
1/31/2012	24:00:00	72.46	1000.35	0.73	339.88	44.07	16.37	24.66	24.00	199.01
2/28/2012	24:00:00	82.46	998.6	2.12	237.27	111.69	13.31	26.26	26.37	533.98
3/31/2012	24:00:00	82.81	999.25	1.78	240.7	76.81	12.79	26.80	26.73	549.21
4/30/2012	24:00:00	85.17	999.24	2.37	226.31	268.79	13.32	26.58	26.54	562.19
5/31/2012	24:00:00	86.43	1000.93	2	226.99	456.05	12.52	25.95	25.82	660.97
6/30/2012	24:00:00	87.83	1002.32	2.2	234.96	446.02	12.11	25.29	25.12	656.65
7/31/2012	24:00:00	87.66	1002.38	2.75	229.89	453.21	13.89	24.77	24.67	537.00
8/31/2012	24:00:00	86.75	1002.96	2.86	234.36	266.19	16.15	24.72	24.69	363.88
9/30/2012	24:00:00	87.89	1002.79	2.34	228.92	361.51	14.46	25.06	24.96	510.81
10/31/2012	24:00:00	88.72	1000.66	1.88	227.84	819.38	12.91	25.31	25.17	759.04
11/30/2012	24:00:00	86.72	1000.03	1.21	231.54	292.59	11.30	25.77	25.43	679.74
12/31/2012	24:00:00	77.87	1000.09	1.1	352.72	82.23	15.14	24.30	23.67	286.07
1/31/2013	24:00:00	77.7	1000.6	0.76	317.28	63.84	14.44	25.31	24.80	376.64
2/28/2013	24:00:00	81.48	999.03	1.53	244.36	65.13	12.07	26.32	26.08	547.92
3/31/2013	24:00:00	84.31	999.55	2.28	212.24	118.39	13.23	26.73	26.66	517.98
4/30/2013	24:00:00	84.55	1000.04	1.93	216.52	220.55	13.26	26.65	26.56	564.25
5/31/2013	24:00:00	86.85	1000.9	1.94	224.98	412.34	12.17	26.19	26.04	672.89

6/30/2013	24:00:00	88.32	1001.97	2.48	228.08	600.07	12.49	25.39	25.26	680.16
7/31/2013	24:00:00	87.84	1002.93	2.77	223.95	572.92	14.28	24.71	24.65	559.77
8/31/2013	24:00:00	86.85	1002.21	2.92	227.24	289.36	15.80	24.66	24.62	383.06
9/30/2013	24:00:00	88.94	1002.16	2.31	228.36	650.78	12.51	24.99	24.87	702.49
10/31/2013	24:00:00	88.1	1001.37	1.72	232.59	592.36	13.26	25.32	25.20	681.16
11/30/2013	24:00:00	86.69	999.66	1.35	228.39	222.51	12.08	25.67	25.43	626.52
12/31/2013	24:00:00	81.99	1000.67	0.58	270.1	154.78	16.43	25.14	24.80	367.58
1/31/2014	24:00:00	75.21	1000.18	0.81	269.66	49.51	15.89	25.83	25.09	245.93
2/28/2014	24:00:00	78.62	999.01	1.32	251.79	38.89	13.84	26.60	26.37	449.55
3/31/2014	24:00:00	84.5	999.47	2.15	223.07	154.52	12.63	26.59	26.56	573.61
4/30/2014	24:00:00	85.32	999.84	2.14	223.23	271.63	13.05	26.54	26.48	586.75
5/31/2014	24:00:00	85.84	1000.14	1.76	219.36	496.82	13.60	26.42	26.28	634.85
6/30/2014	24:00:00	86.63	1001.88	2.23	229.66	394.37	13.06	26.00	25.94	616.38
7/31/2014	24:00:00	85.87	1003.76	2.83	219.39	311.60	15.93	25.27	25.31	408.04
8/31/2014	24:00:00	86.26	1002.9	2.75	228.24	333.59	14.96	24.91	24.88	452.48
9/30/2014	24:00:00	86.91	1002.33	2.26	231.54	381.45	13.52	25.06	25.01	573.09
10/31/2014	24:00:00	87.11	1001.26	1.79	233.27	666.56	12.44	25.49	25.33	731.26
11/30/2014	24:00:00	84.22	1000.5	1.25	228.87	313.01	13.25	26.06	25.87	600.63
12/31/2014	24:00:00	71.81	1000.91	0.42	315.72	27.10	17.42	26.01	25.32	173.41
1/31/2015	24:00:00	70.1	1001.74	1.2	15.37	17.45	17.53	24.06	23.54	103.57
2/28/2015	24:00:00	82.31	999.73	2.04	236.12	126.39	11.82	26.73	26.73	607.21
3/31/2015	24:00:00	82.38	999.39	1.87	233.26	140.10	13.10	26.81	26.73	542.49
4/30/2015	24:00:00	83.23	1000.33	1.83	217.56	84.89	13.14	26.82	26.74	531.92
5/31/2015	24:00:00	85.82	1000.91	1.98	217.36	287.26	12.64	26.50	26.33	603.90
6/30/2015	24:00:00	87.79	1002.76	2.83	219.91	487.27	12.97	25.45	25.36	605.94
7/31/2015	24:00:00	86.82	1002.68	2.76	221.24	644.21	14.20	25.43	25.37	592.83
8/31/2015	24:00:00	86.74	1002.46	2.97	220.47	403.55	14.59	25.34	25.30	489.31
9/30/2015	24:00:00	87.75	1002.13	2.7	222.26	535.31	13.12	25.42	25.34	621.24
10/31/2015	24:00:00	88.46	1001.49	2.2	229.01	675.46	11.62	25.56	25.40	762.38
11/30/2015	24:00:00	83.24	1000.69	0.9	245.34	432.36	14.93	26.08	25.83	553.29
12/31/2015	24:00:00	65.87	1002.31	2.53	36.37	2.15	18.91	23.43	22.44	-175.75
1/31/2016	24:00:00	64.4	1001.37	1.27	23.27	5.85	19.57	24.95	23.96	-116.22
2/28/2016	24:00:00	72.52	999.92	1.23	262.73	23.21	15.88	27.04	26.64	282.69
3/31/2016	24:00:00	83.95	999.96	2.29	230.87	183.15	13.20	27.49	27.45	556.42
4/30/2016	24:00:00	84.21	999.55	2.25	220.93	141.52	13.45	27.38	27.30	525.39
5/31/2016	24:00:00	86.02	1001.59	2.11	222.93	381.34	12.88	26.68	26.55	624.88
6/30/2016	24:00:00	86.34	1003.04	2.17	235.75	543.32	13.04	25.78	25.66	648.95
7/31/2016	24:00:00	87.86	1002.69	2.49	236.04	562.73	12.72	25.13	25.01	650.36
8/31/2016	24:00:00	88.29	1002.65	2.66	228.74	436.21	13.40	25.03	24.92	569.80
9/30/2016	24:00:00	89.26	1002.34	2.28	229.2	637.42	12.07	25.13	24.97	720.19
10/31/2016	24:00:00	87.83	1000.45	1.54	228.05	391.22	12.56	25.76	25.50	647.21
11/30/2016	24:00:00	84.66	999.91	0.99	232.63	453.69	13.41	26.51	26.23	644.68
12/31/2016	24:00:00	78.97	999.97	0.49	334.13	45.14	14.61	25.62	25.08	386.07
1/31/2017	24:00:00	78.43	999.95	1.01	272.31	51.14	13.95	25.83	25.27	388.50
2/28/2017	24:00:00	74.49	999.55	0.58	260.88	19.27	13.87	26.41	25.98	417.91
3/31/2017	24:00:00	84.13	999.05	2.09	221.67	119.45	13.28	27.04	27.00	537.30
4/30/2017	24:00:00	84.49	999.4	1.71	210.01	165.73	12.81	26.92	26.77	577.06
5/31/2017	24:00:00	86.24	1000.71	1.81	218.33	261.30	13.50	26.68	26.55	575.31
6/30/2017	24:00:00	87.45	1001.57	2.02	230.55	370.40	12.17	25.98	25.85	659.00
7/31/2017	24:00:00	88.05	1003.29	2.59	226.11	448.09	14.77	25.14	25.05	511.10

8/31/2017	24:00:00	89.4	1002.37	2.69	230.35	356.81	13.51	24.81	24.65	531.92
9/30/2017	24:00:00	89.2	1002.06	2.32	232.78	448.54	13.19	25.17	25.01	603.25
10/31/2017	24:00:00	87.9	1000.88	1.68	232.3	403.58	12.73	25.74	25.53	643.55
11/30/2017	24:00:00	83.3	1000.09	0.92	233.11	384.48	13.84	25.96	25.63	577.19
12/31/2017	24:00:00	77.06	999.99	0.7	315.41	47.07	15.62	25.91	25.27	297.25
1/31/2018	24:00:00	65.43	1000.52	1.13	7.15	6.34	17.88	24.46	23.37	0.00
2/28/2018	24:00:00	80.45	998.54	1.93	238.5	118.24	13.55	26.97	26.90	501.67
3/31/2018	24:00:00	84.03	999.71	2.31	221.35	160.41	13.80	26.68	26.66	506.12
4/30/2018	24:00:00	85.1	999.74	2.45	215.65	169.45	13.52	26.53	26.48	513.84
5/31/2018	24:00:00	85.98	1000.58	2.2	226	226.87	14.24	26.35	26.29	508.87
6/30/2018	24:00:00	88.17	1002.3	2.31	235.36	461.66	12.43	25.55	25.41	651.21
7/31/2018	24:00:00	88.28	1002.85	2.32	237.33	349.71	13.81	25.17	25.05	542.83
8/31/2018	24:00:00	88	1002.88	2.61	229.65	251.25	15.60	24.94	24.87	406.67
9/30/2018	24:00:00	88.49	1001	2.07	226.77	437.12	13.05	25.33	25.19	623.55
10/31/2018	24:00:00	88.07	1000.71	1.76	231.4	588.75	12.70	25.72	25.54	702.75
11/30/2018	24:00:00	84.94	999.61	1	241.11	348.12	13.78	26.52	26.26	598.59
12/31/2018	24:00:00	72.34	1000.87	0.72	337.71	11.46	16.73	25.60	24.80	162.41
1/31/2019	24:00:00	76.41	1000.75	0.98	261.39	72.54	15.00	25.93	25.46	348.42
2/28/2019	24:00:00	74.14	999.95	1.03	260.08	91.78	12.97	26.27	25.78	444.37
3/31/2019	24:00:00	84.3	999.81	2.09	229.5	158.07	11.81	26.93	26.85	616.37
4/30/2019	24:00:00	84.17	999.33	2.17	218.18	186.99	13.19	27.38	27.33	562.68
5/31/2019	24:00:00	86.63	1000.08	1.9	229.39	286.65	12.32	26.59	26.45	637.37
6/30/2019	24:00:00	86.63	1002.51	2.37	228.77	436.80	14.27	26.05	26.02	565.02
7/31/2019	24:00:00	87.73	1002.48	2.34	234.54	468.27	13.52	25.34	25.25	597.60
8/31/2019	24:00:00	87.92	1003.42	2.56	227.57	348.94	15.33	25.18	25.12	459.24
9/30/2019	24:00:00	88.5	1002.13	2.18	227.25	343.24	13.60	25.42	25.26	558.52
10/31/2019	24:00:00	88.18	1000.75	1.84	228.08	339.56	13.99	25.13	24.93	541.89
11/30/2019	24:00:00	86.08	999.54	1.2	242.02	287.60	12.75	26.40	26.17	632.28
12/31/2019	24:00:00	71.74	1000.11	1.19	351.66	10.52	18.78	25.44	24.64	21.94

Appendix 1D: IVO River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.763
 # Site longitude (positive means East);5.970
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 34m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	59.24	974.6	0.36	74.9	0.42	19.64	23.90	23.72	7.94
2/28/1981	24:00:00	58.17	973.35	0.52	218.5	9.58	18.96	25.82	26.64	9.17
3/31/1981	24:00:00	66.34	973.39	2.6	228.91	36.59	18.91	27.07	29.18	12.30
4/30/1981	24:00:00	73.96	972.85	2.84	218.2	62.33	18.20	26.98	28.67	14.63
5/31/1981	24:00:00	82.68	974.18	2.31	221.21	206.75	15.81	25.41	26.02	28.05
6/30/1981	24:00:00	82.04	975.68	2.3	223.93	107.89	16.63	25.32	25.83	18.67
7/31/1981	24:00:00	85.26	976.05	2.76	234.26	258.61	15.23	23.77	24.03	33.03
8/31/1981	24:00:00	83.74	975.71	2.78	232.39	306.79	17.14	24.03	24.51	37.19
9/30/1981	24:00:00	84.2	975.74	2.23	230.63	255.30	17.14	24.19	24.65	32.26
10/31/1981	24:00:00	83.5	974.38	1.16	203.55	99.23	16.90	24.94	25.23	17.48
11/30/1981	24:00:00	72.23	974.37	0.81	61.61	12.71	18.11	23.82	23.65	9.25
12/31/1981	24:00:00	58.21	974.5	0.78	64.04	0.26	20.33	24.14	23.31	7.70
1/31/1982	24:00:00	62.25	973.69	0.39	340.13	11.30	18.69	25.35	26.31	9.34
2/28/1982	24:00:00	61.22	973.33	0.67	241.22	18.98	17.05	25.01	25.74	10.44
3/31/1982	24:00:00	70.64	972.88	1.56	243.24	46.01	18.19	25.69	26.33	12.66
4/30/1982	24:00:00	77.86	973	3.1	228.86	90.90	16.62	26.29	27.37	17.47
5/31/1982	24:00:00	82.48	974.2	2.11	225.68	157.54	15.41	25.47	25.98	23.49
6/30/1982	24:00:00	85.03	976.25	2.02	227.59	219.03	15.56	24.68	25.12	29.12
7/31/1982	24:00:00	83.97	976.01	2.55	236.48	170.63	16.88	23.90	24.50	24.57
8/31/1982	24:00:00	84.3	976.36	3.16	239.18	178.97	17.76	23.20	23.78	25.32
9/30/1982	24:00:00	84.66	975.54	2.07	230.28	249.17	17.08	24.29	24.78	31.65
10/31/1982	24:00:00	85.42	974.54	1.46	223.6	243.39	15.60	23.97	24.34	31.26
11/30/1982	24:00:00	72.57	974.53	0.8	56.86	7.85	18.70	23.54	23.14	8.61
12/31/1982	24:00:00	64.15	974.36	1.03	48.56	2.58	18.79	23.42	22.62	8.22
1/31/1983	24:00:00	56.04	975.8	3.35	51.85	0.02	20.58	20.37	20.15	8.61
2/28/1983	24:00:00	58.67	973.95	0.76	182.96	3.21	19.83	26.60	27.37	8.39
3/31/1983	24:00:00	53.18	973.2	0.96	188.36	47.80	21.68	27.70	28.78	12.33
4/30/1983	24:00:00	64.32	972.53	2.64	209.99	57.61	19.28	28.50	30.65	14.17
5/31/1983	24:00:00	82.48	973.41	2.95	218.03	112.32	16.11	25.76	26.38	19.34
6/30/1983	24:00:00	83.84	975.61	2.52	226.94	331.44	16.63	24.94	25.43	39.49
7/31/1983	24:00:00	85.26	975.95	3.19	229.58	152.53	17.16	23.82	24.41	22.94
8/31/1983	24:00:00	86.95	977.24	3.24	231.76	253.77	17.25	23.07	23.65	32.35
9/30/1983	24:00:00	85.96	975.9	1.91	225.22	285.36	15.74	23.88	24.20	35.21
10/31/1983	24:00:00	81.2	975.16	1.18	212.56	31.04	18.88	24.68	24.94	10.78
11/30/1983	24:00:00	74.22	975.63	0.56	211.66	6.62	20.05	24.75	24.70	8.17
12/31/1983	24:00:00	71.25	974.93	0.52	206.76	9.96	17.76	24.02	23.77	8.99
1/31/1984	24:00:00	52.88	974.32	1.71	87.96	0.08	21.10	22.58	21.58	7.87
2/28/1984	24:00:00	63.25	972.33	0.95	175.75	2.23	18.91	25.40	25.83	8.41
3/31/1984	24:00:00	74.21	971.95	2.76	223.74	43.86	17.34	26.35	27.33	12.91

4/30/1984	24:00:00	77.71	972.52	3.02	219.35	102.30	16.16	26.03	27.03	18.60
5/31/1984	24:00:00	82.4	973.21	2.61	220.91	129.77	15.58	25.22	25.74	21.00
6/30/1984	24:00:00	82.07	975.02	2.33	223.68	123.55	16.74	24.97	25.51	20.14
7/31/1984	24:00:00	83.69	975.05	2.43	234.37	248.48	15.62	23.99	24.43	32.00
8/31/1984	24:00:00	83.22	975.55	1.92	225.48	240.88	17.15	24.18	24.56	30.84
9/30/1984	24:00:00	84.47	974.8	1.9	228.93	344.46	15.99	24.11	24.45	40.68
10/31/1984	24:00:00	83.71	974.17	1.05	224.94	188.96	16.55	24.69	24.93	25.86
11/30/1984	24:00:00	74.02	974.27	0.55	237.85	12.71	18.12	24.27	24.07	9.12
12/31/1984	24:00:00	60.63	973.63	1.25	58.71	2.56	19.39	22.80	22.01	8.25
1/31/1985	24:00:00	66.39	973.05	0.77	246.98	9.29	18.24	25.00	25.40	9.11
2/28/1985	24:00:00	46.37	973.86	0.88	98.79	0.44	21.02	24.85	25.12	8.10
3/31/1985	24:00:00	66.82	972.11	2.79	213.93	62.08	19.07	26.49	28.15	14.58
4/30/1985	24:00:00	74.09	972.79	2.7	214.35	74.80	19.31	26.43	28.05	15.53
5/31/1985	24:00:00	78.67	973.64	3.42	219.98	163.64	17.62	25.79	26.99	24.14
6/30/1985	24:00:00	80.99	976.39	2.91	222.19	193.98	17.18	24.58	25.29	26.81
7/31/1985	24:00:00	84.19	976.31	2.73	235.24	333.30	15.76	23.33	23.76	39.95
8/31/1985	24:00:00	85.45	975.71	2.72	234.32	419.51	15.12	23.59	23.96	48.04
9/30/1985	24:00:00	84.48	974.89	2.12	224.7	408.72	16.58	23.92	24.36	46.62
10/31/1985	24:00:00	82.15	974.19	0.72	145.63	99.44	16.92	24.55	24.76	17.42
11/30/1985	24:00:00	75.7	973.88	0.64	215.64	23.70	16.63	25.23	25.40	10.50
12/31/1985	24:00:00	57.97	973.7	0.97	22.82	0.64	19.14	23.69	23.32	8.18
1/31/1986	24:00:00	53.91	974.13	0.14	2.02	4.10	20.53	25.14	25.55	8.25
2/28/1986	24:00:00	64.09	973.05	2.7	225.64	18.36	16.36	26.84	29.01	11.24
3/31/1986	24:00:00	68.41	973.43	3.33	223.92	108.95	17.81	26.50	28.68	19.44
4/30/1986	24:00:00	72.73	972.37	3.4	224.18	50.01	17.69	27.04	28.69	13.73
5/31/1986	24:00:00	79.21	974.13	2.71	219.66	73.47	16.61	25.79	26.51	15.66
6/30/1986	24:00:00	79.62	975.35	2.99	223.43	135.83	17.36	25.20	26.01	21.41
7/31/1986	24:00:00	83.59	977.09	3.26	230.28	376.97	15.05	23.52	23.99	44.29
8/31/1986	24:00:00	82.8	975.84	2.49	230.46	253.58	17.76	23.70	24.27	32.11
9/30/1986	24:00:00	83.28	975.95	1.81	228.1	211.17	17.25	24.04	24.48	28.05
10/31/1986	24:00:00	81.75	975.22	0.54	195.54	144.42	18.27	24.62	24.83	21.28
11/30/1986	24:00:00	71.57	974.03	0.32	32.44	22.29	18.10	24.69	24.57	10.01
12/31/1986	24:00:00	55.66	975.43	1.71	59.56	0.57	19.75	23.04	22.72	8.31
1/31/1987	24:00:00	49.62	975.05	0.8	104.47	1.40	21.32	25.46	25.56	7.97
2/28/1987	24:00:00	57.48	973.81	1.73	215.85	16.93	18.86	28.21	30.54	10.47
3/31/1987	24:00:00	61.8	972.86	2.13	227.13	48.86	17.99	27.39	29.21	13.52
4/30/1987	24:00:00	61.42	973.26	2.23	210.7	27.03	20.09	28.68	30.75	11.09
5/31/1987	24:00:00	68.84	973.17	3.35	213.1	67.89	17.93	27.68	29.58	15.45
6/30/1987	24:00:00	80.62	976.03	2.69	217.67	131.25	16.19	25.34	26.02	21.10
7/31/1987	24:00:00	82.42	974.97	2.33	227.14	167.41	16.87	25.00	25.44	24.15
8/31/1987	24:00:00	85.84	975.02	2.58	233.8	383.06	14.60	24.23	24.46	44.65
9/30/1987	24:00:00	84.79	975.22	1.96	227.76	389.21	16.56	24.77	25.11	44.69
10/31/1987	24:00:00	83.13	974.45	0.98	213.2	212.80	16.78	25.12	25.32	28.00
11/30/1987	24:00:00	70.54	974.34	0.11	326.9	2.75	19.69	25.26	24.86	7.73
12/31/1987	24:00:00	60.29	974.92	0.68	54.93	3.61	19.78	24.69	23.93	8.05
1/31/1988	24:00:00	59.93	974.14	0.16	73.9	8.87	19.45	25.57	25.94	8.77
2/28/1988	24:00:00	57.97	972.25	0.55	229.75	8.87	19.39	27.03	27.84	8.96
3/31/1988	24:00:00	68.79	973.2	2.5	231.09	39.20	17.71	27.63	29.34	12.59
4/30/1988	24:00:00	71.52	972.52	3.25	224.73	87.63	16.92	27.55	29.33	17.40
5/31/1988	24:00:00	79.13	974.1	2.85	217.11	118.12	17.33	26.47	27.39	19.71

6/30/1988	24:00:00	84.04	975.16	2.47	226.06	147.92	15.47	24.92	25.36	22.63
7/31/1988	24:00:00	85.2	976.1	3.36	239.02	254.60	16.43	23.81	24.23	32.58
8/31/1988	24:00:00	85.32	975.11	3.54	232.1	326.36	17.27	23.68	24.12	39.13
9/30/1988	24:00:00	85.4	974.79	2.32	237.73	360.24	16.01	24.22	24.61	42.23
10/31/1988	24:00:00	83.2	973.94	0.79	192.99	114.10	18.33	25.04	25.33	18.48
11/30/1988	24:00:00	71.92	974.63	0.34	35.45	8.82	18.77	24.86	24.44	8.53
12/31/1988	24:00:00	70.95	973.9	0.65	14.6	6.02	16.50	23.86	23.70	8.96
1/31/1989	24:00:00	52.21	975.5	2.41	43.98	0.02	21.88	21.28	20.58	8.02
2/28/1989	24:00:00	50.2	974.57	1.15	60.52	0.93	19.57	23.94	24.08	8.45
3/31/1989	24:00:00	69.21	972.32	2.83	224.76	68.21	18.75	26.79	28.64	15.21
4/30/1989	24:00:00	72.74	972.11	3.47	221.35	57.85	18.32	27.11	28.85	14.37
5/31/1989	24:00:00	80.64	974.43	2.63	215.43	175.95	17.55	25.80	26.59	24.96
6/30/1989	24:00:00	84.42	975.66	2.69	217.62	205.19	15.36	24.68	25.12	28.04
7/31/1989	24:00:00	85.03	976.29	2.65	232.69	267.95	16.24	23.99	24.40	33.69
8/31/1989	24:00:00	85.98	975.69	2.8	235.48	369.93	15.87	23.78	24.15	43.27
9/30/1989	24:00:00	86.17	974.28	1.75	227.25	273.32	15.08	24.10	24.37	34.17
10/31/1989	24:00:00	84.21	974.8	1.31	223.1	113.25	16.77	24.51	24.65	18.81
11/30/1989	24:00:00	73.57	973.83	0.46	67.15	15.30	18.61	24.85	24.40	9.15
12/31/1989	24:00:00	66.22	974.69	0.82	69.66	9.09	18.13	23.88	23.19	8.88
1/31/1990	24:00:00	62.62	973.64	0.1	293.31	4.34	18.85	24.97	24.47	8.20
2/28/1990	24:00:00	56.11	974.06	0.28	90.28	6.01	18.86	25.77	25.87	8.65
3/31/1990	24:00:00	53.08	973.73	0.46	168.37	5.33	21.38	27.18	27.62	8.18
4/30/1990	24:00:00	73.96	972.64	3.62	222.71	84.36	17.50	27.26	28.89	16.98
5/31/1990	24:00:00	80.97	974.38	2.65	223.51	118.82	16.58	25.87	26.51	19.81
6/30/1990	24:00:00	80.95	975.78	2.97	227.14	120.24	15.91	25.55	26.22	20.18
7/31/1990	24:00:00	84.85	975.88	3.44	237.72	464.87	15.03	24.03	24.40	52.43
8/31/1990	24:00:00	83.06	976.32	2.61	237.47	314.06	16.09	24.33	24.80	38.05
9/30/1990	24:00:00	83.3	975.23	1.61	227.83	301.21	15.14	24.75	25.08	36.76
10/31/1990	24:00:00	81.45	974.62	1.25	204.96	159.82	16.25	25.07	25.29	23.28
11/30/1990	24:00:00	74.41	973.94	1.16	211.4	29.62	16.11	25.64	25.89	11.31
12/31/1990	24:00:00	68.35	973.58	0.72	242.43	31.53	16.40	25.65	26.11	11.50
1/31/1991	24:00:00	49.08	974.21	1.19	89.62	1.34	19.81	25.63	25.82	8.40
2/28/1991	24:00:00	59.76	973.26	2.2	218.05	13.70	16.26	28.24	30.40	10.73
3/31/1991	24:00:00	61.09	971.98	2.3	223.89	35.93	17.30	28.65	30.65	12.51
4/30/1991	24:00:00	73.57	972.78	3.27	224.49	84.33	16.21	26.97	28.48	17.15
5/31/1991	24:00:00	80.13	973.71	2.35	228.45	392.68	15.56	26.00	26.63	45.43
6/30/1991	24:00:00	81.66	975.26	2.43	230.15	182.33	13.96	25.48	25.94	26.17
7/31/1991	24:00:00	85.91	976.27	2.91	232.87	363.99	14.63	24.09	24.40	42.97
8/31/1991	24:00:00	85.76	976.57	3.44	230.57	428.15	14.66	23.65	23.98	49.08
9/30/1991	24:00:00	83.98	975.81	1.64	233.96	148.44	15.34	24.65	24.89	22.48
10/31/1991	24:00:00	83.45	974.73	1.77	232.95	246.98	15.01	24.33	24.63	31.79
11/30/1991	24:00:00	71.97	974.3	0.42	135.99	4.44	17.44	25.07	24.95	8.49
12/31/1991	24:00:00	56.25	974.68	1.51	65	0.32	19.05	23.63	23.22	8.32
1/31/1992	24:00:00	47.49	974.49	1.71	54.37	0.20	20.02	23.81	23.95	8.47
2/28/1992	24:00:00	36.56	974.36	1.76	77.11	1.57	20.02	26.45	26.77	8.75
3/31/1992	24:00:00	57.05	972.24	1.68	223.59	47.19	18.89	28.40	30.12	13.09
4/30/1992	24:00:00	72.38	972.95	2.69	223.33	81.58	16.05	27.44	28.95	16.80
5/31/1992	24:00:00	80.61	973.9	2.71	224.32	221.32	16.06	26.07	26.90	29.51
6/30/1992	24:00:00	82.9	975.61	2.99	225.03	144.51	16.42	25.09	25.71	22.30
7/31/1992	24:00:00	85.57	976.82	3.16	232.35	329.11	15.74	23.75	24.16	39.60

8/31/1992	24:00:00	85.49	976.98	3.53	234.35	274.09	16.00	23.37	23.80	34.54
9/30/1992	24:00:00	85.43	974.9	1.88	223.9	362.74	14.89	23.92	24.12	42.56
10/31/1992	24:00:00	83.79	974.91	1.95	225.55	116.45	16.39	24.67	24.97	19.37
11/30/1992	24:00:00	73.71	974.35	0.45	72.54	23.90	18.05	23.74	23.58	10.20
12/31/1992	24:00:00	62.05	974.58	1.13	73.27	0.51	19.55	23.27	22.62	7.98
1/31/1993	24:00:00	53.02	975.3	1.71	57.96	0.11	20.60	22.91	22.87	8.23
2/28/1993	24:00:00	54.93	973.59	0.76	163.21	9.39	19.51	25.91	27.05	9.24
3/31/1993	24:00:00	64.62	973.61	2.04	221.39	40.89	18.32	26.93	28.61	12.62
4/30/1993	24:00:00	71.93	972.57	3.17	221.42	55.55	15.20	27.17	28.84	14.73
5/31/1993	24:00:00	80.25	973.25	3.13	222.42	99.55	16.36	26.53	27.28	18.18
6/30/1993	24:00:00	83.44	975.88	2.64	219.91	110.92	15.98	25.10	25.53	19.13
7/31/1993	24:00:00	85.43	976.09	3.24	227.83	340.51	15.73	23.97	24.37	40.67
8/31/1993	24:00:00	85.3	976.29	3.05	227.8	333.50	16.42	23.91	24.33	39.84
9/30/1993	24:00:00	85.07	975.31	1.68	222.2	252.50	15.32	24.32	24.58	32.17
10/31/1993	24:00:00	84.15	974.59	1.46	207.47	115.18	16.11	24.99	25.21	19.16
11/30/1993	24:00:00	79.66	973.14	1.38	218.15	41.37	16.78	25.29	25.57	12.23
12/31/1993	24:00:00	66.6	974.03	0.87	56.28	6.52	18.11	24.00	23.52	8.70
1/31/1994	24:00:00	65.54	973.48	0.23	111.66	4.79	18.81	24.43	24.87	8.51
2/28/1994	24:00:00	57.62	973.82	0.74	169.04	2.27	18.44	25.74	26.31	8.60
3/31/1994	24:00:00	72.62	972.79	2.65	229.47	21.70	18.06	27.14	28.87	10.87
4/30/1994	24:00:00	77.37	972.54	3.12	223.95	76.56	17.62	26.76	27.88	15.93
5/31/1994	24:00:00	82.08	974.23	2.54	221.29	105.18	16.17	25.84	26.54	18.59
6/30/1994	24:00:00	82.36	975.65	2.55	225.75	133.71	16.79	25.16	25.71	21.11
7/31/1994	24:00:00	85.2	976.26	3.04	235.09	272.53	16.02	24.05	24.50	34.26
8/31/1994	24:00:00	86.47	975.64	3.42	230.41	531.83	15.07	23.74	24.01	58.60
9/30/1994	24:00:00	86.71	975.49	2.7	228	471.46	15.80	24.04	24.37	52.67
10/31/1994	24:00:00	85.86	974.2	1.02	229.25	294.11	14.61	24.41	24.60	36.00
11/30/1994	24:00:00	74.76	974.85	0.78	58.18	13.78	17.34	23.79	23.48	9.42
12/31/1994	24:00:00	64.93	975.54	2.12	45.44	0.11	20.68	21.73	21.17	7.98
1/31/1995	24:00:00	61.23	975.17	1.06	44.49	4.01	19.35	23.80	23.44	8.40
2/28/1995	24:00:00	62.47	974.89	0.28	174.23	13.01	17.24	25.32	25.49	9.56
3/31/1995	24:00:00	73.1	972.67	2.25	230.24	40.16	17.02	26.78	27.80	12.53
4/30/1995	24:00:00	77.65	971.76	2.83	226.12	63.97	15.63	26.80	27.62	15.02
5/31/1995	24:00:00	83.16	973.61	2.08	219.93	131.21	15.37	25.79	26.19	20.98
6/30/1995	24:00:00	84.69	975.18	2.51	223.07	249.94	15.75	25.19	25.57	32.03
7/31/1995	24:00:00	86.91	974.73	3.13	230.96	450.65	15.40	23.94	24.26	50.91
8/31/1995	24:00:00	87.99	975.16	2.95	235.7	351.12	14.74	23.99	24.22	41.70
9/30/1995	24:00:00	87.01	975.47	2.48	232.04	404.43	15.87	24.50	24.80	46.33
10/31/1995	24:00:00	85.17	974.01	1.48	233.71	249.22	15.59	24.81	24.97	31.71
11/30/1995	24:00:00	74.05	974.49	1.16	48.28	13.73	18.88	23.88	23.48	9.16
12/31/1995	24:00:00	66.9	975.01	0.84	54.58	4.33	18.29	23.79	22.98	8.37
1/31/1996	24:00:00	62.28	973.03	0.28	126.51	5.07	19.73	24.90	24.12	8.05
2/28/1996	24:00:00	68.05	972.33	1.18	238.08	13.15	17.74	26.65	27.09	9.56
3/31/1996	24:00:00	74.16	972.22	2.46	226.22	52.03	17.62	26.80	27.88	13.55
4/30/1996	24:00:00	77.66	972.23	2.61	220.36	70.21	16.10	26.72	27.65	15.48
5/31/1996	24:00:00	81.43	973.71	2.65	221.54	139.19	17.54	26.23	26.87	21.47
6/30/1996	24:00:00	84.31	975.26	2.53	223.93	275.55	15.84	25.07	25.52	34.43
7/31/1996	24:00:00	85.18	976.51	3.15	231.53	314.78	16.45	23.96	24.44	38.14
8/31/1996	24:00:00	85.89	975.73	3.05	232.59	501.68	16.40	23.91	24.33	55.48
9/30/1996	24:00:00	85.89	974.82	2.35	232.83	493.00	15.88	24.17	24.55	54.60

10/31/1996	24:00:00	84.33	974.54	1.03	216.99	150.54	15.92	24.30	24.53	22.42
11/30/1996	24:00:00	68.72	974.04	1.19	45.22	2.03	20.24	23.65	23.02	7.84
12/31/1996	24:00:00	62.34	974.4	0.8	74.79	0.80	19.58	23.89	22.84	7.78
1/31/1997	24:00:00	64.59	974	0.32	20.89	9.21	17.46	24.34	23.87	8.99
2/28/1997	24:00:00	47.36	974.65	1.51	48.29	0.33	19.51	23.71	23.14	8.35
3/31/1997	24:00:00	69.51	972.93	1.43	239.2	47.53	16.57	26.53	27.14	13.09
4/30/1997	24:00:00	78.78	974	2.92	228.05	99.02	16.05	25.99	26.98	18.27
5/31/1997	24:00:00	83.73	974.97	2.01	219.22	231.53	16.09	25.54	26.02	30.16
6/30/1997	24:00:00	85.49	975	2.16	217.75	234.23	15.41	25.04	25.46	30.56
7/31/1997	24:00:00	84.76	976.56	3.57	229.81	248.24	18.04	24.16	24.78	31.75
8/31/1997	24:00:00	84.4	976.62	2.78	235.53	260.43	17.83	24.23	24.76	32.73
9/30/1997	24:00:00	84.08	975.25	1.62	210.31	227.39	16.87	25.10	25.51	29.52
10/31/1997	24:00:00	83.85	974.09	1.01	212.78	135.78	15.14	25.55	25.77	21.15
11/30/1997	24:00:00	74.67	973.95	0.2	201.41	30.92	17.16	25.68	25.58	10.88
12/31/1997	24:00:00	61.73	975.1	0.92	62.38	0.76	17.63	24.25	23.53	8.30
1/31/1998	24:00:00	55.29	974.15	1.37	57.74	1.09	19.68	24.07	23.90	8.29
2/28/1998	24:00:00	53.03	974.78	0.67	123.33	2.61	18.90	27.70	28.68	8.62
3/31/1998	24:00:00	50.72	972.63	0.86	232.79	16.81	18.80	28.64	30.18	10.16
4/30/1998	24:00:00	75.1	972.29	2.84	224.82	63.80	16.49	28.30	29.76	14.98
5/31/1998	24:00:00	80.5	974.32	2.56	228.58	103.40	17.48	27.19	27.83	18.11
6/30/1998	24:00:00	83.46	976.04	2.01	229.12	143.47	14.56	25.69	26.09	22.27
7/31/1998	24:00:00	84.36	975.89	3.27	237.23	250.66	16.18	24.64	25.12	32.24
8/31/1998	24:00:00	85.23	975.29	3.24	240.07	245.42	16.73	24.10	24.55	31.63
9/30/1998	24:00:00	85.17	974.95	2.1	240.57	423.47	14.49	24.63	24.87	48.32
10/31/1998	24:00:00	81.11	974.79	1.19	224.74	414.04	17.03	25.39	25.64	46.75
11/30/1998	24:00:00	71.63	973.54	0.39	74.12	7.68	17.12	25.47	25.35	8.84
12/31/1998	24:00:00	64.45	974.23	0.8	53.48	7.59	17.30	24.51	24.68	9.16
1/31/1999	24:00:00	58.78	973.15	0.12	19.43	23.38	17.70	25.53	26.07	10.55
2/28/1999	24:00:00	59.36	972.53	1.27	254.39	16.76	14.68	27.41	28.68	10.93
3/31/1999	24:00:00	61.26	970.83	2.94	232.1	32.85	17.48	28.95	31.91	12.58
4/30/1999	24:00:00	62.26	972.46	2.65	225.68	55.38	15.90	28.73	31.18	14.79
5/31/1999	24:00:00	64.99	973.47	2.36	211.92	82.85	16.15	28.11	30.11	17.07
6/30/1999	24:00:00	71.34	974.47	2.11	218.72	99.49	14.65	26.67	28.22	18.70
7/31/1999	24:00:00	73.36	975.78	3.21	233.22	380.41	14.48	25.44	26.86	45.09
8/31/1999	24:00:00	73.05	975.55	3.03	240.92	405.32	15.73	25.46	26.66	47.05
9/30/1999	24:00:00	73.9	974.31	2.06	229.63	284.56	14.98	25.69	27.09	35.79
10/31/1999	24:00:00	73.68	974.43	1.5	220.22	244.31	16.21	25.81	27.30	31.68
11/30/1999	24:00:00	58.58	973.45	1.22	183.17	21.30	17.65	27.71	29.99	11.00
12/31/1999	24:00:00	39.66	973.34	0.86	112.12	0.85	18.89	27.14	28.24	8.83
1/31/2000	24:00:00	40.08	972.04	0.59	131.63	4.29	18.66	28.21	29.66	9.18
2/28/2000	24:00:00	29.65	973.43	0.78	60.78	0.96	18.07	27.85	29.44	9.30
3/31/2000	24:00:00	41.82	971.61	1.07	218.1	18.79	17.30	28.75	30.37	10.91
4/30/2000	24:00:00	65.25	971.32	3.42	223.06	44.88	17.42	28.64	30.90	13.56
5/31/2000	24:00:00	68.82	973.12	2.66	218.83	71.11	17.67	28.03	29.46	15.50
6/30/2000	24:00:00	85.43	975.51	2.22	225.7	145.19	14.46	24.65	24.91	22.47
7/31/2000	24:00:00	86.54	975.26	2.69	236.56	252.00	15.71	23.92	24.23	32.28
8/31/2000	24:00:00	85.81	975.95	2.47	238.63	375.49	15.07	23.83	24.24	43.89
9/30/2000	24:00:00	85.16	974.77	2.24	231.08	194.78	15.29	24.37	24.78	26.98
10/31/2000	24:00:00	83.59	974.92	1.08	230.2	105.34	16.71	24.78	25.05	18.07
11/30/2000	24:00:00	73.63	973.65	0.39	119.12	3.55	19.40	24.72	24.24	7.87

12/31/2000	24:00:00	65.04	975.1	1.06	63.01	1.57	18.90	22.85	22.00	8.11
1/31/2001	24:00:00	52.47	974.93	1.15	73.45	0.11	19.98	22.84	22.00	8.02
2/28/2001	24:00:00	56.45	973.42	0.41	92.55	3.26	16.50	24.28	24.62	9.05
3/31/2001	24:00:00	69.13	972.63	2.5	219.55	23.69	16.02	27.35	29.33	11.58
4/30/2001	24:00:00	76.84	972.55	2.76	222.77	76.27	14.86	27.01	28.19	16.41
5/31/2001	24:00:00	80.79	974	2.6	220.72	102.23	15.44	26.38	27.23	18.53
6/30/2001	24:00:00	82.71	975.66	2.68	225.28	139.93	16.02	25.10	25.73	21.90
7/31/2001	24:00:00	81.86	976.01	3.04	226.06	268.85	16.21	24.60	25.33	34.00
8/31/2001	24:00:00	82.05	976.94	3.16	238.42	255.13	17.24	24.37	25.15	32.55
9/30/2001	24:00:00	82.85	975.25	1.96	229.71	297.57	15.03	24.44	24.98	36.61
10/31/2001	24:00:00	79.47	974.87	1.09	182.54	60.71	17.37	25.25	25.63	13.87
11/30/2001	24:00:00	67.72	974.25	1	175.67	6.15	19.43	25.92	27.28	8.82
12/31/2001	24:00:00	56.68	973.83	0.97	142.48	3.28	18.96	25.92	27.19	8.84
1/31/2002	24:00:00	38.65	974.58	1.54	90.11	1.35	19.00	24.88	25.73	9.08
2/28/2002	24:00:00	46.39	973.48	1.09	189.91	14.62	17.12	27.88	30.08	10.68
3/31/2002	24:00:00	64.79	972.21	2.36	217.12	30.71	16.98	28.38	30.40	12.05
4/30/2002	24:00:00	76.65	971.3	3.06	221.23	76.29	15.97	27.26	28.60	16.29
5/31/2002	24:00:00	79.86	973.86	2.62	219.28	58.72	16.63	26.65	27.47	14.23
6/30/2002	24:00:00	81.03	975.9	2.94	227.4	133.58	14.76	25.45	26.37	21.73
7/31/2002	24:00:00	84.03	976.48	2.67	231.15	308.91	15.25	24.93	25.53	37.74
8/31/2002	24:00:00	83.9	976.1	2.36	229.67	277.68	16.98	24.53	25.01	34.40
9/30/2002	24:00:00	83.68	975.66	1.84	224.47	138.79	15.88	24.85	25.25	21.56
10/31/2002	24:00:00	81.72	974.62	1.17	226.79	102.24	16.77	24.90	25.10	17.80
11/30/2002	24:00:00	69.44	974.83	0.24	185.07	19.77	18.55	25.37	25.75	9.82
12/31/2002	24:00:00	58.05	975.38	0.75	81.1	2.13	19.21	24.52	25.23	8.52
1/31/2003	24:00:00	54.72	975.08	0.19	358.46	6.69	17.42	25.36	26.09	9.22
2/28/2003	24:00:00	60.82	973	1.29	218.97	16.47	16.04	27.62	29.27	10.69
3/31/2003	24:00:00	65.12	972.52	1.54	211.17	21.44	14.93	27.63	29.23	11.34
4/30/2003	24:00:00	77.2	973.02	2.71	226.66	99.60	15.22	27.08	28.34	18.51
5/31/2003	24:00:00	78.72	974.27	2.59	219.02	125.10	14.79	26.55	27.65	20.89
6/30/2003	24:00:00	79.88	975.09	2.19	222.16	193.64	14.53	25.58	26.56	27.22
7/31/2003	24:00:00	82.78	976.22	2.82	241.76	250.80	16.18	24.67	25.23	32.21
8/31/2003	24:00:00	81.31	976.03	3.11	238.8	224.41	15.85	24.81	25.40	29.92
9/30/2003	24:00:00	83.49	975.87	1.54	236.91	182.14	15.45	24.74	25.02	25.59
10/31/2003	24:00:00	83.21	973.94	1.25	217.29	269.67	16.21	25.58	25.91	33.48
11/30/2003	24:00:00	73.99	973.57	0.68	214.69	33.44	16.18	25.59	26.08	11.61
12/31/2003	24:00:00	57.46	974.29	0.34	64.91	1.35	17.30	24.57	25.05	8.70
1/31/2004	24:00:00	56.4	973.16	0.28	203.89	3.47	17.80	25.71	26.79	8.91
2/28/2004	24:00:00	52.84	973.58	0.65	168.39	10.74	16.93	27.09	28.73	10.01
3/31/2004	24:00:00	54.33	972.43	1.53	228.66	28.81	16.68	28.72	31.17	12.06
4/30/2004	24:00:00	73.24	972.73	3.29	225.04	113.99	15.96	27.70	29.61	20.05
5/31/2004	24:00:00	82.91	974.6	2.54	220.75	179.70	15.18	26.16	26.72	25.66
6/30/2004	24:00:00	83.8	976.67	2.56	227.92	171.19	13.64	25.13	25.61	25.21
7/31/2004	24:00:00	84.61	975.81	2.61	237.04	360.01	13.94	24.33	24.76	42.73
8/31/2004	24:00:00	83.28	976.29	2.75	231.45	268.09	15.27	24.65	25.13	33.96
9/30/2004	24:00:00	83.93	975.15	1.52	210.65	165.96	13.71	24.84	25.12	24.43
10/31/2004	24:00:00	81.74	974.46	1.65	216.9	112.92	15.46	25.50	26.05	19.24
11/30/2004	24:00:00	72.15	973.64	1.08	219.57	39.41	14.88	26.12	27.34	12.75
12/31/2004	24:00:00	58.57	973.17	0.71	199.6	4.92	17.69	26.17	27.47	9.16
1/31/2005	24:00:00	41.52	973.78	0.82	78.12	2.14	16.90	25.21	25.99	9.33

2/28/2005	24:00:00	58.87	971.8	1.95	223.27	25.94	13.71	28.91	31.08	12.33
3/31/2005	24:00:00	66.25	972.62	2.54	222.91	40.16	14.40	28.67	30.90	13.52
4/30/2005	24:00:00	67.01	972.42	3.24	225.85	83.55	13.68	28.91	31.08	17.83
5/31/2005	24:00:00	67.82	973.94	2.67	213.83	184.49	14.77	27.97	29.61	26.74
6/30/2005	24:00:00	75.23	975	2.59	225.68	200.46	14.40	26.58	27.85	28.10
7/31/2005	24:00:00	76.28	976.41	2.57	232.28	452.09	14.89	25.63	26.46	51.30
8/31/2005	24:00:00	70.35	975.58	3.21	235.46	169.39	16.88	26.10	27.62	25.02
9/30/2005	24:00:00	82.18	975.24	1.38	223.96	256.86	15.89	25.41	25.77	32.42
10/31/2005	24:00:00	80.77	974.77	1.08	211.13	162.06	15.86	25.54	25.92	23.57
11/30/2005	24:00:00	65.5	973.33	0.74	186.45	16.03	17.67	26.51	27.66	10.01
12/31/2005	24:00:00	57.08	972.43	0.85	188.39	19.10	17.35	27.22	28.84	10.65
1/31/2006	24:00:00	57.43	972.05	1.31	220.5	16.14	15.71	28.06	30.00	10.86
2/28/2006	24:00:00	59.39	971.85	2.47	225.23	18.68	14.13	28.92	31.30	11.73
3/31/2006	24:00:00	60.59	972.71	2.68	220.11	31.94	14.24	28.67	31.20	13.02
4/30/2006	24:00:00	63.3	971.84	2.67	213.33	57.03	15.31	28.90	31.24	15.01
5/31/2006	24:00:00	74.29	974.3	2.43	210.79	325.24	15.45	27.00	28.35	39.47
6/30/2006	24:00:00	76.43	975.08	2.19	220.77	150.05	13.05	26.37	27.37	23.51
7/31/2006	24:00:00	78.52	975.91	2.71	235.33	242.08	14.51	25.68	26.51	31.83
8/31/2006	24:00:00	84.04	975.42	2.77	229.73	384.21	15.72	24.60	25.13	44.67
9/30/2006	24:00:00	85.22	975.62	1.67	226.09	207.03	13.35	24.48	24.66	28.32
10/31/2006	24:00:00	81.97	974.03	0.73	205.25	102.20	15.85	25.78	26.22	17.91
11/30/2006	24:00:00	64.87	973.94	0.48	107.98	9.13	17.38	25.00	25.32	9.22
12/31/2006	24:00:00	51.25	975.06	0.6	105.53	0.24	19.47	24.55	25.22	8.37
1/31/2007	24:00:00	42.69	974.95	1.63	76.74	0.62	18.35	24.37	24.73	8.97
2/28/2007	24:00:00	55.44	973.24	1.29	226.49	16.37	15.32	27.43	29.26	11.00
3/31/2007	24:00:00	55.86	972	2.25	220.31	23.24	16.58	28.70	30.92	11.63
4/30/2007	24:00:00	67.33	972.19	3.21	229.08	109.05	14.41	28.51	30.86	20.10
5/31/2007	24:00:00	76.36	973.54	2.35	215.14	97.72	15.42	27.17	28.40	18.21
6/30/2007	24:00:00	82.64	975.38	2.86	222.76	231.74	15.19	25.36	25.99	30.64
7/31/2007	24:00:00	84.61	975.82	3.01	230.26	233.14	14.47	24.48	24.96	30.92
8/31/2007	24:00:00	86.8	975.15	2.64	232.12	464.00	13.94	24.03	24.30	52.33
9/30/2007	24:00:00	85.98	975.5	1.48	224.39	264.20	14.57	24.61	24.82	33.32
10/31/2007	24:00:00	85.51	974.26	1.35	203.54	130.54	15.06	24.83	25.12	20.78
11/30/2007	24:00:00	78.04	973.32	0.69	209.76	62.98	16.15	25.23	25.26	14.18
12/31/2007	24:00:00	66.36	973.92	0.53	11.7	12.48	18.38	23.83	23.14	9.08
1/31/2008	24:00:00	59.85	973.98	1.25	19.52	3.46	17.30	22.80	22.73	8.99
2/28/2008	24:00:00	55.24	974.05	0.44	68.03	3.24	17.26	24.60	24.50	8.78
3/31/2008	24:00:00	72.44	971.87	2.77	225.12	44.68	16.04	27.10	28.93	13.49
4/30/2008	24:00:00	72.4	971.64	2.39	208.87	96.83	15.65	27.08	28.75	18.30
5/31/2008	24:00:00	74.55	973.12	2.06	214.66	108.73	14.60	26.94	28.27	19.42
6/30/2008	24:00:00	80.05	974.86	2.13	220.39	164.94	14.64	25.72	26.51	24.45
7/31/2008	24:00:00	83.88	975.94	2.56	234.09	306.31	14.76	24.53	24.86	37.53
8/31/2008	24:00:00	85.44	974.72	2.62	238.91	560.03	14.49	24.13	24.40	61.16
9/30/2008	24:00:00	85.25	975.23	1.69	223.42	298.69	14.71	24.62	24.81	36.56
10/31/2008	24:00:00	81.81	974.53	0.98	221.04	105.01	16.26	25.30	25.44	18.08
11/30/2008	24:00:00	70.96	973.68	0.13	20.83	13.59	18.57	25.42	25.06	8.97
12/31/2008	24:00:00	67	973.43	0.23	42.12	15.52	17.55	24.98	24.75	9.53
1/31/2009	24:00:00	64.72	973.6	0.69	260.48	16.48	15.83	25.70	26.03	10.25
2/28/2009	24:00:00	66.82	972.24	1.54	227.36	19.67	14.88	27.40	28.87	11.13
3/31/2009	24:00:00	65.08	971.61	2	222.08	24.66	15.39	28.08	29.81	11.67

4/30/2009	24:00:00	76.43	973.01	2.57	220.59	87.27	15.31	26.98	28.04	17.27
5/31/2009	24:00:00	81.22	973.59	2.19	221.03	137.95	15.21	26.09	26.72	21.75
6/30/2009	24:00:00	83.37	975.59	2.23	220.34	161.59	14.35	25.33	25.83	24.10
7/31/2009	24:00:00	83.7	975.97	2.46	232.83	321.82	15.28	24.92	25.40	38.86
8/31/2009	24:00:00	85.07	975.42	2.23	231.65	290.54	14.64	24.57	24.92	35.99
9/30/2009	24:00:00	84.4	975.88	1.58	218.94	170.43	14.63	24.99	25.26	24.64
10/31/2009	24:00:00	83.81	974.24	1.07	206.44	206.37	15.32	25.08	25.32	27.73
11/30/2009	24:00:00	71.25	974.22	0.1	115.35	37.82	17.52	24.94	24.60	11.46
12/31/2009	24:00:00	58.42	974.46	0.5	79.75	1.68	19.46	24.86	24.05	7.92
1/31/2010	24:00:00	57.62	974.06	0.43	213.2	5.04	18.39	26.18	26.56	8.72
2/28/2010	24:00:00	61.34	972.94	1.96	224.74	18.13	15.87	28.23	30.10	11.05
3/31/2010	24:00:00	59.91	973.39	1.83	217.91	34.65	15.90	28.65	30.62	12.59
4/30/2010	24:00:00	69.97	972.77	2.97	221.33	50.68	15.05	28.17	29.98	14.30
5/31/2010	24:00:00	78.47	973.73	2.58	219.52	148.31	15.06	27.12	28.08	22.93
6/30/2010	24:00:00	81.74	975.81	2.16	217.27	168.18	13.77	25.75	26.29	24.84
7/31/2010	24:00:00	84.55	975.73	2.61	231.41	414.86	14.32	24.54	24.90	47.72
8/31/2010	24:00:00	85.11	975.5	2.81	225.8	336.26	15.06	24.51	24.75	40.26
9/30/2010	24:00:00	84.75	974.86	1.72	220.44	411.10	14.59	24.58	24.78	47.06
10/31/2010	24:00:00	84.45	974.17	1.58	210.41	173.76	15.44	25.07	25.44	24.81
11/30/2010	24:00:00	76.5	973.12	0.56	212.67	47.03	17.11	25.66	25.81	12.51
12/31/2010	24:00:00	59.29	973	0.53	59.58	2.70	20.16	24.45	24.08	8.00
1/31/2011	24:00:00	53.01	972.91	1.05	72.5	0.54	19.78	24.06	23.47	8.08
2/28/2011	24:00:00	66.77	972.52	2.19	233.77	28.62	14.83	26.92	28.34	12.13
3/31/2011	24:00:00	65.75	972	2.41	220.75	26.48	17.27	28.09	30.25	11.64
4/30/2011	24:00:00	68.78	971.96	2.81	220.57	50.48	14.75	27.65	29.50	14.36
5/31/2011	24:00:00	78.34	973.71	2.41	219.95	115.81	13.73	26.64	27.60	20.17
6/30/2011	24:00:00	82.95	975.14	2.48	221.86	143.91	13.68	25.47	25.93	22.64
7/31/2011	24:00:00	83.44	975.35	2.35	231.15	296.42	15.54	24.80	25.19	36.41
8/31/2011	24:00:00	84.14	975.57	2.71	236.32	270.40	15.63	24.39	24.77	34.06
9/30/2011	24:00:00	84.1	975.8	1.78	223.52	220.47	14.92	24.61	24.87	29.31
10/31/2011	24:00:00	82.96	973.53	0.98	200.2	233.30	15.16	25.01	25.26	30.27
11/30/2011	24:00:00	67.5	973.86	0.26	207.64	8.73	19.47	25.37	25.51	8.57
12/31/2011	24:00:00	51.53	974.59	0.71	70.98	0.62	19.45	23.91	23.58	8.19
1/31/2012	24:00:00	54.25	974.16	0.29	183.76	7.65	17.81	25.44	26.32	9.30
2/28/2012	24:00:00	62.83	972.06	2.23	224.86	32.11	16.34	27.88	30.55	12.53
3/31/2012	24:00:00	58.13	972.92	1.72	221.57	22.75	15.77	28.08	30.39	11.64
4/30/2012	24:00:00	71.55	972.78	3.4	226.02	82.62	15.44	27.47	29.40	17.32
5/31/2012	24:00:00	77.76	974.6	2.32	222.59	152.08	14.90	26.19	27.24	23.34
6/30/2012	24:00:00	80.81	975.91	2.29	231.29	284.92	14.87	25.28	25.95	35.57
7/31/2012	24:00:00	84.11	975.71	2.9	234.2	484.25	15.70	24.37	24.73	53.97
8/31/2012	24:00:00	84.82	976.23	2.55	238.64	326.57	15.49	24.10	24.39	39.25
9/30/2012	24:00:00	85.1	976.21	2.05	228.42	339.58	14.51	24.34	24.53	40.50
10/31/2012	24:00:00	83.97	974.39	1.17	199.33	175.65	15.45	25.03	25.29	24.87
11/30/2012	24:00:00	75.66	973.96	0.44	204.01	33.46	16.29	25.63	25.62	11.36
12/31/2012	24:00:00	60.65	974.18	0.69	66.53	6.88	19.05	24.44	24.13	8.64
1/31/2013	24:00:00	61.1	974.58	0.15	162.11	16.84	16.70	25.40	25.75	10.07
2/28/2013	24:00:00	65.63	972.89	1.24	228.75	15.67	14.71	26.74	27.94	10.71
3/31/2013	24:00:00	69.8	973.03	3.39	221.84	48.97	15.68	27.85	30.05	14.23
4/30/2013	24:00:00	69.01	973.58	2.52	217.56	133.26	15.74	27.83	29.94	21.85
5/31/2013	24:00:00	77.3	974.63	2.4	221.14	127.28	14.12	26.49	27.69	21.25

6/30/2013	24:00:00	80.83	975.54	2.6	226.78	146.70	14.89	25.53	26.27	22.79
7/31/2013	24:00:00	83.25	976.29	2.48	237.11	291.38	15.05	24.49	24.94	36.11
8/31/2013	24:00:00	81.17	975.53	2.91	233.26	188.42	15.98	24.47	25.16	26.55
9/30/2013	24:00:00	83.07	975.69	1.55	217.13	285.88	14.62	24.83	25.29	35.46
10/31/2013	24:00:00	78.09	975.03	1.13	189.96	105.93	17.96	25.60	26.51	18.12
11/30/2013	24:00:00	71.23	973.28	1.61	207.65	36.41	16.94	26.55	28.76	12.43
12/31/2013	24:00:00	59.23	974.37	0.92	177.26	20.00	18.52	25.75	27.47	10.56
1/31/2014	24:00:00	55.43	973.89	1.26	195.53	17.43	17.89	26.86	29.07	10.69
2/28/2014	24:00:00	54.16	972.72	1.3	203.41	20.31	16.16	27.96	30.55	11.40
3/31/2014	24:00:00	63.6	972.89	2.99	220.07	64.78	15.55	28.26	31.17	15.94
4/30/2014	24:00:00	71	973.38	2.86	218.44	125.51	14.90	27.66	29.65	21.32
5/31/2014	24:00:00	74.77	973.82	1.87	211.41	179.83	15.69	27.19	28.48	25.73
6/30/2014	24:00:00	74.25	975.4	2.37	219.69	94.47	15.36	26.71	28.06	18.03
7/31/2014	24:00:00	77.64	977.03	2.87	225.44	294.55	15.56	25.67	26.87	36.65
8/31/2014	24:00:00	82.16	976.2	2.75	232.37	247.34	15.87	24.62	25.10	31.92
9/30/2014	24:00:00	82.76	975.79	1.67	220.54	442.14	15.48	24.74	25.11	49.83
10/31/2014	24:00:00	79.66	974.96	1.02	198.45	153.22	16.29	25.58	26.05	22.69
11/30/2014	24:00:00	68.48	974.26	0.96	202.95	37.81	16.64	26.55	27.79	12.26
12/31/2014	24:00:00	47.38	974.69	0.52	110.81	3.34	19.25	26.90	28.32	8.86
1/31/2015	24:00:00	42.57	975.53	0.95	89.74	7.47	19.03	26.00	27.43	9.53
2/28/2015	24:00:00	58.06	973.21	2.22	223.75	40.29	14.49	28.91	31.77	13.77
3/31/2015	24:00:00	63.35	972.97	2.35	222.91	58.53	16.06	28.25	30.37	14.89
4/30/2015	24:00:00	63.16	973.87	2.27	221.88	37.82	16.77	28.28	30.55	12.84
5/31/2015	24:00:00	70.84	974.46	3.04	219.45	125.02	15.41	27.61	29.74	21.25
6/30/2015	24:00:00	77.74	976.14	3.02	219.77	193.52	15.31	26.12	27.66	27.41
7/31/2015	24:00:00	82.43	976.12	2.62	231.31	209.67	14.80	25.27	25.81	28.60
8/31/2015	24:00:00	83.15	975.84	2.56	227.67	358.76	14.43	24.94	25.35	42.49
9/30/2015	24:00:00	84.22	975.58	2.07	224.4	351.28	14.42	25.06	25.38	41.63
10/31/2015	24:00:00	81.01	975.15	1.4	210.94	186.10	16.11	25.79	26.63	25.94
11/30/2015	24:00:00	65.19	974.52	0.52	162.92	22.98	18.72	26.65	28.09	10.46
12/31/2015	24:00:00	40.52	976.49	2.62	59.63	0.06	19.56	24.42	25.18	9.04
1/31/2016	24:00:00	35.79	975.36	1.63	69.67	3.31	20.01	26.40	27.24	9.05
2/28/2016	24:00:00	39.71	973.71	0.47	201.38	4.15	17.52	29.23	30.82	9.37
3/31/2016	24:00:00	64.36	973.52	2.96	229.56	96.01	16.20	29.18	31.61	18.50
4/30/2016	24:00:00	68.22	973.12	3.06	220.36	69.77	16.14	28.79	31.09	16.00
5/31/2016	24:00:00	78.86	975.25	2.84	222.76	192.33	16.01	26.73	27.58	26.86
6/30/2016	24:00:00	81.85	976.59	2.55	231.38	257.85	14.16	25.37	25.84	33.18
7/31/2016	24:00:00	84.7	976.1	2.73	231.92	214.29	14.80	24.70	25.07	28.99
8/31/2016	24:00:00	84.39	976.04	2.47	226.86	241.45	14.55	24.68	25.15	31.54
9/30/2016	24:00:00	84.79	975.94	1.72	223.86	236.16	14.37	24.76	25.15	30.88
10/31/2016	24:00:00	81.88	974.26	1.09	201.66	96.24	16.44	25.52	25.66	17.24
11/30/2016	24:00:00	70.05	973.88	0.52	160.11	18.70	18.19	26.26	26.98	9.89
12/31/2016	24:00:00	59.05	974.05	0.81	112.93	3.89	17.63	25.55	26.51	9.02
1/31/2017	24:00:00	57.81	973.77	0.81	213.55	8.15	17.20	26.43	27.95	9.65
2/28/2017	24:00:00	51.22	973.47	0.59	168.2	6.75	15.89	27.38	29.26	9.93
3/31/2017	24:00:00	63.33	972.57	2.67	209.05	40.90	16.96	28.76	31.88	13.39
4/30/2017	24:00:00	70.74	973	2.97	213.79	81.13	14.53	27.81	30.25	17.42
5/31/2017	24:00:00	80.74	974.49	2.39	217.49	110.99	15.69	26.52	27.18	19.18
6/30/2017	24:00:00	82.46	975.29	1.98	226.95	157.55	14.79	25.72	26.36	23.61
7/31/2017	24:00:00	84.32	976.7	2.69	230.37	237.08	15.55	24.80	25.30	30.98

8/31/2017	24:00:00	85.09	975.74	2.58	231.08	409.41	15.49	24.59	25.14	47.00
9/30/2017	24:00:00	84.84	975.64	1.58	220.66	189.14	14.29	24.84	25.08	26.45
10/31/2017	24:00:00	81.1	974.63	1.19	228.66	90.34	15.57	25.70	25.90	16.92
11/30/2017	24:00:00	72.69	973.97	0.91	229.25	27.66	16.66	25.65	26.37	11.12
12/31/2017	24:00:00	63.24	974.07	0.21	135.32	4.75	17.17	25.40	26.15	8.93
1/31/2018	24:00:00	45.62	974.62	1.02	86.44	0.18	18.65	23.93	23.94	8.60
2/28/2018	24:00:00	67.03	972.31	2.06	228.74	95.54	14.67	27.03	28.69	18.41
3/31/2018	24:00:00	69.32	973.17	3.12	223.9	62.60	16.96	27.70	30.31	15.30
4/30/2018	24:00:00	72.92	973.17	3.52	218.07	101.44	15.04	27.38	29.54	19.22
5/31/2018	24:00:00	79.63	974.23	3.01	220.92	117.99	15.41	26.37	27.26	20.13
6/30/2018	24:00:00	84.18	975.87	2.75	225.16	189.15	13.98	25.13	25.59	26.84
7/31/2018	24:00:00	84.82	976.38	2.46	236.43	274.76	14.82	24.65	24.98	34.53
8/31/2018	24:00:00	85.67	976.22	2.61	234.44	311.43	15.42	24.39	24.79	37.87
9/30/2018	24:00:00	86.2	974.64	1.77	220.24	448.25	14.41	24.69	25.00	50.56
10/31/2018	24:00:00	84.15	974.5	1.21	218.13	132.57	15.56	25.41	25.70	20.83
11/30/2018	24:00:00	73.31	973.67	0.53	254.87	17.97	17.80	25.94	26.49	9.81
12/31/2018	24:00:00	57.55	975.08	0.48	28.53	0.96	18.09	24.53	24.86	8.48
1/31/2019	24:00:00	60.45	974.7	1.01	263.21	10.59	18.02	25.49	26.79	9.68
2/28/2019	24:00:00	60.45	973.95	1.23	242.45	30.51	13.77	26.28	28.01	12.56
3/31/2019	24:00:00	68.82	973.49	2.53	229.89	43.75	14.88	27.78	30.42	13.86
4/30/2019	24:00:00	68.95	972.94	3.21	220.66	92.65	15.73	28.47	31.51	18.46
5/31/2019	24:00:00	78.09	973.9	2.53	223.07	113.97	15.42	26.86	28.12	19.75
6/30/2019	24:00:00	82.23	976.09	2.48	226.49	339.01	15.76	25.79	26.54	40.43
7/31/2019	24:00:00	83.34	975.95	2.46	226.96	304.24	15.02	25.01	25.69	37.34
8/31/2019	24:00:00	85.22	976.8	2.78	228.7	348.08	15.13	24.47	24.83	41.37
9/30/2019	24:00:00	86.02	975.65	1.94	217.15	288.84	14.30	24.85	25.19	35.80
10/31/2019	24:00:00	86.33	974.34	1.55	206.64	273.57	14.90	24.60	24.83	34.14
11/30/2019	24:00:00	75.96	973.55	0.11	230.66	25.85	17.80	26.14	26.05	10.21
12/31/2019	24:00:00	59.43	974.41	0.56	34.57	0.38	20.88	24.62	23.83	7.51

Appendix 1E: OTAMIRI River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2

Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center

Site latitude (positive means North);5.471

Site longitude (positive means East);7.053

Date beginning;1981-01-01

Date end;2019-12-31

Elevation; 55m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	74.05	1003	0.9	341.99	53.30	16.66	24.49	24.17	9.57
2/28/1981	24:00:00	74.76	1001.82	1.18	269.28	39.76	16.47	25.95	25.83	15.42
3/31/1981	24:00:00	81.58	1002.29	1.98	230.87	93.85	15.62	26.31	26.45	17.31
4/30/1981	24:00:00	83.7	1001.58	1.9	221.25	119.43	16.02	26.71	26.9	19.08
5/31/1981	24:00:00	86.88	1002.83	1.81	224.69	400.63	13.30	25.71	25.78	14.71
6/30/1981	24:00:00	86.63	1004.43	1.97	228.45	225.32	14.21	25.6	25.67	14.75
7/31/1981	24:00:00	88.4	1005.14	2.7	230.33	344.44	15.36	24.26	24.31	8.35
8/31/1981	24:00:00	85.79	1004.83	2.77	229.88	331.92	17.12	24.37	24.56	8.47
9/30/1981	24:00:00	87.76	1004.66	2.44	239.4	301.03	15.45	24.64	24.79	10.43
10/31/1981	24:00:00	88.82	1003.12	1.94	225.14	363.41	13.02	25.08	25.15	12.69
11/30/1981	24:00:00	83.6	1002.62	0.34	339.26	244.33	13.46	24.46	24.3	11.36
12/31/1981	24:00:00	75.05	1002.75	0.63	334.73	9.52	17.20	25.21	24.83	12.61
1/31/1982	24:00:00	78.01	1002.15	0.65	285.53	49.57	15.88	25.56	25.51	15.19
2/28/1982	24:00:00	73.88	1001.74	0.91	305.09	94.04	15.49	25.15	24.84	12.05
3/31/1982	24:00:00	81.65	1001.47	1.32	235.12	432.17	14.83	25.81	25.8	14.34
4/30/1982	24:00:00	86.1	1001.77	2.22	225.68	164.37	14.65	26.21	26.33	17.02
5/31/1982	24:00:00	87.12	1002.82	1.85	230.46	335.76	13.76	25.81	25.88	15.29
6/30/1982	24:00:00	89.58	1005.12	2.31	230.6	479.18	12.93	24.75	24.78	10.51
7/31/1982	24:00:00	89.41	1005.09	2.68	242.65	273.06	14.26	23.97	23.99	7.88
8/31/1982	24:00:00	87.93	1005.58	2.78	239.1	151.98	18.22	23.61	23.72	6.31
9/30/1982	24:00:00	89.13	1004.51	2.54	238.98	419.47	14.84	24.4	24.48	8.96
10/31/1982	24:00:00	89.73	1003.22	1.9	239.63	754.94	12.07	24.42	24.43	8.56
11/30/1982	24:00:00	82.35	1002.76	0.9	350.03	210.02	15.98	24.55	24.51	10.94
12/31/1982	24:00:00	77.83	1002.55	0.85	355.08	148.07	15.45	24.58	24.36	10.47
1/31/1983	24:00:00	67.46	1003.58	3.87	34.98	0.02	19.70	20.93	20.57	-8.14
2/28/1983	24:00:00	72.66	1002.43	1	276.67	29.94	18.64	26.56	26.56	17.59
3/31/1983	24:00:00	71.64	1001.76	1.01	243.56	36.35	20.15	27.22	27.2	19.54
4/30/1983	24:00:00	83.26	1001.41	2	220.11	132.64	14.79	26.96	27.2	20.15
5/31/1983	24:00:00	87.24	1002.14	2.05	219.47	294.93	14.46	25.99	26.06	15.81
6/30/1983	24:00:00	88.41	1004.61	2.57	223.1	400.56	15.08	25.03	25.12	11.25
7/31/1983	24:00:00	88.41	1005.12	2.79	231.4	344.07	15.73	24.19	24.25	7.95
8/31/1983	24:00:00	88.09	1006.6	2.87	230.08	141.68	18.12	23.52	23.65	6.02
9/30/1983	24:00:00	88.93	1004.89	2.34	234.3	314.94	14.07	24.23	24.3	9.13
10/31/1983	24:00:00	87.1	1003.89	1.48	221.56	318.01	14.22	24.77	24.88	11.92
11/30/1983	24:00:00	83.93	1004.26	1.25	230.93	125.34	15.02	25.34	25.45	14.67
12/31/1983	24:00:00	80.29	1003.48	0.56	265.47	199.71	15.26	24.54	24.36	10.83
1/31/1984	24:00:00	68.02	1002.67	1.36	33.54	3.77	19.16	23.28	22.47	2.28
2/28/1984	24:00:00	79.61	1000.87	1.11	230.49	34.20	15.81	25.67	25.87	16.05

3/31/1984	24:00:00	84.25	1000.77	2.14	226.02	149.43	14.33	25.89	26.02	15.85
4/30/1984	24:00:00	85.76	1001.35	2.06	222.62	211.21	13.53	25.66	25.77	15.07
5/31/1984	24:00:00	85.56	1001.9	1.75	226.31	203.57	14.65	25.65	25.78	15.23
6/30/1984	24:00:00	86.89	1003.9	1.99	231.04	189.98	13.79	25.02	25.1	12.87
7/31/1984	24:00:00	87.64	1003.98	2.27	241	351.77	13.32	24.39	24.49	9.70
8/31/1984	24:00:00	87.62	1004.4	2.38	248.35	452.67	14.11	24.55	24.65	9.55
9/30/1984	24:00:00	87.74	1003.62	1.99	238.93	284.17	14.53	24.67	24.73	11.04
10/31/1984	24:00:00	89.03	1002.88	1.7	234.4	538.71	12.84	24.81	24.86	11.13
11/30/1984	24:00:00	83.57	1002.75	1.02	240.38	161.39	14.63	25.17	25.12	13.72
12/31/1984	24:00:00	76.45	1001.84	1	5.86	21.73	16.59	23.67	23.29	6.70
1/31/1985	24:00:00	79.63	1001.58	1.24	264.92	88.09	15.28	25.5	25.52	14.64
2/28/1985	24:00:00	61.64	1002.28	0.77	356.11	2.32	19.84	25.36	24.49	9.62
3/31/1985	24:00:00	81.04	1000.99	1.98	227.1	153.06	15.59	26.05	26.18	15.98
4/30/1985	24:00:00	84.24	1001.7	1.98	211.19	155.95	15.65	25.86	26.12	15.98
5/31/1985	24:00:00	87.11	1002.6	2.26	221.23	337.26	14.08	25.49	25.59	13.66
6/30/1985	24:00:00	86.91	1005.41	2.33	231.65	347.80	14.45	24.71	24.83	10.59
7/31/1985	24:00:00	87.33	1005.34	2.33	239.68	311.48	14.90	23.96	24.05	7.86
8/31/1985	24:00:00	87.64	1004.72	2.38	236.43	296.20	15.14	24.22	24.35	8.94
9/30/1985	24:00:00	87.33	1003.86	2.23	237.06	309.96	15.31	24.38	24.54	9.65
10/31/1985	24:00:00	87.29	1002.72	1.31	214.8	574.59	12.95	24.92	24.96	11.54
11/30/1985	24:00:00	85.18	1002.31	1.17	231.35	348.42	13.18	25.7	25.76	15.41
12/31/1985	24:00:00	74.66	1001.99	0.87	334.08	46.96	16.65	24.4	23.99	9.13
1/31/1986	24:00:00	74.43	1002.67	0.93	271.8	46.58	18.78	25.49	25.44	13.66
2/28/1986	24:00:00	81.26	1002.05	2.14	229.94	73.95	12.98	25.61	25.76	15.12
3/31/1986	24:00:00	82.89	1002.45	2.12	226.55	185.56	15.56	25.55	25.86	14.53
4/30/1986	24:00:00	84.64	1001.31	2.4	221.22	164.53	15.36	26.19	26.37	16.60
5/31/1986	24:00:00	85.87	1002.92	1.8	215.99	373.87	13.94	25.59	25.67	14.19
6/30/1986	24:00:00	84.79	1004.42	2.31	219.61	195.76	16.55	25.18	25.42	12.75
7/31/1986	24:00:00	85.77	1006.36	2.77	229.04	329.95	16.06	24.15	24.34	7.86
8/31/1986	24:00:00	85.55	1005	2.71	235.98	297.04	16.70	23.99	24.24	7.50
9/30/1986	24:00:00	86.78	1004.95	2.35	235.26	354.57	15.35	24.3	24.47	8.96
10/31/1986	24:00:00	88.74	1003.88	1.95	232.43	1048.46	12.76	24.67	24.76	8.03
11/30/1986	24:00:00	84.97	1002.37	0.93	274.34	315.22	13.88	25.31	25.32	14.08
12/31/1986	24:00:00	72.6	1003.7	1.59	13.57	20.37	17.52	23.22	22.62	3.16
1/31/1987	24:00:00	73.85	1003.54	0.67	273.24	11.59	19.91	25.71	25.53	14.29
2/28/1987	24:00:00	80.54	1002.78	1.99	227.3	82.58	16.49	26.67	27.12	19.24
3/31/1987	24:00:00	80.65	1001.69	1.68	228.37	135.00	16.55	26.44	26.69	17.94
4/30/1987	24:00:00	82.21	1002.24	1.74	211.82	97.08	17.11	26.99	27.3	20.34
5/31/1987	24:00:00	85.64	1002.16	2.11	214.97	205.16	14.79	26.33	26.43	17.26
6/30/1987	24:00:00	86.47	1005.03	2.27	227.77	245.67	14.38	25.3	25.43	13.32
7/31/1987	24:00:00	87.17	1003.81	2.42	237.65	543.40	13.87	25.24	25.35	11.66
8/31/1987	24:00:00	88.39	1003.96	2.62	234.42	332.79	14.78	24.89	24.92	10.89
9/30/1987	24:00:00	89.15	1004.1	2.49	232.58	344.27	14.26	25.08	25.13	11.93
10/31/1987	24:00:00	88.93	1003.11	1.86	227.78	399.89	12.62	25.33	25.35	13.49
11/30/1987	24:00:00	84.35	1002.73	0.99	226.05	266.64	14.09	25.87	25.83	16.08
12/31/1987	24:00:00	75.53	1003.24	0.74	295.99	105.51	16.27	25.51	24.98	12.98
1/31/1988	24:00:00	75.9	1002.63	0.66	286.67	38.18	16.88	25.64	25.44	14.68
2/28/1988	24:00:00	77.5	1000.69	1.34	249.64	34.37	16.64	27.06	27.19	20.37
3/31/1988	24:00:00	83.57	1001.95	2	232.36	123.72	14.66	26.92	27.08	19.90
4/30/1988	24:00:00	85.21	1001.41	2.29	226.44	178.67	14.13	26.66	26.8	18.60

5/31/1988	24:00:00	86.12	1002.84	1.97	214.36	208.24	14.84	26.42	26.53	17.81
6/30/1988	24:00:00	87.46	1003.91	2.12	236.82	369.93	13.90	25.42	25.48	13.37
7/31/1988	24:00:00	88.15	1005.15	2.81	242.33	344.24	16.07	24.46	24.5	8.78
8/31/1988	24:00:00	87.62	1004.21	2.92	237.59	196.94	18.35	24.6	24.67	9.46
9/30/1988	24:00:00	89.34	1003.71	2.57	242.34	434.71	14.05	24.65	24.66	9.77
10/31/1988	24:00:00	88.56	1002.51	1.64	232.16	445.46	13.29	25.28	25.35	13.29
11/30/1988	24:00:00	82.56	1002.86	0.59	262.84	270.78	15.15	25.84	25.8	15.97
12/31/1988	24:00:00	81.17	1002.22	0.77	331.65	125.24	13.79	24.43	24.23	10.87
1/31/1989	24:00:00	64.4	1003.58	3.08	26.77	0.26	21.04	21.44	20.73	-6.94
2/28/1989	24:00:00	62.29	1002.79	1.48	16.97	6.13	18.96	24.31	23.37	4.98
3/31/1989	24:00:00	82.38	1001.2	2.19	229.11	92.56	15.62	26.09	26.29	16.53
4/30/1989	24:00:00	85.61	1001.09	2.3	220.28	160.02	14.32	26.16	26.32	16.88
5/31/1989	24:00:00	86.78	1003.32	2	225.07	375.93	13.64	25.66	25.73	14.36
6/30/1989	24:00:00	87.81	1004.54	2.1	225.56	310.02	13.33	25.03	25.07	12.32
7/31/1989	24:00:00	89.07	1005.36	2.56	231.62	467.04	14.59	24.29	24.3	8.16
8/31/1989	24:00:00	89.19	1004.65	2.73	233.88	304.43	14.91	24.44	24.46	9.27
9/30/1989	24:00:00	89.17	1003.11	2.3	239.85	364.80	13.30	24.61	24.62	10.37
10/31/1989	24:00:00	87.84	1003.44	1.56	241.75	333.72	13.34	25.07	25.09	12.89
11/30/1989	24:00:00	83.73	1002.03	0.52	269.52	381.98	13.87	25.85	25.85	16.05
12/31/1989	24:00:00	76.37	1002.91	0.83	359.2	48.72	15.08	24.94	24.65	12.00
1/31/1990	24:00:00	77.66	1001.92	1.26	277.03	64.50	16.14	25.85	25.8	15.44
2/28/1990	24:00:00	69.25	1002.44	0.69	341.2	17.50	17.20	25.66	25.26	13.43
3/31/1990	24:00:00	73.92	1002.14	1	257.8	25.19	18.55	27.07	26.95	19.36
4/30/1990	24:00:00	84.98	1001.48	2.28	222.41	178.49	14.09	26.68	26.75	18.47
5/31/1990	24:00:00	86.61	1003.18	2.13	232.32	317.45	13.95	25.98	26.08	15.68
6/30/1990	24:00:00	86.65	1004.7	2.37	227.72	218.17	13.40	25.52	25.62	14.29
7/31/1990	24:00:00	86.85	1005.04	2.94	232.44	363.35	14.67	24.63	24.69	9.35
8/31/1990	24:00:00	85.5	1005.37	2.85	239.29	356.09	15.22	24.86	25.01	10.31
9/30/1990	24:00:00	86.97	1004.14	2.45	237.76	586.52	13.32	24.9	25.02	10.27
10/31/1990	24:00:00	86.15	1003.29	1.81	227.67	533.03	13.99	25.5	25.62	13.22
11/30/1990	24:00:00	84.22	1002.46	1.38	226.76	172.58	13.94	25.99	26.14	17.07
12/31/1990	24:00:00	83.74	1002.13	1.28	242.26	185.65	13.99	25.71	25.78	15.79
1/31/1991	24:00:00	71.61	1002.63	0.37	9.7	7.34	18.26	25.28	24.87	12.46
2/28/1991	24:00:00	82.08	1002.14	2.09	236.33	87.41	13.39	26.76	26.99	19.62
3/31/1991	24:00:00	82.18	1000.84	2.04	226.97	127.32	15.34	27.01	27.21	19.98
4/30/1991	24:00:00	84.54	1001.73	2.25	221.85	190.15	15.12	26.34	26.53	17.26
5/31/1991	24:00:00	85.77	1002.43	2.03	233.2	479.27	14.99	26.26	26.39	15.86
6/30/1991	24:00:00	86.7	1004.07	2.33	233.56	422.26	13.99	25.74	25.86	14.14
7/31/1991	24:00:00	87.62	1005.37	2.71	225.19	332.35	14.86	24.63	24.75	9.96
8/31/1991	24:00:00	86.31	1005.78	2.95	229.84	285.55	15.91	24.54	24.68	9.28
9/30/1991	24:00:00	86.85	1004.64	2.72	233.95	443.51	14.70	25.09	25.19	11.02
10/31/1991	24:00:00	87.3	1003.58	2.3	240.88	547.73	14.04	24.77	24.87	9.98
11/30/1991	24:00:00	84.04	1002.59	1.29	242.08	706.01	13.92	25.98	26.09	14.50
12/31/1991	24:00:00	70.76	1002.83	1.45	20.35	25.99	16.96	24.1	23.49	6.42
1/31/1992	24:00:00	70.84	1002.72	0.91	27.26	13.08	18.77	23.86	23.41	6.27
2/28/1992	24:00:00	63.73	1002.61	0.49	3.42	7.69	18.65	25.74	25.18	12.62
3/31/1992	24:00:00	81.38	1001.07	1.88	228.26	141.21	15.91	26.98	27.28	20.04
4/30/1992	24:00:00	84.52	1001.74	2.12	221.83	199.70	14.19	26.82	27.04	19.40
5/31/1992	24:00:00	86.89	1002.63	2.06	227.72	357.27	13.47	26.12	26.22	16.22
6/30/1992	24:00:00	87.12	1004.61	2.82	224.73	355.71	14.74	25.2	25.33	11.84

7/31/1992	24:00:00	89.61	1006.03	2.98	228.99	489.71	13.59	24	23.99	6.71
8/31/1992	24:00:00	87.44	1006.33	3.16	225.21	208.72	17.84	23.88	24	6.67
9/30/1992	24:00:00	88.69	1003.85	2.44	231.88	509.11	13.91	24.37	24.39	8.50
10/31/1992	24:00:00	88.87	1003.75	2.15	237.57	346.05	13.46	24.95	24.97	11.84
11/30/1992	24:00:00	82.26	1002.67	0.28	299.44	132.44	15.23	24.67	24.56	12.37
12/31/1992	24:00:00	74.41	1002.81	0.88	11.4	9.55	17.54	24.36	23.97	9.00
1/31/1993	24:00:00	68.46	1003.5	1.86	20.94	9.57	19.23	23.45	22.98	3.30
2/28/1993	24:00:00	74.68	1002.11	1.06	242.14	43.78	16.43	26.21	26.05	16.39
3/31/1993	24:00:00	80.94	1002.44	1.71	232.07	142.19	15.05	26.03	26.01	15.94
4/30/1993	24:00:00	85.62	1001.41	2.07	222.06	145.14	13.27	26.44	26.52	18.23
5/31/1993	24:00:00	86.71	1002.06	2.33	223.11	227.01	14.58	26.39	26.48	17.28
6/30/1993	24:00:00	87.65	1004.78	2.33	226.97	349.81	14.04	25.33	25.44	13.03
7/31/1993	24:00:00	89.02	1005.22	2.91	234.76	378.76	14.82	24.48	24.47	8.79
8/31/1993	24:00:00	88.94	1005.48	2.81	231.94	337.96	14.96	24.21	24.21	8.08
9/30/1993	24:00:00	88.86	1004.07	2.04	237.16	622.75	13.72	24.83	24.9	10.30
10/31/1993	24:00:00	87.9	1003.28	1.79	224.73	257.11	14.06	25.47	25.58	14.60
11/30/1993	24:00:00	87.28	1001.74	1.55	225.91	411.07	12.55	25.52	25.62	14.51
12/31/1993	24:00:00	78.24	1002.26	0.97	10.1	32.19	15.17	24.45	23.94	9.72
1/31/1994	24:00:00	76.78	1001.84	0.59	347.02	50.12	17.11	24.82	24.58	11.61
2/28/1994	24:00:00	72.8	1002.27	0.53	265.23	17.16	16.83	26.1	25.83	16.09
3/31/1994	24:00:00	83.5	1001.49	2.04	230.59	104.34	15.15	26.86	27.05	19.70
4/30/1994	24:00:00	84.81	1001.33	2.13	223.62	167.91	15.66	26.67	26.81	18.52
5/31/1994	24:00:00	87.03	1002.91	1.9	225.52	396.61	13.54	26.16	26.21	16.23
6/30/1994	24:00:00	88.48	1004.58	2.47	232.91	383.60	13.66	25.22	25.26	12.29
7/31/1994	24:00:00	89.44	1005.35	2.75	232.03	382.95	14.33	24.46	24.41	8.91
8/31/1994	24:00:00	89.05	1004.79	2.86	227.07	314.46	15.87	24.51	24.55	9.20
9/30/1994	24:00:00	89.26	1004.49	2.63	229.63	444.84	14.56	24.75	24.8	10.03
10/31/1994	24:00:00	89.3	1002.84	1.96	236.48	509.69	12.87	24.98	24.97	11.48
11/30/1994	24:00:00	83.15	1003.07	0.3	347.88	171.02	14.50	24.69	24.65	12.67
12/31/1994	24:00:00	73.87	1003.51	2.32	25.56	0.34	18.57	22.76	22.31	1.10
1/31/1995	24:00:00	69.2	1003.42	1.54	18.05	93.25	17.55	24.23	23.69	6.38
2/28/1995	24:00:00	73.56	1003.32	0.5	270.82	112.39	15.24	25.71	25.61	15.07
3/31/1995	24:00:00	84.09	1001.28	1.9	233.29	161.34	14.05	26.69	26.8	19.01
4/30/1995	24:00:00	86.12	1000.36	1.96	222.69	188.63	13.17	26.67	26.75	19.08
5/31/1995	24:00:00	86.77	1002.17	1.87	224.74	296.22	13.93	26.2	26.26	16.80
6/30/1995	24:00:00	88.33	1003.99	2.29	225.11	496.12	13.71	25.53	25.58	13.11
7/31/1995	24:00:00	89.74	1003.73	2.68	229.09	370.36	14.48	24.72	24.69	10.07
8/31/1995	24:00:00	90.13	1004.12	2.58	233.14	440.22	13.67	24.74	24.69	10.08
9/30/1995	24:00:00	89.63	1004.38	2.66	237.88	408.93	14.75	25	25.01	11.00
10/31/1995	24:00:00	88.72	1002.69	1.99	236.11	672.06	13.15	25.2	25.23	11.48
11/30/1995	24:00:00	82.23	1002.58	0.82	354.58	240.05	14.51	24.87	24.67	11.91
12/31/1995	24:00:00	78.57	1003.16	0.78	338.31	67.14	15.60	24.98	24.8	12.58
1/31/1996	24:00:00	75.86	1001.33	0.86	285.01	35.56	16.57	25.69	25.47	14.67
2/28/1996	24:00:00	80.6	1000.83	1.76	247.58	139.72	15.38	26.77	27.05	19.35
3/31/1996	24:00:00	84.27	1000.94	1.94	225.54	180.52	14.28	26.47	26.65	18.23
4/30/1996	24:00:00	85.34	1000.9	1.88	214.4	169.95	14.20	26.58	26.69	18.71
5/31/1996	24:00:00	86.91	1002.37	1.93	219.12	266.84	14.41	26.38	26.44	17.47
6/30/1996	24:00:00	88.43	1004.16	2.36	224.41	317.27	14.27	25.36	25.44	13.23
7/31/1996	24:00:00	88.26	1005.67	2.69	228.04	285.46	15.35	24.33	24.37	8.86
8/31/1996	24:00:00	88.88	1004.92	2.86	223.69	362.39	15.59	24.34	24.39	8.40

9/30/1996	24:00:00	89.3	1003.82	2.78	234.08	517.61	14.86	24.63	24.67	9.00
10/31/1996	24:00:00	88.39	1003.16	1.77	245.83	443.14	13.57	24.92	24.97	11.69
11/30/1996	24:00:00	77.55	1002.22	0.99	2.57	24.88	16.47	24.66	24.37	10.78
12/31/1996	24:00:00	75.75	1002.63	0.51	308.26	121.69	16.22	25.17	24.8	12.36
1/31/1997	24:00:00	77.35	1002.31	0.75	289.1	46.79	15.75	25.29	25.08	13.61
2/28/1997	24:00:00	62.45	1002.85	1.84	8.07	2.37	18.15	23.9	22.95	3.22
3/31/1997	24:00:00	81.5	1001.46	1.35	246.5	191.77	14.48	26.38	26.39	17.66
4/30/1997	24:00:00	86.25	1002.85	2.13	226.91	223.37	13.45	25.95	25.97	15.85
5/31/1997	24:00:00	87.31	1003.6	1.96	230.45	516.49	13.93	26.04	26.08	15.08
6/30/1997	24:00:00	88.94	1003.99	2.67	222.22	548.91	14.27	25.01	25.08	10.54
7/31/1997	24:00:00	88.2	1005.82	3.1	232.53	319.00	16.58	24.5	24.53	8.62
8/31/1997	24:00:00	88	1005.84	2.95	234.1	341.08	16.74	24.47	24.56	8.67
9/30/1997	24:00:00	87.71	1004.09	2.29	233.56	460.65	13.98	25.35	25.41	12.51
10/31/1997	24:00:00	86.74	1002.62	1.86	236.22	344.61	13.75	26.13	26.21	16.41
11/30/1997	24:00:00	84.79	1002.29	1.23	235.46	378.23	14.13	26.34	26.43	17.44
12/31/1997	24:00:00	74.72	1003.31	1.05	6.04	13.47	16.17	25.09	24.75	11.95
1/31/1998	24:00:00	71.72	1002.31	1.85	23.62	7.57	17.66	23.83	23.27	5.18
2/28/1998	24:00:00	71.79	1003.14	0.51	305.53	14.19	17.06	27.49	27.26	21.23
3/31/1998	24:00:00	73.51	1001.13	0.92	260.84	80.06	17.60	27.55	27.35	20.89
4/30/1998	24:00:00	85.58	1000.92	2.11	223.15	175.12	14.11	27.87	27.98	23.28
5/31/1998	24:00:00	86.39	1002.95	2.12	228.88	398.41	14.23	27.21	27.3	19.78
6/30/1998	24:00:00	87.81	1004.77	2.04	236.67	415.93	12.13	25.95	25.94	15.40
7/31/1998	24:00:00	88.44	1005.03	2.84	239.38	309.74	13.79	24.89	24.88	10.85
8/31/1998	24:00:00	87.24	1004.4	2.94	241.79	202.84	16.88	24.81	24.88	10.43
9/30/1998	24:00:00	89.15	1003.84	2.5	240.24	476.71	12.80	25.06	25.09	11.44
10/31/1998	24:00:00	87.89	1003.52	1.9	237.6	498.24	13.72	25.62	25.67	13.81
11/30/1998	24:00:00	85.41	1001.83	0.93	235.59	364.22	12.37	26.01	25.99	16.72
12/31/1998	24:00:00	76.88	1002.49	0.81	349.89	91.04	15.14	24.84	24.49	11.34
1/31/1999	24:00:00	76.88	1001.58	0.69	302.94	80.26	15.99	25.43	25.28	14.09
2/28/1999	24:00:00	83.31	1001.22	1.76	248.76	72.43	11.62	26.41	26.47	18.78
3/31/1999	24:00:00	83.9	999.72	2.18	228.65	129.97	13.78	26.89	27.05	19.76
4/30/1999	24:00:00	84.61	1001.42	2.02	225.09	155.48	13.31	26.64	26.78	19.01
5/31/1999	24:00:00	84.23	1002.34	1.78	220.69	187.25	15.16	26.51	26.73	18.46
6/30/1999	24:00:00	86.41	1003.28	1.81	222.25	433.25	12.87	25.81	25.9	15.01
7/31/1999	24:00:00	85.52	1004.91	2.49	234.71	245.47	15.12	24.94	25.08	11.51
8/31/1999	24:00:00	84.35	1004.65	2.5	240.14	224.52	15.90	25.16	25.37	12.32
9/30/1999	24:00:00	86.74	1003.3	2.43	240.76	374.87	13.65	24.99	25.12	11.56
10/31/1999	24:00:00	87.95	1003.35	2.23	235.84	590.53	12.93	24.94	24.98	10.62
11/30/1999	24:00:00	84.95	1002.27	1.24	227.29	283.34	12.34	25.63	25.65	15.40
12/31/1999	24:00:00	76.46	1001.89	0.17	324.02	14.96	13.66	25.08	24.36	12.52
1/31/2000	24:00:00	76.95	1000.66	0.78	262.53	39.04	15.25	25.83	25.52	15.40
2/28/2000	24:00:00	66.61	1002.08	0.57	13.11	9.83	16.21	25.14	24.56	11.05
3/31/2000	24:00:00	78.34	1000.3	1.5	229.94	72.99	14.58	26.59	26.7	18.70
4/30/2000	24:00:00	82.73	1000.39	2.32	214.63	193.88	14.83	26.95	27.26	19.60
5/31/2000	24:00:00	83.88	1002.07	2.15	215.98	259.51	14.19	26.74	27.07	19.01
6/30/2000	24:00:00	89.38	1004.31	2.2	235.05	464.79	11.58	25.06	25.01	11.87
7/31/2000	24:00:00	90.12	1004.27	2.51	236.55	415.02	13.42	24.4	24.36	9.08
8/31/2000	24:00:00	89.01	1005.03	2.79	233.83	446.36	14.97	24.25	24.3	7.88
9/30/2000	24:00:00	89.58	1003.73	2.58	236.93	430.05	12.24	24.5	24.48	9.52
10/31/2000	24:00:00	88.12	1003.53	1.82	246.77	645.21	14.01	25.26	25.3	11.81

11/30/2000	24:00:00	84.9	1001.97	0.93	241.77	162.68	14.20	25.85	25.86	16.74
12/31/2000	24:00:00	77.66	1003.36	1.24	18.53	40.68	17.67	23.55	23.15	5.79
1/31/2001	24:00:00	67.3	1003.15	1.81	20.57	3.43	19.86	23.58	22.95	3.18
2/28/2001	24:00:00	72.31	1001.73	0.82	12.93	15.78	14.75	24.5	23.91	9.30
3/31/2001	24:00:00	83.58	1001.39	1.97	221.3	134.51	13.28	26.81	26.92	19.60
4/30/2001	24:00:00	85.52	1001.25	1.96	220.16	218.43	13.39	26.71	26.8	19.00
5/31/2001	24:00:00	87.11	1002.69	2	215.59	251.50	13.55	26.42	26.49	17.83
6/30/2001	24:00:00	88.28	1004.57	2.4	224.42	381.17	12.58	25.11	25.19	12.26
7/31/2001	24:00:00	87.43	1005.19	2.8	224.73	268.05	15.18	24.49	24.63	9.61
8/31/2001	24:00:00	86.92	1006.1	3.09	232.1	441.60	16.26	24.53	24.71	8.47
9/30/2001	24:00:00	88.1	1004.17	2.6	233.41	562.34	14.37	24.64	24.73	9.11
10/31/2001	24:00:00	86.26	1003.45	1.54	229.66	435.93	13.87	25.79	25.89	15.04
11/30/2001	24:00:00	85.37	1002.82	1.44	232.57	267.25	13.66	25.91	25.94	16.13
12/31/2001	24:00:00	78.29	1002.26	0.24	282.18	24.39	17.44	26.17	25.94	17.28
1/31/2002	24:00:00	64.67	1002.99	2.13	32.7	37.22	18.70	23.52	22.66	1.73
2/28/2002	24:00:00	72.75	1002.22	0.53	262.36	39.39	15.37	26.02	25.52	15.34
3/31/2002	24:00:00	83.18	1001.01	1.9	223.19	114.24	14.07	27.1	27.28	20.84
4/30/2002	24:00:00	85.98	1000.03	2.13	224.13	207.26	13.74	26.83	26.93	19.33
5/31/2002	24:00:00	86.15	1002.47	2.02	222.08	182.26	14.97	26.9	26.98	19.56
6/30/2002	24:00:00	88.72	1004.77	2.41	233.12	387.44	12.46	25.44	25.44	13.31
7/31/2002	24:00:00	89.98	1005.46	2.65	231.73	517.25	12.12	24.99	24.93	10.82
8/31/2002	24:00:00	88.68	1005.12	2.69	235.59	444.87	15.16	24.75	24.8	9.78
9/30/2002	24:00:00	88.13	1004.5	2.57	245.75	398.18	13.95	25.13	25.15	11.63
10/31/2002	24:00:00	86.43	1003.18	1.43	237.19	669.68	14.18	25.53	25.6	12.97
11/30/2002	24:00:00	82.78	1003.31	0.89	236.46	157.65	14.82	25.93	25.89	16.60
12/31/2002	24:00:00	75.77	1003.72	0.95	15.05	31.05	16.69	24.54	24.19	9.93
1/31/2003	24:00:00	75.08	1003.57	0.77	317.2	43.43	15.99	25.31	24.83	12.63
2/28/2003	24:00:00	80.18	1001.57	1.37	242.49	74.28	14.11	27.08	27.13	20.81
3/31/2003	24:00:00	83.51	1001.09	1.57	226.71	81.89	12.23	27.02	27.03	20.98
4/30/2003	24:00:00	85.73	1001.7	2.06	227.35	317.74	13.65	26.81	26.91	18.80
5/31/2003	24:00:00	88.06	1002.92	2.03	223.02	350.54	12.23	26.39	26.43	17.50
6/30/2003	24:00:00	87.71	1003.98	2.29	230.45	420.41	12.40	25.37	25.42	13.05
7/31/2003	24:00:00	88	1005.28	2.81	243.35	368.70	14.63	24.93	24.94	10.59
8/31/2003	24:00:00	87	1005.11	2.99	236.19	306.63	15.35	25.13	25.23	11.42
9/30/2003	24:00:00	88.04	1004.52	2.12	242.47	744.44	12.84	25.3	25.33	11.35
10/31/2003	24:00:00	88.49	1002.51	1.87	232.33	713.62	12.54	25.88	25.87	13.93
11/30/2003	24:00:00	86.3	1001.93	1.24	237.89	275.28	13.22	26.14	26.08	17.12
12/31/2003	24:00:00	75.61	1002.61	0.69	356.94	19.51	15.37	24.96	24.33	11.31
1/31/2004	24:00:00	77.98	1001.61	0.7	300.39	33.94	14.26	25.58	25.13	14.51
2/28/2004	24:00:00	76.91	1002.04	0.63	266.4	30.21	14.79	26.12	25.8	16.74
3/31/2004	24:00:00	80.79	1001.11	1.41	239.99	87.09	13.41	26.9	26.8	19.84
4/30/2004	24:00:00	86.61	1001.59	2.3	223.8	304.37	12.71	26.71	26.74	18.32
5/31/2004	24:00:00	87.51	1003.3	2.33	224.42	390.56	13.74	26.36	26.4	16.52
6/30/2004	24:00:00	87.96	1005.55	2.61	229.79	384.58	12.97	25.42	25.43	12.87
7/31/2004	24:00:00	88.8	1004.77	2.69	237.7	609.15	12.15	24.73	24.69	9.28
8/31/2004	24:00:00	87.59	1005.33	2.96	230.88	408.59	14.78	24.98	25.07	10.56
9/30/2004	24:00:00	88.4	1003.86	2.32	231.6	384.63	12.61	25.22	25.26	12.64
10/31/2004	24:00:00	87.79	1003.1	1.87	226.95	605.94	12.55	25.63	25.68	13.58
11/30/2004	24:00:00	85.89	1002.21	1.29	222.28	257.11	11.55	25.89	25.83	16.49
12/31/2004	24:00:00	79.85	1001.63	0.63	260.5	25.28	15.50	26.32	26.1	17.99

1/31/2005	24:00:00	71.87	1002.13	1.39	31.27	19.33	15.41	23.58	22.93	4.90
2/28/2005	24:00:00	81.63	1000.39	1.51	239.48	68.11	11.80	27.24	27.27	21.84
3/31/2005	24:00:00	84.26	1001.34	1.91	222.35	116.38	12.43	27.32	27.44	21.91
4/30/2005	24:00:00	85.59	1001.2	2.2	216.42	192.07	12.08	27.35	27.44	21.50
5/31/2005	24:00:00	85.54	1002.77	2.17	215.05	255.02	13.20	26.55	26.66	18.09
6/30/2005	24:00:00	86.33	1003.9	2.59	224	420.28	13.45	25.94	26.06	14.67
7/31/2005	24:00:00	85.05	1005.41	2.62	233.7	407.10	14.46	25.41	25.58	12.51
8/31/2005	24:00:00	82.25	1004.86	3.08	231.8	254.35	17.92	25.44	25.9	12.63
9/30/2005	24:00:00	87.26	1004.08	2.55	231.07	585.96	14.66	25.58	25.71	12.50
10/31/2005	24:00:00	87.67	1003.45	1.84	225.77	385.70	12.55	25.56	25.67	14.54
11/30/2005	24:00:00	83.41	1001.76	0.96	229.42	74.90	14.65	26.46	26.47	19.13
12/31/2005	24:00:00	80.92	1001.01	0.85	228.45	53.71	14.81	26.14	26.03	17.50
1/31/2006	24:00:00	83.15	1000.72	1.63	242.02	61.83	13.10	26.57	26.59	19.16
2/28/2006	24:00:00	83.34	1000.66	2.02	228.6	95.83	12.06	27.11	27.3	21.26
3/31/2006	24:00:00	84.05	1001.58	2.02	222.48	127.01	12.26	26.82	26.95	19.92
4/30/2006	24:00:00	84.6	1000.67	2.03	208.2	137.28	12.66	27.03	27.2	20.74
5/31/2006	24:00:00	86.5	1003.08	2.12	214.8	370.83	13.20	26.32	26.42	16.84
6/30/2006	24:00:00	86.82	1003.89	2.1	220.85	278.39	12.41	25.84	25.91	15.62
7/31/2006	24:00:00	87.19	1004.98	2.82	229.11	427.89	13.37	25.29	25.41	12.08
8/31/2006	24:00:00	87.19	1004.54	2.93	228.09	308.05	16.23	24.88	25.04	10.56
9/30/2006	24:00:00	89.62	1004.4	2.43	234.83	373.21	12.88	24.96	24.98	11.65
10/31/2006	24:00:00	88.11	1002.56	1.8	231.82	445.95	12.63	25.91	25.95	15.45
11/30/2006	24:00:00	79.47	1002.27	0.19	256.75	111.29	14.49	25.9	25.65	16.57
12/31/2006	24:00:00	70.45	1003.51	1.26	35.14	4.45	18.46	24.61	23.96	8.19
1/31/2007	24:00:00	68.01	1003.3	2.06	36.2	2.89	17.89	23.05	22.26	0.96
2/28/2007	24:00:00	78.64	1001.82	1.22	248.44	53.71	13.41	26.65	26.51	18.91
3/31/2007	24:00:00	81.68	1000.78	1.75	223.59	78.22	13.93	26.91	26.98	20.01
4/30/2007	24:00:00	84.72	1001.04	2.17	225.54	160.99	13.66	27	27.13	20.08
5/31/2007	24:00:00	86.16	1002.2	2.02	221.84	286.46	13.83	26.73	26.79	18.60
6/30/2007	24:00:00	88.79	1004.28	2.53	224.34	431.26	12.23	25.33	25.33	12.61
7/31/2007	24:00:00	88.08	1004.84	2.65	229.68	284.38	14.42	24.9	24.91	11.10
8/31/2007	24:00:00	89.06	1004.13	2.6	231.12	307.64	14.24	24.83	24.84	10.94
9/30/2007	24:00:00	89.58	1004.27	2.1	234.08	430.87	12.78	25.17	25.15	12.43
10/31/2007	24:00:00	89.06	1002.95	1.8	230.8	629.34	11.35	25.19	25.17	12.10
11/30/2007	24:00:00	86.61	1001.77	1.26	227.27	322.42	12.77	25.69	25.6	15.24
12/31/2007	24:00:00	79.02	1002.16	0.82	341.6	48.44	16.63	24.73	24.37	11.07
1/31/2008	24:00:00	73.66	1002.16	1.62	18.39	45.83	15.52	23.69	23.23	5.64
2/28/2008	24:00:00	67.81	1002.29	0.94	6.35	10.94	15.58	24.93	24.06	9.34
3/31/2008	24:00:00	84.92	1000.64	2.17	217.71	114.54	13.23	26.48	26.56	18.33
4/30/2008	24:00:00	84.97	1000.28	1.78	214.03	289.52	12.91	26.47	26.54	17.94
5/31/2008	24:00:00	85.45	1001.77	1.59	220.1	257.50	12.96	26.45	26.5	18.22
6/30/2008	24:00:00	87.22	1003.63	2.21	218.34	437.12	12.79	25.62	25.7	13.93
7/31/2008	24:00:00	86.06	1004.87	2.49	225.61	359.02	14.89	25.15	25.28	11.84
8/31/2008	24:00:00	87.04	1003.61	2.5	237.03	315.30	14.00	25	25.05	11.55
9/30/2008	24:00:00	87.61	1003.94	1.93	230.15	349.66	13.24	25.36	25.36	13.43
10/31/2008	24:00:00	87.45	1003.09	1.68	235.32	324.51	13.00	25.76	25.78	15.39
11/30/2008	24:00:00	83.11	1001.88	1.03	234.74	257.21	14.25	26.44	26.44	18.13
12/31/2008	24:00:00	78.53	1001.65	0.48	289.76	110.63	15.44	25.74	25.43	15.21
1/31/2009	24:00:00	80.89	1002.01	1.29	257.15	75.54	12.50	26.02	25.74	16.45
2/28/2009	24:00:00	82.28	1000.83	1.83	232.02	68.00	12.93	26.79	26.99	20.14

3/31/2009	24:00:00	83.74	1000.21	1.77	232.53	102.20	12.64	27.08	27.18	21.08
4/30/2009	24:00:00	86.11	1001.69	1.99	226.47	418.87	12.18	26.57	26.59	17.62
5/31/2009	24:00:00	86.44	1002.15	1.69	222.23	272.83	13.16	26.37	26.42	17.82
6/30/2009	24:00:00	88	1004.29	2.09	225.57	370.41	12.22	25.6	25.62	14.34
7/31/2009	24:00:00	88.08	1004.9	2.72	228.43	581.76	13.61	25.15	25.19	10.79
8/31/2009	24:00:00	88.52	1004.25	2.78	234.09	546.75	13.97	25.17	25.21	10.95
9/30/2009	24:00:00	88	1004.63	2.27	233.93	356.23	13.28	25.57	25.59	13.90
10/31/2009	24:00:00	88.3	1002.86	1.87	236.94	586.48	12.28	25.5	25.47	13.09
11/30/2009	24:00:00	82.03	1002.47	0.54	271.69	197.17	15.27	25.75	25.51	15.41
12/31/2009	24:00:00	73.23	1002.6	0.62	337.51	13.86	17.81	26.05	25.36	14.55
1/31/2010	24:00:00	74.95	1002.41	0.65	275.11	28.89	16.58	26.42	25.93	16.80
2/28/2010	24:00:00	81.25	1001.57	1.57	237.79	75.74	12.58	27.23	27.14	21.19
3/31/2010	24:00:00	82.08	1002.01	1.56	223.12	83.44	12.50	27.24	27.16	21.34
4/30/2010	24:00:00	84.75	1001.32	1.86	218.39	153.20	13.26	27.48	27.51	22.05
5/31/2010	24:00:00	86.14	1002.29	2.12	215.19	286.08	14.10	27.08	27.17	19.82
6/30/2010	24:00:00	87.34	1004.51	2.11	216.53	420.34	12.66	25.95	26.03	15.39
7/31/2010	24:00:00	87.15	1004.63	2.38	226.73	371.01	14.15	25.15	25.24	12.07
8/31/2010	24:00:00	87.43	1004.48	2.71	224.46	319.84	15.13	25.19	25.29	11.98
9/30/2010	24:00:00	88.33	1003.68	2.24	226.83	443.64	13.46	25.14	25.18	11.98
10/31/2010	24:00:00	88.61	1002.9	1.96	223.13	271.35	13.49	25.43	25.44	14.12
11/30/2010	24:00:00	86.06	1001.54	1.19	230.22	469.77	12.76	25.96	25.93	15.73
12/31/2010	24:00:00	75.49	1001.18	0.63	357.3	30.25	17.80	25.34	24.83	12.58
1/31/2011	24:00:00	69.74	1001.07	1.32	22.64	6.67	18.21	24.65	23.83	7.77
2/28/2011	24:00:00	83.02	1001.18	1.89	236.15	96.93	11.80	26.35	26.31	17.96
3/31/2011	24:00:00	83.28	1000.75	2	227.72	116.30	13.77	26.87	26.94	19.64
4/30/2011	24:00:00	85.11	1000.72	1.98	218.71	157.90	12.27	26.69	26.73	19.22
5/31/2011	24:00:00	87.62	1002.25	1.94	217.05	293.45	11.48	26.41	26.37	17.82
6/30/2011	24:00:00	88.45	1003.89	2.32	221.14	379.01	11.58	25.64	25.65	14.35
7/31/2011	24:00:00	88.14	1004.26	2.63	225.58	417.21	14.37	25.07	25.12	11.25
8/31/2011	24:00:00	88.47	1004.53	2.82	232.64	452.40	14.20	24.89	24.92	10.23
9/30/2011	24:00:00	88.23	1004.64	2.09	231.24	298.85	13.80	25.15	25.21	12.84
10/31/2011	24:00:00	88.79	1002.13	1.64	226.62	501.24	11.88	25.33	25.32	13.30
11/30/2011	24:00:00	82.64	1002.29	0.85	256.12	180.66	14.59	25.85	25.65	15.83
12/31/2011	24:00:00	71.04	1002.89	1.3	9.57	13.24	18.51	24.15	23.23	5.73
1/31/2012	24:00:00	72.74	1002.66	0.62	344.19	49.12	16.27	24.78	24.1	9.92
2/28/2012	24:00:00	82.89	1000.94	2.09	238.03	116.51	13.24	26.33	26.51	17.88
3/31/2012	24:00:00	83.16	1001.56	1.73	241.32	79.28	12.73	26.89	26.92	20.25
4/30/2012	24:00:00	85.57	1001.57	2.23	227.73	238.73	13.15	26.64	26.66	18.21
5/31/2012	24:00:00	86.51	1003.25	1.89	228.56	508.00	12.52	26.09	26.1	15.48
6/30/2012	24:00:00	87.77	1004.66	2.11	234.98	386.93	12.27	25.42	25.46	13.59
7/31/2012	24:00:00	87.61	1004.74	2.66	231.13	389.42	14.15	24.87	24.94	10.64
8/31/2012	24:00:00	86.6	1005.32	2.76	235.79	260.78	16.40	24.79	24.9	10.40
9/30/2012	24:00:00	87.81	1005.13	2.26	231.06	338.73	14.43	25.16	25.23	12.36
10/31/2012	24:00:00	88.53	1003	1.83	229.26	709.81	12.95	25.44	25.47	12.39
11/30/2012	24:00:00	86.37	1002.33	1.2	230.02	276.24	11.49	25.97	25.87	16.75
12/31/2012	24:00:00	77.59	1002.39	0.94	354.23	86.22	14.95	24.57	24.05	9.88
1/31/2013	24:00:00	78.02	1002.9	0.64	313.73	74.31	14.41	25.48	25.02	13.97
2/28/2013	24:00:00	82.17	1001.35	1.49	244.13	69.19	11.88	26.4	26.26	18.33
3/31/2013	24:00:00	84.53	1001.87	2.15	213.99	125.31	13.23	26.85	26.9	19.55
4/30/2013	24:00:00	84.74	1002.35	1.83	216.29	201.80	13.23	26.79	26.85	19.37

5/31/2013	24:00:00	86.87	1003.24	1.84	225.58	360.86	12.24	26.31	26.3	17.08
6/30/2013	24:00:00	88.45	1004.32	2.38	228.74	602.86	12.65	25.48	25.49	12.44
7/31/2013	24:00:00	88.01	1005.29	2.65	227.05	590.12	14.42	24.77	24.85	9.36
8/31/2013	24:00:00	86.84	1004.58	2.78	229.91	264.27	16.05	24.71	24.83	10.18
9/30/2013	24:00:00	89.1	1004.51	2.27	230.99	651.86	12.53	25.07	25.08	10.90
10/31/2013	24:00:00	88.07	1003.71	1.68	234.03	599.28	13.27	25.45	25.49	13.02
11/30/2013	24:00:00	86.65	1001.97	1.33	226.08	194.12	12.13	25.84	25.8	16.59
12/31/2013	24:00:00	82.47	1002.98	0.56	260.01	129.59	16.32	25.29	25.05	13.85
1/31/2014	24:00:00	76.16	1002.48	0.81	264.36	58.69	15.64	26.02	25.44	15.08
2/28/2014	24:00:00	79.61	1001.32	1.36	250.74	46.42	13.81	26.8	26.79	19.74
3/31/2014	24:00:00	84.91	1001.79	2.06	224.17	156.40	12.51	26.68	26.74	19.08
4/30/2014	24:00:00	85.55	1002.16	2.02	224.13	243.45	13.04	26.64	26.7	18.55
5/31/2014	24:00:00	85.59	1002.46	1.66	220.62	394.08	14.02	26.61	26.71	18.04
6/30/2014	24:00:00	86.8	1004.23	2.07	231.06	430.96	12.66	26.07	26.12	15.68
7/31/2014	24:00:00	85.86	1006.13	2.69	221.09	296.96	15.95	25.35	25.55	12.63
8/31/2014	24:00:00	86.2	1005.26	2.64	230.04	351.16	15.06	24.98	25.11	11.07
9/30/2014	24:00:00	86.91	1004.68	2.19	233.42	389.87	13.68	25.16	25.27	12.34
10/31/2014	24:00:00	86.96	1003.6	1.72	234.11	537.07	12.73	25.65	25.73	14.09
11/30/2014	24:00:00	84.16	1002.82	1.21	227.89	312.39	13.39	26.24	26.27	17.30
12/31/2014	24:00:00	72.31	1003.21	0.41	309.77	30.24	17.28	26.19	25.65	15.62
1/31/2015	24:00:00	70.62	1004.04	1.05	19.61	20.46	17.42	24.19	23.73	7.51
2/28/2015	24:00:00	82.41	1002.05	2.01	236.52	115.57	11.96	26.88	27.05	20.17
3/31/2015	24:00:00	82.64	1001.71	1.83	233.31	134.10	13.14	26.94	27.01	20.04
4/30/2015	24:00:00	83.39	1002.64	1.73	218.04	90.31	13.19	26.96	27.08	20.64
5/31/2015	24:00:00	85.75	1003.23	1.85	217.88	265.61	12.38	26.64	26.65	18.64
6/30/2015	24:00:00	87.76	1005.12	2.67	220.71	459.00	13.13	25.55	25.64	13.10
7/31/2015	24:00:00	86.58	1005.03	2.67	224.11	659.50	14.42	25.53	25.67	11.83
8/31/2015	24:00:00	86.66	1004.81	2.85	222.63	376.11	14.73	25.43	25.58	12.57
9/30/2015	24:00:00	87.64	1004.46	2.59	224.84	511.60	13.39	25.53	25.64	12.85
10/31/2015	24:00:00	88.17	1003.85	2.08	229.47	527.05	11.82	25.71	25.73	14.13
11/30/2015	24:00:00	83.17	1003	0.94	240.34	391.45	14.80	26.29	26.3	16.97
12/31/2015	24:00:00	65	1004.61	2.42	41.76	2.99	18.86	23.59	22.56	1.39
1/31/2016	24:00:00	65.64	1003.65	1.12	27.84	7.32	19.44	25.24	24.59	9.91
2/28/2016	24:00:00	72.96	1002.22	1.29	260.27	26.87	15.81	27.33	27.39	20.89
3/31/2016	24:00:00	83.91	1002.29	2.21	232.25	176.80	13.10	27.62	27.76	22.30
4/30/2016	24:00:00	84.1	1001.87	2.12	222.51	144.87	13.42	27.55	27.7	22.28
5/31/2016	24:00:00	86.01	1003.92	1.99	223.71	380.50	12.78	26.79	26.8	18.46
6/30/2016	24:00:00	86.26	1005.38	2.13	237.7	471.35	13.04	25.89	25.93	14.60
7/31/2016	24:00:00	87.76	1005.04	2.42	236.75	515.57	13.01	25.23	25.3	11.88
8/31/2016	24:00:00	88.27	1005.01	2.55	230.08	394.05	13.36	25.11	25.15	11.78
9/30/2016	24:00:00	89.09	1004.68	2.22	231.15	528.38	12.22	25.26	25.29	12.35
10/31/2016	24:00:00	87.45	1002.77	1.49	228.65	317.69	13.02	25.97	25.97	16.35
11/30/2016	24:00:00	84.59	1002.21	0.99	233.71	463.91	13.42	26.68	26.61	18.24
12/31/2016	24:00:00	79.4	1002.25	0.39	326.36	48.24	14.37	25.86	25.51	16.24
1/31/2017	24:00:00	78.95	1002.25	1.02	267.25	54.07	13.98	26.03	25.65	16.10
2/28/2017	24:00:00	75.78	1001.86	0.59	254.13	24.82	13.59	26.56	26.27	18.61
3/31/2017	24:00:00	84.53	1001.36	2.01	222.93	124.85	13.14	27.13	27.19	20.79
4/30/2017	24:00:00	84.79	1001.7	1.62	210.95	157.08	12.72	27.03	27.02	20.62
5/31/2017	24:00:00	86.27	1003.02	1.71	218.87	234.04	13.59	26.81	26.87	19.54
6/30/2017	24:00:00	87.79	1003.91	1.92	230.73	331.57	11.90	26.04	25.98	16.17

7/31/2017	24:00:00	88.32	1005.65	2.47	227.84	427.20	14.94	25.21	25.26	11.81
8/31/2017	24:00:00	89.56	1004.73	2.58	232.11	344.69	13.71	24.87	24.86	11.04
9/30/2017	24:00:00	89.33	1004.4	2.22	235.07	494.56	13.13	25.23	25.19	12.07
10/31/2017	24:00:00	87.38	1003.22	1.63	231.88	317.44	13.26	25.94	25.98	16.14
11/30/2017	24:00:00	83.16	1002.4	0.95	232.66	308.28	13.92	26.21	26.16	17.06
12/31/2017	24:00:00	77.79	1002.28	0.68	303.61	56.16	15.53	26.19	25.86	16.76
1/31/2018	24:00:00	67.19	1002.8	1.01	7.45	10.28	17.68	24.72	23.83	7.96
2/28/2018	24:00:00	80.94	1000.86	1.88	239.27	119.52	13.40	27.06	27.08	20.11
3/31/2018	24:00:00	84.48	1002.02	2.2	222.69	165.80	13.61	26.77	26.83	18.96
4/30/2018	24:00:00	85.49	1002.06	2.28	216.76	176.64	13.27	26.62	26.66	18.40
5/31/2018	24:00:00	86.4	1002.91	2.08	227.22	222.77	13.98	26.41	26.41	17.48
6/30/2018	24:00:00	88.49	1004.65	2.23	235.82	400.32	12.37	25.62	25.58	14.00
7/31/2018	24:00:00	88.61	1005.2	2.25	237.36	321.77	13.93	25.26	25.27	12.86
8/31/2018	24:00:00	88.38	1005.23	2.51	231.12	267.74	15.65	24.98	25.01	11.48
9/30/2018	24:00:00	88.81	1003.33	1.98	227.43	514.92	12.80	25.39	25.36	12.86
10/31/2018	24:00:00	87.98	1003.04	1.68	232.14	507.39	12.95	25.88	25.84	14.89
11/30/2018	24:00:00	84.97	1001.93	1.01	240.59	278.19	13.78	26.71	26.65	19.21
12/31/2018	24:00:00	72.78	1003.18	0.71	338.7	13.35	16.47	25.78	25.04	13.52
1/31/2019	24:00:00	76.8	1003.07	0.96	261.69	73.18	15.06	26.05	25.64	15.61
2/28/2019	24:00:00	74.94	1002.27	1	258.17	79.38	12.77	26.41	26	17.09
3/31/2019	24:00:00	84.8	1002.14	2	229.26	155.37	11.76	27.01	27.01	20.35
4/30/2019	24:00:00	84.59	1001.64	2.02	219.4	180.16	13.10	27.46	27.48	21.66
5/31/2019	24:00:00	86.78	1002.41	1.81	229.22	285.89	12.41	26.69	26.67	18.81
6/30/2019	24:00:00	86.96	1004.84	2.26	229.59	402.03	14.25	26.13	26.2	15.61
7/31/2019	24:00:00	88.29	1004.82	2.29	235.15	450.13	13.62	25.38	25.38	12.65
8/31/2019	24:00:00	88.5	1005.77	2.47	229.28	316.28	15.49	25.2	25.2	12.08
9/30/2019	24:00:00	88.8	1004.45	2.11	228.83	335.88	13.61	25.54	25.51	13.96
10/31/2019	24:00:00	88.02	1003.07	1.78	228.71	286.95	14.10	25.29	25.24	13.38
11/30/2019	24:00:00	85.96	1001.87	1.2	240.35	270.41	12.77	26.56	26.51	18.82
12/31/2019	24:00:00	72.26	1002.41	1.08	351.69	14.06	18.48	25.65	24.95	12.29

Appendix 2: The Maximum Annual Streamflow Data of the Selected Rivers**Discharge Records in cubic meter/sec**

Year	River Ivo	River Ajali	River Imo	River Otamiri	River Adada
1978/79	0.00	-	270.00	12.10	-
1979/80	11.33	12.15	158.40	12.90	50.28
1980/81	-	12.65	-	10.55	42.51
1981/82	-	12.24	-	11.48	46.95
1982/83	11.33	12.61	158.37	7.20	46.71
1983/84	11.18	12.55	156.04	10.70	57.13
1984/85	10.91	12.61	126.20	9.38	50.53
1985/86	10.91	12.55	194.40	11.78	45.67
1986/87	10.91	11.8	115.00	13.54	47.86
1987/88	10.90	12.27	223.20	-	47.99
1988/89	10.91	12.44	142.85	-	50.15

Source: Anambra Imo River Basin Development Authority.

Appendix 3: Pictorial Views of Southeastern Rivers with Point of Data Sources



Figure A3-1. Selected locations along Adada River

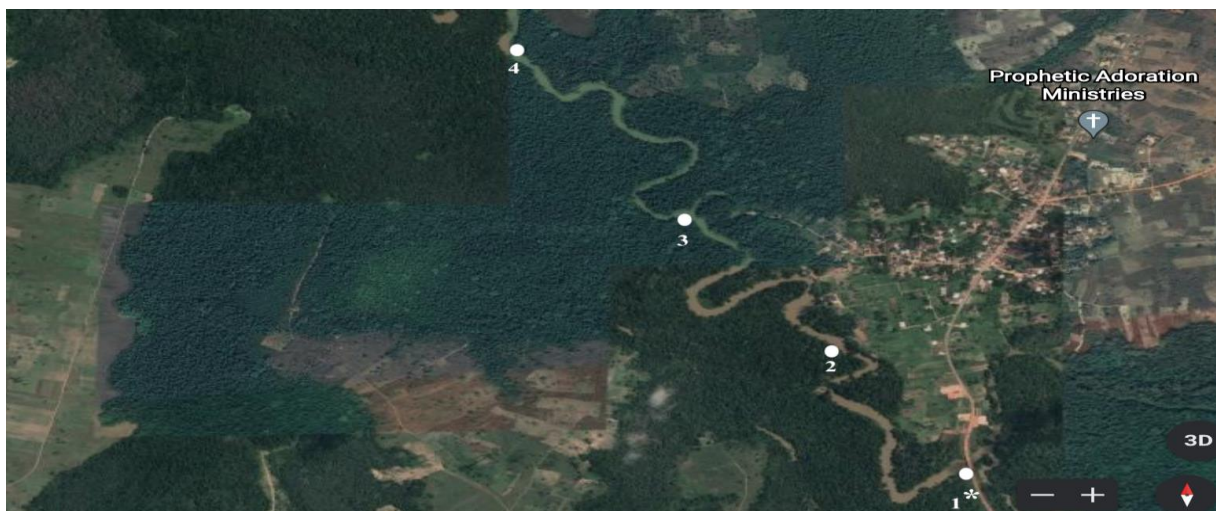


Figure A3-2. Selected locations along Ajali River



Figure A3-3. Selected locations along Imo River3



Figure A3-4. Selected locations along Ivo River



Figure A3-5. Selected locations along Otamiri River

Appendix 4: Results of Forecast on Other Locations and Rivers for Arima Model 1 and 2.

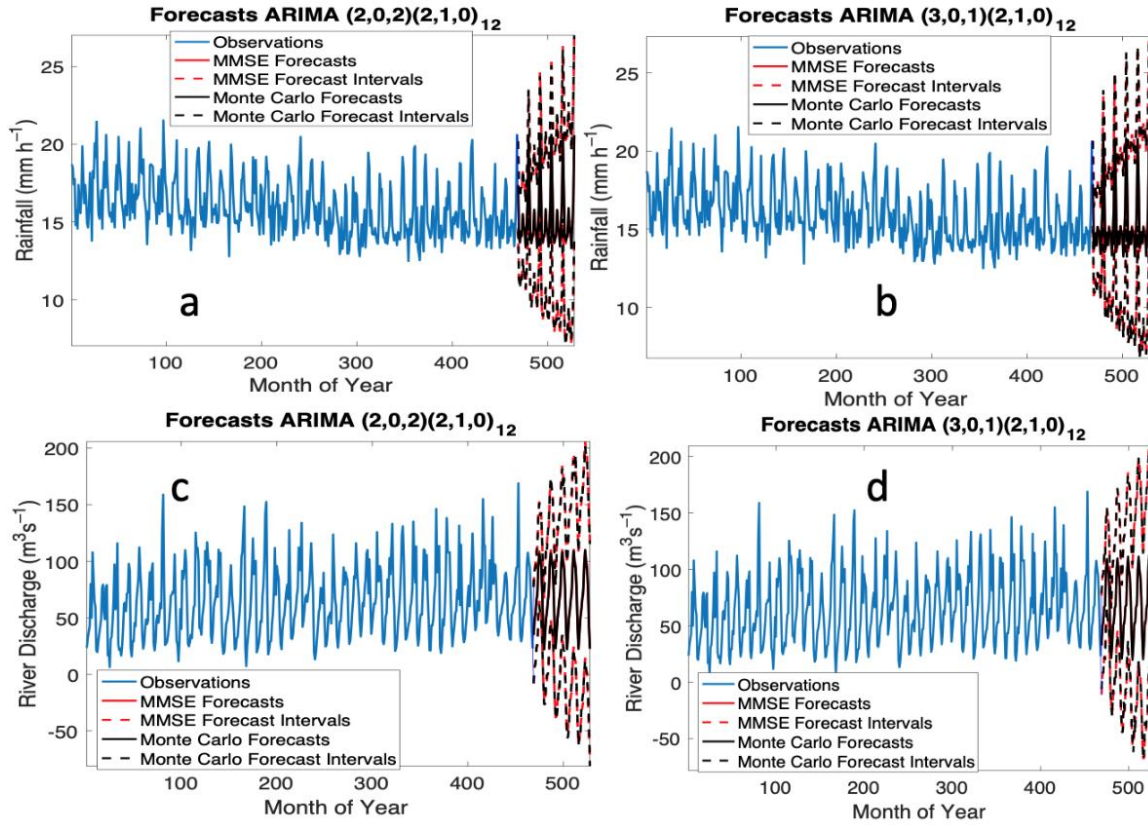


Figure A4- 1. Forecast for Adada River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

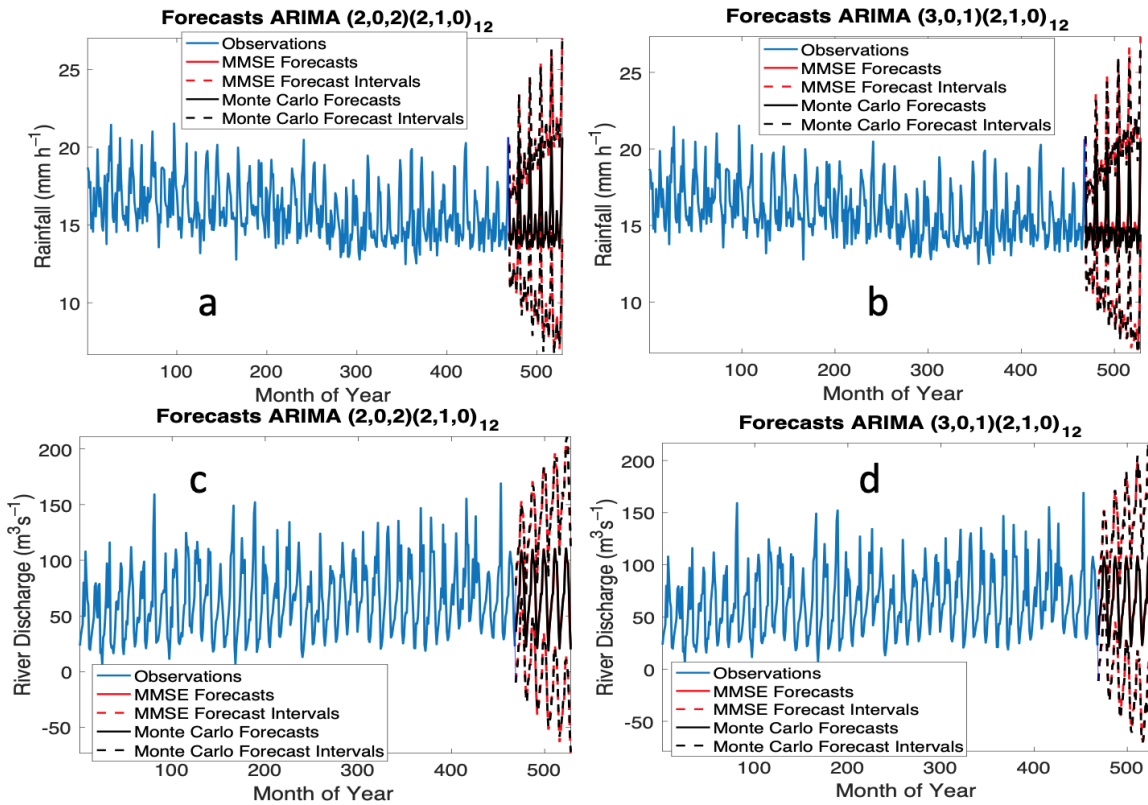


Figure A4-2. Forecast for Adada River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

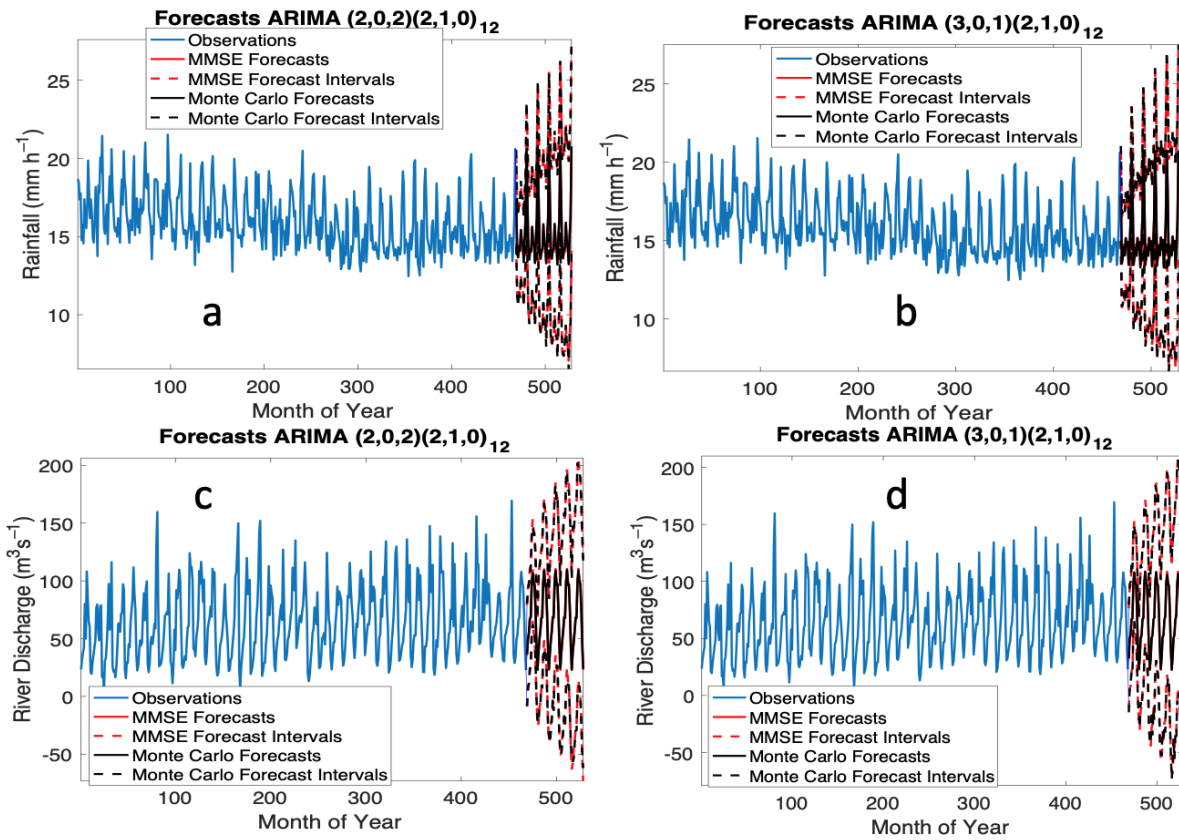


Figure A4-3. Forecast for Adada River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

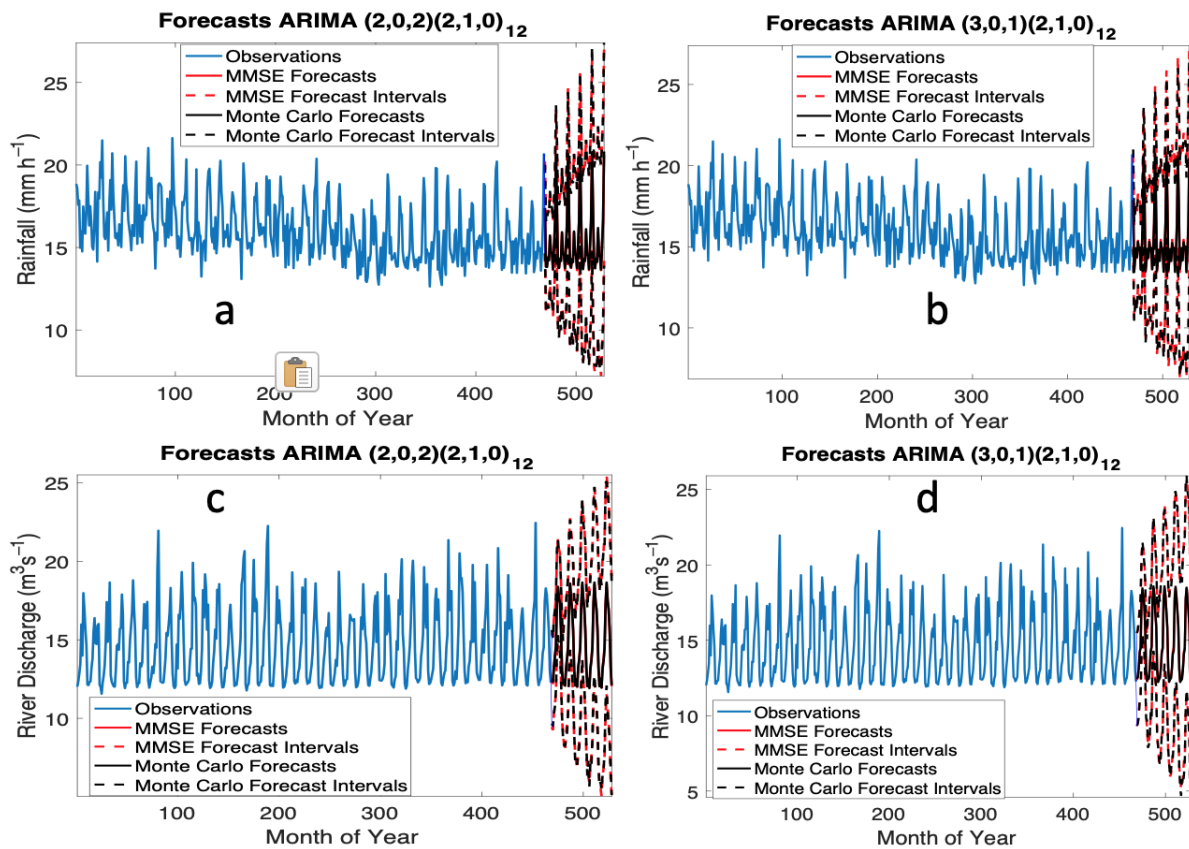


Figure A4-4. Forecast for Ajali River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

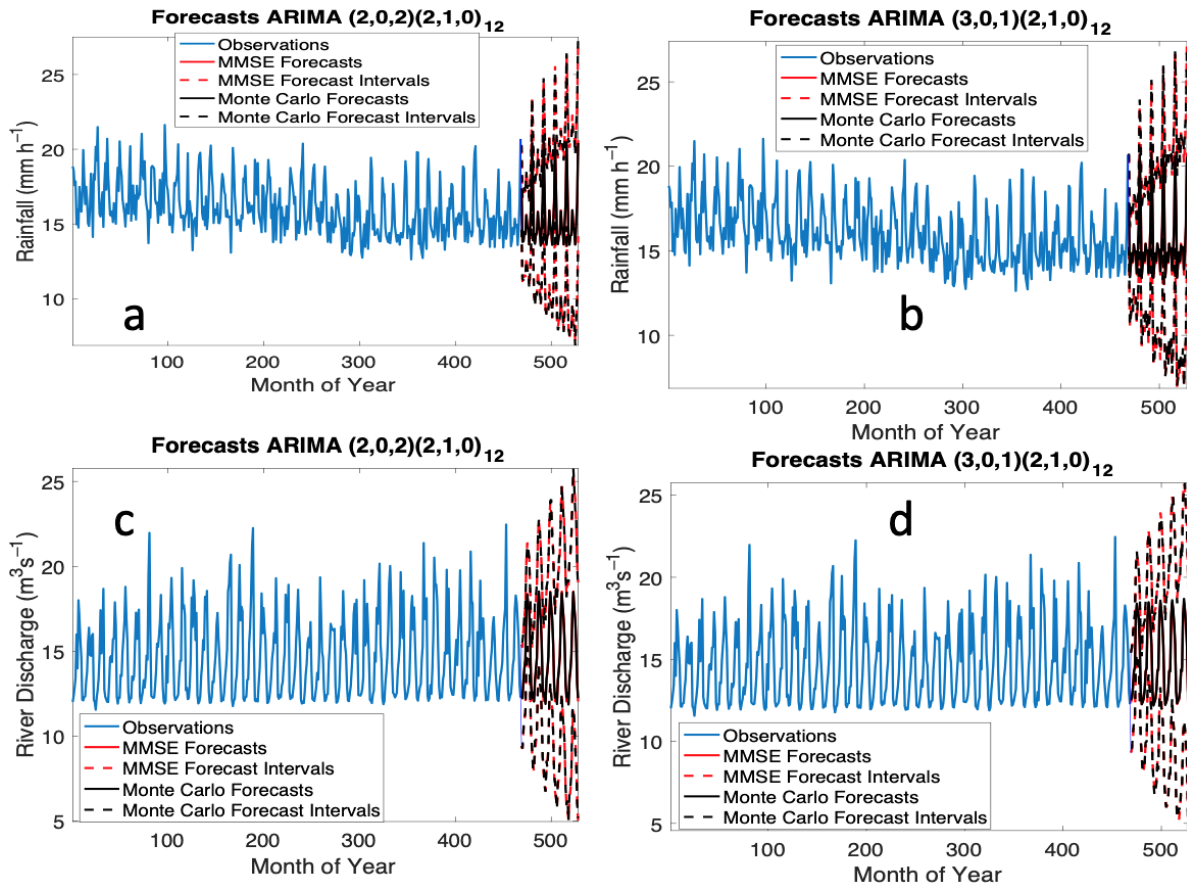


Figure A4-5. Forecast for Ajali River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

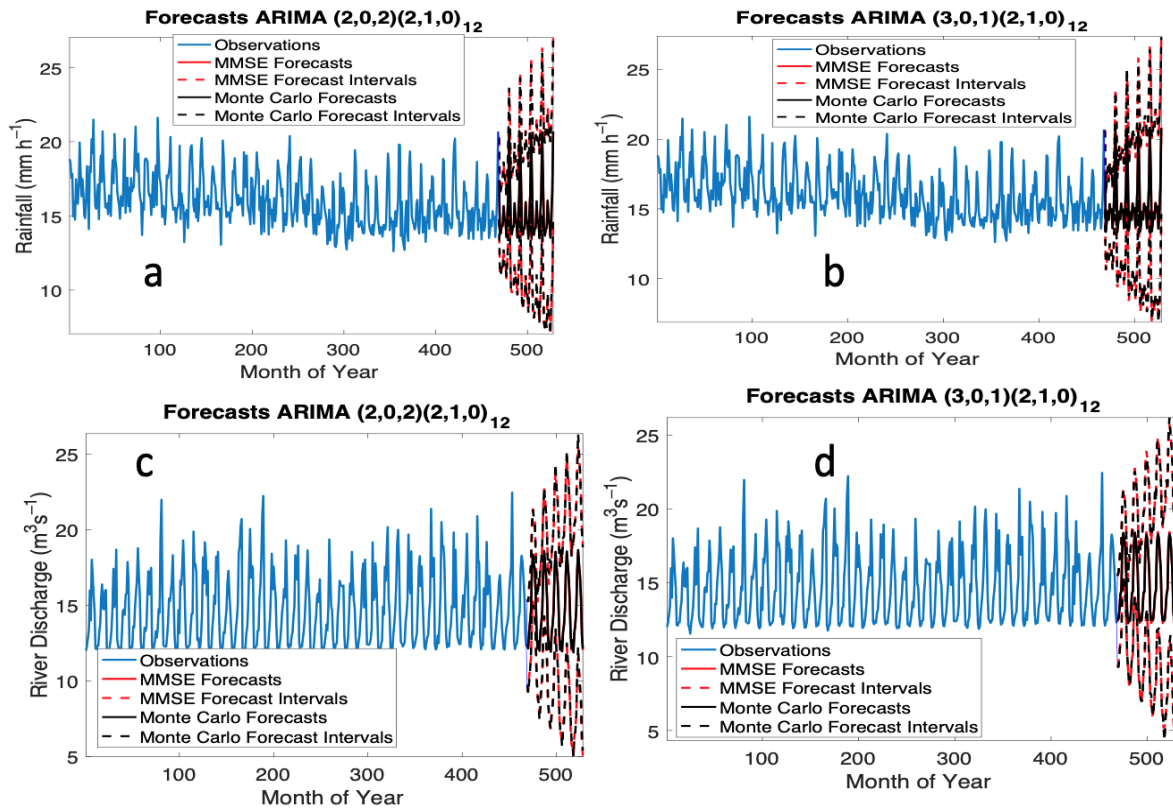


Figure A4-6. Forecast for Ajali River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

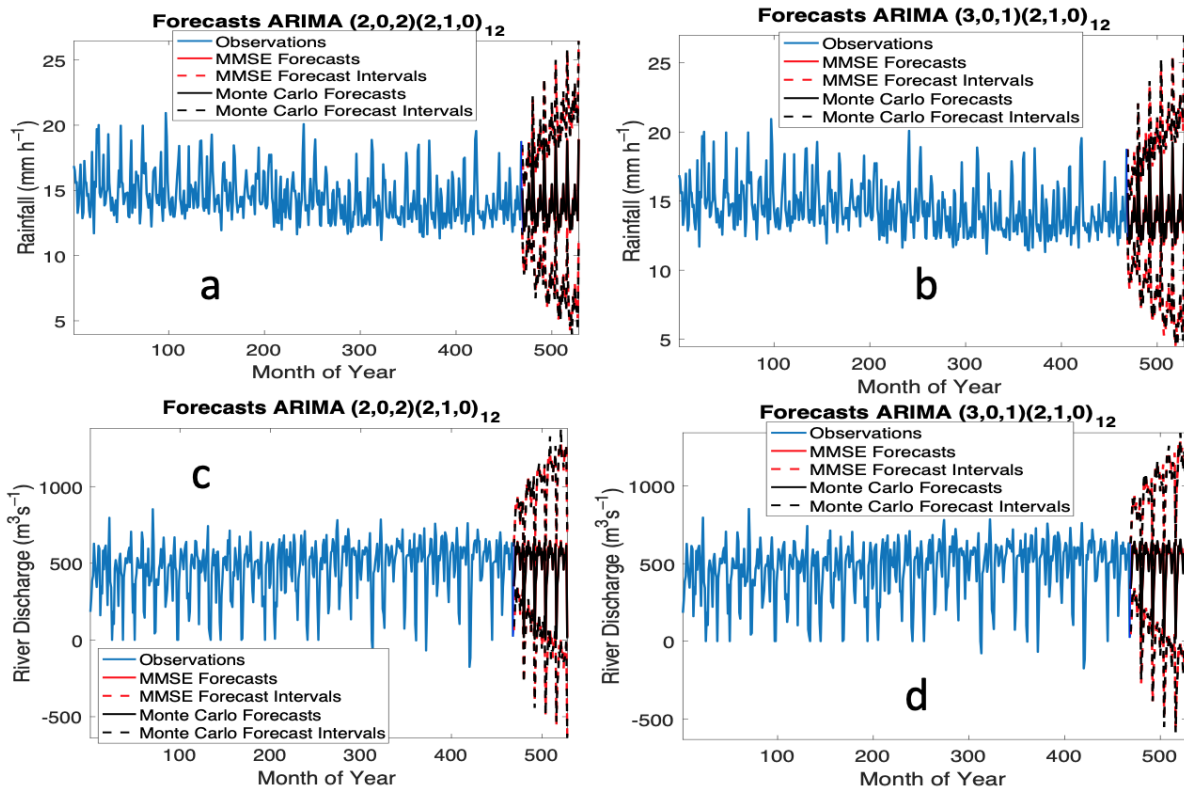


Figure A4-7. Forecast for Imo River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

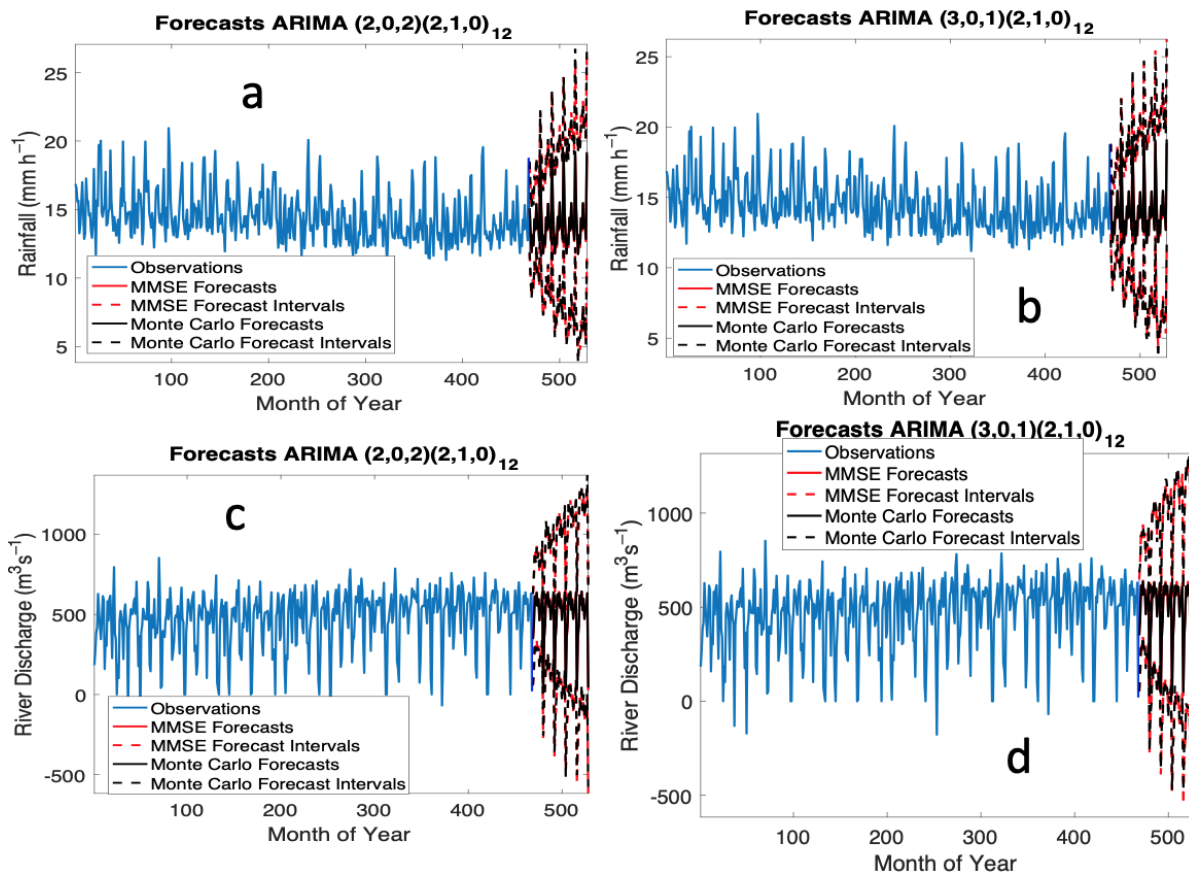


Figure A4-8. Forecast for Imo River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

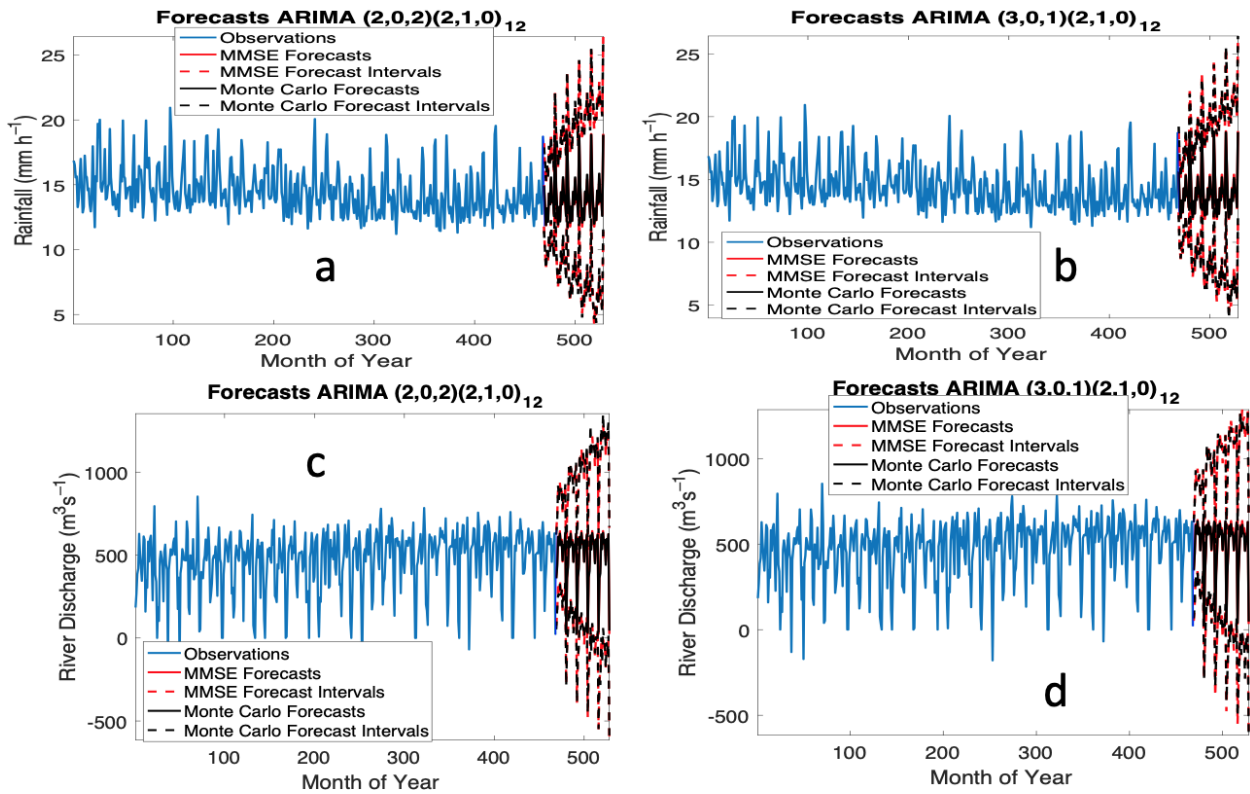


Figure A4-9. Forecast for Imo River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

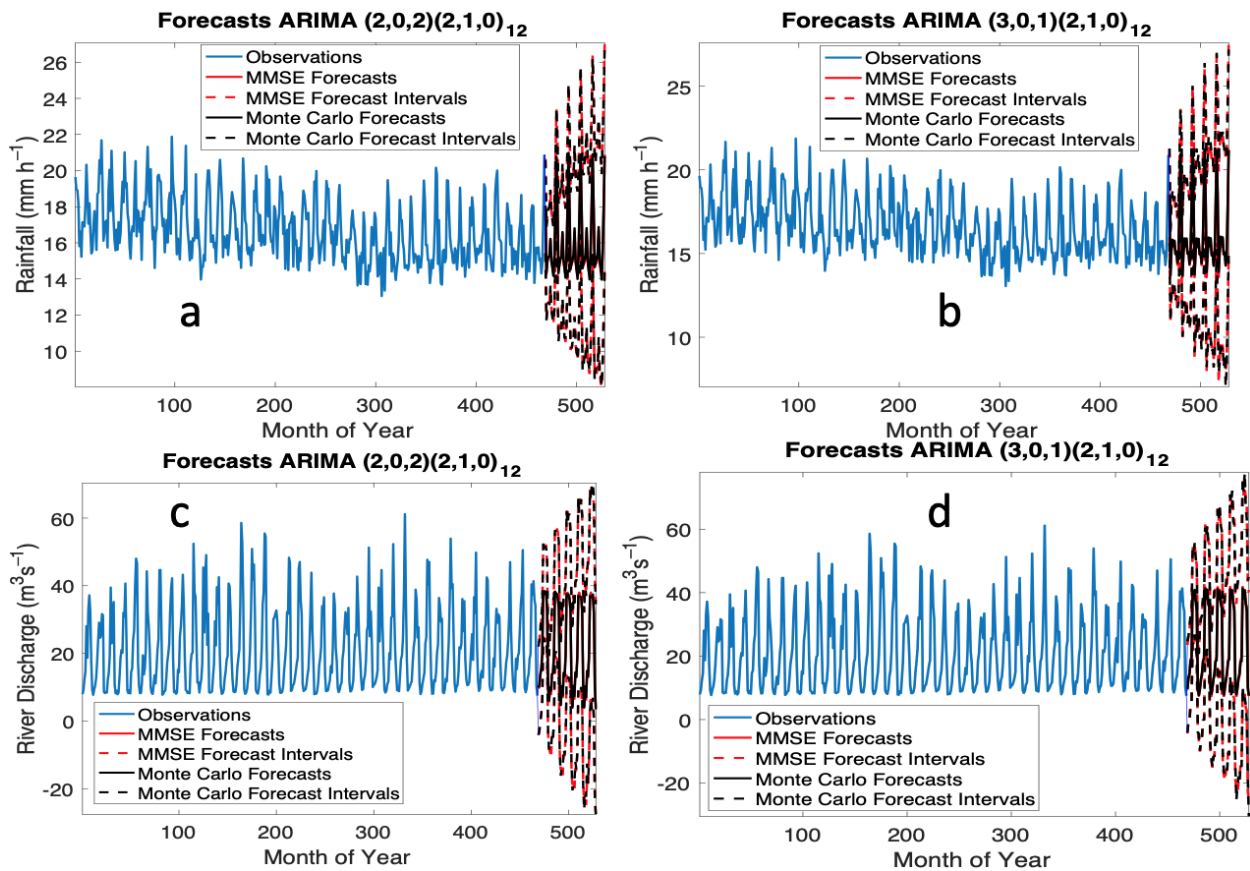


Figure A4-10. Forecast for Ivo River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

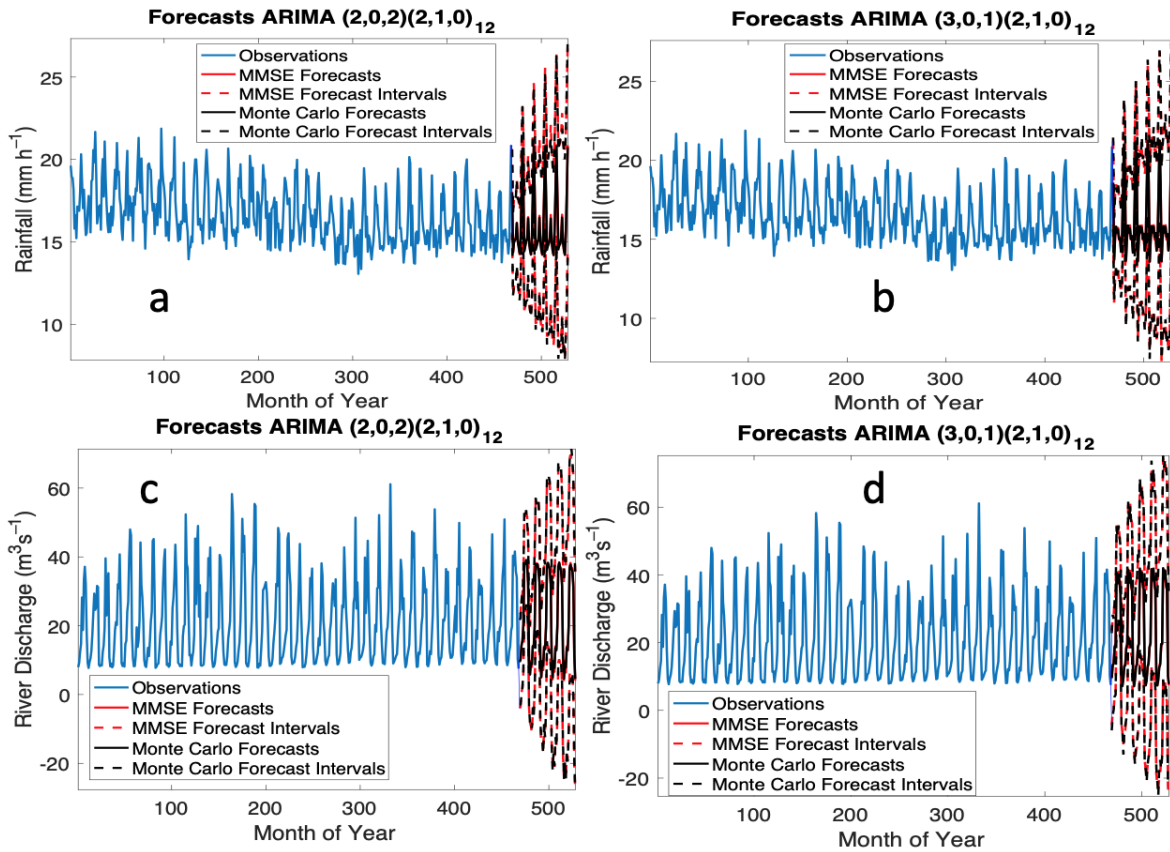


Figure A4-11. Forecast for Ivo River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

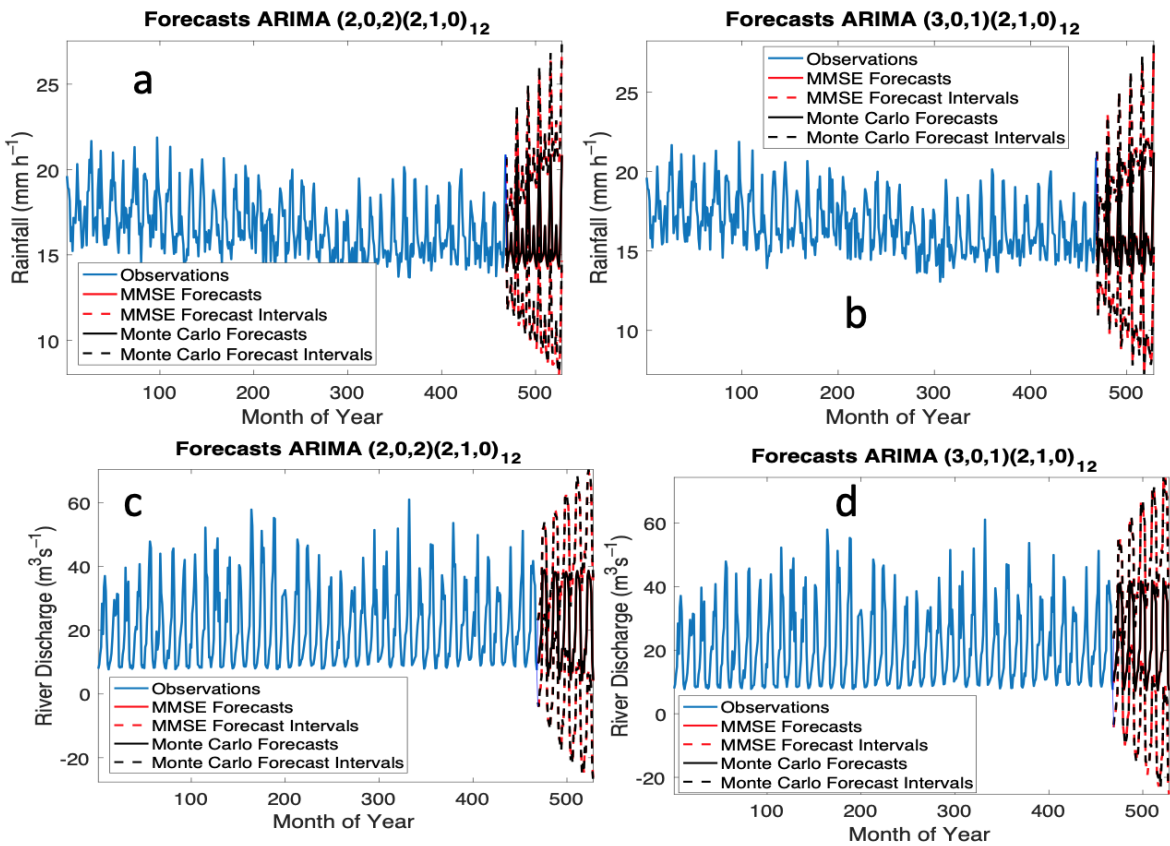


Figure A4-12. Forecast for Ivo River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

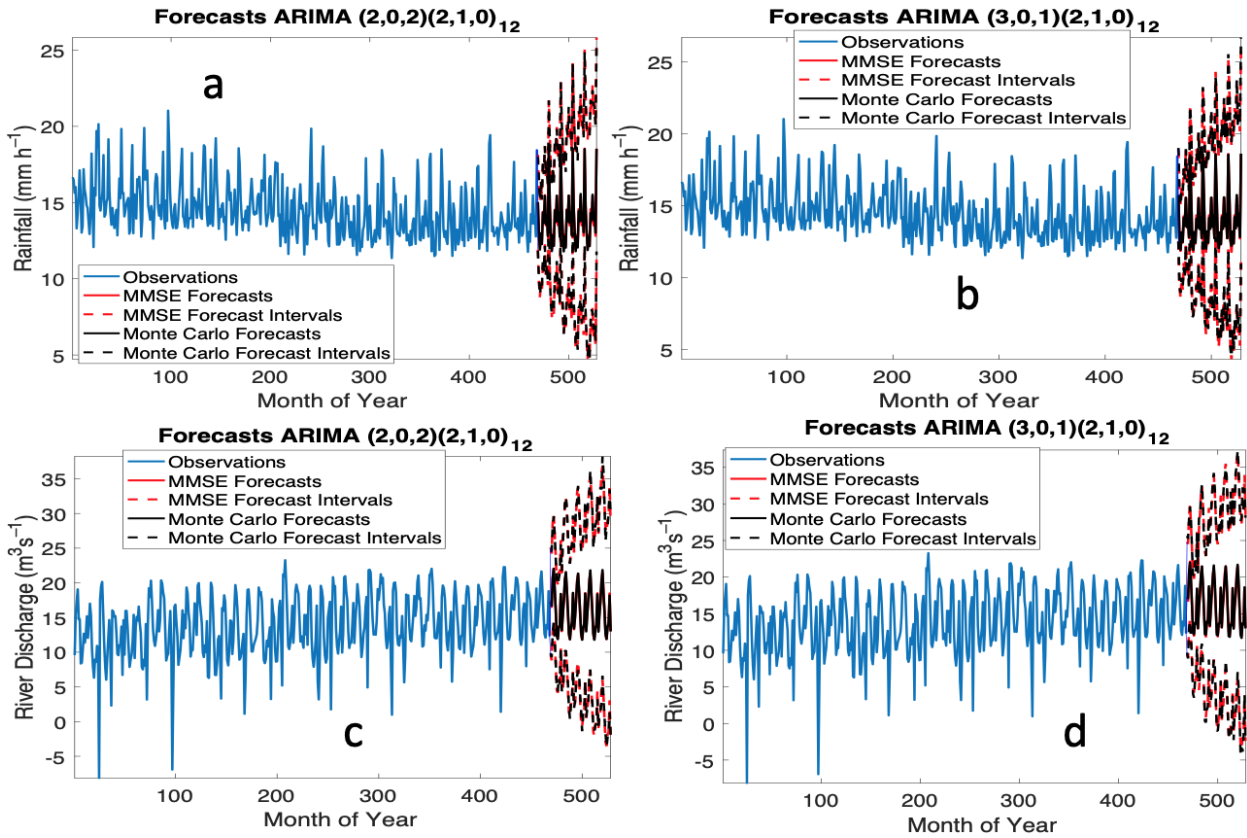


Figure A4-13. Forecast for Otanmiri River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

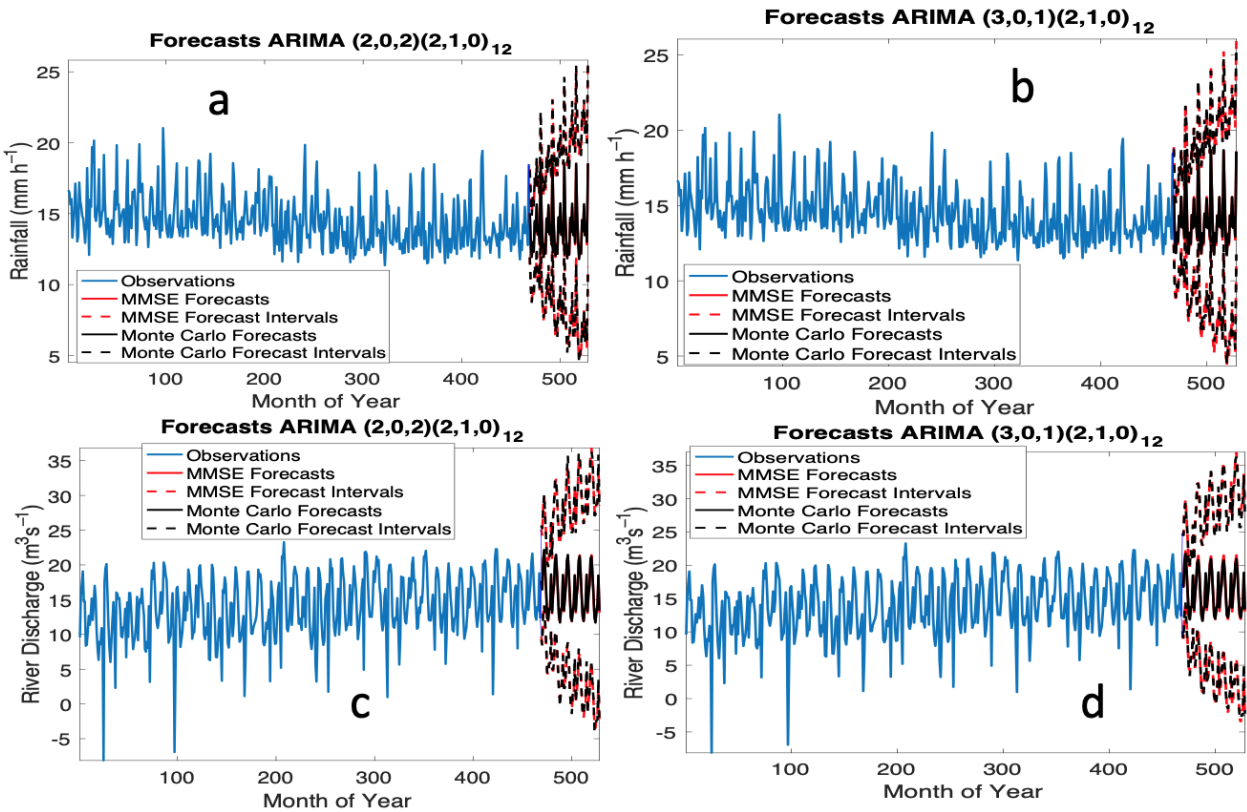


Figure A4-14. Forecast for Otanmiri River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

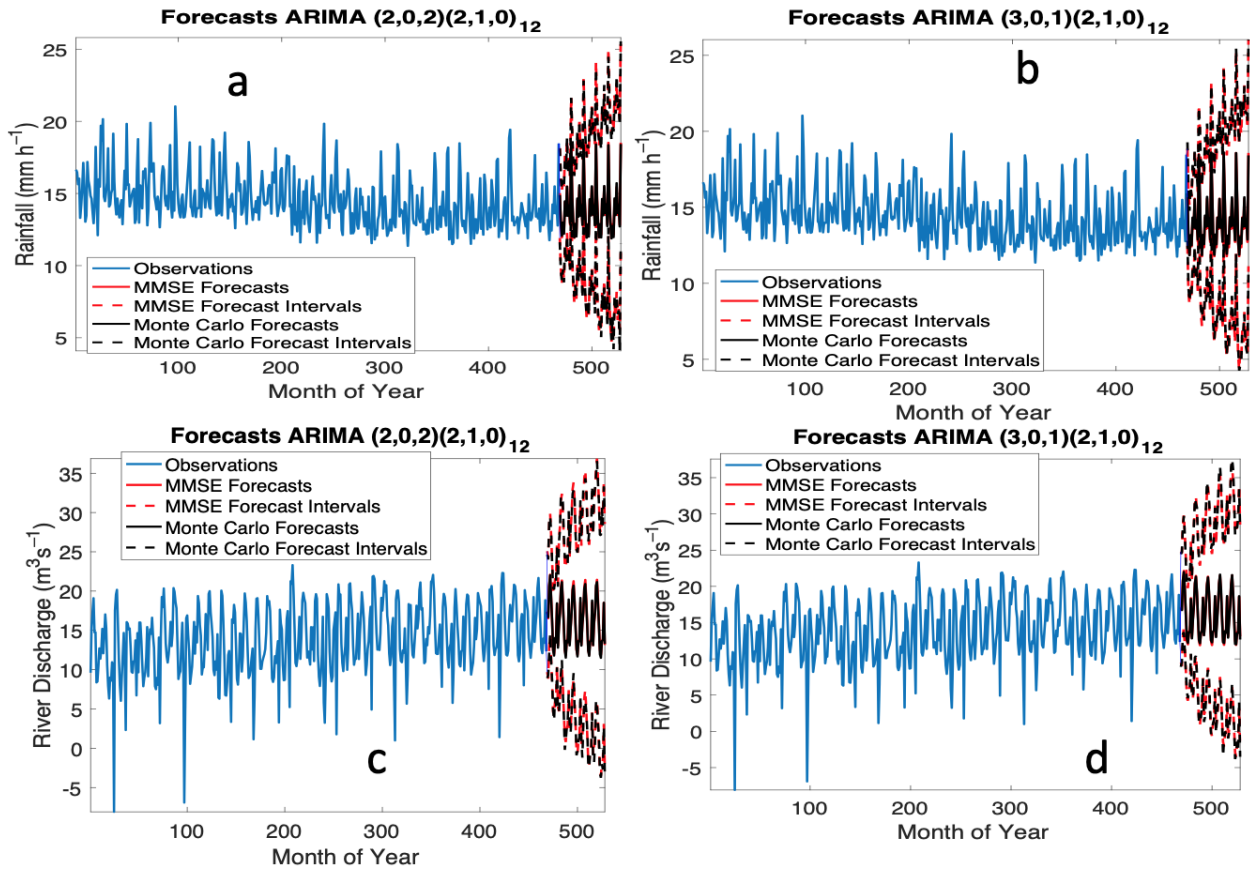


Figure A4-15. Forecast for Otanmiri River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

Appendix 1A: ADADA River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.077
 # Site longitude (positive means East);6.472
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 29m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	64.56	989.59	0.52	0.52	1.64	18.71	24.05	23.35	23.45
2/28/1981	24:00:00	66.51	988.34	0.76	0.76	15.46	18.47	25.55	25.05	32.15
3/31/1981	24:00:00	77.13	988.55	2.82	2.82	48.47	17.40	26.32	26.26	37.80
4/30/1981	24:00:00	81.25	987.95	2.71	2.71	79.30	17.78	26.63	26.61	42.54
5/31/1981	24:00:00	85.43	989.23	2.39	2.39	223.35	14.79	25.47	25.33	79.86
6/30/1981	24:00:00	85.12	990.75	2.45	2.45	120.79	15.78	25.42	25.26	49.83
7/31/1981	24:00:00	87.41	991.23	3.02	3.02	352.75	14.56	24.02	23.83	107.87
8/31/1981	24:00:00	85.26	990.89	3.16	3.16	281.29	17.39	24.27	24.23	85.21
9/30/1981	24:00:00	86.34	990.87	2.65	2.65	199.68	16.42	24.41	24.33	64.85
10/31/1981	24:00:00	86.11	989.39	1.67	1.67	161.91	15.56	25.18	25.04	59.62
11/30/1981	24:00:00	78.12	989.26	0.79	0.79	22.32	16.74	23.92	23.41	20.84
12/31/1981	24:00:00	65.51	989.42	0.76	0.76	0.64	19.88	24.29	23.33	19.62
1/31/1982	24:00:00	70.63	988.65	0.34	0.34	17.59	17.94	25.20	24.81	29.01
2/28/1982	24:00:00	68.19	988.31	0.64	0.64	27.23	16.19	24.71	24.19	35.96
3/31/1982	24:00:00	76.98	987.87	1.71	1.71	74.96	17.39	25.66	25.46	42.12
4/30/1982	24:00:00	82.95	988.08	3.11	3.11	103.50	16.46	26.22	26.15	48.95
5/31/1982	24:00:00	85.26	989.22	2.29	2.29	208.95	14.92	25.60	25.44	76.25
6/30/1982	24:00:00	87.14	991.34	2.42	2.42	235.66	14.64	24.84	24.64	79.35
7/31/1982	24:00:00	86.75	991.2	3.06	3.06	170.38	15.95	23.95	23.81	55.79
8/31/1982	24:00:00	86.24	991.61	3.37	3.37	167.59	18.17	23.46	23.39	48.56
9/30/1982	24:00:00	86.89	990.67	2.69	2.69	247.42	16.48	24.42	24.30	77.01
10/31/1982	24:00:00	88.22	989.59	1.8	1.8	239.84	13.79	24.14	23.96	78.87
11/30/1982	24:00:00	77.05	989.42	1.04	1.04	18.05	18.29	23.84	23.31	16.65
12/31/1982	24:00:00	70.05	989.25	1.15	1.15	8.37	17.82	23.65	22.82	20.30
1/31/1983	24:00:00	62.43	990.65	4.19	4.19	0.01	20.07	19.86	19.18	6.27
2/28/1983	24:00:00	66.58	988.97	0.71	0.71	6.62	19.15	26.17	25.83	30.87
3/31/1983	24:00:00	64.44	988.24	1.14	1.14	17.50	21.45	26.78	26.65	33.26
4/30/1983	24:00:00	77.49	987.73	2.79	2.79	68.87	17.69	27.22	27.30	46.07
5/31/1983	24:00:00	85.74	988.49	2.71	2.71	167.62	15.49	25.85	25.71	64.30
6/30/1983	24:00:00	86.87	990.76	2.9	2.9	303.44	15.20	24.97	24.79	97.15
7/31/1983	24:00:00	88.03	991.23	3.42	3.42	184.51	16.16	23.87	23.65	57.38
8/31/1983	24:00:00	89.06	992.58	3.51	3.51	220.16	17.05	23.22	23.02	61.48
9/30/1983	24:00:00	88.16	991.05	2.47	2.47	384.41	14.56	24.07	23.90	115.92
10/31/1983	24:00:00	84.32	990.2	1.57	1.57	54.52	17.45	24.83	24.59	26.16
11/30/1983	24:00:00	78.04	990.62	0.94	0.94	21.12	18.89	25.29	25.01	21.27
12/31/1983	24:00:00	75.27	989.93	0.58	0.58	19.36	17.21	24.32	23.72	22.89
1/31/1984	24:00:00	58.59	989.32	1.77	1.77	0.12	20.61	22.50	21.15	16.54
2/28/1984	24:00:00	72.18	987.33	1	1	4.59	18.16	25.37	25.30	25.11
3/31/1984	24:00:00	80.83	987.05	2.9	2.9	69.96	16.84	26.08	26.15	40.88

4/30/1984	24:00:00	83.48	987.63	2.95	2.95	153.25	15.60	25.82	25.76	62.45
5/31/1984	24:00:00	84.76	988.27	2.53	2.53	164.95	15.33	25.40	25.30	63.31
6/30/1984	24:00:00	85.13	990.14	2.49	2.49	146.83	15.61	24.96	24.83	55.62
7/31/1984	24:00:00	85.63	990.18	2.75	2.75	212.03	15.00	24.20	24.07	71.37
8/31/1984	24:00:00	84.94	990.65	2.4	2.4	219.53	16.20	24.43	24.37	72.21
9/30/1984	24:00:00	85.9	989.87	2.3	2.3	313.26	15.84	24.51	24.43	97.70
10/31/1984	24:00:00	86.68	989.19	1.62	1.62	280.16	14.64	24.82	24.63	91.69
11/30/1984	24:00:00	78.39	989.23	0.8	0.8	28.13	17.50	24.66	24.14	23.09
12/31/1984	24:00:00	67.26	988.53	1.41	1.41	3.11	18.67	22.82	21.77	15.76
1/31/1985	24:00:00	73.52	988.05	1.06	1.06	23.31	17.06	25.02	24.74	29.60
2/28/1985	24:00:00	54.24	988.88	0.77	0.77	0.80	20.48	24.43	23.23	28.85
3/31/1985	24:00:00	75.78	987.27	2.74	2.74	86.90	18.59	25.96	25.95	45.40
4/30/1985	24:00:00	81.04	987.93	2.72	2.72	87.34	18.05	26.06	26.15	42.41
5/31/1985	24:00:00	84.26	988.84	3.25	3.25	175.62	16.51	25.52	25.37	64.18
6/30/1985	24:00:00	84.8	991.61	2.93	2.93	224.45	15.93	24.53	24.41	74.57
7/31/1985	24:00:00	85.93	991.52	2.93	2.93	273.51	15.51	23.63	23.53	84.39
8/31/1985	24:00:00	86.56	990.89	2.94	2.94	367.05	14.61	23.89	23.78	112.17
9/30/1985	24:00:00	85.59	990.04	2.51	2.51	286.52	16.07	24.22	24.20	89.31
10/31/1985	24:00:00	83.9	989.11	0.74	0.74	213.91	15.68	24.96	24.77	74.43
11/30/1985	24:00:00	79.89	988.79	1.04	1.04	46.03	15.43	25.59	25.32	35.74
12/31/1985	24:00:00	65.25	988.59	0.82	0.82	2.75	18.37	23.81	22.94	22.52
1/31/1986	24:00:00	64.29	989.12	0.46	0.46	5.61	20.16	25.06	24.87	26.59
2/28/1986	24:00:00	74.89	988.27	3.06	3.06	28.13	15.12	25.97	26.25	39.65
3/31/1986	24:00:00	77	988.65	3.32	3.32	89.89	17.25	25.88	26.08	48.61
4/30/1986	24:00:00	79.68	987.53	3.42	3.42	75.53	17.47	26.64	26.74	44.22
5/31/1986	24:00:00	83.05	989.23	2.64	2.64	97.00	15.60	25.74	25.58	47.06
6/30/1986	24:00:00	83.24	990.55	3.08	3.08	206.99	16.78	25.19	25.15	72.04
7/31/1986	24:00:00	85.24	992.4	3.44	3.44	287.82	15.22	23.79	23.69	90.26
8/31/1986	24:00:00	84.18	991.05	2.92	2.92	210.38	17.40	23.92	23.90	65.81
9/30/1986	24:00:00	84.59	991.07	2.29	2.29	296.73	16.47	24.31	24.26	92.31
10/31/1986	24:00:00	83.75	990.18	0.85	0.85	308.29	16.65	25.00	24.92	98.21
11/30/1986	24:00:00	76.94	988.91	0.31	0.31	29.47	16.80	24.94	24.54	27.90
12/31/1986	24:00:00	61.4	990.36	1.91	1.91	2.90	19.20	22.87	22.07	20.99
1/31/1987	24:00:00	58.89	990.05	0.38	0.38	1.76	21.02	25.25	24.93	28.98
2/28/1987	24:00:00	68.44	988.97	2.56	2.56	32.35	18.20	27.50	28.37	47.01
3/31/1987	24:00:00	69.73	987.94	2.46	2.46	65.16	18.08	27.08	27.45	51.87
4/30/1987	24:00:00	70.68	988.43	2.74	2.74	37.73	19.04	28.01	28.60	45.43
5/31/1987	24:00:00	77.47	988.4	3.14	3.14	85.09	16.59	26.94	27.13	52.40
6/30/1987	24:00:00	84.03	991.19	2.84	2.84	168.09	16.17	25.41	25.34	62.97
7/31/1987	24:00:00	84.6	990.07	2.67	2.67	151.53	15.54	25.14	25.06	58.41
8/31/1987	24:00:00	87.41	990.14	2.89	2.89	417.89	13.56	24.52	24.30	129.66
9/30/1987	24:00:00	86.6	990.27	2.52	2.52	533.48	15.69	25.06	24.94	158.84
10/31/1987	24:00:00	86.12	989.44	1.76	1.76	219.41	15.17	25.34	25.16	76.58
11/30/1987	24:00:00	75.6	989.2	0.3	0.3	21.35	18.67	25.90	25.42	25.89
12/31/1987	24:00:00	65.49	989.82	0.55	0.55	11.74	18.72	24.88	23.72	27.06
1/31/1988	24:00:00	67.84	989.1	0.15	0.15	9.19	18.64	25.46	25.02	28.57
2/28/1988	24:00:00	68.43	987.17	1.03	1.03	8.86	18.55	26.80	26.79	34.50
3/31/1988	24:00:00	79.23	988.31	2.8	2.8	57.86	16.60	26.94	26.94	42.76
4/30/1988	24:00:00	80.69	987.69	3.27	3.27	104.31	16.25	26.84	26.77	54.21
5/31/1988	24:00:00	84.01	989.2	2.77	2.77	180.82	16.22	26.29	26.19	69.54

6/30/1988	24:00:00	85.62	990.24	2.7	2.7	192.99	14.88	25.18	25.05	70.22
7/31/1988	24:00:00	86.48	991.3	3.41	3.41	232.21	16.06	24.13	23.98	73.18
8/31/1988	24:00:00	86.13	990.34	3.64	3.64	242.28	17.95	24.15	24.03	71.85
9/30/1988	24:00:00	87.16	989.89	2.74	2.74	346.98	15.50	24.51	24.33	106.14
10/31/1988	24:00:00	85.04	988.89	1.15	1.15	170.46	16.54	25.40	25.25	61.36
11/30/1988	24:00:00	75.36	989.46	0.41	0.41	40.92	18.39	25.43	24.81	29.89
12/31/1988	24:00:00	74.76	988.79	0.65	0.65	17.98	15.66	24.21	23.59	26.28
1/31/1989	24:00:00	56.63	990.37	3.07	3.07	0.01	21.53	21.14	19.92	11.50
2/28/1989	24:00:00	55.8	989.49	1.45	1.45	1.16	19.36	23.72	22.65	27.92
3/31/1989	24:00:00	78.47	987.49	2.98	2.98	130.10	17.56	26.13	26.20	57.84
4/30/1989	24:00:00	81.49	987.31	3.3	3.3	67.97	17.17	26.46	26.43	40.10
5/31/1989	24:00:00	84.5	989.57	2.74	2.74	271.93	16.20	25.70	25.63	91.57
6/30/1989	24:00:00	86.17	990.81	2.66	2.66	249.30	14.71	24.91	24.78	84.29
7/31/1989	24:00:00	86.95	991.48	3.05	3.05	299.91	15.51	24.17	24.00	92.38
8/31/1989	24:00:00	87.52	990.85	3.14	3.14	365.69	15.34	24.12	23.94	109.80
9/30/1989	24:00:00	87.87	989.35	2.3	2.3	317.83	14.18	24.32	24.14	100.04
10/31/1989	24:00:00	86.13	989.8	1.66	1.66	170.59	15.30	24.83	24.62	61.04
11/30/1989	24:00:00	76.64	988.65	0.32	0.32	27.09	17.54	25.38	24.83	26.99
12/31/1989	24:00:00	69.02	989.58	1.03	1.03	10.64	17.45	24.09	23.34	24.67
1/31/1990	24:00:00	69.18	988.52	0.46	0.46	12.17	17.84	25.26	24.64	28.76
2/28/1990	24:00:00	61.41	989.01	0.2	0.2	8.03	18.34	25.62	24.91	34.98
3/31/1990	24:00:00	63.82	988.71	0.65	0.65	7.97	20.26	26.45	25.95	31.79
4/30/1990	24:00:00	81.57	987.79	3.42	3.42	90.01	16.64	26.75	26.66	48.18
5/31/1990	24:00:00	84.23	989.47	2.79	2.79	146.69	15.79	25.90	25.80	59.68
6/30/1990	24:00:00	84.29	990.93	3.05	3.05	150.30	15.18	25.56	25.47	60.83
7/31/1990	24:00:00	85.73	991.1	3.62	3.62	412.53	15.41	24.41	24.28	125.28
8/31/1990	24:00:00	83.92	991.49	3.15	3.15	346.30	15.43	24.61	24.58	110.09
9/30/1990	24:00:00	84.53	990.31	2.3	2.3	340.48	14.27	24.92	24.90	111.88
10/31/1990	24:00:00	83.46	989.62	1.64	1.64	294.70	15.16	25.35	25.25	99.73
11/30/1990	24:00:00	79.05	988.9	1.4	1.4	54.26	15.42	25.91	25.89	40.75
12/31/1990	24:00:00	75.94	988.54	1.17	1.17	53.11	16.00	25.77	25.62	41.10
1/31/1991	24:00:00	56.85	989.14	0.96	0.96	1.38	19.70	25.34	25.20	34.94
2/28/1991	24:00:00	69.53	988.4	2.64	2.64	23.50	14.83	27.58	28.16	51.16
3/31/1991	24:00:00	69.39	987.05	2.69	2.69	55.07	16.47	28.06	28.65	57.71
4/30/1991	24:00:00	79.69	987.95	3.28	3.28	145.59	15.82	26.65	26.72	67.03
5/31/1991	24:00:00	82.38	988.75	2.57	2.57	316.91	15.67	26.21	26.19	109.08
6/30/1991	24:00:00	83.81	990.34	2.79	2.79	262.21	13.18	25.66	25.53	96.56
7/31/1991	24:00:00	86.72	991.45	3.23	3.23	380.04	14.99	24.48	24.36	116.82
8/31/1991	24:00:00	85.33	991.82	3.55	3.55	329.59	15.31	24.24	24.16	103.00
9/30/1991	24:00:00	84.69	990.84	2.29	2.29	232.37	15.19	25.07	25.05	80.88
10/31/1991	24:00:00	85.02	989.82	2.22	2.22	303.88	14.01	24.56	24.44	100.49
11/30/1991	24:00:00	76.46	989.16	0.36	0.36	34.44	16.21	25.66	25.32	34.03
12/31/1991	24:00:00	59.56	989.53	1.96	1.96	0.60	18.58	23.79	23.17	27.64
1/31/1992	24:00:00	50.66	989.3	1.79	1.79	0.95	19.55	24.36	24.30	37.71
2/28/1992	24:00:00	39.14	989.14	1.77	1.77	1.46	19.77	26.93	27.19	59.03
3/31/1992	24:00:00	64.6	987.23	2.21	2.21	71.90	18.05	28.32	28.98	64.20
4/30/1992	24:00:00	77.31	988.02	2.92	2.92	128.08	15.61	27.36	27.59	68.22
5/31/1992	24:00:00	83.9	988.97	2.73	2.73	205.07	15.11	26.11	26.01	78.17
6/30/1992	24:00:00	84.94	990.76	3.3	3.3	191.51	15.99	25.28	25.17	68.28
7/31/1992	24:00:00	87.37	992.08	3.47	3.47	363.07	14.70	23.96	23.77	110.17

8/31/1992	24:00:00	85.97	992.26	3.79	3.79	329.15	16.86	23.80	23.69	96.80
9/30/1992	24:00:00	86.15	990.02	2.45	2.45	343.47	14.67	24.33	24.16	107.51
10/31/1992	24:00:00	86.46	989.99	2.41	2.41	152.82	15.23	24.83	24.68	56.32
11/30/1992	24:00:00	77.54	989.24	0.34	0.34	42.39	17.07	24.09	23.65	26.83
12/31/1992	24:00:00	65.92	989.5	1.33	1.33	0.72	19.28	23.52	22.62	17.99
1/31/1993	24:00:00	58.67	990.24	2.02	2.02	0.41	20.17	22.82	21.87	19.99
2/28/1993	24:00:00	66.3	988.64	0.76	0.76	14.09	18.29	25.33	24.86	31.69
3/31/1993	24:00:00	74.83	988.75	2.31	2.31	69.23	17.44	26.19	26.06	44.78
4/30/1993	24:00:00	81.58	987.72	3.12	3.12	75.95	14.97	26.51	26.40	47.40
5/31/1993	24:00:00	84.72	988.36	3.12	3.12	119.65	15.86	26.38	26.26	53.53
6/30/1993	24:00:00	85.85	990.99	2.74	2.74	167.86	15.47	25.33	25.21	62.39
7/31/1993	24:00:00	86.9	991.33	3.56	3.56	255.14	15.69	24.25	24.06	80.20
8/31/1993	24:00:00	86.82	991.53	3.37	3.37	320.49	16.14	24.13	24.00	96.55
9/30/1993	24:00:00	86.83	990.39	2.07	2.07	207.36	14.95	24.60	24.49	70.59
10/31/1993	24:00:00	86.39	989.61	1.78	1.78	157.37	14.92	25.24	25.03	59.70
11/30/1993	24:00:00	84.39	988.13	1.74	1.74	94.50	15.12	25.43	25.27	45.03
12/31/1993	24:00:00	71.8	988.93	1.07	1.07	12.46	17.28	23.89	23.04	21.86
1/31/1994	24:00:00	71.19	988.44	0.23	0.23	12.59	18.32	24.43	23.88	22.83
2/28/1994	24:00:00	64.91	988.82	0.52	0.52	4.38	18.00	25.61	25.05	31.86
3/31/1994	24:00:00	80.99	987.87	2.8	2.8	37.42	17.21	26.70	26.68	33.13
4/30/1994	24:00:00	82.75	987.62	3.06	3.06	86.88	16.87	26.62	26.55	45.19
5/31/1994	24:00:00	85.14	989.3	2.54	2.54	127.74	15.41	25.85	25.69	54.23
6/30/1994	24:00:00	85.74	990.77	2.87	2.87	188.99	15.81	25.23	25.08	66.93
7/31/1994	24:00:00	87.32	991.47	3.27	3.27	340.05	15.37	24.28	24.08	103.55
8/31/1994	24:00:00	87.75	990.88	3.53	3.53	363.90	15.47	24.17	23.96	108.91
9/30/1994	24:00:00	88.04	990.65	3.01	3.01	434.09	15.44	24.43	24.23	128.63
10/31/1994	24:00:00	87.57	989.18	1.54	1.54	480.04	12.79	24.68	24.39	148.45
11/30/1994	24:00:00	77.74	989.71	0.78	0.78	27.20	16.64	24.20	23.65	23.70
12/31/1994	24:00:00	68.55	990.38	2.65	2.65	0.05	19.99	21.74	20.92	7.18
1/31/1995	24:00:00	62.7	990.07	1.4	1.4	4.64	18.90	23.97	23.12	24.92
2/28/1995	24:00:00	67.59	989.84	0.51	0.51	13.36	16.99	25.48	25.22	34.54
3/31/1995	24:00:00	80.66	987.7	2.54	2.54	71.71	15.88	26.52	26.36	44.80
4/30/1995	24:00:00	83.2	986.77	2.77	2.77	94.22	14.94	26.63	26.41	50.95
5/31/1995	24:00:00	85.13	988.57	2.12	2.12	172.26	14.91	26.07	25.94	68.35
6/30/1995	24:00:00	86.49	990.27	2.61	2.61	274.89	15.11	25.42	25.26	91.76
7/31/1995	24:00:00	88.44	989.9	3.2	3.2	401.08	14.96	24.37	24.14	120.19
8/31/1995	24:00:00	89.11	990.31	2.98	2.98	279.90	14.36	24.42	24.18	88.43
9/30/1995	24:00:00	88.16	990.57	2.77	2.77	307.20	15.49	24.85	24.63	95.66
10/31/1995	24:00:00	86.71	988.99	2	2	311.49	15.08	25.16	24.96	100.35
11/30/1995	24:00:00	77.54	989.3	1.41	1.41	20.60	17.71	24.11	23.60	19.35
12/31/1995	24:00:00	70.23	989.88	1.08	1.08	10.82	17.82	24.08	23.23	22.34
1/31/1996	24:00:00	66.66	987.94	0.11	0.11	9.75	18.81	25.12	24.25	26.89
2/28/1996	24:00:00	75.41	987.27	1.84	1.84	21.95	17.01	26.69	26.76	34.93
3/31/1996	24:00:00	80.74	987.28	2.65	2.65	81.32	16.09	26.48	26.44	47.01
4/30/1996	24:00:00	83.22	987.28	2.68	2.68	82.50	15.67	26.54	26.44	46.01
5/31/1996	24:00:00	84.86	988.75	2.58	2.58	181.60	16.29	26.26	26.11	68.49
6/30/1996	24:00:00	86.36	990.39	2.81	2.81	232.61	15.60	25.26	25.10	78.69
7/31/1996	24:00:00	86.77	991.74	3.31	3.31	336.97	16.14	24.21	24.02	101.16
8/31/1996	24:00:00	87.46	990.96	3.35	3.35	493.13	16.18	24.22	24.03	142.60
9/30/1996	24:00:00	87.7	989.97	2.94	2.94	521.70	15.65	24.47	24.30	152.35

10/31/1996	24:00:00	86.53	989.54	1.5	1.5	201.58	14.76	24.60	24.37	69.38
11/30/1996	24:00:00	71.53	988.89	1.32	1.32	10.02	19.17	23.94	23.26	17.61
12/31/1996	24:00:00	66.08	989.31	0.72	0.72	2.00	18.56	24.24	23.18	22.14
1/31/1997	24:00:00	70.42	988.9	0.17	0.17	16.24	16.83	24.70	24.12	29.07
2/28/1997	24:00:00	54.03	989.54	1.61	1.61	0.48	19.00	23.56	22.35	29.30
3/31/1997	24:00:00	77.54	987.91	1.76	1.76	65.36	15.73	26.19	25.98	45.00
4/30/1997	24:00:00	83.37	989.1	2.88	2.88	119.56	15.37	25.91	25.77	54.13
5/31/1997	24:00:00	85.94	989.98	2.3	2.3	205.56	15.02	25.76	25.58	75.00
6/30/1997	24:00:00	87.5	990.12	2.7	2.7	347.94	14.18	25.11	24.98	111.67
7/31/1997	24:00:00	86.65	991.85	3.81	3.81	231.20	17.42	24.33	24.15	70.17
8/31/1997	24:00:00	86.24	991.82	3.23	3.23	320.55	17.21	24.44	24.34	95.79
9/30/1997	24:00:00	85.9	990.32	2.17	2.17	263.23	15.14	25.25	25.13	88.55
10/31/1997	24:00:00	84.89	988.99	1.52	1.52	226.14	14.23	25.97	25.80	84.23
11/30/1997	24:00:00	78.63	988.81	0.56	0.56	89.62	16.68	26.15	25.84	47.66
12/31/1997	24:00:00	65.56	990	1.08	1.08	2.13	17.30	24.43	23.58	27.06
1/31/1998	24:00:00	62.94	989.04	1.68	1.68	1.71	19.21	23.61	22.84	22.05
2/28/1998	24:00:00	63.43	989.72	0.55	0.55	3.20	18.08	27.08	26.96	39.61
3/31/1998	24:00:00	62.37	987.59	1.26	1.26	25.81	18.28	27.73	27.57	48.65
4/30/1998	24:00:00	83.05	987.32	2.92	2.92	85.71	15.29	27.80	27.65	52.61
5/31/1998	24:00:00	83.89	989.32	2.65	2.65	145.46	16.03	27.20	27.04	63.83
6/30/1998	24:00:00	85.64	991.07	2.31	2.31	181.96	13.54	25.88	25.69	72.91
7/31/1998	24:00:00	85.48	991.07	3.54	3.54	238.08	15.83	24.91	24.82	79.40
8/31/1998	24:00:00	85.81	990.49	3.49	3.49	206.54	16.92	24.49	24.38	66.30
9/30/1998	24:00:00	86.31	990.01	2.56	2.56	401.26	13.80	24.99	24.81	127.52
10/31/1998	24:00:00	83.6	989.8	1.74	1.74	232.73	15.78	25.66	25.46	82.27
11/30/1998	24:00:00	77.73	988.36	0.18	0.18	26.83	16.04	25.94	25.57	32.11
12/31/1998	24:00:00	70.2	989.12	0.71	0.71	20.45	16.41	24.58	24.03	31.11
1/31/1999	24:00:00	67.81	988.09	0.17	0.17	23.08	17.40	25.37	25.19	35.74
2/28/1999	24:00:00	71.93	987.53	1.98	1.98	28.91	13.77	26.88	27.08	49.06
3/31/1999	24:00:00	73.61	986	3.28	3.28	53.45	16.10	27.79	28.12	52.38
4/30/1999	24:00:00	73.58	987.64	3.09	3.09	70.92	15.21	27.68	27.94	58.65
5/31/1999	24:00:00	74.78	988.64	2.58	2.58	123.51	15.36	27.23	27.53	69.70
6/30/1999	24:00:00	79.63	989.59	2.32	2.32	171.51	14.15	26.15	26.15	75.96
7/31/1999	24:00:00	78.71	991.03	3.31	3.31	321.00	15.06	25.28	25.41	112.17
8/31/1999	24:00:00	76.5	990.75	3.29	3.29	264.61	16.25	25.53	25.81	97.58
9/30/1999	24:00:00	81.32	989.48	2.63	2.63	252.22	14.49	25.21	25.25	91.90
10/31/1999	24:00:00	82.43	989.53	2.14	2.14	418.74	15.18	25.26	25.18	133.93
11/30/1999	24:00:00	72.46	988.57	1.37	1.37	37.21	16.77	26.47	26.66	41.95
12/31/1999	24:00:00	50.97	988.31	0.95	0.95	1.09	18.64	26.22	26.50	47.59
1/31/2000	24:00:00	51.08	986.95	0.82	0.82	7.91	18.14	27.65	28.35	57.16
2/28/2000	24:00:00	38.48	988.3	0.98	0.98	1.92	17.89	27.58	28.26	67.92
3/31/2000	24:00:00	50.38	986.52	1.46	1.46	31.45	17.24	28.65	29.33	70.13
4/30/2000	24:00:00	69.99	986.48	3.59	3.59	73.98	16.29	28.40	28.98	64.00
5/31/2000	24:00:00	70.9	988.18	2.97	2.97	114.91	16.68	28.23	28.85	72.66
6/30/2000	24:00:00	86.76	990.58	2.43	2.43	220.84	13.83	25.01	24.80	78.27
7/31/2000	24:00:00	87.47	990.43	2.9	2.9	300.43	14.75	24.26	24.06	94.11
8/31/2000	24:00:00	86.91	991.12	3.12	3.12	383.85	15.12	24.15	23.98	115.97
9/30/2000	24:00:00	86.95	989.88	2.82	2.82	281.94	14.14	24.54	24.40	92.32
10/31/2000	24:00:00	86.24	989.89	1.51	1.51	200.32	14.70	25.05	24.83	71.20
11/30/2000	24:00:00	77.38	988.54	0.16	0.16	9.65	18.18	25.29	24.73	19.66

12/31/2000	24:00:00	70.35	990.05	1.46	1.46	5.90	18.87	22.73	21.82	13.13
1/31/2001	24:00:00	56.9	989.89	1.81	1.81	0.24	20.48	22.81	21.35	19.35
2/28/2001	24:00:00	63.81	988.37	0.61	0.61	6.14	16.27	24.11	23.19	30.85
3/31/2001	24:00:00	79.39	987.74	2.57	2.57	44.45	15.09	26.73	26.63	41.53
4/30/2001	24:00:00	82.89	987.61	2.77	2.77	100.44	14.28	26.71	26.51	54.89
5/31/2001	24:00:00	84.72	989.04	2.59	2.59	132.14	14.98	26.38	26.16	58.67
6/30/2001	24:00:00	85.75	990.77	2.92	2.92	217.51	15.05	25.22	25.06	76.38
7/31/2001	24:00:00	85.22	991.25	3.32	3.32	216.93	15.93	24.59	24.52	72.54
8/31/2001	24:00:00	84.14	992.17	3.5	3.5	186.44	17.01	24.53	24.47	62.54
9/30/2001	24:00:00	85.49	990.36	2.54	2.54	271.07	14.58	24.58	24.44	89.83
10/31/2001	24:00:00	82.85	989.85	1.18	1.18	113.92	15.87	25.49	25.30	50.04
11/30/2001	24:00:00	77.75	989.29	0.96	0.96	15.49	17.60	25.61	25.38	24.50
12/31/2001	24:00:00	68.1	988.86	0.65	0.65	3.91	18.86	25.28	24.83	25.70
1/31/2002	24:00:00	49.51	989.63	2.11	2.11	1.14	19.03	23.49	22.65	34.58
2/28/2002	24:00:00	59.15	988.6	1.12	1.12	21.34	16.48	26.44	26.62	50.98
3/31/2002	24:00:00	73.53	987.29	2.62	2.62	50.58	16.19	27.83	28.20	51.70
4/30/2002	24:00:00	82.66	986.38	3.11	3.11	102.11	15.10	26.92	26.85	54.78
5/31/2002	24:00:00	83.56	988.88	2.67	2.67	80.70	16.04	26.73	26.55	44.80
6/30/2002	24:00:00	85.24	991.03	2.98	2.98	173.68	14.29	25.42	25.24	67.58
7/31/2002	24:00:00	87.02	991.64	3.04	3.04	392.80	14.17	25.00	24.79	123.66
8/31/2002	24:00:00	85.47	991.25	2.87	2.87	295.13	16.24	24.76	24.69	93.27
9/30/2002	24:00:00	85.61	990.75	2.52	2.52	182.99	14.87	25.00	24.89	66.91
10/31/2002	24:00:00	84.18	989.6	1.44	1.44	156.81	15.31	25.23	25.04	60.73
11/30/2002	24:00:00	76.09	989.77	0.51	0.51	42.35	17.68	25.66	25.33	33.00
12/31/2002	24:00:00	65.85	990.33	0.87	0.87	3.81	18.88	24.30	23.63	23.44
1/31/2003	24:00:00	63.85	990.04	0.1	0.1	7.65	17.56	25.11	24.60	33.05
2/28/2003	24:00:00	71.64	988.01	1.68	1.68	30.56	15.04	27.04	27.11	46.94
3/31/2003	24:00:00	76	987.53	1.76	1.76	37.67	13.80	27.00	26.89	46.99
4/30/2003	24:00:00	82.03	988.05	2.83	2.83	129.34	15.08	26.96	26.87	62.85
5/31/2003	24:00:00	84.36	989.32	2.53	2.53	176.13	14.33	26.44	26.22	72.70
6/30/2003	24:00:00	84.7	990.22	2.59	2.59	263.79	13.44	25.40	25.29	94.57
7/31/2003	24:00:00	85.03	991.4	3.29	3.29	237.86	15.94	24.82	24.72	79.12
8/31/2003	24:00:00	83.83	991.2	3.41	3.41	269.19	15.58	25.02	24.94	90.44
9/30/2003	24:00:00	85.25	990.87	1.99	1.99	247.61	14.24	25.11	24.94	86.43
10/31/2003	24:00:00	85.59	988.91	1.7	1.7	230.86	14.63	25.78	25.60	83.13
11/30/2003	24:00:00	80.64	988.47	1.01	1.01	70.48	14.86	25.74	25.33	43.15
12/31/2003	24:00:00	66.23	989.23	0.49	0.49	3.66	17.06	24.32	23.39	26.72
1/31/2004	24:00:00	68.25	988.14	0.4	0.4	5.09	16.83	25.18	24.65	30.12
2/28/2004	24:00:00	65.87	988.57	0.65	0.65	15.65	16.26	26.07	25.76	40.66
3/31/2004	24:00:00	68.67	987.47	1.85	1.85	48.08	15.56	27.56	27.52	54.93
4/30/2004	24:00:00	81.97	987.88	3.33	3.33	140.54	15.02	27.00	26.91	66.27
5/31/2004	24:00:00	85.25	989.65	2.77	2.77	235.00	14.61	26.30	26.15	86.74
6/30/2004	24:00:00	86.11	991.79	2.92	2.92	230.20	12.93	25.27	25.08	84.68
7/31/2004	24:00:00	86.37	990.97	3.01	3.01	359.81	13.22	24.53	24.34	115.93
8/31/2004	24:00:00	84.52	991.44	3.3	3.3	287.03	15.32	24.96	24.88	94.98
9/30/2004	24:00:00	85.63	990.16	2.05	2.05	213.92	13.28	25.14	24.97	79.41
10/31/2004	24:00:00	84.5	989.46	2.06	2.06	172.07	14.40	25.66	25.58	68.71
11/30/2004	24:00:00	79.81	988.64	1.32	1.32	66.25	13.83	25.88	25.67	46.42
12/31/2004	24:00:00	68.45	988.13	0.73	0.73	7.20	17.42	25.87	25.92	33.41
1/31/2005	24:00:00	51.59	988.7	1.26	1.26	6.68	16.72	24.55	24.05	44.57

2/28/2005	24:00:00	67.79	986.78	2.22	2.22	36.86	12.97	28.30	28.75	63.22
3/31/2005	24:00:00	76.08	987.71	2.76	2.76	64.51	12.95	27.82	27.92	59.99
4/30/2005	24:00:00	75.31	987.52	3.31	3.31	113.08	13.22	28.29	28.50	75.34
5/31/2005	24:00:00	74.29	989.04	2.89	2.89	160.81	14.40	27.60	27.96	84.17
6/30/2005	24:00:00	80.24	990.12	3.12	3.12	282.21	14.04	26.40	26.51	106.85
7/31/2005	24:00:00	79.05	991.57	3.04	3.04	303.40	14.60	25.73	25.87	109.92
8/31/2005	24:00:00	72.71	990.79	3.74	3.74	154.97	17.88	26.24	26.82	71.27
9/30/2005	24:00:00	83.78	990.25	2.1	2.1	302.51	15.87	25.75	25.75	101.65
10/31/2005	24:00:00	83.16	989.75	1.59	1.59	168.83	14.99	25.83	25.76	68.34
11/30/2005	24:00:00	73.26	988.28	0.81	0.81	24.44	16.89	26.28	26.15	35.74
12/31/2005	24:00:00	66.2	987.39	0.98	0.98	21.53	16.68	26.75	27.06	45.31
1/31/2006	24:00:00	66.29	987.04	1.74	1.74	25.54	14.75	27.68	28.18	55.10
2/28/2006	24:00:00	68.81	986.92	2.81	2.81	38.50	13.22	28.34	28.94	62.72
3/31/2006	24:00:00	71.84	987.86	2.84	2.84	54.82	12.79	27.75	28.02	62.07
4/30/2006	24:00:00	72.4	986.97	2.87	2.87	83.96	13.84	28.14	28.51	68.65
5/31/2006	24:00:00	80.57	989.39	2.64	2.64	357.75	14.86	26.68	26.69	125.69
6/30/2006	24:00:00	81.76	990.16	2.53	2.53	195.72	13.42	26.16	26.09	82.04
7/31/2006	24:00:00	82.81	991.07	3.14	3.14	218.81	14.66	25.62	25.55	82.29
8/31/2006	24:00:00	85.54	990.61	3.23	3.23	300.16	15.80	24.81	24.71	95.74
9/30/2006	24:00:00	86.42	990.65	2.23	2.23	261.96	13.35	24.91	24.70	90.47
10/31/2006	24:00:00	84.48	988.94	1.36	1.36	159.43	14.40	26.00	25.84	66.33
11/30/2006	24:00:00	71.08	988.87	0.39	0.39	12.68	16.65	25.15	24.50	29.43
12/31/2006	24:00:00	59.6	990.08	1.03	1.03	0.21	19.46	24.16	23.50	26.57
1/31/2007	24:00:00	53.42	989.91	2.08	2.08	0.82	18.54	23.42	22.87	32.50
2/28/2007	24:00:00	67.08	988.25	1.43	1.43	31.14	14.75	26.69	26.78	50.89
3/31/2007	24:00:00	68.01	987.08	2.47	2.47	37.96	15.77	27.76	28.01	53.97
4/30/2007	24:00:00	75.96	987.3	3.24	3.24	164.37	14.24	27.78	27.92	83.96
5/31/2007	24:00:00	83.57	988.6	2.55	2.55	152.68	14.18	26.64	26.45	68.31
6/30/2007	24:00:00	86.34	990.51	2.97	2.97	308.35	14.18	25.33	25.15	102.81
7/31/2007	24:00:00	86.77	991	3.19	3.19	269.78	14.63	24.69	24.49	88.45
8/31/2007	24:00:00	87.72	990.3	2.79	2.79	353.07	14.10	24.50	24.28	110.48
9/30/2007	24:00:00	87.85	990.53	1.94	1.94	428.22	13.74	24.96	24.72	133.14
10/31/2007	24:00:00	87.83	989.29	1.79	1.79	222.53	13.60	24.93	24.68	77.81
11/30/2007	24:00:00	81.84	988.23	0.95	0.95	144.17	15.18	25.50	25.00	59.95
12/31/2007	24:00:00	72.29	988.81	0.72	0.72	16.12	18.10	23.96	23.08	20.56
1/31/2008	24:00:00	66.24	988.86	1.49	1.49	8.42	17.08	23.06	22.20	23.46
2/28/2008	24:00:00	61.36	988.97	0.78	0.78	6.12	17.13	24.36	23.21	31.42
3/31/2008	24:00:00	82.28	986.97	2.85	2.85	72.67	14.77	26.47	26.35	46.13
4/30/2008	24:00:00	82.73	986.71	2.32	2.32	110.00	13.99	26.29	26.10	56.74
5/31/2008	24:00:00	83.64	988.18	2.19	2.19	161.38	13.97	26.26	25.97	69.36
6/30/2008	24:00:00	85.36	989.93	2.42	2.42	252.85	13.66	25.54	25.33	90.69
7/31/2008	24:00:00	85.91	991.06	2.84	2.84	392.75	14.32	24.75	24.56	123.45
8/31/2008	24:00:00	86.94	989.85	2.82	2.82	421.55	13.59	24.49	24.29	130.96
9/30/2008	24:00:00	86.43	990.27	2.13	2.13	315.55	14.26	25.01	24.81	103.13
10/31/2008	24:00:00	84.11	989.46	1.48	1.48	140.51	14.84	25.64	25.32	58.70
11/30/2008	24:00:00	75.43	988.48	0.17	0.17	27.84	17.63	26.01	25.49	30.60
12/31/2008	24:00:00	72.38	988.28	0.14	0.14	29.31	16.71	25.21	24.44	32.38
1/31/2009	24:00:00	72.24	988.51	0.93	0.93	25.16	14.76	25.66	25.08	38.40
2/28/2009	24:00:00	76.51	987.24	2.09	2.09	33.71	14.27	26.92	27.01	44.59
3/31/2009	24:00:00	77.85	986.67	2.37	2.37	42.94	13.80	27.13	27.02	47.17

4/30/2009	24:00:00	82.33	988.06	2.64	2.64	114.82	14.21	26.69	26.52	59.49
5/31/2009	24:00:00	85.04	988.58	2.25	2.25	148.92	14.12	26.13	25.90	63.97
6/30/2009	24:00:00	85.83	990.65	2.39	2.39	199.18	13.50	25.49	25.30	75.98
7/31/2009	24:00:00	86	991.08	2.9	2.9	431.90	14.35	25.08	24.87	135.04
8/31/2009	24:00:00	86.46	990.51	2.75	2.75	297.80	14.17	24.89	24.76	98.33
9/30/2009	24:00:00	85.74	990.91	2.15	2.15	221.72	13.86	25.35	25.23	80.96
10/31/2009	24:00:00	85.3	989.22	1.57	1.57	344.48	14.43	25.40	25.23	113.14
11/30/2009	24:00:00	75.2	989.09	0.14	0.14	57.13	17.20	25.09	24.38	35.73
12/31/2009	24:00:00	64.3	989.32	0.59	0.59	1.57	19.19	25.08	24.01	25.35
1/31/2010	24:00:00	66.37	989	0.59	0.59	8.72	18.29	25.84	25.27	31.78
2/28/2010	24:00:00	73.57	988.03	2.18	2.18	35.06	13.97	27.20	27.01	48.77
3/31/2010	24:00:00	72.24	988.43	2.11	2.11	46.14	14.86	27.63	27.68	53.21
4/30/2010	24:00:00	80.11	987.81	2.76	2.76	73.13	14.45	27.43	27.30	52.71
5/31/2010	24:00:00	83.68	988.73	2.66	2.66	180.92	14.57	26.95	26.78	76.14
6/30/2010	24:00:00	86.04	990.87	2.43	2.43	315.96	12.48	25.69	25.46	110.41
7/31/2010	24:00:00	85.99	990.87	2.8	2.8	340.07	14.29	24.86	24.69	109.69
8/31/2010	24:00:00	86.01	990.66	3.01	3.01	249.82	15.19	24.90	24.76	83.38
9/30/2010	24:00:00	86.26	989.92	2.22	2.22	324.36	14.18	24.92	24.73	105.58
10/31/2010	24:00:00	86.96	989.21	2.05	2.05	199.78	14.91	25.24	25.11	70.88
11/30/2010	24:00:00	81.34	988.02	0.95	0.95	102.23	15.87	25.94	25.64	49.67
12/31/2010	24:00:00	66.82	987.89	0.69	0.69	7.20	19.74	24.45	23.50	21.10
1/31/2011	24:00:00	61.24	987.82	1.28	1.28	0.89	19.89	23.74	22.53	20.99
2/28/2011	24:00:00	78.79	987.59	2.56	2.56	47.00	13.70	26.16	25.90	43.53
3/31/2011	24:00:00	78.96	987.12	2.71	2.71	54.79	15.94	26.90	26.71	43.07
4/30/2011	24:00:00	81.99	987.1	2.79	2.79	72.96	13.33	26.51	26.19	49.52
5/31/2011	24:00:00	85.4	988.73	2.52	2.52	157.93	12.97	26.25	25.95	69.10
6/30/2011	24:00:00	86.97	990.23	2.78	2.78	205.70	12.54	25.45	25.18	78.63
7/31/2011	24:00:00	86.39	990.46	2.8	2.8	480.88	14.85	24.92	24.76	146.23
8/31/2011	24:00:00	86.02	990.69	3.13	3.13	284.50	16.02	24.73	24.56	90.02
9/30/2011	24:00:00	86.62	990.9	2.25	2.25	310.59	13.87	24.81	24.62	101.84
10/31/2011	24:00:00	86.19	988.52	1.5	1.5	342.73	13.10	25.09	24.80	113.49
11/30/2011	24:00:00	75.96	988.81	0.52	0.52	22.44	18.26	25.36	24.73	24.35
12/31/2011	24:00:00	62.71	989.59	0.92	0.92	2.41	19.35	23.25	21.83	18.80
1/31/2012	24:00:00	66.81	989.23	0.23	0.23	14.68	17.38	24.33	23.33	28.17
2/28/2012	24:00:00	77.65	987.26	2.69	2.69	66.82	14.92	26.44	26.41	48.76
3/31/2012	24:00:00	75.68	988	2.04	2.04	35.11	14.65	26.74	26.46	43.11
4/30/2012	24:00:00	82.45	987.93	3.26	3.26	116.75	14.35	26.53	26.28	58.75
5/31/2012	24:00:00	83.79	989.67	2.34	2.34	223.90	13.97	25.93	25.70	85.05
6/30/2012	24:00:00	85.11	990.99	2.5	2.5	436.93	14.23	25.27	25.05	138.20
7/31/2012	24:00:00	85.66	990.89	3.09	3.09	345.69	15.64	24.71	24.58	107.83
8/31/2012	24:00:00	85.59	991.4	2.98	2.98	349.82	16.02	24.54	24.45	107.56
9/30/2012	24:00:00	86.32	991.33	2.47	2.47	337.13	14.33	24.74	24.58	108.03
10/31/2012	24:00:00	86.09	989.38	1.57	1.57	195.88	13.40	25.21	25.01	73.93
11/30/2012	24:00:00	80.54	988.84	0.72	0.72	61.27	15.18	25.86	25.46	40.44
12/31/2012	24:00:00	67.21	989.08	0.93	0.93	11.95	18.43	24.27	23.35	24.60
1/31/2013	24:00:00	68.38	989.51	0.09	0.09	25.19	16.54	25.15	24.36	35.24
2/28/2013	24:00:00	74.89	987.85	1.59	1.59	29.15	13.95	26.38	26.11	42.56
3/31/2013	24:00:00	80.83	988.19	3.2	3.2	85.52	14.06	26.90	26.73	54.20
4/30/2013	24:00:00	79.98	988.69	2.59	2.59	95.09	14.78	26.91	26.77	55.94
5/31/2013	24:00:00	84.58	989.7	2.48	2.48	179.21	13.05	26.04	25.78	74.76

6/30/2013	24:00:00	85.61	990.64	2.8	2.8	170.13	14.18	25.44	25.26	66.59
7/31/2013	24:00:00	85.82	991.44	2.86	2.86	425.51	14.57	24.66	24.51	131.54
8/31/2013	24:00:00	85.02	990.72	3.16	3.16	174.99	15.94	24.53	24.41	60.99
9/30/2013	24:00:00	86.12	990.77	2.09	2.09	354.71	14.01	24.99	24.83	114.65
10/31/2013	24:00:00	83.37	990.05	1.24	1.24	173.97	16.55	25.54	25.37	64.35
11/30/2013	24:00:00	82.99	988.37	1.67	1.67	59.60	15.79	25.74	25.57	36.46
12/31/2013	24:00:00	74.69	989.48	0.7	0.7	38.65	17.62	24.53	23.86	28.27
1/31/2014	24:00:00	70.32	989	1.12	1.12	22.48	17.55	25.47	24.73	31.63
2/28/2014	24:00:00	70.65	987.8	1.54	1.54	27.59	15.51	26.45	26.08	42.44
3/31/2014	24:00:00	79.31	988.12	2.98	2.98	77.97	14.17	26.73	26.51	52.55
4/30/2014	24:00:00	81.71	988.53	2.83	2.83	142.48	13.91	26.69	26.49	68.19
5/31/2014	24:00:00	82.48	988.85	2.05	2.05	195.92	15.31	26.68	26.46	78.34
6/30/2014	24:00:00	82.79	990.55	2.66	2.66	132.19	14.85	26.09	25.97	60.05
7/31/2014	24:00:00	83.85	992.26	3.06	3.06	226.95	15.51	25.35	25.25	80.33
8/31/2014	24:00:00	84.14	991.37	3.01	3.01	291.90	15.66	24.89	24.78	95.45
9/30/2014	24:00:00	84.65	990.89	2.2	2.2	392.85	14.82	24.96	24.88	124.54
10/31/2014	24:00:00	83.53	989.95	1.46	1.46	264.97	14.65	25.64	25.50	93.83
11/30/2014	24:00:00	77.65	989.29	1.19	1.19	109.01	15.90	26.07	25.88	55.81
12/31/2014	24:00:00	59.68	989.68	0.6	0.6	5.60	18.80	26.19	26.09	38.81
1/31/2015	24:00:00	52.51	990.53	0.98	0.98	7.40	18.72	25.14	25.19	42.89
2/28/2015	24:00:00	68.22	988.3	2.74	2.74	52.06	13.79	28.16	28.84	65.14
3/31/2015	24:00:00	71.24	988.02	2.63	2.63	75.05	15.21	27.82	28.18	62.79
4/30/2015	24:00:00	71.88	988.94	2.52	2.52	59.47	15.75	27.83	28.02	56.19
5/31/2015	24:00:00	76.6	989.56	2.87	2.87	198.49	13.65	27.36	27.48	92.32
6/30/2015	24:00:00	82.99	991.31	3.19	3.19	194.78	15.02	25.97	25.90	76.10
7/31/2015	24:00:00	83.79	991.22	2.97	2.97	240.21	14.45	25.56	25.48	87.37
8/31/2015	24:00:00	83.4	990.95	3.01	3.01	489.60	14.36	25.39	25.41	154.95
9/30/2015	24:00:00	85.14	990.68	2.65	2.65	343.31	14.01	25.44	25.41	114.65
10/31/2015	24:00:00	84.01	990.16	1.9	1.9	331.84	14.27	25.88	25.84	113.57
11/30/2015	24:00:00	70.37	989.42	0.56	0.56	47.16	17.82	26.75	26.96	45.16
12/31/2015	24:00:00	42.75	991.25	3.17	3.17	0.38	19.74	24.76	24.66	46.19
1/31/2016	24:00:00	40.89	990.15	1.74	1.74	1.39	20.28	26.67	26.99	55.29
2/28/2016	24:00:00	48.18	988.56	1.09	1.09	7.23	16.95	29.19	30.12	69.14
3/31/2016	24:00:00	71.06	988.58	3.21	3.21	200.10	15.13	28.80	29.21	100.80
4/30/2016	24:00:00	73.67	988.19	3.17	3.17	83.05	14.75	28.52	28.80	66.18
5/31/2016	24:00:00	80.14	990.28	2.74	2.74	231.43	15.21	27.11	27.14	92.83
6/30/2016	24:00:00	83.14	991.65	2.66	2.66	417.71	13.46	25.78	25.72	139.16
7/31/2016	24:00:00	85.27	991.25	2.95	2.95	224.11	14.39	25.10	25.00	79.95
8/31/2016	24:00:00	86.47	991.2	2.83	2.83	290.55	13.60	24.85	24.69	97.50
9/30/2016	24:00:00	86.28	990.97	2.24	2.24	284.63	13.96	25.13	25.01	96.35
10/31/2016	24:00:00	84.07	989.17	1.39	1.39	196.95	14.67	25.89	25.68	75.65
11/30/2016	24:00:00	75.58	988.76	0.38	0.38	57.61	17.24	26.52	26.04	41.48
12/31/2016	24:00:00	65.68	988.94	0.65	0.65	8.43	16.44	25.40	24.51	34.23
1/31/2017	24:00:00	65.07	988.72	0.79	0.79	15.99	16.56	26.24	25.78	41.02
2/28/2017	24:00:00	59.12	988.34	0.6	0.6	7.61	15.69	27.18	27.20	51.50
3/31/2017	24:00:00	75	987.72	2.74	2.74	56.88	15.14	27.78	27.83	53.41
4/30/2017	24:00:00	80.27	988.12	2.63	2.63	96.28	13.38	27.07	26.90	59.88
5/31/2017	24:00:00	83.35	989.48	2.39	2.39	142.92	15.18	26.71	26.57	63.89
6/30/2017	24:00:00	84.81	990.28	2.18	2.18	185.52	13.81	25.95	25.76	74.26
7/31/2017	24:00:00	86.23	991.85	2.88	2.88	264.98	15.09	25.03	24.89	88.00

8/31/2017	24:00:00	86.62	990.89	2.91	2.91	278.74	15.43	24.87	24.71	89.86
9/30/2017	24:00:00	86.64	990.68	2.1	2.1	223.64	13.29	25.13	24.88	80.77
10/31/2017	24:00:00	84.57	989.59	1.81	1.81	103.35	14.74	25.92	25.71	49.86
11/30/2017	24:00:00	78.39	988.89	1.05	1.05	58.05	15.48	25.87	25.37	40.69
12/31/2017	24:00:00	68.96	988.93	0.08	0.08	8.36	16.85	25.64	24.85	31.22
1/31/2018	24:00:00	53.53	989.52	1.3	1.3	0.90	18.74	23.77	22.25	30.37
2/28/2018	24:00:00	75.36	987.29	2.32	2.32	62.84	14.12	26.84	26.65	52.84
3/31/2018	24:00:00	79.73	988.32	3.1	3.1	92.04	15.35	26.96	26.87	54.38
4/30/2018	24:00:00	80.7	988.31	3.23	3.23	109.81	14.67	26.89	26.75	59.46
5/31/2018	24:00:00	83.29	989.3	2.92	2.92	138.52	14.69	26.38	26.20	62.63
6/30/2018	24:00:00	85.97	990.98	2.8	2.8	233.31	13.33	25.35	25.09	84.77
7/31/2018	24:00:00	86.27	991.47	2.63	2.63	285.58	14.74	24.99	24.79	94.01
8/31/2018	24:00:00	86.63	991.36	2.84	2.84	302.77	15.74	24.82	24.66	95.38
9/30/2018	24:00:00	87.46	989.65	2.17	2.17	558.63	13.95	25.10	24.89	168.85
10/31/2018	24:00:00	86.4	989.45	1.7	1.7	233.96	14.29	25.61	25.33	83.06
11/30/2018	24:00:00	78.83	988.5	0.75	0.75	40.01	16.37	26.36	25.90	35.20
12/31/2018	24:00:00	62.82	989.92	0.87	0.87	3.78	17.79	24.82	23.47	28.97
1/31/2019	24:00:00	68.58	989.62	0.92	0.92	21.35	17.25	25.52	24.75	33.82
2/28/2019	24:00:00	68.44	988.83	1.1	1.1	38.45	13.63	26.14	25.38	49.67
3/31/2019	24:00:00	79.86	988.53	2.58	2.58	73.70	13.75	27.11	26.86	53.20
4/30/2019	24:00:00	80.22	988.04	2.95	2.95	125.56	14.68	27.52	27.24	66.12
5/31/2019	24:00:00	83.05	988.88	2.5	2.5	149.16	14.08	26.74	26.48	68.29
6/30/2019	24:00:00	84.76	991.16	2.67	2.67	286.17	15.13	25.97	25.81	98.50
7/31/2019	24:00:00	85.84	991.07	2.66	2.66	330.56	14.68	25.22	25.03	107.61
8/31/2019	24:00:00	86.95	991.98	2.95	2.95	313.22	14.90	24.77	24.56	99.60
9/30/2019	24:00:00	88.08	990.73	2.35	2.35	281.84	13.44	25.08	24.83	94.57
10/31/2019	24:00:00	87.32	989.38	1.78	1.78	209.65	14.56	25.02	24.80	72.92
11/30/2019	24:00:00	80.03	988.36	0.57	0.57	59.42	16.28	26.57	26.05	40.10
12/31/2019	24:00:00	62.04	989.21	1.16	1.16	1.11	20.65	24.98	23.67	22.84

Appendix 1B: AJALI River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.129
 # Site longitude (positive means East);6.293
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 41m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	64.75	986.73	0.37	45.62	1.72	18.85	24.03	23.35	12.01
2/28/1981	24:00:00	66.16	985.5	0.80	239.75	15.25	18.60	25.53	25.05	12.36
3/31/1981	24:00:00	76.33	985.7	2.83	230.46	48.63	17.58	26.31	26.26	12.85
4/30/1981	24:00:00	80.89	985.11	2.73	224.50	78.29	17.86	26.54	26.61	13.45
5/31/1981	24:00:00	85.31	986.4	2.38	227.25	220.50	14.97	25.38	25.33	15.99
6/30/1981	24:00:00	85.05	987.92	2.44	230.71	117.14	15.99	25.32	25.26	13.99
7/31/1981	24:00:00	87.28	988.35	2.99	235.29	329.43	14.75	23.92	23.83	17.98
8/31/1981	24:00:00	85.17	988.02	3.13	233.15	269.49	17.49	24.16	24.23	16.99
9/30/1981	24:00:00	86.14	988	2.61	235.73	204.09	16.70	24.32	24.33	15.66
10/31/1981	24:00:00	85.93	986.55	1.59	220.14	149.70	15.83	25.08	25.04	14.63
11/30/1981	24:00:00	77.36	986.44	0.78	47.24	20.40	16.98	23.90	23.41	12.13
12/31/1981	24:00:00	65.14	986.58	0.69	40.57	0.65	19.96	24.28	23.33	12.10
1/31/1982	24:00:00	70.11	985.81	0.39	284.82	17.49	18.08	25.14	24.81	12.31
2/28/1982	24:00:00	68.2	985.47	0.75	254.45	26.26	16.33	24.68	24.19	12.33
3/31/1982	24:00:00	76.54	985.04	1.74	243.91	67.85	17.50	25.58	25.46	13.21
4/30/1982	24:00:00	82.73	985.25	3.11	231.31	102.49	16.54	26.13	26.15	13.79
5/31/1982	24:00:00	85.14	986.39	2.26	231.90	195.31	15.04	25.49	25.44	15.51
6/30/1982	24:00:00	87.07	988.5	2.37	233.04	244.28	14.86	24.73	24.64	16.39
7/31/1982	24:00:00	86.53	988.34	3.01	239.28	164.61	16.19	23.85	23.81	14.78
8/31/1982	24:00:00	86.01	988.73	3.37	239.03	157.71	18.38	23.34	23.39	14.72
9/30/1982	24:00:00	86.64	987.82	2.65	237.40	216.45	16.74	24.33	24.3	15.91
10/31/1982	24:00:00	87.95	986.74	1.76	235.09	230.31	14.14	24.07	23.96	16.02
11/30/1982	24:00:00	76.64	986.6	0.96	38.37	16.43	18.35	23.79	23.31	12.14
12/31/1982	24:00:00	69.66	986.43	1.10	34.50	8.47	17.96	23.61	22.82	12.00
1/31/1983	24:00:00	62.07	987.84	3.99	48.97	0.01	20.18	19.90	19.18	11.56
2/28/1983	24:00:00	66.36	986.14	0.80	219.77	6.30	19.23	26.14	25.83	12.26
3/31/1983	24:00:00	63.85	985.4	1.20	208.20	18.05	21.50	26.84	26.65	12.71
4/30/1983	24:00:00	76.46	984.9	2.80	220.20	69.69	17.85	27.23	27.3	13.37
5/31/1983	24:00:00	85.6	985.66	2.72	224.43	157.75	15.67	25.75	25.71	14.80
6/30/1983	24:00:00	86.61	987.91	2.86	228.18	293.14	15.50	24.90	24.79	17.41
7/31/1983	24:00:00	87.86	988.35	3.40	233.51	169.61	16.28	23.77	23.65	14.86
8/31/1983	24:00:00	88.95	989.68	3.48	232.63	223.93	17.13	23.10	23.02	15.93
9/30/1983	24:00:00	87.96	988.18	2.39	231.93	361.99	14.80	23.98	23.9	18.66
10/31/1983	24:00:00	84.25	987.37	1.52	223.48	49.58	17.57	24.71	24.59	12.73
11/30/1983	24:00:00	77.96	987.78	0.92	228.82	18.29	19.10	25.18	25.01	12.32
12/31/1983	24:00:00	75.18	987.09	0.62	244.47	17.95	17.29	24.24	23.72	12.16
1/31/1984	24:00:00	58.49	986.48	1.65	67.77	0.13	20.72	22.49	21.15	12.02
2/28/1984	24:00:00	71.77	984.49	1.01	209.20	4.31	18.32	25.28	25.3	12.01
3/31/1984	24:00:00	80.55	984.22	2.89	227.70	65.98	16.93	26.00	26.15	13.08

4/30/1984	24:00:00	83.33	984.8	2.95	224.87	149.09	15.60	25.73	25.76	14.62
5/31/1984	24:00:00	84.73	985.43	2.53	227.08	155.52	15.54	25.30	25.3	14.71
6/30/1984	24:00:00	84.98	987.3	2.45	229.09	138.41	15.86	24.88	24.83	14.36
7/31/1984	24:00:00	85.56	987.32	2.72	238.34	213.34	15.12	24.09	24.07	15.71
8/31/1984	24:00:00	84.9	987.8	2.37	237.23	208.92	16.41	24.31	24.37	15.74
9/30/1984	24:00:00	85.8	987.01	2.27	233.04	316.97	16.07	24.41	24.43	17.89
10/31/1984	24:00:00	86.36	986.36	1.54	232.30	251.42	15.02	24.75	24.63	16.58
11/30/1984	24:00:00	78.24	986.4	0.80	246.12	25.75	17.56	24.55	24.14	12.33
12/31/1984	24:00:00	66.71	985.69	1.35	41.73	3.52	18.78	22.81	21.77	11.92
1/31/1985	24:00:00	73.67	985.2	1.08	244.84	22.37	17.21	24.97	24.74	12.27
2/28/1985	24:00:00	54.55	986.03	0.65	91.78	0.86	20.54	24.44	23.23	12.25
3/31/1985	24:00:00	75.42	984.42	2.78	221.16	83.88	18.77	25.92	25.95	13.60
4/30/1985	24:00:00	80.63	985.09	2.73	219.83	84.19	18.25	26.00	26.15	13.54
5/31/1985	24:00:00	84.02	986	3.27	225.14	165.13	16.66	25.43	25.37	14.98
6/30/1985	24:00:00	84.61	988.75	2.91	229.88	214.77	16.13	24.44	24.41	15.85
7/31/1985	24:00:00	85.83	988.64	2.93	238.71	267.51	15.68	23.52	23.53	16.77
8/31/1985	24:00:00	86.46	988.01	2.93	235.24	370.83	14.82	23.78	23.78	18.80
9/30/1985	24:00:00	85.48	987.17	2.49	230.77	271.79	16.36	24.12	24.2	16.97
10/31/1985	24:00:00	83.82	986.29	0.68	186.95	197.55	15.82	24.83	24.77	15.61
11/30/1985	24:00:00	79.74	985.96	1.01	225.84	43.86	15.69	25.48	25.32	12.61
12/31/1985	24:00:00	64.49	985.76	0.83	16.05	2.52	18.50	23.79	22.94	11.98
1/31/1986	24:00:00	63.7	986.26	0.50	242.46	5.83	20.21	25.05	24.87	12.23
2/28/1986	24:00:00	73.91	985.41	3.06	229.45	28.37	15.21	25.97	26.25	12.22
3/31/1986	24:00:00	76.39	985.8	3.35	228.97	87.38	17.31	25.83	26.08	13.51
4/30/1986	24:00:00	79.19	984.7	3.44	227.29	71.91	17.59	26.58	26.74	13.29
5/31/1986	24:00:00	82.94	986.4	2.65	224.71	93.98	15.66	25.64	25.58	13.54
6/30/1986	24:00:00	83.09	987.7	3.07	227.24	190.79	16.93	25.10	25.15	15.48
7/31/1986	24:00:00	85.17	989.51	3.43	231.32	294.82	15.29	23.66	23.69	17.29
8/31/1986	24:00:00	84.11	988.18	2.88	235.54	207.19	17.57	23.79	23.9	15.72
9/30/1986	24:00:00	84.49	988.21	2.25	233.38	269.37	16.67	24.20	24.26	16.97
10/31/1986	24:00:00	83.6	987.35	0.82	232.95	284.93	16.93	24.90	24.92	17.43
11/30/1986	24:00:00	76.44	986.1	0.32	325.55	28.41	16.95	24.84	24.54	12.38
12/31/1986	24:00:00	60.7	987.52	1.78	47.53	2.33	19.30	22.94	22.07	11.94
1/31/1987	24:00:00	58.42	987.19	0.38	141.00	1.89	21.04	25.28	24.93	12.28
2/28/1987	24:00:00	67.22	986.11	2.53	221.87	29.16	18.30	27.52	28.37	12.60
3/31/1987	24:00:00	69.18	985.1	2.46	229.24	65.77	17.98	27.03	27.45	13.30
4/30/1987	24:00:00	69.77	985.58	2.71	216.98	36.54	19.22	28.02	28.6	12.86
5/31/1987	24:00:00	76.67	985.55	3.17	219.29	81.39	16.82	26.93	27.13	13.48
6/30/1987	24:00:00	83.94	988.34	2.82	225.68	154.85	16.22	25.30	25.34	14.74
7/31/1987	24:00:00	84.48	987.23	2.65	235.97	144.79	15.86	25.05	25.06	14.49
8/31/1987	24:00:00	87.32	987.27	2.85	235.00	405.45	13.71	24.42	24.3	19.49
9/30/1987	24:00:00	86.53	987.43	2.47	232.35	518.69	15.89	24.95	24.94	21.96
10/31/1987	24:00:00	85.89	986.6	1.69	227.57	211.07	15.43	25.25	25.16	15.85
11/30/1987	24:00:00	75.35	986.37	0.29	243.40	15.62	18.79	25.78	25.42	12.36
12/31/1987	24:00:00	65.13	986.98	0.53	22.04	10.24	18.90	24.84	23.72	12.30
1/31/1988	24:00:00	67.51	986.26	0.18	250.27	9.10	18.82	25.43	25.02	12.25
2/28/1988	24:00:00	68.24	984.34	1.05	240.42	9.52	18.68	26.73	26.79	12.29
3/31/1988	24:00:00	78.6	985.48	2.81	234.20	56.59	16.66	26.89	26.94	12.98
4/30/1988	24:00:00	80.12	984.85	3.28	228.66	103.98	16.34	26.79	26.77	13.88
5/31/1988	24:00:00	83.79	986.37	2.79	224.11	184.69	16.45	26.21	26.19	15.44

6/30/1988	24:00:00	85.55	987.4	2.67	233.62	185.21	15.07	25.07	25.05	15.25
7/31/1988	24:00:00	86.44	988.43	3.44	240.79	220.13	16.21	24.01	23.98	15.89
8/31/1988	24:00:00	86.12	987.46	3.68	233.95	255.86	17.96	24.00	24.03	16.71
9/30/1988	24:00:00	87.06	987.03	2.73	238.41	340.34	15.60	24.40	24.33	18.31
10/31/1988	24:00:00	85	986.05	1.11	217.45	168.36	16.91	25.30	25.25	15.12
11/30/1988	24:00:00	75.17	986.64	0.38	4.29	41.91	18.41	25.34	24.81	12.83
12/31/1988	24:00:00	74.57	985.96	0.66	3.12	18.09	15.73	24.14	23.59	12.05
1/31/1989	24:00:00	56.13	987.54	2.92	41.80	0.01	21.63	21.21	19.92	11.92
2/28/1989	24:00:00	55.86	986.67	1.30	52.52	1.20	19.40	23.72	22.65	12.06
3/31/1989	24:00:00	77.9	984.63	2.98	229.60	143.91	17.61	26.08	26.2	14.71
4/30/1989	24:00:00	81.02	984.47	3.33	225.77	66.70	17.31	26.41	26.43	13.15
5/31/1989	24:00:00	84.34	986.72	2.75	222.72	245.28	16.54	25.62	25.63	16.60
6/30/1989	24:00:00	86.17	987.95	2.66	224.07	241.44	14.93	24.80	24.78	16.33
7/31/1989	24:00:00	86.86	988.61	2.99	233.01	299.01	15.69	24.07	24	17.45
8/31/1989	24:00:00	87.51	987.97	3.11	236.42	394.45	15.43	24.00	23.94	19.33
9/30/1989	24:00:00	87.75	986.5	2.23	236.15	293.48	14.43	24.22	24.14	17.30
10/31/1989	24:00:00	86.06	986.96	1.62	233.17	155.64	15.55	24.72	24.62	14.70
11/30/1989	24:00:00	76.54	985.84	0.30	46.86	23.95	17.76	25.28	24.83	12.41
12/31/1989	24:00:00	69.1	986.74	0.92	50.20	13.08	17.54	24.11	23.34	12.12
1/31/1990	24:00:00	68.78	985.7	0.49	280.07	11.70	17.90	25.18	24.64	12.21
2/28/1990	24:00:00	61.48	986.16	0.11	122.83	8.50	18.36	25.62	24.91	12.29
3/31/1990	24:00:00	63.25	985.87	0.68	216.61	8.13	20.35	26.48	25.95	12.46
4/30/1990	24:00:00	81.17	984.96	3.45	226.75	88.89	16.62	26.68	26.66	13.58
5/31/1990	24:00:00	84.07	986.63	2.77	230.04	137.94	16.03	25.81	25.8	14.44
6/30/1990	24:00:00	84.05	988.08	3.04	230.21	141.41	15.42	25.48	25.47	14.43
7/31/1990	24:00:00	85.7	988.22	3.63	236.56	423.11	15.45	24.29	24.28	19.92
8/31/1990	24:00:00	83.84	988.62	3.12	238.27	299.92	15.58	24.50	24.58	17.50
9/30/1990	24:00:00	84.41	987.45	2.25	233.85	309.68	14.57	24.85	24.9	17.69
10/31/1990	24:00:00	83.29	986.78	1.61	220.41	274.60	15.42	25.25	25.25	17.12
11/30/1990	24:00:00	78.71	986.06	1.37	222.74	48.64	15.64	25.83	25.89	12.70
12/31/1990	24:00:00	75.43	985.71	1.16	239.04	53.59	16.00	25.67	25.62	12.85
1/31/1991	24:00:00	56.37	986.3	0.86	90.94	1.50	19.74	25.40	25.2	12.17
2/28/1991	24:00:00	68.6	985.55	2.64	225.69	22.28	14.79	27.57	28.16	12.24
3/31/1991	24:00:00	68.38	984.21	2.69	223.47	51.42	16.54	28.09	28.65	12.99
4/30/1991	24:00:00	79.37	985.11	3.29	227.01	135.66	15.80	26.57	26.72	14.44
5/31/1991	24:00:00	82.3	985.91	2.56	231.70	324.14	15.70	26.11	26.19	18.18
6/30/1991	24:00:00	83.66	987.5	2.76	234.59	247.48	13.23	25.55	25.53	16.42
7/31/1991	24:00:00	86.73	988.57	3.19	230.79	386.99	15.04	24.36	24.36	19.18
8/31/1991	24:00:00	85.46	988.93	3.56	231.17	342.43	15.29	24.08	24.16	18.27
9/30/1991	24:00:00	84.67	988	2.21	238.38	203.37	15.43	24.96	25.05	15.63
10/31/1991	24:00:00	84.92	986.97	2.17	236.00	290.22	14.19	24.47	24.44	17.25
11/30/1991	24:00:00	76.19	986.35	0.35	193.33	28.99	16.37	25.50	25.32	12.41
12/31/1991	24:00:00	59.24	986.71	1.81	52.43	0.64	18.65	23.80	23.17	11.92
1/31/1992	24:00:00	50.32	986.49	1.71	50.89	0.68	19.60	24.30	24.3	12.02
2/28/1992	24:00:00	39.08	986.32	1.63	69.57	1.55	19.78	26.90	27.19	12.34
3/31/1992	24:00:00	64.14	984.4	2.20	226.39	71.26	18.15	28.24	28.98	13.54
4/30/1992	24:00:00	76.99	985.19	2.93	226.38	123.53	15.73	27.27	27.59	14.27
5/31/1992	24:00:00	83.78	986.14	2.74	229.53	200.75	15.31	26.00	26.01	15.67
6/30/1992	24:00:00	84.92	987.92	3.26	231.62	173.02	16.17	25.16	25.17	15.06
7/31/1992	24:00:00	87.29	989.19	3.45	234.71	340.83	14.91	23.86	23.77	18.20

8/31/1992	24:00:00	86.05	989.37	3.77	232.60	298.11	16.84	23.65	23.69	17.44
9/30/1992	24:00:00	86.25	987.15	2.39	227.80	356.10	14.64	24.20	24.16	18.56
10/31/1992	24:00:00	86.39	987.14	2.36	230.38	147.73	15.45	24.73	24.68	14.50
11/30/1992	24:00:00	77.31	986.41	0.32	49.36	41.75	17.24	24.03	23.65	12.60
12/31/1992	24:00:00	65.89	986.66	1.23	54.83	0.80	19.36	23.50	22.62	11.96
1/31/1993	24:00:00	58.64	987.4	1.88	50.31	0.45	20.26	22.82	21.87	11.97
2/28/1993	24:00:00	65.63	985.8	0.77	201.64	14.24	18.39	25.30	24.86	12.30
3/31/1993	24:00:00	74.14	985.9	2.33	228.09	66.28	17.51	26.17	26.06	13.23
4/30/1993	24:00:00	81.02	984.88	3.13	225.74	74.09	15.05	26.46	26.4	13.17
5/31/1993	24:00:00	84.56	985.53	3.12	227.96	115.93	15.99	26.29	26.26	14.03
6/30/1993	24:00:00	85.84	988.15	2.74	228.57	158.96	15.59	25.22	25.21	14.77
7/31/1993	24:00:00	86.94	988.46	3.54	232.93	252.95	15.70	24.11	24.06	16.51
8/31/1993	24:00:00	86.74	988.65	3.36	230.54	287.29	16.40	24.02	24	17.25
9/30/1993	24:00:00	86.78	987.53	2.04	231.79	214.60	15.08	24.50	24.49	15.79
10/31/1993	24:00:00	86.35	986.78	1.74	221.24	153.88	15.04	25.12	25.03	14.66
11/30/1993	24:00:00	84.11	985.3	1.71	223.52	86.20	15.43	25.35	25.27	13.37
12/31/1993	24:00:00	71.38	986.1	0.99	42.36	11.17	17.38	23.91	23.04	12.05
1/31/1994	24:00:00	71.15	985.6	0.15	59.08	12.26	18.36	24.37	23.88	12.17
2/28/1994	24:00:00	65.42	985.97	0.61	197.59	4.42	18.00	25.53	25.05	12.11
3/31/1994	24:00:00	80.72	985.04	2.81	234.22	36.76	17.17	26.61	26.68	12.58
4/30/1994	24:00:00	82.57	984.79	3.07	228.01	83.71	16.97	26.52	26.55	13.48
5/31/1994	24:00:00	85.16	986.47	2.54	227.23	123.07	15.49	25.74	25.69	14.11
6/30/1994	24:00:00	85.62	987.92	2.82	232.88	174.87	15.94	25.12	25.08	15.10
7/31/1994	24:00:00	87.28	988.59	3.23	234.55	353.26	15.44	24.16	24.08	18.52
8/31/1994	24:00:00	87.73	987.99	3.55	230.29	377.40	15.49	24.04	23.96	18.98
9/30/1994	24:00:00	88.05	987.77	2.99	231.76	438.06	15.50	24.29	24.23	20.24
10/31/1994	24:00:00	87.45	986.34	1.49	238.26	462.76	13.08	24.58	24.39	20.66
11/30/1994	24:00:00	77.6	986.89	0.76	46.33	23.61	16.63	24.12	23.65	12.19
12/31/1994	24:00:00	68.17	987.56	2.52	42.20	0.05	20.10	21.78	20.92	11.77
1/31/1995	24:00:00	63.11	987.22	1.25	43.33	5.79	18.94	23.97	23.12	12.09
2/28/1995	24:00:00	68.1	986.98	0.56	209.24	14.79	16.93	25.44	25.22	12.20
3/31/1995	24:00:00	80.2	984.87	2.53	233.42	69.07	15.92	26.45	26.36	13.16
4/30/1995	24:00:00	83.02	983.96	2.78	231.40	92.71	14.92	26.52	26.41	13.54
5/31/1995	24:00:00	85.16	985.76	2.10	226.68	168.59	15.03	25.95	25.94	15.02
6/30/1995	24:00:00	86.47	987.42	2.59	226.85	298.42	15.28	25.32	25.26	17.55
7/31/1995	24:00:00	88.44	987.03	3.18	231.80	433.42	15.08	24.23	24.14	20.10
8/31/1995	24:00:00	89.08	987.44	3.00	236.47	270.24	14.52	24.30	24.18	16.81
9/30/1995	24:00:00	88.14	987.71	2.77	235.40	304.34	15.59	24.73	24.63	17.62
10/31/1995	24:00:00	86.54	986.16	1.95	236.78	288.13	15.36	25.06	24.96	17.35
11/30/1995	24:00:00	77.05	986.48	1.34	39.88	20.34	18.07	24.10	23.6	12.21
12/31/1995	24:00:00	69.88	987.05	1.01	36.40	10.42	17.80	24.04	23.23	12.07
1/31/1996	24:00:00	66.68	985.1	0.14	260.24	10.17	18.91	25.07	24.25	12.29
2/28/1996	24:00:00	75.05	984.44	1.81	238.41	20.71	17.05	26.61	26.76	12.31
3/31/1996	24:00:00	80.35	984.45	2.63	228.25	76.75	16.25	26.42	26.44	13.31
4/30/1996	24:00:00	82.98	984.45	2.68	224.02	80.40	15.72	26.45	26.44	13.34
5/31/1996	24:00:00	84.76	985.92	2.58	226.24	186.45	16.44	26.17	26.11	15.48
6/30/1996	24:00:00	86.29	987.53	2.78	226.68	239.78	15.80	25.16	25.1	16.39
7/31/1996	24:00:00	86.78	988.87	3.29	231.77	339.92	16.14	24.09	24.02	18.29
8/31/1996	24:00:00	87.39	988.08	3.33	230.60	479.89	16.23	24.10	24.03	21.10
9/30/1996	24:00:00	87.61	987.09	2.89	234.06	538.21	15.70	24.35	24.3	22.26

10/31/1996	24:00:00	86.38	986.71	1.44	234.84	191.70	15.03	24.50	24.37	15.37
11/30/1996	24:00:00	71.29	986.06	1.23	40.28	9.00	19.31	23.95	23.26	12.11
12/31/1996	24:00:00	65.94	986.47	0.65	53.71	2.05	18.72	24.23	23.18	12.05
1/31/1997	24:00:00	70.25	986.05	0.22	325.65	16.05	16.96	24.66	24.12	12.19
2/28/1997	24:00:00	53.7	986.71	1.48	43.16	0.55	19.09	23.60	22.35	12.04
3/31/1997	24:00:00	77.04	985.07	1.77	238.41	66.12	15.84	26.15	25.98	13.12
4/30/1997	24:00:00	83.29	986.26	2.88	229.82	117.95	15.35	25.80	25.77	14.00
5/31/1997	24:00:00	86	987.16	2.28	228.73	201.74	15.07	25.63	25.58	15.64
6/30/1997	24:00:00	87.4	987.25	2.63	224.77	345.18	14.45	25.04	24.98	18.39
7/31/1997	24:00:00	86.62	988.97	3.80	232.85	223.19	17.60	24.21	24.15	16.05
8/31/1997	24:00:00	86.07	988.95	3.20	236.64	295.81	17.51	24.34	24.34	17.53
9/30/1997	24:00:00	85.76	987.47	2.11	225.61	236.25	15.43	25.15	25.13	16.32
10/31/1997	24:00:00	84.85	986.18	1.44	230.89	200.40	14.49	25.86	25.8	15.64
11/30/1997	24:00:00	78.35	985.99	0.54	231.20	77.93	16.80	26.05	25.84	13.45
12/31/1997	24:00:00	65.44	987.16	0.97	47.25	2.26	17.28	24.45	23.58	11.95
1/31/1998	24:00:00	62.49	986.21	1.54	51.56	1.65	19.30	23.70	22.84	12.00
2/28/1998	24:00:00	62.81	986.88	0.60	165.55	3.30	18.24	27.14	26.96	12.25
3/31/1998	24:00:00	61.63	984.76	1.31	226.78	25.44	18.09	27.77	27.57	12.72
4/30/1998	24:00:00	82.6	984.5	2.92	229.83	83.11	15.39	27.73	27.65	13.49
5/31/1998	24:00:00	83.68	986.5	2.63	231.93	137.13	16.32	27.11	27.04	14.58
6/30/1998	24:00:00	85.5	988.24	2.26	235.30	175.70	13.78	25.79	25.69	15.06
7/31/1998	24:00:00	85.4	988.2	3.53	237.52	226.28	16.07	24.81	24.82	16.08
8/31/1998	24:00:00	85.78	987.62	3.49	239.87	196.36	17.03	24.35	24.38	15.50
9/30/1998	24:00:00	86.23	987.15	2.52	240.18	392.71	13.94	24.88	24.81	19.31
10/31/1998	24:00:00	83.48	986.96	1.69	233.23	252.13	15.88	25.55	25.46	16.74
11/30/1998	24:00:00	77.44	985.55	0.12	180.97	25.07	16.09	25.81	25.57	12.35
12/31/1998	24:00:00	69.86	986.28	0.64	39.97	19.28	16.53	24.56	24.03	12.20
1/31/1999	24:00:00	67.16	985.24	0.24	246.73	24.66	17.40	25.39	25.19	12.44
2/28/1999	24:00:00	70.56	984.69	1.95	239.11	29.04	13.74	26.88	27.08	12.29
3/31/1999	24:00:00	72.41	983.16	3.29	229.46	52.96	16.13	27.82	28.12	12.95
4/30/1999	24:00:00	72.52	984.8	3.07	226.08	68.68	15.16	27.69	27.94	13.20
5/31/1999	24:00:00	73.76	985.8	2.58	218.97	120.49	15.45	27.24	27.53	14.22
6/30/1999	24:00:00	78.93	986.76	2.30	227.08	163.32	14.22	26.10	26.15	14.89
7/31/1999	24:00:00	78.18	988.15	3.32	231.84	340.02	15.00	25.22	25.41	18.35
8/31/1999	24:00:00	76.01	987.87	3.31	237.21	280.44	16.20	25.46	25.81	17.25
9/30/1999	24:00:00	80.62	986.62	2.59	234.27	258.08	14.65	25.17	25.25	16.70
10/31/1999	24:00:00	81.77	986.69	2.11	232.71	363.14	15.31	25.22	25.18	18.88
11/30/1999	24:00:00	71.28	985.73	1.36	202.44	36.01	16.85	26.51	26.66	12.63
12/31/1999	24:00:00	50.14	985.47	0.84	122.95	1.06	18.76	26.33	26.5	12.18
1/31/2000	24:00:00	50.29	984.13	0.77	165.78	7.98	18.21	27.70	28.35	12.36
2/28/2000	24:00:00	37.99	985.47	0.75	107.83	1.94	17.71	27.60	28.26	12.27
3/31/2000	24:00:00	49.71	983.7	1.42	211.19	31.20	17.12	28.61	29.33	12.81
4/30/2000	24:00:00	70	983.66	3.60	223.43	71.19	16.33	28.28	28.98	13.33
5/31/2000	24:00:00	70.83	985.36	2.95	221.88	110.10	16.84	28.12	28.85	14.15
6/30/2000	24:00:00	86.75	987.74	2.39	233.21	210.01	13.94	24.88	24.8	15.66
7/31/2000	24:00:00	87.5	987.56	2.88	236.48	275.70	14.91	24.14	24.06	16.94
8/31/2000	24:00:00	86.92	988.25	3.05	237.86	358.98	15.20	24.02	23.98	18.61
9/30/2000	24:00:00	86.82	987.02	2.77	235.80	247.51	14.39	24.45	24.4	16.38
10/31/2000	24:00:00	86.08	987.06	1.50	241.11	178.74	15.03	24.96	24.83	15.15
11/30/2000	24:00:00	77.37	985.71	0.15	152.43	9.16	18.36	25.20	24.73	12.15

12/31/2000	24:00:00	70.24	987.21	1.35	48.93	5.41	18.81	22.75	21.82	11.92
1/31/2001	24:00:00	57.24	987.04	1.62	49.67	0.30	20.38	22.82	21.35	12.05
2/28/2001	24:00:00	63.78	985.53	0.48	61.66	6.26	16.22	24.10	23.19	11.95
3/31/2001	24:00:00	79.02	984.9	2.58	226.74	44.71	15.04	26.65	26.63	12.62
4/30/2001	24:00:00	82.65	984.79	2.77	226.85	98.36	14.29	26.62	26.51	13.63
5/31/2001	24:00:00	84.59	986.22	2.58	225.10	128.24	15.06	26.26	26.16	14.24
6/30/2001	24:00:00	85.66	987.93	2.89	229.61	195.35	15.24	25.11	25.06	15.46
7/31/2001	24:00:00	85.04	988.37	3.30	227.61	212.83	16.11	24.50	24.52	15.79
8/31/2001	24:00:00	83.97	989.29	3.50	239.25	181.14	17.24	24.41	24.47	15.22
9/30/2001	24:00:00	85.37	987.51	2.50	234.36	262.79	14.62	24.47	24.44	16.72
10/31/2001	24:00:00	82.76	987.02	1.16	208.06	108.03	16.21	25.39	25.3	13.89
11/30/2001	24:00:00	77.38	986.45	1.00	201.60	14.63	17.79	25.53	25.38	12.19
12/31/2001	24:00:00	67.75	986.01	0.67	149.76	4.38	18.72	25.31	24.83	12.13
1/31/2002	24:00:00	48.37	986.77	1.86	78.93	1.49	18.98	23.74	22.65	12.07
2/28/2002	24:00:00	57.8	985.74	1.19	190.87	22.24	16.48	26.62	26.62	12.44
3/31/2002	24:00:00	72.92	984.46	2.61	220.83	50.06	16.14	27.80	28.2	12.91
4/30/2002	24:00:00	82.39	983.56	3.11	226.66	100.68	15.18	26.84	26.85	13.73
5/31/2002	24:00:00	83.52	986.06	2.65	226.78	77.70	16.06	26.59	26.55	13.32
6/30/2002	24:00:00	85.09	988.19	2.98	232.51	164.37	14.45	25.32	25.24	14.81
7/31/2002	24:00:00	86.93	988.77	3.01	234.67	394.42	14.27	24.89	24.79	19.35
8/31/2002	24:00:00	85.41	988.38	2.83	232.98	277.08	16.48	24.65	24.69	17.13
9/30/2002	24:00:00	85.5	987.9	2.44	234.35	171.04	15.11	24.91	24.89	14.96
10/31/2002	24:00:00	84.14	986.77	1.42	233.61	149.27	15.45	25.11	25.04	14.62
11/30/2002	24:00:00	75.92	986.93	0.50	222.28	42.56	17.91	25.55	25.33	12.79
12/31/2002	24:00:00	65.79	987.49	0.73	69.92	3.94	18.85	24.30	23.63	12.06
1/31/2003	24:00:00	63.41	987.19	0.16	307.63	8.35	17.44	25.11	24.6	12.15
2/28/2003	24:00:00	71.16	985.17	1.71	226.35	30.64	15.04	27.03	27.11	12.44
3/31/2003	24:00:00	75.58	984.7	1.75	219.96	37.86	13.80	26.96	26.89	12.49
4/30/2003	24:00:00	81.9	985.23	2.82	229.83	129.25	15.10	26.87	26.87	14.31
5/31/2003	24:00:00	84.24	986.49	2.52	225.00	178.65	14.17	26.32	26.22	15.19
6/30/2003	24:00:00	84.32	987.36	2.53	227.72	255.69	13.76	25.34	25.29	16.61
7/31/2003	24:00:00	84.91	988.53	3.26	241.22	241.51	16.13	24.72	24.72	16.39
8/31/2003	24:00:00	83.63	988.33	3.40	238.26	234.35	15.81	24.92	24.94	16.24
9/30/2003	24:00:00	85.15	988.02	1.93	242.63	233.51	14.43	25.00	24.94	16.19
10/31/2003	24:00:00	85.46	986.08	1.64	228.92	234.29	14.98	25.69	25.6	16.33
11/30/2003	24:00:00	80.56	985.66	1.02	232.69	64.91	14.81	25.61	25.33	12.99
12/31/2003	24:00:00	66.11	986.39	0.37	55.05	3.64	17.00	24.31	23.39	11.97
1/31/2004	24:00:00	67.71	985.3	0.46	213.70	5.13	16.91	25.18	24.65	12.02
2/28/2004	24:00:00	65.3	985.74	0.68	197.60	16.19	16.16	26.11	25.76	12.26
3/31/2004	24:00:00	67.59	984.65	1.88	230.38	48.27	15.51	27.57	27.52	12.91
4/30/2004	24:00:00	81.51	985.05	3.33	227.49	139.08	15.14	26.95	26.91	14.51
5/31/2004	24:00:00	85.21	986.82	2.73	225.48	240.87	14.75	26.20	26.15	16.45
6/30/2004	24:00:00	86.07	988.94	2.88	231.76	212.87	13.10	25.18	25.08	15.67
7/31/2004	24:00:00	86.26	988.11	2.98	237.92	359.68	13.45	24.43	24.34	18.55
8/31/2004	24:00:00	84.48	988.57	3.25	234.18	257.92	15.44	24.84	24.88	16.68
9/30/2004	24:00:00	85.64	987.33	1.97	224.99	193.35	13.35	25.01	24.97	15.31
10/31/2004	24:00:00	84.33	986.63	2.01	225.79	160.46	14.71	25.58	25.58	14.80
11/30/2004	24:00:00	79.47	985.81	1.31	221.75	64.73	13.84	25.82	25.67	12.92
12/31/2004	24:00:00	67.89	985.28	0.77	206.08	7.82	17.32	25.92	25.92	12.10
1/31/2005	24:00:00	50.23	985.86	1.04	79.95	6.29	16.69	24.65	24.05	12.06

2/28/2005	24:00:00	66.94	983.95	2.23	225.06	37.55	12.99	28.33	28.75	12.53
3/31/2005	24:00:00	75.55	984.89	2.76	226.31	64.50	12.90	27.79	27.92	12.98
4/30/2005	24:00:00	74.79	984.69	3.33	225.51	113.27	13.19	28.25	28.5	13.99
5/31/2005	24:00:00	73.72	986.21	2.87	218.16	162.66	14.40	27.55	27.96	15.00
6/30/2005	24:00:00	79.74	987.27	3.06	227.44	279.29	14.20	26.35	26.51	17.19
7/31/2005	24:00:00	78.75	988.7	3.02	232.26	312.16	14.64	25.64	25.87	17.81
8/31/2005	24:00:00	72.47	987.92	3.74	234.22	153.00	17.88	26.13	26.82	14.85
9/30/2005	24:00:00	83.62	987.41	2.03	232.98	317.76	16.04	25.65	25.75	18.04
10/31/2005	24:00:00	83.03	986.92	1.51	219.47	178.07	15.17	25.72	25.76	15.22
11/30/2005	24:00:00	72.97	985.45	0.85	205.36	24.54	16.91	26.24	26.15	12.42
12/31/2005	24:00:00	65.86	984.56	1.02	202.36	23.37	16.55	26.75	27.06	12.41
1/31/2006	24:00:00	65.76	984.21	1.74	224.58	26.57	14.70	27.66	28.18	12.38
2/28/2006	24:00:00	68.36	984.09	2.83	225.25	37.83	13.16	28.29	28.94	12.49
3/31/2006	24:00:00	71.39	985.02	2.85	224.15	55.71	12.74	27.71	28.02	12.78
4/30/2006	24:00:00	71.84	984.14	2.87	217.54	84.20	13.87	28.11	28.51	13.46
5/31/2006	24:00:00	80.14	986.56	2.61	219.28	374.74	15.00	26.61	26.69	19.20
6/30/2006	24:00:00	81.41	987.33	2.48	225.55	188.67	13.46	26.10	26.09	15.33
7/31/2006	24:00:00	82.48	988.22	3.11	236.21	199.52	14.80	25.54	25.55	15.56
8/31/2006	24:00:00	85.49	987.73	3.20	231.27	313.99	15.89	24.69	24.71	17.82
9/30/2006	24:00:00	86.44	987.81	2.16	235.44	245.71	13.32	24.76	24.7	16.32
10/31/2006	24:00:00	84.31	986.12	1.27	229.12	143.99	14.69	25.90	25.84	14.54
11/30/2006	24:00:00	71.04	986.03	0.31	86.53	12.78	16.65	25.12	24.5	12.14
12/31/2006	24:00:00	59.41	987.22	0.83	82.56	0.26	19.44	24.26	23.5	12.06
1/31/2007	24:00:00	52.29	987.08	1.87	69.57	0.85	18.55	23.60	22.87	11.95
2/28/2007	24:00:00	66.36	985.41	1.48	229.10	31.53	14.63	26.71	26.78	12.44
3/31/2007	24:00:00	67.12	984.26	2.48	221.38	38.19	15.65	27.76	28.01	12.68
4/30/2007	24:00:00	75.34	984.47	3.26	229.09	158.20	14.25	27.75	27.92	14.92
5/31/2007	24:00:00	83.06	985.78	2.53	225.47	134.91	14.36	26.59	26.45	14.37
6/30/2007	24:00:00	86.13	987.66	2.97	227.59	301.63	14.38	25.25	25.15	17.54
7/31/2007	24:00:00	86.73	988.13	3.16	230.77	257.52	14.66	24.58	24.49	16.60
8/31/2007	24:00:00	87.83	987.43	2.79	233.64	369.39	14.04	24.36	24.28	18.78
9/30/2007	24:00:00	87.78	987.68	1.87	231.57	434.19	13.82	24.84	24.72	20.14
10/31/2007	24:00:00	87.76	986.46	1.73	220.06	195.95	13.85	24.85	24.68	15.39
11/30/2007	24:00:00	81.73	985.41	0.93	223.26	134.09	15.35	25.40	25	14.40
12/31/2007	24:00:00	72.03	985.97	0.65	14.54	17.08	18.09	23.95	23.08	12.23
1/31/2008	24:00:00	65.96	986.02	1.38	33.27	7.44	17.07	23.04	22.2	11.88
2/28/2008	24:00:00	61.72	986.13	0.61	51.75	6.32	17.02	24.38	23.21	12.07
3/31/2008	24:00:00	81.86	984.14	2.85	227.47	71.85	14.75	26.41	26.35	13.10
4/30/2008	24:00:00	82.15	983.88	2.32	220.50	106.75	14.19	26.24	26.1	13.77
5/31/2008	24:00:00	83.19	985.36	2.20	224.35	152.49	13.95	26.20	25.97	14.67
6/30/2008	24:00:00	85.02	987.09	2.37	226.95	237.01	13.78	25.47	25.33	16.26
7/31/2008	24:00:00	85.8	988.2	2.81	233.98	378.25	14.40	24.65	24.56	19.02
8/31/2008	24:00:00	86.87	986.97	2.82	237.83	433.67	13.71	24.38	24.29	20.05
9/30/2008	24:00:00	86.4	987.42	2.08	227.98	323.55	14.36	24.90	24.81	17.97
10/31/2008	24:00:00	84.11	986.64	1.43	230.92	133.24	14.93	25.51	25.32	14.31
11/30/2008	24:00:00	75.29	985.67	0.19	273.37	28.22	17.69	25.89	25.49	12.56
12/31/2008	24:00:00	72.16	985.46	0.16	337.46	28.89	16.65	25.12	24.44	12.47
1/31/2009	24:00:00	71.89	985.68	0.94	248.06	25.55	14.81	25.60	25.08	12.28
2/28/2009	24:00:00	75.99	984.41	2.08	230.56	33.28	14.28	26.89	27.01	12.39
3/31/2009	24:00:00	77.06	983.85	2.36	229.87	42.36	13.80	27.12	27.02	12.57

4/30/2009	24:00:00	82.05	985.24	2.64	227.37	110.89	14.28	26.60	26.52	13.88
5/31/2009	24:00:00	84.86	985.76	2.23	229.00	143.71	14.25	26.03	25.9	14.48
6/30/2009	24:00:00	85.78	987.81	2.37	226.76	195.34	13.61	25.38	25.3	15.39
7/31/2009	24:00:00	85.97	988.23	2.87	233.49	407.89	14.40	24.96	24.87	19.64
8/31/2009	24:00:00	86.35	987.65	2.73	237.07	266.72	14.40	24.78	24.76	16.79
9/30/2009	24:00:00	85.65	988.07	2.07	228.76	212.58	14.09	25.24	25.23	15.76
10/31/2009	24:00:00	85.25	986.38	1.50	225.23	348.67	14.66	25.30	25.23	18.56
11/30/2009	24:00:00	74.79	986.28	0.12	27.16	55.00	17.25	25.04	24.38	13.01
12/31/2009	24:00:00	64.46	986.49	0.48	50.96	1.77	19.22	25.05	24.01	12.17
1/31/2010	24:00:00	66.09	986.16	0.67	223.24	8.70	18.22	25.84	25.27	12.25
2/28/2010	24:00:00	72.68	985.2	2.22	229.17	34.36	14.05	27.22	27.01	12.47
3/31/2010	24:00:00	71.19	985.6	2.13	222.83	46.72	14.89	27.68	27.68	12.81
4/30/2010	24:00:00	79.45	984.99	2.80	226.58	70.43	14.58	27.40	27.3	13.18
5/31/2010	24:00:00	83.34	985.92	2.65	224.59	174.52	14.65	26.87	26.78	15.20
6/30/2010	24:00:00	85.79	988.03	2.38	223.39	302.41	12.63	25.62	25.46	17.50
7/31/2010	24:00:00	85.96	988	2.79	230.31	340.39	14.30	24.74	24.69	18.26
8/31/2010	24:00:00	85.97	987.79	3.00	228.05	237.23	15.33	24.78	24.76	16.26
9/30/2010	24:00:00	86.24	987.06	2.18	227.87	305.00	14.30	24.79	24.73	17.58
10/31/2010	24:00:00	86.72	986.36	1.97	219.56	192.38	15.20	25.17	25.11	15.43
11/30/2010	24:00:00	81.07	985.2	0.91	221.84	90.51	16.03	25.82	25.64	13.60
12/31/2010	24:00:00	66.46	985.05	0.59	49.52	7.05	19.82	24.45	23.5	12.23
1/31/2011	24:00:00	60.93	984.99	1.12	60.03	0.96	19.79	23.77	22.53	12.09
2/28/2011	24:00:00	78.09	984.76	2.55	235.67	46.04	13.65	26.10	25.9	12.53
3/31/2011	24:00:00	78.18	984.3	2.71	228.33	52.34	15.98	26.88	26.71	12.88
4/30/2011	24:00:00	81.17	984.27	2.80	225.82	71.94	13.44	26.49	26.19	13.05
5/31/2011	24:00:00	84.9	985.91	2.50	226.37	148.52	13.05	26.20	25.95	14.52
6/30/2011	24:00:00	86.74	987.39	2.74	227.26	194.67	12.72	25.36	25.18	15.31
7/31/2011	24:00:00	86.23	987.59	2.74	232.39	492.44	14.99	24.82	24.76	21.36
8/31/2011	24:00:00	85.97	987.83	3.10	237.20	266.60	16.03	24.59	24.56	16.88
9/30/2011	24:00:00	86.55	988.03	2.20	229.65	298.62	14.02	24.71	24.62	17.43
10/31/2011	24:00:00	85.98	985.68	1.43	219.77	331.77	13.33	25.01	24.8	18.11
11/30/2011	24:00:00	75.72	985.98	0.55	238.10	21.02	18.28	25.28	24.73	12.39
12/31/2011	24:00:00	62.09	986.74	0.76	53.95	2.41	19.36	23.33	21.83	12.08
1/31/2012	24:00:00	65.95	986.38	0.28	197.45	14.62	17.33	24.39	23.33	12.23
2/28/2012	24:00:00	76.66	984.42	2.69	230.67	64.45	14.99	26.45	26.41	13.01
3/31/2012	24:00:00	74.44	985.17	2.05	233.58	35.27	14.64	26.75	26.46	12.49
4/30/2012	24:00:00	81.82	985.1	3.29	230.39	111.84	14.46	26.49	26.28	13.89
5/31/2012	24:00:00	83.44	986.84	2.34	230.92	214.91	14.09	25.85	25.7	15.88
6/30/2012	24:00:00	84.86	988.14	2.47	234.25	449.97	14.26	25.18	25.05	20.52
7/31/2012	24:00:00	85.61	988.01	3.08	233.99	373.73	15.80	24.59	24.58	19.00
8/31/2012	24:00:00	85.58	988.52	2.94	237.35	370.31	16.09	24.41	24.45	18.94
9/30/2012	24:00:00	86.32	988.46	2.42	231.32	328.55	14.38	24.62	24.58	18.03
10/31/2012	24:00:00	85.94	986.55	1.51	218.41	184.06	13.85	25.14	25.01	15.20
11/30/2012	24:00:00	80.18	986.02	0.70	221.02	59.75	15.38	25.79	25.46	12.96
12/31/2012	24:00:00	66.72	986.25	0.79	51.37	12.18	18.52	24.29	23.35	12.22
1/31/2013	24:00:00	67.89	986.67	0.14	212.06	25.85	16.54	25.15	24.36	12.44
2/28/2013	24:00:00	74.49	985.02	1.61	233.40	29.22	13.88	26.32	26.11	12.28
3/31/2013	24:00:00	80.34	985.35	3.23	224.97	81.80	14.04	26.85	26.73	13.30
4/30/2013	24:00:00	79.28	985.86	2.60	223.04	95.16	14.97	26.89	26.77	13.66
5/31/2013	24:00:00	84.07	986.88	2.48	229.36	169.19	13.27	25.99	25.78	14.92

6/30/2013	24:00:00	85.32	987.8	2.80	232.60	165.05	14.44	25.36	25.26	14.83
7/31/2013	24:00:00	85.65	988.57	2.83	237.42	415.63	14.77	24.56	24.51	19.78
8/31/2013	24:00:00	84.82	987.84	3.15	235.03	166.93	16.09	24.41	24.41	14.87
9/30/2013	24:00:00	85.98	987.91	2.02	227.18	359.84	14.14	24.89	24.83	18.68
10/31/2013	24:00:00	83.22	987.22	1.22	218.76	158.18	16.74	25.43	25.37	14.93
11/30/2013	24:00:00	82.54	985.53	1.67	220.72	58.55	16.01	25.69	25.57	12.90
12/31/2013	24:00:00	73.88	986.64	0.75	200.75	37.74	17.70	24.55	23.86	12.64
1/31/2014	24:00:00	69.55	986.15	1.19	214.03	22.66	17.57	25.51	24.73	12.44
2/28/2014	24:00:00	69.61	984.97	1.57	222.28	27.72	15.49	26.49	26.08	12.43
3/31/2014	24:00:00	78.23	985.27	3.01	225.49	77.20	14.20	26.73	26.51	13.23
4/30/2014	24:00:00	81.02	985.69	2.84	224.56	145.24	13.98	26.66	26.49	14.56
5/31/2014	24:00:00	81.98	986.02	2.04	221.13	194.79	15.40	26.62	26.46	15.67
6/30/2014	24:00:00	82.18	987.71	2.62	228.62	126.41	14.95	26.05	25.97	14.18
7/31/2014	24:00:00	83.41	989.39	3.05	228.58	226.42	15.57	25.28	25.25	16.12
8/31/2014	24:00:00	84.09	988.5	3.00	233.68	279.11	15.73	24.77	24.78	17.13
9/30/2014	24:00:00	84.6	988.02	2.15	228.54	412.35	15.02	24.86	24.88	19.78
10/31/2014	24:00:00	83.3	987.12	1.40	221.77	251.35	14.96	25.55	25.5	16.67
11/30/2014	24:00:00	77.22	986.46	1.20	218.63	94.34	15.92	26.01	25.88	13.69
12/31/2014	24:00:00	58.61	986.84	0.56	161.99	5.74	18.86	26.24	26.09	12.27
1/31/2015	24:00:00	51.77	987.69	0.83	92.71	8.09	18.74	25.23	25.19	12.23
2/28/2015	24:00:00	67.38	985.46	2.74	226.29	53.46	13.83	28.16	28.84	12.84
3/31/2015	24:00:00	70.81	985.18	2.64	224.77	73.34	15.27	27.79	28.18	13.32
4/30/2015	24:00:00	71.58	986.11	2.52	226.69	58.70	15.83	27.76	28.02	13.08
5/31/2015	24:00:00	76.3	986.74	2.89	224.37	193.62	13.77	27.28	27.48	15.56
6/30/2015	24:00:00	82.74	988.47	3.18	226.95	184.12	15.13	25.86	25.9	15.29
7/31/2015	24:00:00	83.79	988.36	2.93	232.80	229.00	14.55	25.44	25.48	16.11
8/31/2015	24:00:00	83.48	988.08	2.98	230.25	467.48	14.48	25.26	25.41	20.85
9/30/2015	24:00:00	85.09	987.82	2.59	230.95	324.23	14.16	25.33	25.41	17.98
10/31/2015	24:00:00	83.81	987.33	1.83	226.68	308.69	14.50	25.80	25.84	17.78
11/30/2015	24:00:00	69.79	986.59	0.57	198.41	47.82	17.97	26.73	26.96	13.00
12/31/2015	24:00:00	42.46	988.44	2.98	60.08	0.34	19.74	24.80	24.66	12.09
1/31/2016	24:00:00	40.9	987.32	1.57	73.05	1.56	20.21	26.66	26.99	12.33
2/28/2016	24:00:00	47.84	985.74	1.16	218.00	7.37	16.94	29.16	30.12	12.37
3/31/2016	24:00:00	70.88	985.76	3.22	232.60	211.44	15.13	28.69	29.21	16.12
4/30/2016	24:00:00	73.62	985.37	3.19	226.06	85.28	14.84	28.41	28.8	13.55
5/31/2016	24:00:00	80.45	987.46	2.75	228.54	219.87	15.35	26.95	27.14	16.14
6/30/2016	24:00:00	83.23	988.81	2.68	237.01	381.48	13.64	25.64	25.72	19.13
7/31/2016	24:00:00	85.39	988.38	2.95	234.47	210.96	14.57	24.98	25	15.70
8/31/2016	24:00:00	86.43	988.33	2.82	230.82	274.53	13.76	24.75	24.69	16.90
9/30/2016	24:00:00	86.24	988.12	2.18	233.24	272.01	14.15	25.02	25.01	16.93
10/31/2016	24:00:00	83.99	986.35	1.38	222.64	182.56	15.00	25.79	25.68	15.32
11/30/2016	24:00:00	75.51	985.94	0.42	214.16	47.95	17.35	26.40	26.04	12.96
12/31/2016	24:00:00	65.83	986.12	0.52	72.92	8.18	16.44	25.34	24.51	12.10
1/31/2017	24:00:00	64.87	985.88	0.89	232.07	15.77	16.60	26.19	25.78	12.29
2/28/2017	24:00:00	59.66	985.53	0.71	207.48	8.47	15.50	27.09	27.2	12.14
3/31/2017	24:00:00	74.64	984.89	2.75	221.74	57.84	15.23	27.71	27.83	13.01
4/30/2017	24:00:00	80.03	985.29	2.66	221.81	94.78	13.46	26.99	26.9	13.55
5/31/2017	24:00:00	83.33	986.66	2.39	224.48	136.57	15.38	26.59	26.57	14.46
6/30/2017	24:00:00	84.73	987.45	2.14	231.78	177.31	13.99	25.83	25.76	15.11
7/31/2017	24:00:00	86.24	988.98	2.87	231.94	247.08	15.31	24.92	24.89	16.47

8/31/2017	24:00:00	86.67	988.03	2.89	233.12	274.24	15.55	24.74	24.71	17.01
9/30/2017	24:00:00	86.57	987.83	2.04	231.69	209.41	13.45	25.02	24.88	15.64
10/31/2017	24:00:00	84.45	986.76	1.75	228.44	104.15	14.94	25.83	25.71	13.74
11/30/2017	24:00:00	78.57	986.07	1.10	238.06	56.49	15.48	25.74	25.37	12.90
12/31/2017	24:00:00	69.27	986.11	0.06	298.03	8.40	16.89	25.53	24.85	12.14
1/31/2018	24:00:00	53.79	986.69	1.11	64.78	1.00	18.64	23.74	22.25	12.07
2/28/2018	24:00:00	75.31	984.46	2.33	234.90	63.58	14.04	26.71	26.65	12.97
3/31/2018	24:00:00	79.36	985.48	3.12	229.29	90.60	15.47	26.88	26.87	13.57
4/30/2018	24:00:00	80.72	985.48	3.25	223.67	108.34	14.63	26.77	26.75	13.85
5/31/2018	24:00:00	83.32	986.47	2.92	227.15	134.86	14.86	26.27	26.2	14.35
6/30/2018	24:00:00	86.08	988.13	2.80	231.58	228.13	13.42	25.23	25.09	16.01
7/31/2018	24:00:00	86.22	988.61	2.62	238.88	268.64	14.83	24.88	24.79	16.88
8/31/2018	24:00:00	86.67	988.48	2.83	234.18	299.22	15.84	24.68	24.66	17.53
9/30/2018	24:00:00	87.58	986.8	2.14	227.25	549.42	14.00	24.96	24.89	22.46
10/31/2018	24:00:00	86.33	986.63	1.64	226.67	205.30	14.48	25.52	25.33	15.70
11/30/2018	24:00:00	78.74	985.68	0.74	244.44	37.47	16.53	26.23	25.9	12.65
12/31/2018	24:00:00	62.93	987.1	0.77	25.64	3.83	17.81	24.72	23.47	12.10
1/31/2019	24:00:00	68.6	986.79	1.02	253.28	21.21	17.27	25.41	24.75	12.37
2/28/2019	24:00:00	68.62	986.02	1.20	239.99	37.93	13.50	26.01	25.38	12.50
3/31/2019	24:00:00	79.3	985.71	2.59	233.11	72.57	13.86	27.04	26.86	13.15
4/30/2019	24:00:00	79.86	985.23	2.97	226.38	119.09	14.74	27.44	27.24	14.17
5/31/2019	24:00:00	82.83	986.07	2.50	228.84	142.62	14.32	26.65	26.48	14.53
6/30/2019	24:00:00	84.73	988.32	2.65	232.05	290.05	15.36	25.86	25.81	17.45
7/31/2019	24:00:00	85.82	988.21	2.65	231.19	337.68	14.79	25.11	25.03	18.28
8/31/2019	24:00:00	87	989.1	2.94	230.02	319.35	14.96	24.65	24.56	17.87
9/30/2019	24:00:00	88.07	987.87	2.31	228.48	268.33	13.59	24.97	24.83	16.81
10/31/2019	24:00:00	87.41	986.53	1.75	219.27	205.10	14.74	24.90	24.8	15.64
11/30/2019	24:00:00	80.06	985.55	0.53	241.82	56.40	16.47	26.43	26.05	13.04
12/31/2019	24:00:00	62.56	986.39	1.00	32.42	1.26	20.69	24.94	23.67	12.27

Appendix 1C: IMO River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);5.531
 # Site longitude (positive means East);7.406
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 53m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	73.41	1000.68	1.09	348.2	55.70	16.87	24.23	23.73	183.35
2/28/1981	24:00:00	73.99	999.5	1.19	271.81	38.96	16.54	25.74	25.48	266.59
3/31/1981	24:00:00	81.31	999.96	2.08	230.86	85.30	15.55	26.18	26.20	386.87
4/30/1981	24:00:00	83.75	999.27	2.01	221.17	127.93	15.65	26.57	26.57	418.03
5/31/1981	24:00:00	86.91	1000.5	1.97	225.42	464.26	13.26	25.56	25.46	628.39
6/30/1981	24:00:00	86.7	1002.1	2.07	226	231.96	13.89	25.44	25.30	508.82
7/31/1981	24:00:00	88.2	1002.78	2.86	229.07	366.37	15.47	24.21	24.15	423.53
8/31/1981	24:00:00	85.91	1002.47	2.88	227.71	340.58	17.00	24.30	24.36	344.73
9/30/1981	24:00:00	88.09	1002.31	2.55	238.24	340.42	14.76	24.50	24.41	469.09
10/31/1981	24:00:00	89.04	1000.78	2.04	224.48	388.59	12.85	24.91	24.76	614.70
11/30/1981	24:00:00	84.28	1000.3	0.48	331.51	324.21	13.29	24.20	23.92	594.74
12/31/1981	24:00:00	74.64	1000.46	0.74	339.95	8.06	17.27	24.85	24.20	160.38
1/31/1982	24:00:00	77.57	999.85	0.69	289.08	42.72	15.70	25.33	25.04	349.45
2/28/1982	24:00:00	73.09	999.41	0.97	306.7	105.84	15.60	24.98	24.58	301.99
3/31/1982	24:00:00	81.32	999.15	1.39	236.49	580.13	14.56	25.65	25.48	583.18
4/30/1982	24:00:00	85.79	999.44	2.37	224.74	177.19	14.74	26.10	26.08	459.67
5/31/1982	24:00:00	87.29	1000.47	1.99	230.65	396.60	13.46	25.64	25.52	596.54
6/30/1982	24:00:00	89.62	1002.75	2.47	230.43	480.68	12.93	24.67	24.54	616.33
7/31/1982	24:00:00	89.49	1002.7	2.82	241.46	296.42	14.18	23.93	23.80	460.80
8/31/1982	24:00:00	88.06	1003.2	2.88	237.41	164.34	17.97	23.59	23.57	226.94
9/30/1982	24:00:00	89.32	1002.13	2.61	236.11	539.23	14.43	24.31	24.20	543.82
10/31/1982	24:00:00	89.97	1000.87	1.94	237.46	806.62	11.69	24.28	24.11	797.23
11/30/1982	24:00:00	83.06	1000.43	1.05	352.28	172.65	15.68	24.21	23.90	379.55
12/31/1982	24:00:00	77.79	1000.25	0.9	356.97	135.24	15.25	24.30	23.86	342.79
1/31/1983	24:00:00	67.47	1001.27	4.09	30.65	0.01	19.71	20.79	20.49	0.00
2/28/1983	24:00:00	71.74	1000.11	1.03	280.39	28.76	18.63	26.41	26.27	185.06
3/31/1983	24:00:00	70.82	999.45	1.05	249.57	33.70	20.03	26.98	26.76	103.50
4/30/1983	24:00:00	83.11	999.08	2.15	219.87	129.45	14.81	26.84	26.90	466.11
5/31/1983	24:00:00	87.09	999.81	2.2	220.01	325.23	14.47	25.88	25.80	521.57
6/30/1983	24:00:00	88.39	1002.26	2.73	222.16	426.84	14.99	24.92	24.84	484.67
7/31/1983	24:00:00	88.31	1002.75	2.92	228.61	409.61	15.38	24.13	24.04	431.41
8/31/1983	24:00:00	88.25	1004.22	3.02	227.82	151.21	17.75	23.47	23.43	221.18
9/30/1983	24:00:00	89	1002.53	2.42	232.31	340.15	13.83	24.15	24.05	522.07
10/31/1983	24:00:00	87.66	1001.54	1.62	222.48	392.94	13.97	24.57	24.40	563.41
11/30/1983	24:00:00	83.83	1001.93	1.23	232.5	136.86	14.84	25.11	24.90	442.02
12/31/1983	24:00:00	80.55	1001.15	0.62	271.5	197.68	15.06	24.27	23.87	412.30
1/31/1984	24:00:00	67.36	1000.38	1.52	25.74	2.63	19.32	23.01	22.05	0.00
2/28/1984	24:00:00	79.68	998.56	1.14	231.26	33.49	15.59	25.51	25.57	408.17
3/31/1984	24:00:00	83.89	998.43	2.26	227.24	165.09	14.58	25.81	25.87	467.63

4/30/1984	24:00:00	85.68	999.01	2.19	224.02	228.74	13.44	25.54	25.48	534.03
5/31/1984	24:00:00	85.77	999.57	1.88	227.79	230.41	14.46	25.50	25.44	499.91
6/30/1984	24:00:00	86.97	1001.55	2.12	229.75	203.49	13.77	24.89	24.80	504.13
7/31/1984	24:00:00	87.78	1001.62	2.35	239.2	407.09	13.08	24.25	24.13	575.39
8/31/1984	24:00:00	87.75	1002.02	2.42	246.14	581.98	13.75	24.45	24.38	602.67
9/30/1984	24:00:00	87.96	1001.28	2.05	237.76	309.99	14.26	24.50	24.36	504.74
10/31/1984	24:00:00	89.4	1000.54	1.8	233.2	625.15	12.56	24.62	24.44	706.77
11/30/1984	24:00:00	83.68	1000.42	1.03	240.96	186.07	14.62	24.98	24.74	471.08
12/31/1984	24:00:00	76.37	999.53	1.11	4.09	16.41	16.54	23.37	22.80	177.05
1/31/1985	24:00:00	78.62	999.26	1.19	268.91	87.72	15.25	25.26	24.98	364.83
2/28/1985	24:00:00	60.09	999.99	0.98	357.27	1.49	19.97	25.01	23.90	0.00
3/31/1985	24:00:00	80.43	998.67	2.08	226.78	165.11	15.67	25.91	25.90	388.70
4/30/1985	24:00:00	84.26	999.38	2.12	212.18	182.58	15.52	25.70	25.76	433.05
5/31/1985	24:00:00	87.02	1000.27	2.41	220.52	359.05	13.93	25.36	25.27	535.36
6/30/1985	24:00:00	86.87	1003.05	2.47	230.66	375.25	14.24	24.61	24.57	515.00
7/31/1985	24:00:00	87.16	1002.97	2.41	238.65	344.25	14.78	23.89	23.85	469.21
8/31/1985	24:00:00	87.64	1002.35	2.45	235.25	321.31	14.73	24.12	24.08	470.26
9/30/1985	24:00:00	87.53	1001.51	2.29	235.22	308.41	14.85	24.24	24.19	469.09
10/31/1985	24:00:00	87.64	1000.39	1.43	212.88	627.72	13.01	24.76	24.61	702.63
11/30/1985	24:00:00	85.52	999.99	1.16	231.52	399.54	12.92	25.50	25.30	644.73
12/31/1985	24:00:00	74.37	999.67	1	336.72	53.68	16.50	24.16	23.51	184.50
1/31/1986	24:00:00	73.56	1000.35	0.87	276.86	34.14	18.84	25.30	24.99	144.44
2/28/1986	24:00:00	80.97	999.71	2.28	231.35	74.44	13.26	25.53	25.66	496.48
3/31/1986	24:00:00	82.81	1000.12	2.24	225.8	175.47	15.21	25.38	25.48	431.92
4/30/1986	24:00:00	84.4	998.98	2.58	220.84	184.19	15.45	26.10	26.14	414.99
5/31/1986	24:00:00	85.99	1000.59	1.94	217.2	460.53	13.66	25.42	25.30	596.21
6/30/1986	24:00:00	84.76	1002.07	2.47	218.45	192.20	16.45	25.05	25.09	354.82
7/31/1986	24:00:00	85.61	1003.99	2.91	227.56	325.65	15.98	24.11	24.17	385.40
8/31/1986	24:00:00	85.7	1002.62	2.81	233.72	329.95	16.15	23.92	23.99	382.58
9/30/1986	24:00:00	86.91	1002.59	2.42	233.24	398.54	14.86	24.20	24.18	488.99
10/31/1986	24:00:00	89	1001.53	2	229.93	1144.41	12.45	24.49	24.31	853.10
11/30/1986	24:00:00	85.59	1000.03	0.88	271.13	354.58	13.53	25.10	24.94	615.97
12/31/1986	24:00:00	73.01	1001.37	1.76	11.37	24.64	17.43	22.91	22.21	41.64
1/31/1987	24:00:00	72.64	1001.24	0.59	282.69	9.87	19.98	25.43	24.91	52.29
2/28/1987	24:00:00	80.57	1000.46	2.07	225.87	80.24	16.32	26.54	26.82	396.80
3/31/1987	24:00:00	80.48	999.38	1.8	227.68	133.08	16.28	26.27	26.28	374.81
4/30/1987	24:00:00	82.09	999.92	1.83	211.97	94.09	17.10	26.84	26.95	358.26
5/31/1987	24:00:00	85.65	999.84	2.28	214.23	211.60	14.74	26.20	26.14	468.68
6/30/1987	24:00:00	86.44	1002.68	2.37	226.25	287.78	14.32	25.18	25.13	495.95
7/31/1987	24:00:00	87.14	1001.45	2.58	235.99	549.45	13.66	25.14	25.05	593.64
8/31/1987	24:00:00	88.21	1001.59	2.75	233.25	343.47	14.75	24.84	24.76	468.02
9/30/1987	24:00:00	89.14	1001.73	2.62	230.92	382.73	13.92	24.97	24.83	527.63
10/31/1987	24:00:00	89.17	1000.76	1.95	227.23	454.07	12.21	25.16	24.96	668.86
11/30/1987	24:00:00	84.3	1000.42	0.93	228.64	301.98	14.03	25.65	25.33	544.03
12/31/1987	24:00:00	75.1	1000.93	0.81	301.74	105.93	16.45	25.25	24.47	215.08
1/31/1988	24:00:00	75.75	1000.32	0.7	292.87	38.93	16.65	25.39	24.98	266.24
2/28/1988	24:00:00	76.83	998.37	1.35	252.82	28.48	16.78	26.93	26.93	330.60
3/31/1988	24:00:00	83.19	999.62	2.06	231.63	113.20	14.61	26.83	26.87	473.01
4/30/1988	24:00:00	84.97	999.08	2.43	225.83	183.61	14.01	26.55	26.51	495.20
5/31/1988	24:00:00	86.05	1000.52	2.09	214.47	210.19	14.67	26.27	26.20	485.01

6/30/1988	24:00:00	87.27	1001.56	2.24	235.73	360.52	13.86	25.33	25.25	552.12
7/31/1988	24:00:00	87.92	1002.78	2.92	241.5	377.59	15.78	24.40	24.33	407.14
8/31/1988	24:00:00	87.48	1001.83	3.01	235.79	225.19	17.96	24.58	24.57	254.94
9/30/1988	24:00:00	89.33	1001.34	2.65	241.29	500.56	13.78	24.58	24.44	562.82
10/31/1988	24:00:00	88.93	1000.17	1.68	233.32	502.69	12.65	25.08	24.86	670.10
11/30/1988	24:00:00	82.48	1000.54	0.51	274.2	238.80	15.16	25.60	25.26	474.46
12/31/1988	24:00:00	81.04	999.89	0.87	335.46	124.48	13.67	24.20	23.81	451.08
1/31/1989	24:00:00	64.33	1001.24	3.22	23.41	0.74	20.95	21.27	20.58	0.00
2/28/1989	24:00:00	61.02	1000.46	1.56	12.86	5.48	19.15	24.16	23.20	0.00
3/31/1989	24:00:00	81.9	998.87	2.32	228.75	86.36	15.68	26.02	26.13	384.04
4/30/1989	24:00:00	85.25	998.76	2.47	219.8	170.58	14.37	26.07	26.08	472.50
5/31/1989	24:00:00	86.47	1000.98	2.09	224.24	417.06	13.61	25.57	25.51	593.89
6/30/1989	24:00:00	87.75	1002.2	2.22	225.53	311.42	13.11	24.89	24.76	562.56
7/31/1989	24:00:00	88.85	1002.99	2.66	229.99	504.07	14.37	24.23	24.09	522.96
8/31/1989	24:00:00	89.24	1002.28	2.86	232.1	345.85	14.49	24.34	24.19	459.84
9/30/1989	24:00:00	89.33	1000.75	2.4	238.12	382.44	12.96	24.50	24.33	576.51
10/31/1989	24:00:00	88.16	1001.1	1.61	241.66	370.59	12.96	24.90	24.73	618.81
11/30/1989	24:00:00	83.83	999.71	0.53	280.55	460.81	13.65	25.60	25.33	640.42
12/31/1989	24:00:00	75.86	1000.62	1.01	4.31	27.77	15.00	24.53	23.88	269.89
1/31/1990	24:00:00	76.92	999.59	1.22	279	57.44	16.19	25.65	25.39	305.23
2/28/1990	24:00:00	67.89	1000.14	0.86	343.07	14.59	17.17	25.36	24.69	123.51
3/31/1990	24:00:00	73.07	999.83	1.07	258.83	22.74	18.42	26.82	26.57	187.51
4/30/1990	24:00:00	84.53	999.16	2.44	221.18	196.73	14.35	26.60	26.59	485.11
5/31/1990	24:00:00	86.48	1000.85	2.26	230.72	345.81	13.86	25.88	25.83	557.35
6/30/1990	24:00:00	86.77	1002.35	2.52	226.56	228.57	13.18	25.38	25.28	525.11
7/31/1990	24:00:00	86.79	1002.68	3.06	230.81	407.08	14.25	24.56	24.49	482.65
8/31/1990	24:00:00	85.58	1002.99	2.94	237.63	414.85	15.00	24.80	24.81	465.11
9/30/1990	24:00:00	87.09	1001.79	2.51	235.23	575.78	12.82	24.79	24.73	647.53
10/31/1990	24:00:00	86.18	1000.95	1.87	225.79	584.13	13.90	25.37	25.33	640.63
11/30/1990	24:00:00	84.54	1000.14	1.44	226.83	179.77	13.43	25.77	25.65	549.50
12/31/1990	24:00:00	83.54	999.81	1.29	241.9	245.08	13.92	25.54	25.36	530.66
1/31/1991	24:00:00	70.81	1000.34	0.47	10.93	6.12	18.40	25.03	24.41	101.79
2/28/1991	24:00:00	81.45	999.81	2.14	234.71	88.49	13.71	26.70	26.86	516.45
3/31/1991	24:00:00	81.85	998.52	2.12	225.43	131.19	15.44	26.93	27.04	438.57
4/30/1991	24:00:00	84.16	999.39	2.39	220.78	204.81	15.15	26.25	26.29	449.44
5/31/1991	24:00:00	85.44	1000.11	2.16	231.58	433.80	15.12	26.16	26.15	530.55
6/30/1991	24:00:00	86.64	1001.72	2.43	231.97	465.29	13.62	25.63	25.56	588.60
7/31/1991	24:00:00	87.45	1003.02	2.86	224.15	323.83	14.46	24.54	24.48	463.86
8/31/1991	24:00:00	86.25	1003.42	3.06	227.46	300.92	15.64	24.48	24.47	384.89
9/30/1991	24:00:00	86.73	1002.26	2.87	232.65	533.36	14.58	25.02	24.99	530.47
10/31/1991	24:00:00	87.35	1001.22	2.39	239.55	551.43	13.67	24.66	24.57	597.15
11/30/1991	24:00:00	84.23	1000.25	1.24	236.58	785.49	13.84	25.87	25.86	743.28
12/31/1991	24:00:00	70.82	1000.51	1.65	18.29	23.37	16.85	23.80	23.08	76.62
1/31/1992	24:00:00	70.2	1000.41	1.05	24.69	12.85	18.79	23.68	23.13	33.29
2/28/1992	24:00:00	62.5	1000.31	0.61	6.15	5.94	18.84	25.49	24.65	0.00
3/31/1992	24:00:00	81.39	998.75	1.99	226.12	138.25	15.88	26.85	26.98	424.86
4/30/1992	24:00:00	84.57	999.42	2.22	220.84	215.28	13.75	26.65	26.64	535.19
5/31/1992	24:00:00	86.74	1000.29	2.16	226.9	347.13	13.42	26.02	25.98	592.28
6/30/1992	24:00:00	86.99	1002.26	2.98	223.3	381.74	14.38	25.10	25.03	484.64
7/31/1992	24:00:00	89.15	1003.65	3.13	227.51	565.28	13.65	23.97	23.86	554.08

8/31/1992	24:00:00	87.19	1003.95	3.33	222.79	225.72	17.62	23.86	23.87	242.41
9/30/1992	24:00:00	88.5	1001.49	2.51	230.28	527.32	13.86	24.33	24.24	574.09
10/31/1992	24:00:00	89.04	1001.4	2.24	237.5	376.11	13.20	24.79	24.63	577.27
11/30/1992	24:00:00	82.26	1000.36	0.38	311.08	119.18	14.96	24.42	24.07	430.55
12/31/1992	24:00:00	74.02	1000.51	1.05	8.39	6.91	17.52	24.02	23.40	114.98
1/31/1993	24:00:00	67.38	1001.2	2.1	17.42	8.66	19.29	23.19	22.55	0.00
2/28/1993	24:00:00	74.2	999.8	1.08	242.4	36.28	16.47	26.07	25.84	288.80
3/31/1993	24:00:00	80.32	1000.12	1.8	232.97	121.90	15.14	25.95	25.83	399.16
4/30/1993	24:00:00	85.26	999.08	2.18	221.5	156.45	13.36	26.35	26.32	534.99
5/31/1993	24:00:00	86.57	999.73	2.49	222.49	235.31	14.34	26.28	26.21	490.27
6/30/1993	24:00:00	87.39	1002.43	2.43	226.42	377.54	13.94	25.21	25.15	544.22
7/31/1993	24:00:00	88.57	1002.84	3.05	233.08	420.30	14.61	24.46	24.37	474.30
8/31/1993	24:00:00	88.72	1003.1	2.92	230.04	351.15	14.66	24.18	24.09	454.04
9/30/1993	24:00:00	88.87	1001.73	2.04	235.48	598.40	13.31	24.70	24.56	651.31
10/31/1993	24:00:00	88.35	1000.96	1.88	223.64	301.50	13.45	25.25	25.07	563.11
11/30/1993	24:00:00	87.88	999.41	1.64	226.42	513.89	11.93	25.29	25.09	713.97
12/31/1993	24:00:00	78.04	999.95	1.14	5.22	30.90	15.33	24.18	23.53	253.75
1/31/1994	24:00:00	76.46	999.53	0.74	346.26	43.88	17.06	24.63	24.26	241.66
2/28/1994	24:00:00	71.2	999.98	0.56	279.41	14.70	17.18	25.88	25.44	214.14
3/31/1994	24:00:00	83.22	999.17	2.14	229.31	104.67	14.95	26.72	26.74	442.91
4/30/1994	24:00:00	84.26	999	2.27	223.49	175.94	15.82	26.61	26.63	416.49
5/31/1994	24:00:00	86.6	1000.57	2.02	224.72	419.59	13.88	26.08	26.05	600.65
6/30/1994	24:00:00	88.16	1002.23	2.64	231.62	323.30	13.42	25.13	25.01	534.88
7/31/1994	24:00:00	88.93	1002.98	2.9	230.8	408.58	14.57	24.46	24.37	483.93
8/31/1994	24:00:00	88.85	1002.44	2.96	225.36	322.73	15.62	24.44	24.32	394.08
9/30/1994	24:00:00	89.32	1002.13	2.74	227.79	449.75	14.41	24.65	24.51	510.89
10/31/1994	24:00:00	89.46	1000.49	2.03	235.45	587.32	12.75	24.84	24.65	674.79
11/30/1994	24:00:00	83.79	1000.76	0.43	343.07	183.63	14.20	24.39	24.09	505.25
12/31/1994	24:00:00	74.13	1001.19	2.49	21.64	0.23	18.46	22.49	21.98	0.00
1/31/1995	24:00:00	68.32	1001.12	1.75	14.73	43.60	17.63	23.86	23.07	8.97
2/28/1995	24:00:00	71.59	1001.03	0.54	296.09	74.55	15.52	25.33	24.78	290.57
3/31/1995	24:00:00	83.63	998.96	1.99	233.32	156.44	14.12	26.60	26.62	510.29
4/30/1995	24:00:00	85.88	998.03	2.09	222.23	191.72	13.30	26.57	26.52	558.42
5/31/1995	24:00:00	86.65	999.83	2	224.52	329.24	13.84	26.10	26.01	566.08
6/30/1995	24:00:00	88.22	1001.64	2.43	223.81	576.35	13.73	25.43	25.30	612.05
7/31/1995	24:00:00	89.56	1001.38	2.8	227.17	370.40	14.52	24.64	24.48	475.41
8/31/1995	24:00:00	89.98	1001.76	2.66	231.6	459.88	13.74	24.69	24.53	554.21
9/30/1995	24:00:00	89.62	1002.02	2.74	236.68	457.78	14.51	24.94	24.79	513.62
10/31/1995	24:00:00	88.98	1000.35	2.07	234.32	709.87	12.87	25.04	24.86	705.81
11/30/1995	24:00:00	82.91	1000.25	0.89	351.24	314.63	14.63	24.68	24.48	514.15
12/31/1995	24:00:00	78.16	1000.86	0.88	341.84	63.24	15.53	24.73	24.32	323.74
1/31/1996	24:00:00	75.14	999.03	0.83	293.2	29.03	16.56	25.40	24.93	245.29
2/28/1996	24:00:00	79.85	998.5	1.74	248.22	153.56	15.39	26.64	26.73	447.93
3/31/1996	24:00:00	83.83	998.61	2.04	224.23	182.32	14.50	26.41	26.52	510.18
4/30/1996	24:00:00	85.02	998.58	2.01	214.43	207.77	14.35	26.47	26.46	514.04
5/31/1996	24:00:00	86.64	1000.05	2.07	218.88	264.71	14.57	26.27	26.19	510.13
6/30/1996	24:00:00	88.39	1001.82	2.49	223	321.59	13.87	25.23	25.11	522.90
7/31/1996	24:00:00	88.13	1003.31	2.85	226.79	277.68	15.25	24.25	24.15	401.48
8/31/1996	24:00:00	88.72	1002.57	2.97	220.61	405.46	15.37	24.28	24.18	430.93
9/30/1996	24:00:00	89.28	1001.46	2.88	231.95	555.37	14.51	24.57	24.44	529.48

10/31/1996	24:00:00	88.64	1000.81	1.82	244.69	494.04	13.16	24.78	24.63	638.59
11/30/1996	24:00:00	77.96	999.92	1.19	3.1	30.08	16.29	24.20	23.65	218.98
12/31/1996	24:00:00	75.07	1000.34	0.58	324.28	125.59	16.17	24.78	24.08	254.37
1/31/1997	24:00:00	76.08	1000	0.76	300.79	42.86	15.88	25.04	24.55	283.98
2/28/1997	24:00:00	61.31	1000.52	2.04	4.83	1.62	18.30	23.56	22.51	0.00
3/31/1997	24:00:00	81.08	999.14	1.4	246.45	153.53	14.21	26.25	26.12	488.49
4/30/1997	24:00:00	85.53	1000.5	2.26	225.98	209.79	13.91	25.94	25.95	519.65
5/31/1997	24:00:00	87.1	1001.26	2.1	229.5	592.17	13.92	25.93	25.84	635.51
6/30/1997	24:00:00	88.74	1001.64	2.8	221.65	575.12	14.14	24.94	24.87	573.96
7/31/1997	24:00:00	88.1	1003.44	3.26	230.68	347.92	16.52	24.45	24.36	338.69
8/31/1997	24:00:00	87.98	1003.47	3.03	231.35	363.17	16.41	24.43	24.38	368.33
9/30/1997	24:00:00	87.89	1001.73	2.38	230.81	474.48	13.84	25.26	25.18	582.18
10/31/1997	24:00:00	87.21	1000.28	1.91	233.56	424.52	13.60	25.98	25.87	610.07
11/30/1997	24:00:00	85.01	999.97	1.21	235.25	429.60	13.89	26.18	26.06	625.40
12/31/1997	24:00:00	74.46	1001.02	1.29	7.47	8.10	16.35	24.58	23.90	164.38
1/31/1998	24:00:00	70.79	1000.01	2.02	18.99	6.63	17.75	23.60	22.92	7.35
2/28/1998	24:00:00	70.83	1000.84	0.58	315.5	12.97	17.18	27.25	26.86	245.11
3/31/1998	24:00:00	72.44	998.83	1	264.53	77.04	17.75	27.28	26.87	217.62
4/30/1998	24:00:00	85.15	998.61	2.25	222.54	189.87	14.41	27.80	27.80	519.22
5/31/1998	24:00:00	86.42	1000.62	2.25	227.54	412.58	13.90	27.09	26.99	589.34
6/30/1998	24:00:00	87.56	1002.42	2.15	234.55	387.63	12.20	25.87	25.76	657.49
7/31/1998	24:00:00	88.19	1002.66	2.98	238.42	298.59	13.70	24.85	24.74	490.13
8/31/1998	24:00:00	87.04	1002.02	3.05	240.59	221.88	16.55	24.80	24.78	323.77
9/30/1998	24:00:00	89.11	1001.48	2.59	238.21	507.19	12.51	24.97	24.81	635.94
10/31/1998	24:00:00	87.93	1001.18	1.94	234.57	472.66	13.52	25.50	25.36	617.07
11/30/1998	24:00:00	85.5	999.52	0.9	236.32	371.08	12.47	25.84	25.65	682.55
12/31/1998	24:00:00	76.77	1000.19	0.94	349.29	102.63	15.08	24.51	23.90	305.20
1/31/1999	24:00:00	75.99	999.27	0.76	310.83	63.54	16.07	25.24	24.90	311.58
2/28/1999	24:00:00	82.68	998.89	1.78	248.73	69.22	11.97	26.35	26.34	590.83
3/31/1999	24:00:00	83.62	997.4	2.3	227.52	125.40	14.29	26.81	26.88	487.65
4/30/1999	24:00:00	84.67	999.1	2.16	223.87	164.11	13.34	26.50	26.48	540.30
5/31/1999	24:00:00	84.45	1000.01	1.9	219.36	200.34	15.09	26.35	26.35	475.93
6/30/1999	24:00:00	86.58	1000.95	1.95	220.84	412.47	12.90	25.68	25.61	638.13
7/31/1999	24:00:00	85.7	1002.56	2.6	233.41	263.10	15.18	24.85	24.83	425.39
8/31/1999	24:00:00	84.78	1002.3	2.55	238.11	221.98	15.88	25.04	25.04	381.00
9/30/1999	24:00:00	86.87	1000.94	2.52	238.83	379.02	13.63	24.91	24.88	552.20
10/31/1999	24:00:00	87.94	1001	2.3	234.02	691.05	12.88	24.84	24.72	686.72
11/30/1999	24:00:00	84.87	999.95	1.27	225.44	304.26	12.78	25.55	25.44	630.03
12/31/1999	24:00:00	75.53	999.61	0.17	338.83	12.03	14.79	24.98	24.26	318.22
1/31/2000	24:00:00	76.39	998.35	0.74	262.93	32.64	15.74	25.72	25.33	322.64
2/28/2000	24:00:00	65.85	999.78	0.63	7.71	7.61	16.40	24.95	24.15	129.35
3/31/2000	24:00:00	78.32	998	1.58	230.25	67.06	14.92	26.36	26.23	399.60
4/30/2000	24:00:00	82.91	998.08	2.48	212.98	213.94	15.00	26.79	26.81	453.10
5/31/2000	24:00:00	84.53	999.76	2.28	215.76	279.75	14.25	26.53	26.47	513.84
6/30/2000	24:00:00	89.43	1001.95	2.3	234.36	467.68	11.62	24.97	24.77	681.50
7/31/2000	24:00:00	90.11	1001.91	2.62	235.87	460.43	13.44	24.30	24.11	560.39
8/31/2000	24:00:00	89.16	1002.66	2.92	232.07	495.29	14.77	24.17	24.05	489.13
9/30/2000	24:00:00	89.65	1001.37	2.7	235.39	447.04	12.16	24.43	24.26	621.00
10/31/2000	24:00:00	88.33	1001.17	1.83	245.37	828.33	13.72	25.12	24.95	710.99
11/30/2000	24:00:00	84.89	999.66	0.89	245.28	177.53	14.26	25.64	25.37	509.48

12/31/2000	24:00:00	77.68	1001.06	1.4	12.75	30.87	17.92	23.19	22.58	91.14
1/31/2001	24:00:00	66.63	1000.88	2.03	17.14	1.70	20.09	23.15	22.28	0.00
2/28/2001	24:00:00	71.44	999.45	0.98	8.41	12.88	15.08	24.22	23.50	215.52
3/31/2001	24:00:00	83.5	999.09	2.06	220.27	125.97	13.45	26.67	26.63	521.21
4/30/2001	24:00:00	85.76	998.95	2.05	218.52	221.23	13.46	26.54	26.41	545.38
5/31/2001	24:00:00	87.28	1000.36	2.13	215.2	257.85	13.87	26.29	26.17	537.57
6/30/2001	24:00:00	88.94	1002.23	2.54	223.62	388.38	12.33	24.92	24.72	602.78
7/31/2001	24:00:00	88.2	1002.84	2.93	223.44	301.17	14.63	24.32	24.18	429.91
8/31/2001	24:00:00	87.7	1003.74	3.2	228.37	471.62	15.90	24.41	24.32	408.09
9/30/2001	24:00:00	88.4	1001.81	2.69	230.38	622.47	14.53	24.58	24.50	564.00
10/31/2001	24:00:00	86.94	1001.11	1.57	228.96	514.93	13.55	25.59	25.45	645.19
11/30/2001	24:00:00	85.6	1000.5	1.38	234.61	239.52	13.81	25.76	25.55	541.17
12/31/2001	24:00:00	78.12	999.99	0.29	317.5	19.57	17.58	25.82	25.25	229.65
1/31/2002	24:00:00	64.04	1000.7	2.29	26.96	28.22	18.92	23.18	22.15	0.00
2/28/2002	24:00:00	71.6	999.91	0.53	270.86	32.42	15.73	25.86	25.22	260.96
3/31/2002	24:00:00	82.98	998.71	1.99	222.21	112.18	14.15	26.95	26.98	499.56
4/30/2002	24:00:00	85.73	997.71	2.26	222.78	231.94	13.88	26.74	26.70	534.87
5/31/2002	24:00:00	86.19	1000.15	2.14	221.03	182.94	15.00	26.77	26.66	459.95
6/30/2002	24:00:00	88.68	1002.42	2.55	232.39	408.99	12.36	25.33	25.16	618.65
7/31/2002	24:00:00	89.7	1003.1	2.78	230.61	551.41	12.26	24.96	24.80	654.73
8/31/2002	24:00:00	88.84	1002.76	2.75	233.84	500.41	14.85	24.67	24.54	502.17
9/30/2002	24:00:00	88.23	1002.13	2.66	244.63	414.29	13.98	25.07	24.98	536.93
10/31/2002	24:00:00	86.79	1000.86	1.44	234.94	697.82	13.89	25.35	25.21	685.52
11/30/2002	24:00:00	82.55	1001.01	0.85	239.94	144.88	15.20	25.73	25.44	436.38
12/31/2002	24:00:00	75.31	1001.42	1.12	11.86	25.21	16.82	24.25	23.67	172.90
1/31/2003	24:00:00	74.74	1001.27	0.89	324.63	34.91	16.18	25.01	24.38	223.48
2/28/2003	24:00:00	79.47	999.27	1.35	243.42	69.90	14.33	26.87	26.69	451.63
3/31/2003	24:00:00	82.94	998.79	1.6	227.1	73.33	12.47	26.91	26.81	572.03
4/30/2003	24:00:00	85.44	999.37	2.19	226.78	323.75	13.52	26.70	26.64	579.22
5/31/2003	24:00:00	88.11	1000.61	2.15	222.82	387.49	12.25	26.26	26.11	658.26
6/30/2003	24:00:00	87.93	1001.64	2.41	229.57	439.95	12.45	25.25	25.13	634.43
7/31/2003	24:00:00	87.87	1002.9	2.92	242.25	419.73	14.76	24.90	24.82	479.79
8/31/2003	24:00:00	87.16	1002.74	3.12	234.29	310.34	15.05	25.05	24.95	414.75
9/30/2003	24:00:00	88.03	1002.17	2.19	240.89	723.72	12.77	25.19	25.06	714.05
10/31/2003	24:00:00	88.54	1000.17	1.92	229.26	790.34	12.32	25.77	25.61	782.10
11/30/2003	24:00:00	86.07	999.61	1.2	237.37	281.22	13.31	26.00	25.76	592.16
12/31/2003	24:00:00	75.08	1000.31	0.84	356.95	14.04	15.66	24.68	23.82	200.15
1/31/2004	24:00:00	77.01	999.32	0.73	308.47	24.92	14.53	25.35	24.72	336.21
2/28/2004	24:00:00	76.06	999.74	0.69	272.01	24.55	15.12	25.95	25.55	355.38
3/31/2004	24:00:00	80.1	998.8	1.46	241.05	75.13	13.65	26.80	26.62	485.04
4/30/2004	24:00:00	86.19	999.26	2.43	223.34	347.36	12.82	26.63	26.57	611.89
5/31/2004	24:00:00	87.24	1000.97	2.47	223.23	411.98	13.91	26.29	26.23	573.38
6/30/2004	24:00:00	87.87	1003.19	2.76	228.29	443.50	13.07	25.35	25.22	582.60
7/31/2004	24:00:00	88.66	1002.39	2.79	236.43	656.18	12.36	24.70	24.58	676.72
8/31/2004	24:00:00	87.88	1002.96	3.12	228.83	450.28	14.57	24.90	24.80	483.49
9/30/2004	24:00:00	88.54	1001.51	2.4	229.79	426.85	12.75	25.13	25.00	615.19
10/31/2004	24:00:00	88.25	1000.77	1.94	226.56	663.27	12.49	25.46	25.29	724.17
11/30/2004	24:00:00	86.27	999.91	1.33	223.88	294.84	11.66	25.68	25.35	652.40
12/31/2004	24:00:00	79.5	999.36	0.52	266.36	21.11	15.80	26.01	25.45	322.70
1/31/2005	24:00:00	71.88	999.83	1.51	25.92	17.06	15.52	23.36	22.55	133.71

2/28/2005	24:00:00	81.64	998.09	1.54	238.04	61.61	11.81	27.07	26.94	595.18
3/31/2005	24:00:00	84.35	999.03	2.01	220.72	111.07	12.34	27.17	27.11	587.93
4/30/2005	24:00:00	85.69	998.89	2.35	215.57	193.73	12.19	27.19	27.08	600.87
5/31/2005	24:00:00	85.96	1000.45	2.32	214.38	270.91	13.37	26.38	26.28	553.18
6/30/2005	24:00:00	86.79	1001.56	2.7	222.19	434.47	13.14	25.78	25.65	580.97
7/31/2005	24:00:00	85.69	1003.05	2.7	232.58	474.84	14.58	25.30	25.26	519.65
8/31/2005	24:00:00	83.85	1002.5	3.16	228.01	286.46	17.82	25.24	25.29	272.28
9/30/2005	24:00:00	87.37	1001.73	2.64	228.14	508.63	14.67	25.51	25.47	543.49
10/31/2005	24:00:00	88.23	1001.12	1.92	224.92	395.24	12.34	25.37	25.19	648.18
11/30/2005	24:00:00	83.89	999.48	0.9	231.02	67.84	14.70	26.21	25.92	453.73
12/31/2005	24:00:00	80.73	998.72	0.81	231.76	47.92	14.88	25.91	25.48	391.65
1/31/2006	24:00:00	82.82	998.41	1.62	242.84	53.84	13.46	26.41	26.23	489.18
2/28/2006	24:00:00	83.14	998.35	2.05	226.74	86.86	12.24	26.97	26.98	584.78
3/31/2006	24:00:00	84.17	999.27	2.13	220.51	113.62	12.31	26.63	26.55	568.03
4/30/2006	24:00:00	84.99	998.38	2.16	207.86	130.74	12.72	26.82	26.72	555.62
5/31/2006	24:00:00	86.72	1000.77	2.27	214.13	417.51	13.10	26.15	26.00	605.70
6/30/2006	24:00:00	86.97	1001.55	2.26	221.01	299.24	12.40	25.69	25.56	603.32
7/31/2006	24:00:00	87.57	1002.62	2.96	227.48	449.98	13.08	25.16	25.04	568.84
8/31/2006	24:00:00	87.44	1002.19	3.06	225.88	331.67	15.95	24.81	24.76	384.95
9/30/2006	24:00:00	89.86	1002.05	2.52	234.13	380.28	12.78	24.86	24.67	585.14
10/31/2006	24:00:00	88.45	1000.23	1.85	230.03	517.93	12.35	25.76	25.58	697.32
11/30/2006	24:00:00	79.23	999.99	0.23	328.77	101.25	15.01	25.50	24.90	386.01
12/31/2006	24:00:00	69.13	1001.26	1.54	27.59	2.24	18.89	24.00	22.85	0.00
1/31/2007	24:00:00	67.55	1001	2.17	30.39	2.22	17.97	22.84	22.00	-78.69
2/28/2007	24:00:00	77.82	999.52	1.21	251.34	46.10	13.66	26.41	26.06	436.37
3/31/2007	24:00:00	81.17	998.47	1.85	224.08	74.28	14.27	26.76	26.69	456.40
4/30/2007	24:00:00	84.6	998.72	2.27	223.77	163.75	13.83	26.89	26.89	519.26
5/31/2007	24:00:00	86.02	999.86	2.15	221.18	334.30	14.08	26.64	26.60	562.33
6/30/2007	24:00:00	88.61	1001.93	2.67	223.89	456.28	12.31	25.24	25.08	627.98
7/31/2007	24:00:00	87.84	1002.49	2.77	228.81	260.78	14.62	24.86	24.78	446.39
8/31/2007	24:00:00	88.95	1001.78	2.68	230.22	326.05	14.08	24.76	24.61	491.71
9/30/2007	24:00:00	89.54	1001.93	2.14	232.29	433.66	12.90	25.07	24.90	622.43
10/31/2007	24:00:00	89.25	1000.62	1.86	230.51	659.70	11.18	25.03	24.82	786.02
11/30/2007	24:00:00	86.55	999.46	1.32	228.58	361.27	12.87	25.51	25.24	620.11
12/31/2007	24:00:00	78.56	999.87	1	344.55	38.36	17.01	24.43	23.87	201.80
1/31/2008	24:00:00	73.05	999.87	1.82	14.78	32.43	15.55	23.42	22.83	167.84
2/28/2008	24:00:00	66.19	1000	1.08	2.24	8.84	15.83	24.64	23.56	77.60
3/31/2008	24:00:00	84.43	998.33	2.3	217.23	105.26	13.60	26.39	26.38	499.52
4/30/2008	24:00:00	84.79	997.95	1.91	214.74	343.58	12.96	26.36	26.32	623.27
5/31/2008	24:00:00	85.53	999.45	1.66	218.43	268.76	12.95	26.29	26.15	600.90
6/30/2008	24:00:00	87.4	1001.31	2.38	216.93	403.77	12.87	25.48	25.37	605.98
7/31/2008	24:00:00	86.2	1002.52	2.6	223.58	407.67	14.88	25.04	24.98	484.15
8/31/2008	24:00:00	87.11	1001.27	2.59	235.65	333.28	13.97	24.92	24.83	507.30
9/30/2008	24:00:00	87.75	1001.62	2	229.82	342.27	13.22	25.22	25.05	577.90
10/31/2008	24:00:00	87.62	1000.77	1.73	234.66	357.84	12.90	25.60	25.39	613.81
11/30/2008	24:00:00	83.01	999.58	0.95	234.72	288.12	14.46	26.26	26.03	536.57
12/31/2008	24:00:00	78.5	999.34	0.49	291.35	156.61	15.74	25.56	25.14	379.80
1/31/2009	24:00:00	80.27	999.69	1.29	258.21	80.41	12.92	25.92	25.60	492.73
2/28/2009	24:00:00	81.85	998.51	1.86	230.92	59.87	13.05	26.68	26.74	541.58
3/31/2009	24:00:00	83.58	997.9	1.84	231.31	95.64	12.76	26.95	26.91	566.31

4/30/2009	24:00:00	85.75	999.36	2.1	224.81	407.74	12.42	26.50	26.42	661.18
5/31/2009	24:00:00	86.56	999.83	1.8	221.37	302.94	12.95	26.20	26.07	609.83
6/30/2009	24:00:00	87.78	1001.96	2.21	225.18	410.44	12.36	25.51	25.39	645.75
7/31/2009	24:00:00	87.73	1002.53	2.83	227.34	610.83	13.80	25.12	25.05	597.80
8/31/2009	24:00:00	88.28	1001.89	2.86	231.4	670.37	13.68	25.13	25.05	621.91
9/30/2009	24:00:00	87.78	1002.28	2.34	231.98	359.89	13.44	25.50	25.43	576.28
10/31/2009	24:00:00	88.1	1000.53	1.9	234.27	595.98	12.18	25.40	25.24	721.62
11/30/2009	24:00:00	82.03	1000.15	0.6	276.89	235.02	15.31	25.56	25.21	455.15
12/31/2009	24:00:00	72	1000.33	0.71	342.74	10.23	17.89	25.73	24.77	73.13
1/31/2010	24:00:00	73.78	1000.12	0.63	281.61	23.31	16.86	26.20	25.53	208.77
2/28/2010	24:00:00	80.83	999.26	1.61	236.35	69.16	12.78	27.10	26.95	535.08
3/31/2010	24:00:00	81.81	999.71	1.66	221.98	79.13	12.81	27.14	27.05	552.00
4/30/2010	24:00:00	84.66	999.01	2	217.43	154.21	13.22	27.36	27.26	554.57
5/31/2010	24:00:00	86.14	999.97	2.26	214.57	317.85	14.00	26.94	26.84	550.00
6/30/2010	24:00:00	87.5	1002.19	2.24	215.75	445.57	12.58	25.79	25.69	650.25
7/31/2010	24:00:00	87.28	1002.29	2.49	224.81	359.62	13.99	25.05	24.95	521.62
8/31/2010	24:00:00	87.5	1002.13	2.85	222.53	319.75	14.99	25.10	25.03	445.22
9/30/2010	24:00:00	88.21	1001.34	2.33	224.46	467.22	13.56	25.06	24.96	591.91
10/31/2010	24:00:00	88.81	1000.58	2.06	222.04	256.56	13.41	25.27	25.08	542.34
11/30/2010	24:00:00	86.19	999.23	1.19	231.58	517.85	12.78	25.81	25.59	692.55
12/31/2010	24:00:00	74.6	998.9	0.83	354.95	26.50	18.02	25.01	24.23	100.77
1/31/2011	24:00:00	68.05	998.77	1.51	18.88	4.40	18.52	24.53	23.85	-3.67
2/28/2011	24:00:00	82.02	998.85	1.95	235.37	94.22	11.78	26.35	26.37	599.66
3/31/2011	24:00:00	82.62	998.43	2.13	226.86	116.79	13.84	26.80	26.85	507.59
4/30/2011	24:00:00	84.95	998.41	2.11	217.56	160.92	12.07	26.55	26.44	594.08
5/31/2011	24:00:00	87.61	999.93	2.08	217.13	344.05	11.45	26.28	26.11	683.92
6/30/2011	24:00:00	88.29	1001.55	2.46	221.29	416.34	11.42	25.54	25.39	679.79
7/31/2011	24:00:00	87.8	1001.91	2.74	224.43	397.70	14.37	25.03	24.98	511.39
8/31/2011	24:00:00	88.28	1002.16	2.97	231.03	503.59	13.96	24.84	24.72	537.47
9/30/2011	24:00:00	88.29	1002.32	2.17	229.86	290.86	13.42	25.00	24.86	546.93
10/31/2011	24:00:00	88.89	999.81	1.72	227.11	500.48	11.62	25.15	24.97	728.74
11/30/2011	24:00:00	82.68	999.99	0.84	263.17	215.69	14.72	25.62	25.23	463.46
12/31/2011	24:00:00	70.26	1000.6	1.45	6.21	10.31	18.83	23.94	22.95	-68.94
1/31/2012	24:00:00	72.46	1000.35	0.73	339.88	44.07	16.37	24.66	24.00	199.01
2/28/2012	24:00:00	82.46	998.6	2.12	237.27	111.69	13.31	26.26	26.37	533.98
3/31/2012	24:00:00	82.81	999.25	1.78	240.7	76.81	12.79	26.80	26.73	549.21
4/30/2012	24:00:00	85.17	999.24	2.37	226.31	268.79	13.32	26.58	26.54	562.19
5/31/2012	24:00:00	86.43	1000.93	2	226.99	456.05	12.52	25.95	25.82	660.97
6/30/2012	24:00:00	87.83	1002.32	2.2	234.96	446.02	12.11	25.29	25.12	656.65
7/31/2012	24:00:00	87.66	1002.38	2.75	229.89	453.21	13.89	24.77	24.67	537.00
8/31/2012	24:00:00	86.75	1002.96	2.86	234.36	266.19	16.15	24.72	24.69	363.88
9/30/2012	24:00:00	87.89	1002.79	2.34	228.92	361.51	14.46	25.06	24.96	510.81
10/31/2012	24:00:00	88.72	1000.66	1.88	227.84	819.38	12.91	25.31	25.17	759.04
11/30/2012	24:00:00	86.72	1000.03	1.21	231.54	292.59	11.30	25.77	25.43	679.74
12/31/2012	24:00:00	77.87	1000.09	1.1	352.72	82.23	15.14	24.30	23.67	286.07
1/31/2013	24:00:00	77.7	1000.6	0.76	317.28	63.84	14.44	25.31	24.80	376.64
2/28/2013	24:00:00	81.48	999.03	1.53	244.36	65.13	12.07	26.32	26.08	547.92
3/31/2013	24:00:00	84.31	999.55	2.28	212.24	118.39	13.23	26.73	26.66	517.98
4/30/2013	24:00:00	84.55	1000.04	1.93	216.52	220.55	13.26	26.65	26.56	564.25
5/31/2013	24:00:00	86.85	1000.9	1.94	224.98	412.34	12.17	26.19	26.04	672.89

6/30/2013	24:00:00	88.32	1001.97	2.48	228.08	600.07	12.49	25.39	25.26	680.16
7/31/2013	24:00:00	87.84	1002.93	2.77	223.95	572.92	14.28	24.71	24.65	559.77
8/31/2013	24:00:00	86.85	1002.21	2.92	227.24	289.36	15.80	24.66	24.62	383.06
9/30/2013	24:00:00	88.94	1002.16	2.31	228.36	650.78	12.51	24.99	24.87	702.49
10/31/2013	24:00:00	88.1	1001.37	1.72	232.59	592.36	13.26	25.32	25.20	681.16
11/30/2013	24:00:00	86.69	999.66	1.35	228.39	222.51	12.08	25.67	25.43	626.52
12/31/2013	24:00:00	81.99	1000.67	0.58	270.1	154.78	16.43	25.14	24.80	367.58
1/31/2014	24:00:00	75.21	1000.18	0.81	269.66	49.51	15.89	25.83	25.09	245.93
2/28/2014	24:00:00	78.62	999.01	1.32	251.79	38.89	13.84	26.60	26.37	449.55
3/31/2014	24:00:00	84.5	999.47	2.15	223.07	154.52	12.63	26.59	26.56	573.61
4/30/2014	24:00:00	85.32	999.84	2.14	223.23	271.63	13.05	26.54	26.48	586.75
5/31/2014	24:00:00	85.84	1000.14	1.76	219.36	496.82	13.60	26.42	26.28	634.85
6/30/2014	24:00:00	86.63	1001.88	2.23	229.66	394.37	13.06	26.00	25.94	616.38
7/31/2014	24:00:00	85.87	1003.76	2.83	219.39	311.60	15.93	25.27	25.31	408.04
8/31/2014	24:00:00	86.26	1002.9	2.75	228.24	333.59	14.96	24.91	24.88	452.48
9/30/2014	24:00:00	86.91	1002.33	2.26	231.54	381.45	13.52	25.06	25.01	573.09
10/31/2014	24:00:00	87.11	1001.26	1.79	233.27	666.56	12.44	25.49	25.33	731.26
11/30/2014	24:00:00	84.22	1000.5	1.25	228.87	313.01	13.25	26.06	25.87	600.63
12/31/2014	24:00:00	71.81	1000.91	0.42	315.72	27.10	17.42	26.01	25.32	173.41
1/31/2015	24:00:00	70.1	1001.74	1.2	15.37	17.45	17.53	24.06	23.54	103.57
2/28/2015	24:00:00	82.31	999.73	2.04	236.12	126.39	11.82	26.73	26.73	607.21
3/31/2015	24:00:00	82.38	999.39	1.87	233.26	140.10	13.10	26.81	26.73	542.49
4/30/2015	24:00:00	83.23	1000.33	1.83	217.56	84.89	13.14	26.82	26.74	531.92
5/31/2015	24:00:00	85.82	1000.91	1.98	217.36	287.26	12.64	26.50	26.33	603.90
6/30/2015	24:00:00	87.79	1002.76	2.83	219.91	487.27	12.97	25.45	25.36	605.94
7/31/2015	24:00:00	86.82	1002.68	2.76	221.24	644.21	14.20	25.43	25.37	592.83
8/31/2015	24:00:00	86.74	1002.46	2.97	220.47	403.55	14.59	25.34	25.30	489.31
9/30/2015	24:00:00	87.75	1002.13	2.7	222.26	535.31	13.12	25.42	25.34	621.24
10/31/2015	24:00:00	88.46	1001.49	2.2	229.01	675.46	11.62	25.56	25.40	762.38
11/30/2015	24:00:00	83.24	1000.69	0.9	245.34	432.36	14.93	26.08	25.83	553.29
12/31/2015	24:00:00	65.87	1002.31	2.53	36.37	2.15	18.91	23.43	22.44	-175.75
1/31/2016	24:00:00	64.4	1001.37	1.27	23.27	5.85	19.57	24.95	23.96	-116.22
2/28/2016	24:00:00	72.52	999.92	1.23	262.73	23.21	15.88	27.04	26.64	282.69
3/31/2016	24:00:00	83.95	999.96	2.29	230.87	183.15	13.20	27.49	27.45	556.42
4/30/2016	24:00:00	84.21	999.55	2.25	220.93	141.52	13.45	27.38	27.30	525.39
5/31/2016	24:00:00	86.02	1001.59	2.11	222.93	381.34	12.88	26.68	26.55	624.88
6/30/2016	24:00:00	86.34	1003.04	2.17	235.75	543.32	13.04	25.78	25.66	648.95
7/31/2016	24:00:00	87.86	1002.69	2.49	236.04	562.73	12.72	25.13	25.01	650.36
8/31/2016	24:00:00	88.29	1002.65	2.66	228.74	436.21	13.40	25.03	24.92	569.80
9/30/2016	24:00:00	89.26	1002.34	2.28	229.2	637.42	12.07	25.13	24.97	720.19
10/31/2016	24:00:00	87.83	1000.45	1.54	228.05	391.22	12.56	25.76	25.50	647.21
11/30/2016	24:00:00	84.66	999.91	0.99	232.63	453.69	13.41	26.51	26.23	644.68
12/31/2016	24:00:00	78.97	999.97	0.49	334.13	45.14	14.61	25.62	25.08	386.07
1/31/2017	24:00:00	78.43	999.95	1.01	272.31	51.14	13.95	25.83	25.27	388.50
2/28/2017	24:00:00	74.49	999.55	0.58	260.88	19.27	13.87	26.41	25.98	417.91
3/31/2017	24:00:00	84.13	999.05	2.09	221.67	119.45	13.28	27.04	27.00	537.30
4/30/2017	24:00:00	84.49	999.4	1.71	210.01	165.73	12.81	26.92	26.77	577.06
5/31/2017	24:00:00	86.24	1000.71	1.81	218.33	261.30	13.50	26.68	26.55	575.31
6/30/2017	24:00:00	87.45	1001.57	2.02	230.55	370.40	12.17	25.98	25.85	659.00
7/31/2017	24:00:00	88.05	1003.29	2.59	226.11	448.09	14.77	25.14	25.05	511.10

8/31/2017	24:00:00	89.4	1002.37	2.69	230.35	356.81	13.51	24.81	24.65	531.92
9/30/2017	24:00:00	89.2	1002.06	2.32	232.78	448.54	13.19	25.17	25.01	603.25
10/31/2017	24:00:00	87.9	1000.88	1.68	232.3	403.58	12.73	25.74	25.53	643.55
11/30/2017	24:00:00	83.3	1000.09	0.92	233.11	384.48	13.84	25.96	25.63	577.19
12/31/2017	24:00:00	77.06	999.99	0.7	315.41	47.07	15.62	25.91	25.27	297.25
1/31/2018	24:00:00	65.43	1000.52	1.13	7.15	6.34	17.88	24.46	23.37	0.00
2/28/2018	24:00:00	80.45	998.54	1.93	238.5	118.24	13.55	26.97	26.90	501.67
3/31/2018	24:00:00	84.03	999.71	2.31	221.35	160.41	13.80	26.68	26.66	506.12
4/30/2018	24:00:00	85.1	999.74	2.45	215.65	169.45	13.52	26.53	26.48	513.84
5/31/2018	24:00:00	85.98	1000.58	2.2	226	226.87	14.24	26.35	26.29	508.87
6/30/2018	24:00:00	88.17	1002.3	2.31	235.36	461.66	12.43	25.55	25.41	651.21
7/31/2018	24:00:00	88.28	1002.85	2.32	237.33	349.71	13.81	25.17	25.05	542.83
8/31/2018	24:00:00	88	1002.88	2.61	229.65	251.25	15.60	24.94	24.87	406.67
9/30/2018	24:00:00	88.49	1001	2.07	226.77	437.12	13.05	25.33	25.19	623.55
10/31/2018	24:00:00	88.07	1000.71	1.76	231.4	588.75	12.70	25.72	25.54	702.75
11/30/2018	24:00:00	84.94	999.61	1	241.11	348.12	13.78	26.52	26.26	598.59
12/31/2018	24:00:00	72.34	1000.87	0.72	337.71	11.46	16.73	25.60	24.80	162.41
1/31/2019	24:00:00	76.41	1000.75	0.98	261.39	72.54	15.00	25.93	25.46	348.42
2/28/2019	24:00:00	74.14	999.95	1.03	260.08	91.78	12.97	26.27	25.78	444.37
3/31/2019	24:00:00	84.3	999.81	2.09	229.5	158.07	11.81	26.93	26.85	616.37
4/30/2019	24:00:00	84.17	999.33	2.17	218.18	186.99	13.19	27.38	27.33	562.68
5/31/2019	24:00:00	86.63	1000.08	1.9	229.39	286.65	12.32	26.59	26.45	637.37
6/30/2019	24:00:00	86.63	1002.51	2.37	228.77	436.80	14.27	26.05	26.02	565.02
7/31/2019	24:00:00	87.73	1002.48	2.34	234.54	468.27	13.52	25.34	25.25	597.60
8/31/2019	24:00:00	87.92	1003.42	2.56	227.57	348.94	15.33	25.18	25.12	459.24
9/30/2019	24:00:00	88.5	1002.13	2.18	227.25	343.24	13.60	25.42	25.26	558.52
10/31/2019	24:00:00	88.18	1000.75	1.84	228.08	339.56	13.99	25.13	24.93	541.89
11/30/2019	24:00:00	86.08	999.54	1.2	242.02	287.60	12.75	26.40	26.17	632.28
12/31/2019	24:00:00	71.74	1000.11	1.19	351.66	10.52	18.78	25.44	24.64	21.94

Appendix 1D: IVO River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2
 # Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center
 # Site latitude (positive means North);7.763
 # Site longitude (positive means East);5.970
 # Date beginning;1981-01-01
 # Date end;2019-12-31
 # Elevation; 34m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	59.24	974.6	0.36	74.9	0.42	19.64	23.90	23.72	7.94
2/28/1981	24:00:00	58.17	973.35	0.52	218.5	9.58	18.96	25.82	26.64	9.17
3/31/1981	24:00:00	66.34	973.39	2.6	228.91	36.59	18.91	27.07	29.18	12.30
4/30/1981	24:00:00	73.96	972.85	2.84	218.2	62.33	18.20	26.98	28.67	14.63
5/31/1981	24:00:00	82.68	974.18	2.31	221.21	206.75	15.81	25.41	26.02	28.05
6/30/1981	24:00:00	82.04	975.68	2.3	223.93	107.89	16.63	25.32	25.83	18.67
7/31/1981	24:00:00	85.26	976.05	2.76	234.26	258.61	15.23	23.77	24.03	33.03
8/31/1981	24:00:00	83.74	975.71	2.78	232.39	306.79	17.14	24.03	24.51	37.19
9/30/1981	24:00:00	84.2	975.74	2.23	230.63	255.30	17.14	24.19	24.65	32.26
10/31/1981	24:00:00	83.5	974.38	1.16	203.55	99.23	16.90	24.94	25.23	17.48
11/30/1981	24:00:00	72.23	974.37	0.81	61.61	12.71	18.11	23.82	23.65	9.25
12/31/1981	24:00:00	58.21	974.5	0.78	64.04	0.26	20.33	24.14	23.31	7.70
1/31/1982	24:00:00	62.25	973.69	0.39	340.13	11.30	18.69	25.35	26.31	9.34
2/28/1982	24:00:00	61.22	973.33	0.67	241.22	18.98	17.05	25.01	25.74	10.44
3/31/1982	24:00:00	70.64	972.88	1.56	243.24	46.01	18.19	25.69	26.33	12.66
4/30/1982	24:00:00	77.86	973	3.1	228.86	90.90	16.62	26.29	27.37	17.47
5/31/1982	24:00:00	82.48	974.2	2.11	225.68	157.54	15.41	25.47	25.98	23.49
6/30/1982	24:00:00	85.03	976.25	2.02	227.59	219.03	15.56	24.68	25.12	29.12
7/31/1982	24:00:00	83.97	976.01	2.55	236.48	170.63	16.88	23.90	24.50	24.57
8/31/1982	24:00:00	84.3	976.36	3.16	239.18	178.97	17.76	23.20	23.78	25.32
9/30/1982	24:00:00	84.66	975.54	2.07	230.28	249.17	17.08	24.29	24.78	31.65
10/31/1982	24:00:00	85.42	974.54	1.46	223.6	243.39	15.60	23.97	24.34	31.26
11/30/1982	24:00:00	72.57	974.53	0.8	56.86	7.85	18.70	23.54	23.14	8.61
12/31/1982	24:00:00	64.15	974.36	1.03	48.56	2.58	18.79	23.42	22.62	8.22
1/31/1983	24:00:00	56.04	975.8	3.35	51.85	0.02	20.58	20.37	20.15	8.61
2/28/1983	24:00:00	58.67	973.95	0.76	182.96	3.21	19.83	26.60	27.37	8.39
3/31/1983	24:00:00	53.18	973.2	0.96	188.36	47.80	21.68	27.70	28.78	12.33
4/30/1983	24:00:00	64.32	972.53	2.64	209.99	57.61	19.28	28.50	30.65	14.17
5/31/1983	24:00:00	82.48	973.41	2.95	218.03	112.32	16.11	25.76	26.38	19.34
6/30/1983	24:00:00	83.84	975.61	2.52	226.94	331.44	16.63	24.94	25.43	39.49
7/31/1983	24:00:00	85.26	975.95	3.19	229.58	152.53	17.16	23.82	24.41	22.94
8/31/1983	24:00:00	86.95	977.24	3.24	231.76	253.77	17.25	23.07	23.65	32.35
9/30/1983	24:00:00	85.96	975.9	1.91	225.22	285.36	15.74	23.88	24.20	35.21
10/31/1983	24:00:00	81.2	975.16	1.18	212.56	31.04	18.88	24.68	24.94	10.78
11/30/1983	24:00:00	74.22	975.63	0.56	211.66	6.62	20.05	24.75	24.70	8.17
12/31/1983	24:00:00	71.25	974.93	0.52	206.76	9.96	17.76	24.02	23.77	8.99
1/31/1984	24:00:00	52.88	974.32	1.71	87.96	0.08	21.10	22.58	21.58	7.87
2/28/1984	24:00:00	63.25	972.33	0.95	175.75	2.23	18.91	25.40	25.83	8.41
3/31/1984	24:00:00	74.21	971.95	2.76	223.74	43.86	17.34	26.35	27.33	12.91

4/30/1984	24:00:00	77.71	972.52	3.02	219.35	102.30	16.16	26.03	27.03	18.60
5/31/1984	24:00:00	82.4	973.21	2.61	220.91	129.77	15.58	25.22	25.74	21.00
6/30/1984	24:00:00	82.07	975.02	2.33	223.68	123.55	16.74	24.97	25.51	20.14
7/31/1984	24:00:00	83.69	975.05	2.43	234.37	248.48	15.62	23.99	24.43	32.00
8/31/1984	24:00:00	83.22	975.55	1.92	225.48	240.88	17.15	24.18	24.56	30.84
9/30/1984	24:00:00	84.47	974.8	1.9	228.93	344.46	15.99	24.11	24.45	40.68
10/31/1984	24:00:00	83.71	974.17	1.05	224.94	188.96	16.55	24.69	24.93	25.86
11/30/1984	24:00:00	74.02	974.27	0.55	237.85	12.71	18.12	24.27	24.07	9.12
12/31/1984	24:00:00	60.63	973.63	1.25	58.71	2.56	19.39	22.80	22.01	8.25
1/31/1985	24:00:00	66.39	973.05	0.77	246.98	9.29	18.24	25.00	25.40	9.11
2/28/1985	24:00:00	46.37	973.86	0.88	98.79	0.44	21.02	24.85	25.12	8.10
3/31/1985	24:00:00	66.82	972.11	2.79	213.93	62.08	19.07	26.49	28.15	14.58
4/30/1985	24:00:00	74.09	972.79	2.7	214.35	74.80	19.31	26.43	28.05	15.53
5/31/1985	24:00:00	78.67	973.64	3.42	219.98	163.64	17.62	25.79	26.99	24.14
6/30/1985	24:00:00	80.99	976.39	2.91	222.19	193.98	17.18	24.58	25.29	26.81
7/31/1985	24:00:00	84.19	976.31	2.73	235.24	333.30	15.76	23.33	23.76	39.95
8/31/1985	24:00:00	85.45	975.71	2.72	234.32	419.51	15.12	23.59	23.96	48.04
9/30/1985	24:00:00	84.48	974.89	2.12	224.7	408.72	16.58	23.92	24.36	46.62
10/31/1985	24:00:00	82.15	974.19	0.72	145.63	99.44	16.92	24.55	24.76	17.42
11/30/1985	24:00:00	75.7	973.88	0.64	215.64	23.70	16.63	25.23	25.40	10.50
12/31/1985	24:00:00	57.97	973.7	0.97	22.82	0.64	19.14	23.69	23.32	8.18
1/31/1986	24:00:00	53.91	974.13	0.14	2.02	4.10	20.53	25.14	25.55	8.25
2/28/1986	24:00:00	64.09	973.05	2.7	225.64	18.36	16.36	26.84	29.01	11.24
3/31/1986	24:00:00	68.41	973.43	3.33	223.92	108.95	17.81	26.50	28.68	19.44
4/30/1986	24:00:00	72.73	972.37	3.4	224.18	50.01	17.69	27.04	28.69	13.73
5/31/1986	24:00:00	79.21	974.13	2.71	219.66	73.47	16.61	25.79	26.51	15.66
6/30/1986	24:00:00	79.62	975.35	2.99	223.43	135.83	17.36	25.20	26.01	21.41
7/31/1986	24:00:00	83.59	977.09	3.26	230.28	376.97	15.05	23.52	23.99	44.29
8/31/1986	24:00:00	82.8	975.84	2.49	230.46	253.58	17.76	23.70	24.27	32.11
9/30/1986	24:00:00	83.28	975.95	1.81	228.1	211.17	17.25	24.04	24.48	28.05
10/31/1986	24:00:00	81.75	975.22	0.54	195.54	144.42	18.27	24.62	24.83	21.28
11/30/1986	24:00:00	71.57	974.03	0.32	32.44	22.29	18.10	24.69	24.57	10.01
12/31/1986	24:00:00	55.66	975.43	1.71	59.56	0.57	19.75	23.04	22.72	8.31
1/31/1987	24:00:00	49.62	975.05	0.8	104.47	1.40	21.32	25.46	25.56	7.97
2/28/1987	24:00:00	57.48	973.81	1.73	215.85	16.93	18.86	28.21	30.54	10.47
3/31/1987	24:00:00	61.8	972.86	2.13	227.13	48.86	17.99	27.39	29.21	13.52
4/30/1987	24:00:00	61.42	973.26	2.23	210.7	27.03	20.09	28.68	30.75	11.09
5/31/1987	24:00:00	68.84	973.17	3.35	213.1	67.89	17.93	27.68	29.58	15.45
6/30/1987	24:00:00	80.62	976.03	2.69	217.67	131.25	16.19	25.34	26.02	21.10
7/31/1987	24:00:00	82.42	974.97	2.33	227.14	167.41	16.87	25.00	25.44	24.15
8/31/1987	24:00:00	85.84	975.02	2.58	233.8	383.06	14.60	24.23	24.46	44.65
9/30/1987	24:00:00	84.79	975.22	1.96	227.76	389.21	16.56	24.77	25.11	44.69
10/31/1987	24:00:00	83.13	974.45	0.98	213.2	212.80	16.78	25.12	25.32	28.00
11/30/1987	24:00:00	70.54	974.34	0.11	326.9	2.75	19.69	25.26	24.86	7.73
12/31/1987	24:00:00	60.29	974.92	0.68	54.93	3.61	19.78	24.69	23.93	8.05
1/31/1988	24:00:00	59.93	974.14	0.16	73.9	8.87	19.45	25.57	25.94	8.77
2/28/1988	24:00:00	57.97	972.25	0.55	229.75	8.87	19.39	27.03	27.84	8.96
3/31/1988	24:00:00	68.79	973.2	2.5	231.09	39.20	17.71	27.63	29.34	12.59
4/30/1988	24:00:00	71.52	972.52	3.25	224.73	87.63	16.92	27.55	29.33	17.40
5/31/1988	24:00:00	79.13	974.1	2.85	217.11	118.12	17.33	26.47	27.39	19.71

6/30/1988	24:00:00	84.04	975.16	2.47	226.06	147.92	15.47	24.92	25.36	22.63
7/31/1988	24:00:00	85.2	976.1	3.36	239.02	254.60	16.43	23.81	24.23	32.58
8/31/1988	24:00:00	85.32	975.11	3.54	232.1	326.36	17.27	23.68	24.12	39.13
9/30/1988	24:00:00	85.4	974.79	2.32	237.73	360.24	16.01	24.22	24.61	42.23
10/31/1988	24:00:00	83.2	973.94	0.79	192.99	114.10	18.33	25.04	25.33	18.48
11/30/1988	24:00:00	71.92	974.63	0.34	35.45	8.82	18.77	24.86	24.44	8.53
12/31/1988	24:00:00	70.95	973.9	0.65	14.6	6.02	16.50	23.86	23.70	8.96
1/31/1989	24:00:00	52.21	975.5	2.41	43.98	0.02	21.88	21.28	20.58	8.02
2/28/1989	24:00:00	50.2	974.57	1.15	60.52	0.93	19.57	23.94	24.08	8.45
3/31/1989	24:00:00	69.21	972.32	2.83	224.76	68.21	18.75	26.79	28.64	15.21
4/30/1989	24:00:00	72.74	972.11	3.47	221.35	57.85	18.32	27.11	28.85	14.37
5/31/1989	24:00:00	80.64	974.43	2.63	215.43	175.95	17.55	25.80	26.59	24.96
6/30/1989	24:00:00	84.42	975.66	2.69	217.62	205.19	15.36	24.68	25.12	28.04
7/31/1989	24:00:00	85.03	976.29	2.65	232.69	267.95	16.24	23.99	24.40	33.69
8/31/1989	24:00:00	85.98	975.69	2.8	235.48	369.93	15.87	23.78	24.15	43.27
9/30/1989	24:00:00	86.17	974.28	1.75	227.25	273.32	15.08	24.10	24.37	34.17
10/31/1989	24:00:00	84.21	974.8	1.31	223.1	113.25	16.77	24.51	24.65	18.81
11/30/1989	24:00:00	73.57	973.83	0.46	67.15	15.30	18.61	24.85	24.40	9.15
12/31/1989	24:00:00	66.22	974.69	0.82	69.66	9.09	18.13	23.88	23.19	8.88
1/31/1990	24:00:00	62.62	973.64	0.1	293.31	4.34	18.85	24.97	24.47	8.20
2/28/1990	24:00:00	56.11	974.06	0.28	90.28	6.01	18.86	25.77	25.87	8.65
3/31/1990	24:00:00	53.08	973.73	0.46	168.37	5.33	21.38	27.18	27.62	8.18
4/30/1990	24:00:00	73.96	972.64	3.62	222.71	84.36	17.50	27.26	28.89	16.98
5/31/1990	24:00:00	80.97	974.38	2.65	223.51	118.82	16.58	25.87	26.51	19.81
6/30/1990	24:00:00	80.95	975.78	2.97	227.14	120.24	15.91	25.55	26.22	20.18
7/31/1990	24:00:00	84.85	975.88	3.44	237.72	464.87	15.03	24.03	24.40	52.43
8/31/1990	24:00:00	83.06	976.32	2.61	237.47	314.06	16.09	24.33	24.80	38.05
9/30/1990	24:00:00	83.3	975.23	1.61	227.83	301.21	15.14	24.75	25.08	36.76
10/31/1990	24:00:00	81.45	974.62	1.25	204.96	159.82	16.25	25.07	25.29	23.28
11/30/1990	24:00:00	74.41	973.94	1.16	211.4	29.62	16.11	25.64	25.89	11.31
12/31/1990	24:00:00	68.35	973.58	0.72	242.43	31.53	16.40	25.65	26.11	11.50
1/31/1991	24:00:00	49.08	974.21	1.19	89.62	1.34	19.81	25.63	25.82	8.40
2/28/1991	24:00:00	59.76	973.26	2.2	218.05	13.70	16.26	28.24	30.40	10.73
3/31/1991	24:00:00	61.09	971.98	2.3	223.89	35.93	17.30	28.65	30.65	12.51
4/30/1991	24:00:00	73.57	972.78	3.27	224.49	84.33	16.21	26.97	28.48	17.15
5/31/1991	24:00:00	80.13	973.71	2.35	228.45	392.68	15.56	26.00	26.63	45.43
6/30/1991	24:00:00	81.66	975.26	2.43	230.15	182.33	13.96	25.48	25.94	26.17
7/31/1991	24:00:00	85.91	976.27	2.91	232.87	363.99	14.63	24.09	24.40	42.97
8/31/1991	24:00:00	85.76	976.57	3.44	230.57	428.15	14.66	23.65	23.98	49.08
9/30/1991	24:00:00	83.98	975.81	1.64	233.96	148.44	15.34	24.65	24.89	22.48
10/31/1991	24:00:00	83.45	974.73	1.77	232.95	246.98	15.01	24.33	24.63	31.79
11/30/1991	24:00:00	71.97	974.3	0.42	135.99	4.44	17.44	25.07	24.95	8.49
12/31/1991	24:00:00	56.25	974.68	1.51	65	0.32	19.05	23.63	23.22	8.32
1/31/1992	24:00:00	47.49	974.49	1.71	54.37	0.20	20.02	23.81	23.95	8.47
2/28/1992	24:00:00	36.56	974.36	1.76	77.11	1.57	20.02	26.45	26.77	8.75
3/31/1992	24:00:00	57.05	972.24	1.68	223.59	47.19	18.89	28.40	30.12	13.09
4/30/1992	24:00:00	72.38	972.95	2.69	223.33	81.58	16.05	27.44	28.95	16.80
5/31/1992	24:00:00	80.61	973.9	2.71	224.32	221.32	16.06	26.07	26.90	29.51
6/30/1992	24:00:00	82.9	975.61	2.99	225.03	144.51	16.42	25.09	25.71	22.30
7/31/1992	24:00:00	85.57	976.82	3.16	232.35	329.11	15.74	23.75	24.16	39.60

8/31/1992	24:00:00	85.49	976.98	3.53	234.35	274.09	16.00	23.37	23.80	34.54
9/30/1992	24:00:00	85.43	974.9	1.88	223.9	362.74	14.89	23.92	24.12	42.56
10/31/1992	24:00:00	83.79	974.91	1.95	225.55	116.45	16.39	24.67	24.97	19.37
11/30/1992	24:00:00	73.71	974.35	0.45	72.54	23.90	18.05	23.74	23.58	10.20
12/31/1992	24:00:00	62.05	974.58	1.13	73.27	0.51	19.55	23.27	22.62	7.98
1/31/1993	24:00:00	53.02	975.3	1.71	57.96	0.11	20.60	22.91	22.87	8.23
2/28/1993	24:00:00	54.93	973.59	0.76	163.21	9.39	19.51	25.91	27.05	9.24
3/31/1993	24:00:00	64.62	973.61	2.04	221.39	40.89	18.32	26.93	28.61	12.62
4/30/1993	24:00:00	71.93	972.57	3.17	221.42	55.55	15.20	27.17	28.84	14.73
5/31/1993	24:00:00	80.25	973.25	3.13	222.42	99.55	16.36	26.53	27.28	18.18
6/30/1993	24:00:00	83.44	975.88	2.64	219.91	110.92	15.98	25.10	25.53	19.13
7/31/1993	24:00:00	85.43	976.09	3.24	227.83	340.51	15.73	23.97	24.37	40.67
8/31/1993	24:00:00	85.3	976.29	3.05	227.8	333.50	16.42	23.91	24.33	39.84
9/30/1993	24:00:00	85.07	975.31	1.68	222.2	252.50	15.32	24.32	24.58	32.17
10/31/1993	24:00:00	84.15	974.59	1.46	207.47	115.18	16.11	24.99	25.21	19.16
11/30/1993	24:00:00	79.66	973.14	1.38	218.15	41.37	16.78	25.29	25.57	12.23
12/31/1993	24:00:00	66.6	974.03	0.87	56.28	6.52	18.11	24.00	23.52	8.70
1/31/1994	24:00:00	65.54	973.48	0.23	111.66	4.79	18.81	24.43	24.87	8.51
2/28/1994	24:00:00	57.62	973.82	0.74	169.04	2.27	18.44	25.74	26.31	8.60
3/31/1994	24:00:00	72.62	972.79	2.65	229.47	21.70	18.06	27.14	28.87	10.87
4/30/1994	24:00:00	77.37	972.54	3.12	223.95	76.56	17.62	26.76	27.88	15.93
5/31/1994	24:00:00	82.08	974.23	2.54	221.29	105.18	16.17	25.84	26.54	18.59
6/30/1994	24:00:00	82.36	975.65	2.55	225.75	133.71	16.79	25.16	25.71	21.11
7/31/1994	24:00:00	85.2	976.26	3.04	235.09	272.53	16.02	24.05	24.50	34.26
8/31/1994	24:00:00	86.47	975.64	3.42	230.41	531.83	15.07	23.74	24.01	58.60
9/30/1994	24:00:00	86.71	975.49	2.7	228	471.46	15.80	24.04	24.37	52.67
10/31/1994	24:00:00	85.86	974.2	1.02	229.25	294.11	14.61	24.41	24.60	36.00
11/30/1994	24:00:00	74.76	974.85	0.78	58.18	13.78	17.34	23.79	23.48	9.42
12/31/1994	24:00:00	64.93	975.54	2.12	45.44	0.11	20.68	21.73	21.17	7.98
1/31/1995	24:00:00	61.23	975.17	1.06	44.49	4.01	19.35	23.80	23.44	8.40
2/28/1995	24:00:00	62.47	974.89	0.28	174.23	13.01	17.24	25.32	25.49	9.56
3/31/1995	24:00:00	73.1	972.67	2.25	230.24	40.16	17.02	26.78	27.80	12.53
4/30/1995	24:00:00	77.65	971.76	2.83	226.12	63.97	15.63	26.80	27.62	15.02
5/31/1995	24:00:00	83.16	973.61	2.08	219.93	131.21	15.37	25.79	26.19	20.98
6/30/1995	24:00:00	84.69	975.18	2.51	223.07	249.94	15.75	25.19	25.57	32.03
7/31/1995	24:00:00	86.91	974.73	3.13	230.96	450.65	15.40	23.94	24.26	50.91
8/31/1995	24:00:00	87.99	975.16	2.95	235.7	351.12	14.74	23.99	24.22	41.70
9/30/1995	24:00:00	87.01	975.47	2.48	232.04	404.43	15.87	24.50	24.80	46.33
10/31/1995	24:00:00	85.17	974.01	1.48	233.71	249.22	15.59	24.81	24.97	31.71
11/30/1995	24:00:00	74.05	974.49	1.16	48.28	13.73	18.88	23.88	23.48	9.16
12/31/1995	24:00:00	66.9	975.01	0.84	54.58	4.33	18.29	23.79	22.98	8.37
1/31/1996	24:00:00	62.28	973.03	0.28	126.51	5.07	19.73	24.90	24.12	8.05
2/28/1996	24:00:00	68.05	972.33	1.18	238.08	13.15	17.74	26.65	27.09	9.56
3/31/1996	24:00:00	74.16	972.22	2.46	226.22	52.03	17.62	26.80	27.88	13.55
4/30/1996	24:00:00	77.66	972.23	2.61	220.36	70.21	16.10	26.72	27.65	15.48
5/31/1996	24:00:00	81.43	973.71	2.65	221.54	139.19	17.54	26.23	26.87	21.47
6/30/1996	24:00:00	84.31	975.26	2.53	223.93	275.55	15.84	25.07	25.52	34.43
7/31/1996	24:00:00	85.18	976.51	3.15	231.53	314.78	16.45	23.96	24.44	38.14
8/31/1996	24:00:00	85.89	975.73	3.05	232.59	501.68	16.40	23.91	24.33	55.48
9/30/1996	24:00:00	85.89	974.82	2.35	232.83	493.00	15.88	24.17	24.55	54.60

10/31/1996	24:00:00	84.33	974.54	1.03	216.99	150.54	15.92	24.30	24.53	22.42
11/30/1996	24:00:00	68.72	974.04	1.19	45.22	2.03	20.24	23.65	23.02	7.84
12/31/1996	24:00:00	62.34	974.4	0.8	74.79	0.80	19.58	23.89	22.84	7.78
1/31/1997	24:00:00	64.59	974	0.32	20.89	9.21	17.46	24.34	23.87	8.99
2/28/1997	24:00:00	47.36	974.65	1.51	48.29	0.33	19.51	23.71	23.14	8.35
3/31/1997	24:00:00	69.51	972.93	1.43	239.2	47.53	16.57	26.53	27.14	13.09
4/30/1997	24:00:00	78.78	974	2.92	228.05	99.02	16.05	25.99	26.98	18.27
5/31/1997	24:00:00	83.73	974.97	2.01	219.22	231.53	16.09	25.54	26.02	30.16
6/30/1997	24:00:00	85.49	975	2.16	217.75	234.23	15.41	25.04	25.46	30.56
7/31/1997	24:00:00	84.76	976.56	3.57	229.81	248.24	18.04	24.16	24.78	31.75
8/31/1997	24:00:00	84.4	976.62	2.78	235.53	260.43	17.83	24.23	24.76	32.73
9/30/1997	24:00:00	84.08	975.25	1.62	210.31	227.39	16.87	25.10	25.51	29.52
10/31/1997	24:00:00	83.85	974.09	1.01	212.78	135.78	15.14	25.55	25.77	21.15
11/30/1997	24:00:00	74.67	973.95	0.2	201.41	30.92	17.16	25.68	25.58	10.88
12/31/1997	24:00:00	61.73	975.1	0.92	62.38	0.76	17.63	24.25	23.53	8.30
1/31/1998	24:00:00	55.29	974.15	1.37	57.74	1.09	19.68	24.07	23.90	8.29
2/28/1998	24:00:00	53.03	974.78	0.67	123.33	2.61	18.90	27.70	28.68	8.62
3/31/1998	24:00:00	50.72	972.63	0.86	232.79	16.81	18.80	28.64	30.18	10.16
4/30/1998	24:00:00	75.1	972.29	2.84	224.82	63.80	16.49	28.30	29.76	14.98
5/31/1998	24:00:00	80.5	974.32	2.56	228.58	103.40	17.48	27.19	27.83	18.11
6/30/1998	24:00:00	83.46	976.04	2.01	229.12	143.47	14.56	25.69	26.09	22.27
7/31/1998	24:00:00	84.36	975.89	3.27	237.23	250.66	16.18	24.64	25.12	32.24
8/31/1998	24:00:00	85.23	975.29	3.24	240.07	245.42	16.73	24.10	24.55	31.63
9/30/1998	24:00:00	85.17	974.95	2.1	240.57	423.47	14.49	24.63	24.87	48.32
10/31/1998	24:00:00	81.11	974.79	1.19	224.74	414.04	17.03	25.39	25.64	46.75
11/30/1998	24:00:00	71.63	973.54	0.39	74.12	7.68	17.12	25.47	25.35	8.84
12/31/1998	24:00:00	64.45	974.23	0.8	53.48	7.59	17.30	24.51	24.68	9.16
1/31/1999	24:00:00	58.78	973.15	0.12	19.43	23.38	17.70	25.53	26.07	10.55
2/28/1999	24:00:00	59.36	972.53	1.27	254.39	16.76	14.68	27.41	28.68	10.93
3/31/1999	24:00:00	61.26	970.83	2.94	232.1	32.85	17.48	28.95	31.91	12.58
4/30/1999	24:00:00	62.26	972.46	2.65	225.68	55.38	15.90	28.73	31.18	14.79
5/31/1999	24:00:00	64.99	973.47	2.36	211.92	82.85	16.15	28.11	30.11	17.07
6/30/1999	24:00:00	71.34	974.47	2.11	218.72	99.49	14.65	26.67	28.22	18.70
7/31/1999	24:00:00	73.36	975.78	3.21	233.22	380.41	14.48	25.44	26.86	45.09
8/31/1999	24:00:00	73.05	975.55	3.03	240.92	405.32	15.73	25.46	26.66	47.05
9/30/1999	24:00:00	73.9	974.31	2.06	229.63	284.56	14.98	25.69	27.09	35.79
10/31/1999	24:00:00	73.68	974.43	1.5	220.22	244.31	16.21	25.81	27.30	31.68
11/30/1999	24:00:00	58.58	973.45	1.22	183.17	21.30	17.65	27.71	29.99	11.00
12/31/1999	24:00:00	39.66	973.34	0.86	112.12	0.85	18.89	27.14	28.24	8.83
1/31/2000	24:00:00	40.08	972.04	0.59	131.63	4.29	18.66	28.21	29.66	9.18
2/28/2000	24:00:00	29.65	973.43	0.78	60.78	0.96	18.07	27.85	29.44	9.30
3/31/2000	24:00:00	41.82	971.61	1.07	218.1	18.79	17.30	28.75	30.37	10.91
4/30/2000	24:00:00	65.25	971.32	3.42	223.06	44.88	17.42	28.64	30.90	13.56
5/31/2000	24:00:00	68.82	973.12	2.66	218.83	71.11	17.67	28.03	29.46	15.50
6/30/2000	24:00:00	85.43	975.51	2.22	225.7	145.19	14.46	24.65	24.91	22.47
7/31/2000	24:00:00	86.54	975.26	2.69	236.56	252.00	15.71	23.92	24.23	32.28
8/31/2000	24:00:00	85.81	975.95	2.47	238.63	375.49	15.07	23.83	24.24	43.89
9/30/2000	24:00:00	85.16	974.77	2.24	231.08	194.78	15.29	24.37	24.78	26.98
10/31/2000	24:00:00	83.59	974.92	1.08	230.2	105.34	16.71	24.78	25.05	18.07
11/30/2000	24:00:00	73.63	973.65	0.39	119.12	3.55	19.40	24.72	24.24	7.87

12/31/2000	24:00:00	65.04	975.1	1.06	63.01	1.57	18.90	22.85	22.00	8.11
1/31/2001	24:00:00	52.47	974.93	1.15	73.45	0.11	19.98	22.84	22.00	8.02
2/28/2001	24:00:00	56.45	973.42	0.41	92.55	3.26	16.50	24.28	24.62	9.05
3/31/2001	24:00:00	69.13	972.63	2.5	219.55	23.69	16.02	27.35	29.33	11.58
4/30/2001	24:00:00	76.84	972.55	2.76	222.77	76.27	14.86	27.01	28.19	16.41
5/31/2001	24:00:00	80.79	974	2.6	220.72	102.23	15.44	26.38	27.23	18.53
6/30/2001	24:00:00	82.71	975.66	2.68	225.28	139.93	16.02	25.10	25.73	21.90
7/31/2001	24:00:00	81.86	976.01	3.04	226.06	268.85	16.21	24.60	25.33	34.00
8/31/2001	24:00:00	82.05	976.94	3.16	238.42	255.13	17.24	24.37	25.15	32.55
9/30/2001	24:00:00	82.85	975.25	1.96	229.71	297.57	15.03	24.44	24.98	36.61
10/31/2001	24:00:00	79.47	974.87	1.09	182.54	60.71	17.37	25.25	25.63	13.87
11/30/2001	24:00:00	67.72	974.25	1	175.67	6.15	19.43	25.92	27.28	8.82
12/31/2001	24:00:00	56.68	973.83	0.97	142.48	3.28	18.96	25.92	27.19	8.84
1/31/2002	24:00:00	38.65	974.58	1.54	90.11	1.35	19.00	24.88	25.73	9.08
2/28/2002	24:00:00	46.39	973.48	1.09	189.91	14.62	17.12	27.88	30.08	10.68
3/31/2002	24:00:00	64.79	972.21	2.36	217.12	30.71	16.98	28.38	30.40	12.05
4/30/2002	24:00:00	76.65	971.3	3.06	221.23	76.29	15.97	27.26	28.60	16.29
5/31/2002	24:00:00	79.86	973.86	2.62	219.28	58.72	16.63	26.65	27.47	14.23
6/30/2002	24:00:00	81.03	975.9	2.94	227.4	133.58	14.76	25.45	26.37	21.73
7/31/2002	24:00:00	84.03	976.48	2.67	231.15	308.91	15.25	24.93	25.53	37.74
8/31/2002	24:00:00	83.9	976.1	2.36	229.67	277.68	16.98	24.53	25.01	34.40
9/30/2002	24:00:00	83.68	975.66	1.84	224.47	138.79	15.88	24.85	25.25	21.56
10/31/2002	24:00:00	81.72	974.62	1.17	226.79	102.24	16.77	24.90	25.10	17.80
11/30/2002	24:00:00	69.44	974.83	0.24	185.07	19.77	18.55	25.37	25.75	9.82
12/31/2002	24:00:00	58.05	975.38	0.75	81.1	2.13	19.21	24.52	25.23	8.52
1/31/2003	24:00:00	54.72	975.08	0.19	358.46	6.69	17.42	25.36	26.09	9.22
2/28/2003	24:00:00	60.82	973	1.29	218.97	16.47	16.04	27.62	29.27	10.69
3/31/2003	24:00:00	65.12	972.52	1.54	211.17	21.44	14.93	27.63	29.23	11.34
4/30/2003	24:00:00	77.2	973.02	2.71	226.66	99.60	15.22	27.08	28.34	18.51
5/31/2003	24:00:00	78.72	974.27	2.59	219.02	125.10	14.79	26.55	27.65	20.89
6/30/2003	24:00:00	79.88	975.09	2.19	222.16	193.64	14.53	25.58	26.56	27.22
7/31/2003	24:00:00	82.78	976.22	2.82	241.76	250.80	16.18	24.67	25.23	32.21
8/31/2003	24:00:00	81.31	976.03	3.11	238.8	224.41	15.85	24.81	25.40	29.92
9/30/2003	24:00:00	83.49	975.87	1.54	236.91	182.14	15.45	24.74	25.02	25.59
10/31/2003	24:00:00	83.21	973.94	1.25	217.29	269.67	16.21	25.58	25.91	33.48
11/30/2003	24:00:00	73.99	973.57	0.68	214.69	33.44	16.18	25.59	26.08	11.61
12/31/2003	24:00:00	57.46	974.29	0.34	64.91	1.35	17.30	24.57	25.05	8.70
1/31/2004	24:00:00	56.4	973.16	0.28	203.89	3.47	17.80	25.71	26.79	8.91
2/28/2004	24:00:00	52.84	973.58	0.65	168.39	10.74	16.93	27.09	28.73	10.01
3/31/2004	24:00:00	54.33	972.43	1.53	228.66	28.81	16.68	28.72	31.17	12.06
4/30/2004	24:00:00	73.24	972.73	3.29	225.04	113.99	15.96	27.70	29.61	20.05
5/31/2004	24:00:00	82.91	974.6	2.54	220.75	179.70	15.18	26.16	26.72	25.66
6/30/2004	24:00:00	83.8	976.67	2.56	227.92	171.19	13.64	25.13	25.61	25.21
7/31/2004	24:00:00	84.61	975.81	2.61	237.04	360.01	13.94	24.33	24.76	42.73
8/31/2004	24:00:00	83.28	976.29	2.75	231.45	268.09	15.27	24.65	25.13	33.96
9/30/2004	24:00:00	83.93	975.15	1.52	210.65	165.96	13.71	24.84	25.12	24.43
10/31/2004	24:00:00	81.74	974.46	1.65	216.9	112.92	15.46	25.50	26.05	19.24
11/30/2004	24:00:00	72.15	973.64	1.08	219.57	39.41	14.88	26.12	27.34	12.75
12/31/2004	24:00:00	58.57	973.17	0.71	199.6	4.92	17.69	26.17	27.47	9.16
1/31/2005	24:00:00	41.52	973.78	0.82	78.12	2.14	16.90	25.21	25.99	9.33

2/28/2005	24:00:00	58.87	971.8	1.95	223.27	25.94	13.71	28.91	31.08	12.33
3/31/2005	24:00:00	66.25	972.62	2.54	222.91	40.16	14.40	28.67	30.90	13.52
4/30/2005	24:00:00	67.01	972.42	3.24	225.85	83.55	13.68	28.91	31.08	17.83
5/31/2005	24:00:00	67.82	973.94	2.67	213.83	184.49	14.77	27.97	29.61	26.74
6/30/2005	24:00:00	75.23	975	2.59	225.68	200.46	14.40	26.58	27.85	28.10
7/31/2005	24:00:00	76.28	976.41	2.57	232.28	452.09	14.89	25.63	26.46	51.30
8/31/2005	24:00:00	70.35	975.58	3.21	235.46	169.39	16.88	26.10	27.62	25.02
9/30/2005	24:00:00	82.18	975.24	1.38	223.96	256.86	15.89	25.41	25.77	32.42
10/31/2005	24:00:00	80.77	974.77	1.08	211.13	162.06	15.86	25.54	25.92	23.57
11/30/2005	24:00:00	65.5	973.33	0.74	186.45	16.03	17.67	26.51	27.66	10.01
12/31/2005	24:00:00	57.08	972.43	0.85	188.39	19.10	17.35	27.22	28.84	10.65
1/31/2006	24:00:00	57.43	972.05	1.31	220.5	16.14	15.71	28.06	30.00	10.86
2/28/2006	24:00:00	59.39	971.85	2.47	225.23	18.68	14.13	28.92	31.30	11.73
3/31/2006	24:00:00	60.59	972.71	2.68	220.11	31.94	14.24	28.67	31.20	13.02
4/30/2006	24:00:00	63.3	971.84	2.67	213.33	57.03	15.31	28.90	31.24	15.01
5/31/2006	24:00:00	74.29	974.3	2.43	210.79	325.24	15.45	27.00	28.35	39.47
6/30/2006	24:00:00	76.43	975.08	2.19	220.77	150.05	13.05	26.37	27.37	23.51
7/31/2006	24:00:00	78.52	975.91	2.71	235.33	242.08	14.51	25.68	26.51	31.83
8/31/2006	24:00:00	84.04	975.42	2.77	229.73	384.21	15.72	24.60	25.13	44.67
9/30/2006	24:00:00	85.22	975.62	1.67	226.09	207.03	13.35	24.48	24.66	28.32
10/31/2006	24:00:00	81.97	974.03	0.73	205.25	102.20	15.85	25.78	26.22	17.91
11/30/2006	24:00:00	64.87	973.94	0.48	107.98	9.13	17.38	25.00	25.32	9.22
12/31/2006	24:00:00	51.25	975.06	0.6	105.53	0.24	19.47	24.55	25.22	8.37
1/31/2007	24:00:00	42.69	974.95	1.63	76.74	0.62	18.35	24.37	24.73	8.97
2/28/2007	24:00:00	55.44	973.24	1.29	226.49	16.37	15.32	27.43	29.26	11.00
3/31/2007	24:00:00	55.86	972	2.25	220.31	23.24	16.58	28.70	30.92	11.63
4/30/2007	24:00:00	67.33	972.19	3.21	229.08	109.05	14.41	28.51	30.86	20.10
5/31/2007	24:00:00	76.36	973.54	2.35	215.14	97.72	15.42	27.17	28.40	18.21
6/30/2007	24:00:00	82.64	975.38	2.86	222.76	231.74	15.19	25.36	25.99	30.64
7/31/2007	24:00:00	84.61	975.82	3.01	230.26	233.14	14.47	24.48	24.96	30.92
8/31/2007	24:00:00	86.8	975.15	2.64	232.12	464.00	13.94	24.03	24.30	52.33
9/30/2007	24:00:00	85.98	975.5	1.48	224.39	264.20	14.57	24.61	24.82	33.32
10/31/2007	24:00:00	85.51	974.26	1.35	203.54	130.54	15.06	24.83	25.12	20.78
11/30/2007	24:00:00	78.04	973.32	0.69	209.76	62.98	16.15	25.23	25.26	14.18
12/31/2007	24:00:00	66.36	973.92	0.53	11.7	12.48	18.38	23.83	23.14	9.08
1/31/2008	24:00:00	59.85	973.98	1.25	19.52	3.46	17.30	22.80	22.73	8.99
2/28/2008	24:00:00	55.24	974.05	0.44	68.03	3.24	17.26	24.60	24.50	8.78
3/31/2008	24:00:00	72.44	971.87	2.77	225.12	44.68	16.04	27.10	28.93	13.49
4/30/2008	24:00:00	72.4	971.64	2.39	208.87	96.83	15.65	27.08	28.75	18.30
5/31/2008	24:00:00	74.55	973.12	2.06	214.66	108.73	14.60	26.94	28.27	19.42
6/30/2008	24:00:00	80.05	974.86	2.13	220.39	164.94	14.64	25.72	26.51	24.45
7/31/2008	24:00:00	83.88	975.94	2.56	234.09	306.31	14.76	24.53	24.86	37.53
8/31/2008	24:00:00	85.44	974.72	2.62	238.91	560.03	14.49	24.13	24.40	61.16
9/30/2008	24:00:00	85.25	975.23	1.69	223.42	298.69	14.71	24.62	24.81	36.56
10/31/2008	24:00:00	81.81	974.53	0.98	221.04	105.01	16.26	25.30	25.44	18.08
11/30/2008	24:00:00	70.96	973.68	0.13	20.83	13.59	18.57	25.42	25.06	8.97
12/31/2008	24:00:00	67	973.43	0.23	42.12	15.52	17.55	24.98	24.75	9.53
1/31/2009	24:00:00	64.72	973.6	0.69	260.48	16.48	15.83	25.70	26.03	10.25
2/28/2009	24:00:00	66.82	972.24	1.54	227.36	19.67	14.88	27.40	28.87	11.13
3/31/2009	24:00:00	65.08	971.61	2	222.08	24.66	15.39	28.08	29.81	11.67

4/30/2009	24:00:00	76.43	973.01	2.57	220.59	87.27	15.31	26.98	28.04	17.27
5/31/2009	24:00:00	81.22	973.59	2.19	221.03	137.95	15.21	26.09	26.72	21.75
6/30/2009	24:00:00	83.37	975.59	2.23	220.34	161.59	14.35	25.33	25.83	24.10
7/31/2009	24:00:00	83.7	975.97	2.46	232.83	321.82	15.28	24.92	25.40	38.86
8/31/2009	24:00:00	85.07	975.42	2.23	231.65	290.54	14.64	24.57	24.92	35.99
9/30/2009	24:00:00	84.4	975.88	1.58	218.94	170.43	14.63	24.99	25.26	24.64
10/31/2009	24:00:00	83.81	974.24	1.07	206.44	206.37	15.32	25.08	25.32	27.73
11/30/2009	24:00:00	71.25	974.22	0.1	115.35	37.82	17.52	24.94	24.60	11.46
12/31/2009	24:00:00	58.42	974.46	0.5	79.75	1.68	19.46	24.86	24.05	7.92
1/31/2010	24:00:00	57.62	974.06	0.43	213.2	5.04	18.39	26.18	26.56	8.72
2/28/2010	24:00:00	61.34	972.94	1.96	224.74	18.13	15.87	28.23	30.10	11.05
3/31/2010	24:00:00	59.91	973.39	1.83	217.91	34.65	15.90	28.65	30.62	12.59
4/30/2010	24:00:00	69.97	972.77	2.97	221.33	50.68	15.05	28.17	29.98	14.30
5/31/2010	24:00:00	78.47	973.73	2.58	219.52	148.31	15.06	27.12	28.08	22.93
6/30/2010	24:00:00	81.74	975.81	2.16	217.27	168.18	13.77	25.75	26.29	24.84
7/31/2010	24:00:00	84.55	975.73	2.61	231.41	414.86	14.32	24.54	24.90	47.72
8/31/2010	24:00:00	85.11	975.5	2.81	225.8	336.26	15.06	24.51	24.75	40.26
9/30/2010	24:00:00	84.75	974.86	1.72	220.44	411.10	14.59	24.58	24.78	47.06
10/31/2010	24:00:00	84.45	974.17	1.58	210.41	173.76	15.44	25.07	25.44	24.81
11/30/2010	24:00:00	76.5	973.12	0.56	212.67	47.03	17.11	25.66	25.81	12.51
12/31/2010	24:00:00	59.29	973	0.53	59.58	2.70	20.16	24.45	24.08	8.00
1/31/2011	24:00:00	53.01	972.91	1.05	72.5	0.54	19.78	24.06	23.47	8.08
2/28/2011	24:00:00	66.77	972.52	2.19	233.77	28.62	14.83	26.92	28.34	12.13
3/31/2011	24:00:00	65.75	972	2.41	220.75	26.48	17.27	28.09	30.25	11.64
4/30/2011	24:00:00	68.78	971.96	2.81	220.57	50.48	14.75	27.65	29.50	14.36
5/31/2011	24:00:00	78.34	973.71	2.41	219.95	115.81	13.73	26.64	27.60	20.17
6/30/2011	24:00:00	82.95	975.14	2.48	221.86	143.91	13.68	25.47	25.93	22.64
7/31/2011	24:00:00	83.44	975.35	2.35	231.15	296.42	15.54	24.80	25.19	36.41
8/31/2011	24:00:00	84.14	975.57	2.71	236.32	270.40	15.63	24.39	24.77	34.06
9/30/2011	24:00:00	84.1	975.8	1.78	223.52	220.47	14.92	24.61	24.87	29.31
10/31/2011	24:00:00	82.96	973.53	0.98	200.2	233.30	15.16	25.01	25.26	30.27
11/30/2011	24:00:00	67.5	973.86	0.26	207.64	8.73	19.47	25.37	25.51	8.57
12/31/2011	24:00:00	51.53	974.59	0.71	70.98	0.62	19.45	23.91	23.58	8.19
1/31/2012	24:00:00	54.25	974.16	0.29	183.76	7.65	17.81	25.44	26.32	9.30
2/28/2012	24:00:00	62.83	972.06	2.23	224.86	32.11	16.34	27.88	30.55	12.53
3/31/2012	24:00:00	58.13	972.92	1.72	221.57	22.75	15.77	28.08	30.39	11.64
4/30/2012	24:00:00	71.55	972.78	3.4	226.02	82.62	15.44	27.47	29.40	17.32
5/31/2012	24:00:00	77.76	974.6	2.32	222.59	152.08	14.90	26.19	27.24	23.34
6/30/2012	24:00:00	80.81	975.91	2.29	231.29	284.92	14.87	25.28	25.95	35.57
7/31/2012	24:00:00	84.11	975.71	2.9	234.2	484.25	15.70	24.37	24.73	53.97
8/31/2012	24:00:00	84.82	976.23	2.55	238.64	326.57	15.49	24.10	24.39	39.25
9/30/2012	24:00:00	85.1	976.21	2.05	228.42	339.58	14.51	24.34	24.53	40.50
10/31/2012	24:00:00	83.97	974.39	1.17	199.33	175.65	15.45	25.03	25.29	24.87
11/30/2012	24:00:00	75.66	973.96	0.44	204.01	33.46	16.29	25.63	25.62	11.36
12/31/2012	24:00:00	60.65	974.18	0.69	66.53	6.88	19.05	24.44	24.13	8.64
1/31/2013	24:00:00	61.1	974.58	0.15	162.11	16.84	16.70	25.40	25.75	10.07
2/28/2013	24:00:00	65.63	972.89	1.24	228.75	15.67	14.71	26.74	27.94	10.71
3/31/2013	24:00:00	69.8	973.03	3.39	221.84	48.97	15.68	27.85	30.05	14.23
4/30/2013	24:00:00	69.01	973.58	2.52	217.56	133.26	15.74	27.83	29.94	21.85
5/31/2013	24:00:00	77.3	974.63	2.4	221.14	127.28	14.12	26.49	27.69	21.25

6/30/2013	24:00:00	80.83	975.54	2.6	226.78	146.70	14.89	25.53	26.27	22.79
7/31/2013	24:00:00	83.25	976.29	2.48	237.11	291.38	15.05	24.49	24.94	36.11
8/31/2013	24:00:00	81.17	975.53	2.91	233.26	188.42	15.98	24.47	25.16	26.55
9/30/2013	24:00:00	83.07	975.69	1.55	217.13	285.88	14.62	24.83	25.29	35.46
10/31/2013	24:00:00	78.09	975.03	1.13	189.96	105.93	17.96	25.60	26.51	18.12
11/30/2013	24:00:00	71.23	973.28	1.61	207.65	36.41	16.94	26.55	28.76	12.43
12/31/2013	24:00:00	59.23	974.37	0.92	177.26	20.00	18.52	25.75	27.47	10.56
1/31/2014	24:00:00	55.43	973.89	1.26	195.53	17.43	17.89	26.86	29.07	10.69
2/28/2014	24:00:00	54.16	972.72	1.3	203.41	20.31	16.16	27.96	30.55	11.40
3/31/2014	24:00:00	63.6	972.89	2.99	220.07	64.78	15.55	28.26	31.17	15.94
4/30/2014	24:00:00	71	973.38	2.86	218.44	125.51	14.90	27.66	29.65	21.32
5/31/2014	24:00:00	74.77	973.82	1.87	211.41	179.83	15.69	27.19	28.48	25.73
6/30/2014	24:00:00	74.25	975.4	2.37	219.69	94.47	15.36	26.71	28.06	18.03
7/31/2014	24:00:00	77.64	977.03	2.87	225.44	294.55	15.56	25.67	26.87	36.65
8/31/2014	24:00:00	82.16	976.2	2.75	232.37	247.34	15.87	24.62	25.10	31.92
9/30/2014	24:00:00	82.76	975.79	1.67	220.54	442.14	15.48	24.74	25.11	49.83
10/31/2014	24:00:00	79.66	974.96	1.02	198.45	153.22	16.29	25.58	26.05	22.69
11/30/2014	24:00:00	68.48	974.26	0.96	202.95	37.81	16.64	26.55	27.79	12.26
12/31/2014	24:00:00	47.38	974.69	0.52	110.81	3.34	19.25	26.90	28.32	8.86
1/31/2015	24:00:00	42.57	975.53	0.95	89.74	7.47	19.03	26.00	27.43	9.53
2/28/2015	24:00:00	58.06	973.21	2.22	223.75	40.29	14.49	28.91	31.77	13.77
3/31/2015	24:00:00	63.35	972.97	2.35	222.91	58.53	16.06	28.25	30.37	14.89
4/30/2015	24:00:00	63.16	973.87	2.27	221.88	37.82	16.77	28.28	30.55	12.84
5/31/2015	24:00:00	70.84	974.46	3.04	219.45	125.02	15.41	27.61	29.74	21.25
6/30/2015	24:00:00	77.74	976.14	3.02	219.77	193.52	15.31	26.12	27.66	27.41
7/31/2015	24:00:00	82.43	976.12	2.62	231.31	209.67	14.80	25.27	25.81	28.60
8/31/2015	24:00:00	83.15	975.84	2.56	227.67	358.76	14.43	24.94	25.35	42.49
9/30/2015	24:00:00	84.22	975.58	2.07	224.4	351.28	14.42	25.06	25.38	41.63
10/31/2015	24:00:00	81.01	975.15	1.4	210.94	186.10	16.11	25.79	26.63	25.94
11/30/2015	24:00:00	65.19	974.52	0.52	162.92	22.98	18.72	26.65	28.09	10.46
12/31/2015	24:00:00	40.52	976.49	2.62	59.63	0.06	19.56	24.42	25.18	9.04
1/31/2016	24:00:00	35.79	975.36	1.63	69.67	3.31	20.01	26.40	27.24	9.05
2/28/2016	24:00:00	39.71	973.71	0.47	201.38	4.15	17.52	29.23	30.82	9.37
3/31/2016	24:00:00	64.36	973.52	2.96	229.56	96.01	16.20	29.18	31.61	18.50
4/30/2016	24:00:00	68.22	973.12	3.06	220.36	69.77	16.14	28.79	31.09	16.00
5/31/2016	24:00:00	78.86	975.25	2.84	222.76	192.33	16.01	26.73	27.58	26.86
6/30/2016	24:00:00	81.85	976.59	2.55	231.38	257.85	14.16	25.37	25.84	33.18
7/31/2016	24:00:00	84.7	976.1	2.73	231.92	214.29	14.80	24.70	25.07	28.99
8/31/2016	24:00:00	84.39	976.04	2.47	226.86	241.45	14.55	24.68	25.15	31.54
9/30/2016	24:00:00	84.79	975.94	1.72	223.86	236.16	14.37	24.76	25.15	30.88
10/31/2016	24:00:00	81.88	974.26	1.09	201.66	96.24	16.44	25.52	25.66	17.24
11/30/2016	24:00:00	70.05	973.88	0.52	160.11	18.70	18.19	26.26	26.98	9.89
12/31/2016	24:00:00	59.05	974.05	0.81	112.93	3.89	17.63	25.55	26.51	9.02
1/31/2017	24:00:00	57.81	973.77	0.81	213.55	8.15	17.20	26.43	27.95	9.65
2/28/2017	24:00:00	51.22	973.47	0.59	168.2	6.75	15.89	27.38	29.26	9.93
3/31/2017	24:00:00	63.33	972.57	2.67	209.05	40.90	16.96	28.76	31.88	13.39
4/30/2017	24:00:00	70.74	973	2.97	213.79	81.13	14.53	27.81	30.25	17.42
5/31/2017	24:00:00	80.74	974.49	2.39	217.49	110.99	15.69	26.52	27.18	19.18
6/30/2017	24:00:00	82.46	975.29	1.98	226.95	157.55	14.79	25.72	26.36	23.61
7/31/2017	24:00:00	84.32	976.7	2.69	230.37	237.08	15.55	24.80	25.30	30.98

8/31/2017	24:00:00	85.09	975.74	2.58	231.08	409.41	15.49	24.59	25.14	47.00
9/30/2017	24:00:00	84.84	975.64	1.58	220.66	189.14	14.29	24.84	25.08	26.45
10/31/2017	24:00:00	81.1	974.63	1.19	228.66	90.34	15.57	25.70	25.90	16.92
11/30/2017	24:00:00	72.69	973.97	0.91	229.25	27.66	16.66	25.65	26.37	11.12
12/31/2017	24:00:00	63.24	974.07	0.21	135.32	4.75	17.17	25.40	26.15	8.93
1/31/2018	24:00:00	45.62	974.62	1.02	86.44	0.18	18.65	23.93	23.94	8.60
2/28/2018	24:00:00	67.03	972.31	2.06	228.74	95.54	14.67	27.03	28.69	18.41
3/31/2018	24:00:00	69.32	973.17	3.12	223.9	62.60	16.96	27.70	30.31	15.30
4/30/2018	24:00:00	72.92	973.17	3.52	218.07	101.44	15.04	27.38	29.54	19.22
5/31/2018	24:00:00	79.63	974.23	3.01	220.92	117.99	15.41	26.37	27.26	20.13
6/30/2018	24:00:00	84.18	975.87	2.75	225.16	189.15	13.98	25.13	25.59	26.84
7/31/2018	24:00:00	84.82	976.38	2.46	236.43	274.76	14.82	24.65	24.98	34.53
8/31/2018	24:00:00	85.67	976.22	2.61	234.44	311.43	15.42	24.39	24.79	37.87
9/30/2018	24:00:00	86.2	974.64	1.77	220.24	448.25	14.41	24.69	25.00	50.56
10/31/2018	24:00:00	84.15	974.5	1.21	218.13	132.57	15.56	25.41	25.70	20.83
11/30/2018	24:00:00	73.31	973.67	0.53	254.87	17.97	17.80	25.94	26.49	9.81
12/31/2018	24:00:00	57.55	975.08	0.48	28.53	0.96	18.09	24.53	24.86	8.48
1/31/2019	24:00:00	60.45	974.7	1.01	263.21	10.59	18.02	25.49	26.79	9.68
2/28/2019	24:00:00	60.45	973.95	1.23	242.45	30.51	13.77	26.28	28.01	12.56
3/31/2019	24:00:00	68.82	973.49	2.53	229.89	43.75	14.88	27.78	30.42	13.86
4/30/2019	24:00:00	68.95	972.94	3.21	220.66	92.65	15.73	28.47	31.51	18.46
5/31/2019	24:00:00	78.09	973.9	2.53	223.07	113.97	15.42	26.86	28.12	19.75
6/30/2019	24:00:00	82.23	976.09	2.48	226.49	339.01	15.76	25.79	26.54	40.43
7/31/2019	24:00:00	83.34	975.95	2.46	226.96	304.24	15.02	25.01	25.69	37.34
8/31/2019	24:00:00	85.22	976.8	2.78	228.7	348.08	15.13	24.47	24.83	41.37
9/30/2019	24:00:00	86.02	975.65	1.94	217.15	288.84	14.30	24.85	25.19	35.80
10/31/2019	24:00:00	86.33	974.34	1.55	206.64	273.57	14.90	24.60	24.83	34.14
11/30/2019	24:00:00	75.96	973.55	0.11	230.66	25.85	17.80	26.14	26.05	10.21
12/31/2019	24:00:00	59.43	974.41	0.56	34.57	0.38	20.88	24.62	23.83	7.51

Appendix 1E: OTAMIRI River Data

Modern-Era Retrospective Analysis for Research and Applications (MERRA) version 2

Provider;National Aeronautics and Space Administration (NASA) / Goddard Space Flight Center

Site latitude (positive means North);5.471

Site longitude (positive means East);7.053

Date beginning;1981-01-01

Date end;2019-12-31

Elevation; 55m

Date	UT	Relative humidity	Pressure	Wind_speed	Wind_dir	Rainfall	Radiation	Temp_C	Earth-skin-Temp	Calculated Discharge
1/31/1981	24:00:00	74.05	1003	0.9	341.99	53.30	16.66	24.49	24.17	9.57
2/28/1981	24:00:00	74.76	1001.82	1.18	269.28	39.76	16.47	25.95	25.83	15.42
3/31/1981	24:00:00	81.58	1002.29	1.98	230.87	93.85	15.62	26.31	26.45	17.31
4/30/1981	24:00:00	83.7	1001.58	1.9	221.25	119.43	16.02	26.71	26.9	19.08
5/31/1981	24:00:00	86.88	1002.83	1.81	224.69	400.63	13.30	25.71	25.78	14.71
6/30/1981	24:00:00	86.63	1004.43	1.97	228.45	225.32	14.21	25.6	25.67	14.75
7/31/1981	24:00:00	88.4	1005.14	2.7	230.33	344.44	15.36	24.26	24.31	8.35
8/31/1981	24:00:00	85.79	1004.83	2.77	229.88	331.92	17.12	24.37	24.56	8.47
9/30/1981	24:00:00	87.76	1004.66	2.44	239.4	301.03	15.45	24.64	24.79	10.43
10/31/1981	24:00:00	88.82	1003.12	1.94	225.14	363.41	13.02	25.08	25.15	12.69
11/30/1981	24:00:00	83.6	1002.62	0.34	339.26	244.33	13.46	24.46	24.3	11.36
12/31/1981	24:00:00	75.05	1002.75	0.63	334.73	9.52	17.20	25.21	24.83	12.61
1/31/1982	24:00:00	78.01	1002.15	0.65	285.53	49.57	15.88	25.56	25.51	15.19
2/28/1982	24:00:00	73.88	1001.74	0.91	305.09	94.04	15.49	25.15	24.84	12.05
3/31/1982	24:00:00	81.65	1001.47	1.32	235.12	432.17	14.83	25.81	25.8	14.34
4/30/1982	24:00:00	86.1	1001.77	2.22	225.68	164.37	14.65	26.21	26.33	17.02
5/31/1982	24:00:00	87.12	1002.82	1.85	230.46	335.76	13.76	25.81	25.88	15.29
6/30/1982	24:00:00	89.58	1005.12	2.31	230.6	479.18	12.93	24.75	24.78	10.51
7/31/1982	24:00:00	89.41	1005.09	2.68	242.65	273.06	14.26	23.97	23.99	7.88
8/31/1982	24:00:00	87.93	1005.58	2.78	239.1	151.98	18.22	23.61	23.72	6.31
9/30/1982	24:00:00	89.13	1004.51	2.54	238.98	419.47	14.84	24.4	24.48	8.96
10/31/1982	24:00:00	89.73	1003.22	1.9	239.63	754.94	12.07	24.42	24.43	8.56
11/30/1982	24:00:00	82.35	1002.76	0.9	350.03	210.02	15.98	24.55	24.51	10.94
12/31/1982	24:00:00	77.83	1002.55	0.85	355.08	148.07	15.45	24.58	24.36	10.47
1/31/1983	24:00:00	67.46	1003.58	3.87	34.98	0.02	19.70	20.93	20.57	-8.14
2/28/1983	24:00:00	72.66	1002.43	1	276.67	29.94	18.64	26.56	26.56	17.59
3/31/1983	24:00:00	71.64	1001.76	1.01	243.56	36.35	20.15	27.22	27.2	19.54
4/30/1983	24:00:00	83.26	1001.41	2	220.11	132.64	14.79	26.96	27.2	20.15
5/31/1983	24:00:00	87.24	1002.14	2.05	219.47	294.93	14.46	25.99	26.06	15.81
6/30/1983	24:00:00	88.41	1004.61	2.57	223.1	400.56	15.08	25.03	25.12	11.25
7/31/1983	24:00:00	88.41	1005.12	2.79	231.4	344.07	15.73	24.19	24.25	7.95
8/31/1983	24:00:00	88.09	1006.6	2.87	230.08	141.68	18.12	23.52	23.65	6.02
9/30/1983	24:00:00	88.93	1004.89	2.34	234.3	314.94	14.07	24.23	24.3	9.13
10/31/1983	24:00:00	87.1	1003.89	1.48	221.56	318.01	14.22	24.77	24.88	11.92
11/30/1983	24:00:00	83.93	1004.26	1.25	230.93	125.34	15.02	25.34	25.45	14.67
12/31/1983	24:00:00	80.29	1003.48	0.56	265.47	199.71	15.26	24.54	24.36	10.83
1/31/1984	24:00:00	68.02	1002.67	1.36	33.54	3.77	19.16	23.28	22.47	2.28
2/28/1984	24:00:00	79.61	1000.87	1.11	230.49	34.20	15.81	25.67	25.87	16.05

3/31/1984	24:00:00	84.25	1000.77	2.14	226.02	149.43	14.33	25.89	26.02	15.85
4/30/1984	24:00:00	85.76	1001.35	2.06	222.62	211.21	13.53	25.66	25.77	15.07
5/31/1984	24:00:00	85.56	1001.9	1.75	226.31	203.57	14.65	25.65	25.78	15.23
6/30/1984	24:00:00	86.89	1003.9	1.99	231.04	189.98	13.79	25.02	25.1	12.87
7/31/1984	24:00:00	87.64	1003.98	2.27	241	351.77	13.32	24.39	24.49	9.70
8/31/1984	24:00:00	87.62	1004.4	2.38	248.35	452.67	14.11	24.55	24.65	9.55
9/30/1984	24:00:00	87.74	1003.62	1.99	238.93	284.17	14.53	24.67	24.73	11.04
10/31/1984	24:00:00	89.03	1002.88	1.7	234.4	538.71	12.84	24.81	24.86	11.13
11/30/1984	24:00:00	83.57	1002.75	1.02	240.38	161.39	14.63	25.17	25.12	13.72
12/31/1984	24:00:00	76.45	1001.84	1	5.86	21.73	16.59	23.67	23.29	6.70
1/31/1985	24:00:00	79.63	1001.58	1.24	264.92	88.09	15.28	25.5	25.52	14.64
2/28/1985	24:00:00	61.64	1002.28	0.77	356.11	2.32	19.84	25.36	24.49	9.62
3/31/1985	24:00:00	81.04	1000.99	1.98	227.1	153.06	15.59	26.05	26.18	15.98
4/30/1985	24:00:00	84.24	1001.7	1.98	211.19	155.95	15.65	25.86	26.12	15.98
5/31/1985	24:00:00	87.11	1002.6	2.26	221.23	337.26	14.08	25.49	25.59	13.66
6/30/1985	24:00:00	86.91	1005.41	2.33	231.65	347.80	14.45	24.71	24.83	10.59
7/31/1985	24:00:00	87.33	1005.34	2.33	239.68	311.48	14.90	23.96	24.05	7.86
8/31/1985	24:00:00	87.64	1004.72	2.38	236.43	296.20	15.14	24.22	24.35	8.94
9/30/1985	24:00:00	87.33	1003.86	2.23	237.06	309.96	15.31	24.38	24.54	9.65
10/31/1985	24:00:00	87.29	1002.72	1.31	214.8	574.59	12.95	24.92	24.96	11.54
11/30/1985	24:00:00	85.18	1002.31	1.17	231.35	348.42	13.18	25.7	25.76	15.41
12/31/1985	24:00:00	74.66	1001.99	0.87	334.08	46.96	16.65	24.4	23.99	9.13
1/31/1986	24:00:00	74.43	1002.67	0.93	271.8	46.58	18.78	25.49	25.44	13.66
2/28/1986	24:00:00	81.26	1002.05	2.14	229.94	73.95	12.98	25.61	25.76	15.12
3/31/1986	24:00:00	82.89	1002.45	2.12	226.55	185.56	15.56	25.55	25.86	14.53
4/30/1986	24:00:00	84.64	1001.31	2.4	221.22	164.53	15.36	26.19	26.37	16.60
5/31/1986	24:00:00	85.87	1002.92	1.8	215.99	373.87	13.94	25.59	25.67	14.19
6/30/1986	24:00:00	84.79	1004.42	2.31	219.61	195.76	16.55	25.18	25.42	12.75
7/31/1986	24:00:00	85.77	1006.36	2.77	229.04	329.95	16.06	24.15	24.34	7.86
8/31/1986	24:00:00	85.55	1005	2.71	235.98	297.04	16.70	23.99	24.24	7.50
9/30/1986	24:00:00	86.78	1004.95	2.35	235.26	354.57	15.35	24.3	24.47	8.96
10/31/1986	24:00:00	88.74	1003.88	1.95	232.43	1048.46	12.76	24.67	24.76	8.03
11/30/1986	24:00:00	84.97	1002.37	0.93	274.34	315.22	13.88	25.31	25.32	14.08
12/31/1986	24:00:00	72.6	1003.7	1.59	13.57	20.37	17.52	23.22	22.62	3.16
1/31/1987	24:00:00	73.85	1003.54	0.67	273.24	11.59	19.91	25.71	25.53	14.29
2/28/1987	24:00:00	80.54	1002.78	1.99	227.3	82.58	16.49	26.67	27.12	19.24
3/31/1987	24:00:00	80.65	1001.69	1.68	228.37	135.00	16.55	26.44	26.69	17.94
4/30/1987	24:00:00	82.21	1002.24	1.74	211.82	97.08	17.11	26.99	27.3	20.34
5/31/1987	24:00:00	85.64	1002.16	2.11	214.97	205.16	14.79	26.33	26.43	17.26
6/30/1987	24:00:00	86.47	1005.03	2.27	227.77	245.67	14.38	25.3	25.43	13.32
7/31/1987	24:00:00	87.17	1003.81	2.42	237.65	543.40	13.87	25.24	25.35	11.66
8/31/1987	24:00:00	88.39	1003.96	2.62	234.42	332.79	14.78	24.89	24.92	10.89
9/30/1987	24:00:00	89.15	1004.1	2.49	232.58	344.27	14.26	25.08	25.13	11.93
10/31/1987	24:00:00	88.93	1003.11	1.86	227.78	399.89	12.62	25.33	25.35	13.49
11/30/1987	24:00:00	84.35	1002.73	0.99	226.05	266.64	14.09	25.87	25.83	16.08
12/31/1987	24:00:00	75.53	1003.24	0.74	295.99	105.51	16.27	25.51	24.98	12.98
1/31/1988	24:00:00	75.9	1002.63	0.66	286.67	38.18	16.88	25.64	25.44	14.68
2/28/1988	24:00:00	77.5	1000.69	1.34	249.64	34.37	16.64	27.06	27.19	20.37
3/31/1988	24:00:00	83.57	1001.95	2	232.36	123.72	14.66	26.92	27.08	19.90
4/30/1988	24:00:00	85.21	1001.41	2.29	226.44	178.67	14.13	26.66	26.8	18.60

5/31/1988	24:00:00	86.12	1002.84	1.97	214.36	208.24	14.84	26.42	26.53	17.81
6/30/1988	24:00:00	87.46	1003.91	2.12	236.82	369.93	13.90	25.42	25.48	13.37
7/31/1988	24:00:00	88.15	1005.15	2.81	242.33	344.24	16.07	24.46	24.5	8.78
8/31/1988	24:00:00	87.62	1004.21	2.92	237.59	196.94	18.35	24.6	24.67	9.46
9/30/1988	24:00:00	89.34	1003.71	2.57	242.34	434.71	14.05	24.65	24.66	9.77
10/31/1988	24:00:00	88.56	1002.51	1.64	232.16	445.46	13.29	25.28	25.35	13.29
11/30/1988	24:00:00	82.56	1002.86	0.59	262.84	270.78	15.15	25.84	25.8	15.97
12/31/1988	24:00:00	81.17	1002.22	0.77	331.65	125.24	13.79	24.43	24.23	10.87
1/31/1989	24:00:00	64.4	1003.58	3.08	26.77	0.26	21.04	21.44	20.73	-6.94
2/28/1989	24:00:00	62.29	1002.79	1.48	16.97	6.13	18.96	24.31	23.37	4.98
3/31/1989	24:00:00	82.38	1001.2	2.19	229.11	92.56	15.62	26.09	26.29	16.53
4/30/1989	24:00:00	85.61	1001.09	2.3	220.28	160.02	14.32	26.16	26.32	16.88
5/31/1989	24:00:00	86.78	1003.32	2	225.07	375.93	13.64	25.66	25.73	14.36
6/30/1989	24:00:00	87.81	1004.54	2.1	225.56	310.02	13.33	25.03	25.07	12.32
7/31/1989	24:00:00	89.07	1005.36	2.56	231.62	467.04	14.59	24.29	24.3	8.16
8/31/1989	24:00:00	89.19	1004.65	2.73	233.88	304.43	14.91	24.44	24.46	9.27
9/30/1989	24:00:00	89.17	1003.11	2.3	239.85	364.80	13.30	24.61	24.62	10.37
10/31/1989	24:00:00	87.84	1003.44	1.56	241.75	333.72	13.34	25.07	25.09	12.89
11/30/1989	24:00:00	83.73	1002.03	0.52	269.52	381.98	13.87	25.85	25.85	16.05
12/31/1989	24:00:00	76.37	1002.91	0.83	359.2	48.72	15.08	24.94	24.65	12.00
1/31/1990	24:00:00	77.66	1001.92	1.26	277.03	64.50	16.14	25.85	25.8	15.44
2/28/1990	24:00:00	69.25	1002.44	0.69	341.2	17.50	17.20	25.66	25.26	13.43
3/31/1990	24:00:00	73.92	1002.14	1	257.8	25.19	18.55	27.07	26.95	19.36
4/30/1990	24:00:00	84.98	1001.48	2.28	222.41	178.49	14.09	26.68	26.75	18.47
5/31/1990	24:00:00	86.61	1003.18	2.13	232.32	317.45	13.95	25.98	26.08	15.68
6/30/1990	24:00:00	86.65	1004.7	2.37	227.72	218.17	13.40	25.52	25.62	14.29
7/31/1990	24:00:00	86.85	1005.04	2.94	232.44	363.35	14.67	24.63	24.69	9.35
8/31/1990	24:00:00	85.5	1005.37	2.85	239.29	356.09	15.22	24.86	25.01	10.31
9/30/1990	24:00:00	86.97	1004.14	2.45	237.76	586.52	13.32	24.9	25.02	10.27
10/31/1990	24:00:00	86.15	1003.29	1.81	227.67	533.03	13.99	25.5	25.62	13.22
11/30/1990	24:00:00	84.22	1002.46	1.38	226.76	172.58	13.94	25.99	26.14	17.07
12/31/1990	24:00:00	83.74	1002.13	1.28	242.26	185.65	13.99	25.71	25.78	15.79
1/31/1991	24:00:00	71.61	1002.63	0.37	9.7	7.34	18.26	25.28	24.87	12.46
2/28/1991	24:00:00	82.08	1002.14	2.09	236.33	87.41	13.39	26.76	26.99	19.62
3/31/1991	24:00:00	82.18	1000.84	2.04	226.97	127.32	15.34	27.01	27.21	19.98
4/30/1991	24:00:00	84.54	1001.73	2.25	221.85	190.15	15.12	26.34	26.53	17.26
5/31/1991	24:00:00	85.77	1002.43	2.03	233.2	479.27	14.99	26.26	26.39	15.86
6/30/1991	24:00:00	86.7	1004.07	2.33	233.56	422.26	13.99	25.74	25.86	14.14
7/31/1991	24:00:00	87.62	1005.37	2.71	225.19	332.35	14.86	24.63	24.75	9.96
8/31/1991	24:00:00	86.31	1005.78	2.95	229.84	285.55	15.91	24.54	24.68	9.28
9/30/1991	24:00:00	86.85	1004.64	2.72	233.95	443.51	14.70	25.09	25.19	11.02
10/31/1991	24:00:00	87.3	1003.58	2.3	240.88	547.73	14.04	24.77	24.87	9.98
11/30/1991	24:00:00	84.04	1002.59	1.29	242.08	706.01	13.92	25.98	26.09	14.50
12/31/1991	24:00:00	70.76	1002.83	1.45	20.35	25.99	16.96	24.1	23.49	6.42
1/31/1992	24:00:00	70.84	1002.72	0.91	27.26	13.08	18.77	23.86	23.41	6.27
2/28/1992	24:00:00	63.73	1002.61	0.49	3.42	7.69	18.65	25.74	25.18	12.62
3/31/1992	24:00:00	81.38	1001.07	1.88	228.26	141.21	15.91	26.98	27.28	20.04
4/30/1992	24:00:00	84.52	1001.74	2.12	221.83	199.70	14.19	26.82	27.04	19.40
5/31/1992	24:00:00	86.89	1002.63	2.06	227.72	357.27	13.47	26.12	26.22	16.22
6/30/1992	24:00:00	87.12	1004.61	2.82	224.73	355.71	14.74	25.2	25.33	11.84

7/31/1992	24:00:00	89.61	1006.03	2.98	228.99	489.71	13.59	24	23.99	6.71
8/31/1992	24:00:00	87.44	1006.33	3.16	225.21	208.72	17.84	23.88	24	6.67
9/30/1992	24:00:00	88.69	1003.85	2.44	231.88	509.11	13.91	24.37	24.39	8.50
10/31/1992	24:00:00	88.87	1003.75	2.15	237.57	346.05	13.46	24.95	24.97	11.84
11/30/1992	24:00:00	82.26	1002.67	0.28	299.44	132.44	15.23	24.67	24.56	12.37
12/31/1992	24:00:00	74.41	1002.81	0.88	11.4	9.55	17.54	24.36	23.97	9.00
1/31/1993	24:00:00	68.46	1003.5	1.86	20.94	9.57	19.23	23.45	22.98	3.30
2/28/1993	24:00:00	74.68	1002.11	1.06	242.14	43.78	16.43	26.21	26.05	16.39
3/31/1993	24:00:00	80.94	1002.44	1.71	232.07	142.19	15.05	26.03	26.01	15.94
4/30/1993	24:00:00	85.62	1001.41	2.07	222.06	145.14	13.27	26.44	26.52	18.23
5/31/1993	24:00:00	86.71	1002.06	2.33	223.11	227.01	14.58	26.39	26.48	17.28
6/30/1993	24:00:00	87.65	1004.78	2.33	226.97	349.81	14.04	25.33	25.44	13.03
7/31/1993	24:00:00	89.02	1005.22	2.91	234.76	378.76	14.82	24.48	24.47	8.79
8/31/1993	24:00:00	88.94	1005.48	2.81	231.94	337.96	14.96	24.21	24.21	8.08
9/30/1993	24:00:00	88.86	1004.07	2.04	237.16	622.75	13.72	24.83	24.9	10.30
10/31/1993	24:00:00	87.9	1003.28	1.79	224.73	257.11	14.06	25.47	25.58	14.60
11/30/1993	24:00:00	87.28	1001.74	1.55	225.91	411.07	12.55	25.52	25.62	14.51
12/31/1993	24:00:00	78.24	1002.26	0.97	10.1	32.19	15.17	24.45	23.94	9.72
1/31/1994	24:00:00	76.78	1001.84	0.59	347.02	50.12	17.11	24.82	24.58	11.61
2/28/1994	24:00:00	72.8	1002.27	0.53	265.23	17.16	16.83	26.1	25.83	16.09
3/31/1994	24:00:00	83.5	1001.49	2.04	230.59	104.34	15.15	26.86	27.05	19.70
4/30/1994	24:00:00	84.81	1001.33	2.13	223.62	167.91	15.66	26.67	26.81	18.52
5/31/1994	24:00:00	87.03	1002.91	1.9	225.52	396.61	13.54	26.16	26.21	16.23
6/30/1994	24:00:00	88.48	1004.58	2.47	232.91	383.60	13.66	25.22	25.26	12.29
7/31/1994	24:00:00	89.44	1005.35	2.75	232.03	382.95	14.33	24.46	24.41	8.91
8/31/1994	24:00:00	89.05	1004.79	2.86	227.07	314.46	15.87	24.51	24.55	9.20
9/30/1994	24:00:00	89.26	1004.49	2.63	229.63	444.84	14.56	24.75	24.8	10.03
10/31/1994	24:00:00	89.3	1002.84	1.96	236.48	509.69	12.87	24.98	24.97	11.48
11/30/1994	24:00:00	83.15	1003.07	0.3	347.88	171.02	14.50	24.69	24.65	12.67
12/31/1994	24:00:00	73.87	1003.51	2.32	25.56	0.34	18.57	22.76	22.31	1.10
1/31/1995	24:00:00	69.2	1003.42	1.54	18.05	93.25	17.55	24.23	23.69	6.38
2/28/1995	24:00:00	73.56	1003.32	0.5	270.82	112.39	15.24	25.71	25.61	15.07
3/31/1995	24:00:00	84.09	1001.28	1.9	233.29	161.34	14.05	26.69	26.8	19.01
4/30/1995	24:00:00	86.12	1000.36	1.96	222.69	188.63	13.17	26.67	26.75	19.08
5/31/1995	24:00:00	86.77	1002.17	1.87	224.74	296.22	13.93	26.2	26.26	16.80
6/30/1995	24:00:00	88.33	1003.99	2.29	225.11	496.12	13.71	25.53	25.58	13.11
7/31/1995	24:00:00	89.74	1003.73	2.68	229.09	370.36	14.48	24.72	24.69	10.07
8/31/1995	24:00:00	90.13	1004.12	2.58	233.14	440.22	13.67	24.74	24.69	10.08
9/30/1995	24:00:00	89.63	1004.38	2.66	237.88	408.93	14.75	25	25.01	11.00
10/31/1995	24:00:00	88.72	1002.69	1.99	236.11	672.06	13.15	25.2	25.23	11.48
11/30/1995	24:00:00	82.23	1002.58	0.82	354.58	240.05	14.51	24.87	24.67	11.91
12/31/1995	24:00:00	78.57	1003.16	0.78	338.31	67.14	15.60	24.98	24.8	12.58
1/31/1996	24:00:00	75.86	1001.33	0.86	285.01	35.56	16.57	25.69	25.47	14.67
2/28/1996	24:00:00	80.6	1000.83	1.76	247.58	139.72	15.38	26.77	27.05	19.35
3/31/1996	24:00:00	84.27	1000.94	1.94	225.54	180.52	14.28	26.47	26.65	18.23
4/30/1996	24:00:00	85.34	1000.9	1.88	214.4	169.95	14.20	26.58	26.69	18.71
5/31/1996	24:00:00	86.91	1002.37	1.93	219.12	266.84	14.41	26.38	26.44	17.47
6/30/1996	24:00:00	88.43	1004.16	2.36	224.41	317.27	14.27	25.36	25.44	13.23
7/31/1996	24:00:00	88.26	1005.67	2.69	228.04	285.46	15.35	24.33	24.37	8.86
8/31/1996	24:00:00	88.88	1004.92	2.86	223.69	362.39	15.59	24.34	24.39	8.40

9/30/1996	24:00:00	89.3	1003.82	2.78	234.08	517.61	14.86	24.63	24.67	9.00
10/31/1996	24:00:00	88.39	1003.16	1.77	245.83	443.14	13.57	24.92	24.97	11.69
11/30/1996	24:00:00	77.55	1002.22	0.99	2.57	24.88	16.47	24.66	24.37	10.78
12/31/1996	24:00:00	75.75	1002.63	0.51	308.26	121.69	16.22	25.17	24.8	12.36
1/31/1997	24:00:00	77.35	1002.31	0.75	289.1	46.79	15.75	25.29	25.08	13.61
2/28/1997	24:00:00	62.45	1002.85	1.84	8.07	2.37	18.15	23.9	22.95	3.22
3/31/1997	24:00:00	81.5	1001.46	1.35	246.5	191.77	14.48	26.38	26.39	17.66
4/30/1997	24:00:00	86.25	1002.85	2.13	226.91	223.37	13.45	25.95	25.97	15.85
5/31/1997	24:00:00	87.31	1003.6	1.96	230.45	516.49	13.93	26.04	26.08	15.08
6/30/1997	24:00:00	88.94	1003.99	2.67	222.22	548.91	14.27	25.01	25.08	10.54
7/31/1997	24:00:00	88.2	1005.82	3.1	232.53	319.00	16.58	24.5	24.53	8.62
8/31/1997	24:00:00	88	1005.84	2.95	234.1	341.08	16.74	24.47	24.56	8.67
9/30/1997	24:00:00	87.71	1004.09	2.29	233.56	460.65	13.98	25.35	25.41	12.51
10/31/1997	24:00:00	86.74	1002.62	1.86	236.22	344.61	13.75	26.13	26.21	16.41
11/30/1997	24:00:00	84.79	1002.29	1.23	235.46	378.23	14.13	26.34	26.43	17.44
12/31/1997	24:00:00	74.72	1003.31	1.05	6.04	13.47	16.17	25.09	24.75	11.95
1/31/1998	24:00:00	71.72	1002.31	1.85	23.62	7.57	17.66	23.83	23.27	5.18
2/28/1998	24:00:00	71.79	1003.14	0.51	305.53	14.19	17.06	27.49	27.26	21.23
3/31/1998	24:00:00	73.51	1001.13	0.92	260.84	80.06	17.60	27.55	27.35	20.89
4/30/1998	24:00:00	85.58	1000.92	2.11	223.15	175.12	14.11	27.87	27.98	23.28
5/31/1998	24:00:00	86.39	1002.95	2.12	228.88	398.41	14.23	27.21	27.3	19.78
6/30/1998	24:00:00	87.81	1004.77	2.04	236.67	415.93	12.13	25.95	25.94	15.40
7/31/1998	24:00:00	88.44	1005.03	2.84	239.38	309.74	13.79	24.89	24.88	10.85
8/31/1998	24:00:00	87.24	1004.4	2.94	241.79	202.84	16.88	24.81	24.88	10.43
9/30/1998	24:00:00	89.15	1003.84	2.5	240.24	476.71	12.80	25.06	25.09	11.44
10/31/1998	24:00:00	87.89	1003.52	1.9	237.6	498.24	13.72	25.62	25.67	13.81
11/30/1998	24:00:00	85.41	1001.83	0.93	235.59	364.22	12.37	26.01	25.99	16.72
12/31/1998	24:00:00	76.88	1002.49	0.81	349.89	91.04	15.14	24.84	24.49	11.34
1/31/1999	24:00:00	76.88	1001.58	0.69	302.94	80.26	15.99	25.43	25.28	14.09
2/28/1999	24:00:00	83.31	1001.22	1.76	248.76	72.43	11.62	26.41	26.47	18.78
3/31/1999	24:00:00	83.9	999.72	2.18	228.65	129.97	13.78	26.89	27.05	19.76
4/30/1999	24:00:00	84.61	1001.42	2.02	225.09	155.48	13.31	26.64	26.78	19.01
5/31/1999	24:00:00	84.23	1002.34	1.78	220.69	187.25	15.16	26.51	26.73	18.46
6/30/1999	24:00:00	86.41	1003.28	1.81	222.25	433.25	12.87	25.81	25.9	15.01
7/31/1999	24:00:00	85.52	1004.91	2.49	234.71	245.47	15.12	24.94	25.08	11.51
8/31/1999	24:00:00	84.35	1004.65	2.5	240.14	224.52	15.90	25.16	25.37	12.32
9/30/1999	24:00:00	86.74	1003.3	2.43	240.76	374.87	13.65	24.99	25.12	11.56
10/31/1999	24:00:00	87.95	1003.35	2.23	235.84	590.53	12.93	24.94	24.98	10.62
11/30/1999	24:00:00	84.95	1002.27	1.24	227.29	283.34	12.34	25.63	25.65	15.40
12/31/1999	24:00:00	76.46	1001.89	0.17	324.02	14.96	13.66	25.08	24.36	12.52
1/31/2000	24:00:00	76.95	1000.66	0.78	262.53	39.04	15.25	25.83	25.52	15.40
2/28/2000	24:00:00	66.61	1002.08	0.57	13.11	9.83	16.21	25.14	24.56	11.05
3/31/2000	24:00:00	78.34	1000.3	1.5	229.94	72.99	14.58	26.59	26.7	18.70
4/30/2000	24:00:00	82.73	1000.39	2.32	214.63	193.88	14.83	26.95	27.26	19.60
5/31/2000	24:00:00	83.88	1002.07	2.15	215.98	259.51	14.19	26.74	27.07	19.01
6/30/2000	24:00:00	89.38	1004.31	2.2	235.05	464.79	11.58	25.06	25.01	11.87
7/31/2000	24:00:00	90.12	1004.27	2.51	236.55	415.02	13.42	24.4	24.36	9.08
8/31/2000	24:00:00	89.01	1005.03	2.79	233.83	446.36	14.97	24.25	24.3	7.88
9/30/2000	24:00:00	89.58	1003.73	2.58	236.93	430.05	12.24	24.5	24.48	9.52
10/31/2000	24:00:00	88.12	1003.53	1.82	246.77	645.21	14.01	25.26	25.3	11.81

11/30/2000	24:00:00	84.9	1001.97	0.93	241.77	162.68	14.20	25.85	25.86	16.74
12/31/2000	24:00:00	77.66	1003.36	1.24	18.53	40.68	17.67	23.55	23.15	5.79
1/31/2001	24:00:00	67.3	1003.15	1.81	20.57	3.43	19.86	23.58	22.95	3.18
2/28/2001	24:00:00	72.31	1001.73	0.82	12.93	15.78	14.75	24.5	23.91	9.30
3/31/2001	24:00:00	83.58	1001.39	1.97	221.3	134.51	13.28	26.81	26.92	19.60
4/30/2001	24:00:00	85.52	1001.25	1.96	220.16	218.43	13.39	26.71	26.8	19.00
5/31/2001	24:00:00	87.11	1002.69	2	215.59	251.50	13.55	26.42	26.49	17.83
6/30/2001	24:00:00	88.28	1004.57	2.4	224.42	381.17	12.58	25.11	25.19	12.26
7/31/2001	24:00:00	87.43	1005.19	2.8	224.73	268.05	15.18	24.49	24.63	9.61
8/31/2001	24:00:00	86.92	1006.1	3.09	232.1	441.60	16.26	24.53	24.71	8.47
9/30/2001	24:00:00	88.1	1004.17	2.6	233.41	562.34	14.37	24.64	24.73	9.11
10/31/2001	24:00:00	86.26	1003.45	1.54	229.66	435.93	13.87	25.79	25.89	15.04
11/30/2001	24:00:00	85.37	1002.82	1.44	232.57	267.25	13.66	25.91	25.94	16.13
12/31/2001	24:00:00	78.29	1002.26	0.24	282.18	24.39	17.44	26.17	25.94	17.28
1/31/2002	24:00:00	64.67	1002.99	2.13	32.7	37.22	18.70	23.52	22.66	1.73
2/28/2002	24:00:00	72.75	1002.22	0.53	262.36	39.39	15.37	26.02	25.52	15.34
3/31/2002	24:00:00	83.18	1001.01	1.9	223.19	114.24	14.07	27.1	27.28	20.84
4/30/2002	24:00:00	85.98	1000.03	2.13	224.13	207.26	13.74	26.83	26.93	19.33
5/31/2002	24:00:00	86.15	1002.47	2.02	222.08	182.26	14.97	26.9	26.98	19.56
6/30/2002	24:00:00	88.72	1004.77	2.41	233.12	387.44	12.46	25.44	25.44	13.31
7/31/2002	24:00:00	89.98	1005.46	2.65	231.73	517.25	12.12	24.99	24.93	10.82
8/31/2002	24:00:00	88.68	1005.12	2.69	235.59	444.87	15.16	24.75	24.8	9.78
9/30/2002	24:00:00	88.13	1004.5	2.57	245.75	398.18	13.95	25.13	25.15	11.63
10/31/2002	24:00:00	86.43	1003.18	1.43	237.19	669.68	14.18	25.53	25.6	12.97
11/30/2002	24:00:00	82.78	1003.31	0.89	236.46	157.65	14.82	25.93	25.89	16.60
12/31/2002	24:00:00	75.77	1003.72	0.95	15.05	31.05	16.69	24.54	24.19	9.93
1/31/2003	24:00:00	75.08	1003.57	0.77	317.2	43.43	15.99	25.31	24.83	12.63
2/28/2003	24:00:00	80.18	1001.57	1.37	242.49	74.28	14.11	27.08	27.13	20.81
3/31/2003	24:00:00	83.51	1001.09	1.57	226.71	81.89	12.23	27.02	27.03	20.98
4/30/2003	24:00:00	85.73	1001.7	2.06	227.35	317.74	13.65	26.81	26.91	18.80
5/31/2003	24:00:00	88.06	1002.92	2.03	223.02	350.54	12.23	26.39	26.43	17.50
6/30/2003	24:00:00	87.71	1003.98	2.29	230.45	420.41	12.40	25.37	25.42	13.05
7/31/2003	24:00:00	88	1005.28	2.81	243.35	368.70	14.63	24.93	24.94	10.59
8/31/2003	24:00:00	87	1005.11	2.99	236.19	306.63	15.35	25.13	25.23	11.42
9/30/2003	24:00:00	88.04	1004.52	2.12	242.47	744.44	12.84	25.3	25.33	11.35
10/31/2003	24:00:00	88.49	1002.51	1.87	232.33	713.62	12.54	25.88	25.87	13.93
11/30/2003	24:00:00	86.3	1001.93	1.24	237.89	275.28	13.22	26.14	26.08	17.12
12/31/2003	24:00:00	75.61	1002.61	0.69	356.94	19.51	15.37	24.96	24.33	11.31
1/31/2004	24:00:00	77.98	1001.61	0.7	300.39	33.94	14.26	25.58	25.13	14.51
2/28/2004	24:00:00	76.91	1002.04	0.63	266.4	30.21	14.79	26.12	25.8	16.74
3/31/2004	24:00:00	80.79	1001.11	1.41	239.99	87.09	13.41	26.9	26.8	19.84
4/30/2004	24:00:00	86.61	1001.59	2.3	223.8	304.37	12.71	26.71	26.74	18.32
5/31/2004	24:00:00	87.51	1003.3	2.33	224.42	390.56	13.74	26.36	26.4	16.52
6/30/2004	24:00:00	87.96	1005.55	2.61	229.79	384.58	12.97	25.42	25.43	12.87
7/31/2004	24:00:00	88.8	1004.77	2.69	237.7	609.15	12.15	24.73	24.69	9.28
8/31/2004	24:00:00	87.59	1005.33	2.96	230.88	408.59	14.78	24.98	25.07	10.56
9/30/2004	24:00:00	88.4	1003.86	2.32	231.6	384.63	12.61	25.22	25.26	12.64
10/31/2004	24:00:00	87.79	1003.1	1.87	226.95	605.94	12.55	25.63	25.68	13.58
11/30/2004	24:00:00	85.89	1002.21	1.29	222.28	257.11	11.55	25.89	25.83	16.49
12/31/2004	24:00:00	79.85	1001.63	0.63	260.5	25.28	15.50	26.32	26.1	17.99

1/31/2005	24:00:00	71.87	1002.13	1.39	31.27	19.33	15.41	23.58	22.93	4.90
2/28/2005	24:00:00	81.63	1000.39	1.51	239.48	68.11	11.80	27.24	27.27	21.84
3/31/2005	24:00:00	84.26	1001.34	1.91	222.35	116.38	12.43	27.32	27.44	21.91
4/30/2005	24:00:00	85.59	1001.2	2.2	216.42	192.07	12.08	27.35	27.44	21.50
5/31/2005	24:00:00	85.54	1002.77	2.17	215.05	255.02	13.20	26.55	26.66	18.09
6/30/2005	24:00:00	86.33	1003.9	2.59	224	420.28	13.45	25.94	26.06	14.67
7/31/2005	24:00:00	85.05	1005.41	2.62	233.7	407.10	14.46	25.41	25.58	12.51
8/31/2005	24:00:00	82.25	1004.86	3.08	231.8	254.35	17.92	25.44	25.9	12.63
9/30/2005	24:00:00	87.26	1004.08	2.55	231.07	585.96	14.66	25.58	25.71	12.50
10/31/2005	24:00:00	87.67	1003.45	1.84	225.77	385.70	12.55	25.56	25.67	14.54
11/30/2005	24:00:00	83.41	1001.76	0.96	229.42	74.90	14.65	26.46	26.47	19.13
12/31/2005	24:00:00	80.92	1001.01	0.85	228.45	53.71	14.81	26.14	26.03	17.50
1/31/2006	24:00:00	83.15	1000.72	1.63	242.02	61.83	13.10	26.57	26.59	19.16
2/28/2006	24:00:00	83.34	1000.66	2.02	228.6	95.83	12.06	27.11	27.3	21.26
3/31/2006	24:00:00	84.05	1001.58	2.02	222.48	127.01	12.26	26.82	26.95	19.92
4/30/2006	24:00:00	84.6	1000.67	2.03	208.2	137.28	12.66	27.03	27.2	20.74
5/31/2006	24:00:00	86.5	1003.08	2.12	214.8	370.83	13.20	26.32	26.42	16.84
6/30/2006	24:00:00	86.82	1003.89	2.1	220.85	278.39	12.41	25.84	25.91	15.62
7/31/2006	24:00:00	87.19	1004.98	2.82	229.11	427.89	13.37	25.29	25.41	12.08
8/31/2006	24:00:00	87.19	1004.54	2.93	228.09	308.05	16.23	24.88	25.04	10.56
9/30/2006	24:00:00	89.62	1004.4	2.43	234.83	373.21	12.88	24.96	24.98	11.65
10/31/2006	24:00:00	88.11	1002.56	1.8	231.82	445.95	12.63	25.91	25.95	15.45
11/30/2006	24:00:00	79.47	1002.27	0.19	256.75	111.29	14.49	25.9	25.65	16.57
12/31/2006	24:00:00	70.45	1003.51	1.26	35.14	4.45	18.46	24.61	23.96	8.19
1/31/2007	24:00:00	68.01	1003.3	2.06	36.2	2.89	17.89	23.05	22.26	0.96
2/28/2007	24:00:00	78.64	1001.82	1.22	248.44	53.71	13.41	26.65	26.51	18.91
3/31/2007	24:00:00	81.68	1000.78	1.75	223.59	78.22	13.93	26.91	26.98	20.01
4/30/2007	24:00:00	84.72	1001.04	2.17	225.54	160.99	13.66	27	27.13	20.08
5/31/2007	24:00:00	86.16	1002.2	2.02	221.84	286.46	13.83	26.73	26.79	18.60
6/30/2007	24:00:00	88.79	1004.28	2.53	224.34	431.26	12.23	25.33	25.33	12.61
7/31/2007	24:00:00	88.08	1004.84	2.65	229.68	284.38	14.42	24.9	24.91	11.10
8/31/2007	24:00:00	89.06	1004.13	2.6	231.12	307.64	14.24	24.83	24.84	10.94
9/30/2007	24:00:00	89.58	1004.27	2.1	234.08	430.87	12.78	25.17	25.15	12.43
10/31/2007	24:00:00	89.06	1002.95	1.8	230.8	629.34	11.35	25.19	25.17	12.10
11/30/2007	24:00:00	86.61	1001.77	1.26	227.27	322.42	12.77	25.69	25.6	15.24
12/31/2007	24:00:00	79.02	1002.16	0.82	341.6	48.44	16.63	24.73	24.37	11.07
1/31/2008	24:00:00	73.66	1002.16	1.62	18.39	45.83	15.52	23.69	23.23	5.64
2/28/2008	24:00:00	67.81	1002.29	0.94	6.35	10.94	15.58	24.93	24.06	9.34
3/31/2008	24:00:00	84.92	1000.64	2.17	217.71	114.54	13.23	26.48	26.56	18.33
4/30/2008	24:00:00	84.97	1000.28	1.78	214.03	289.52	12.91	26.47	26.54	17.94
5/31/2008	24:00:00	85.45	1001.77	1.59	220.1	257.50	12.96	26.45	26.5	18.22
6/30/2008	24:00:00	87.22	1003.63	2.21	218.34	437.12	12.79	25.62	25.7	13.93
7/31/2008	24:00:00	86.06	1004.87	2.49	225.61	359.02	14.89	25.15	25.28	11.84
8/31/2008	24:00:00	87.04	1003.61	2.5	237.03	315.30	14.00	25	25.05	11.55
9/30/2008	24:00:00	87.61	1003.94	1.93	230.15	349.66	13.24	25.36	25.36	13.43
10/31/2008	24:00:00	87.45	1003.09	1.68	235.32	324.51	13.00	25.76	25.78	15.39
11/30/2008	24:00:00	83.11	1001.88	1.03	234.74	257.21	14.25	26.44	26.44	18.13
12/31/2008	24:00:00	78.53	1001.65	0.48	289.76	110.63	15.44	25.74	25.43	15.21
1/31/2009	24:00:00	80.89	1002.01	1.29	257.15	75.54	12.50	26.02	25.74	16.45
2/28/2009	24:00:00	82.28	1000.83	1.83	232.02	68.00	12.93	26.79	26.99	20.14

3/31/2009	24:00:00	83.74	1000.21	1.77	232.53	102.20	12.64	27.08	27.18	21.08
4/30/2009	24:00:00	86.11	1001.69	1.99	226.47	418.87	12.18	26.57	26.59	17.62
5/31/2009	24:00:00	86.44	1002.15	1.69	222.23	272.83	13.16	26.37	26.42	17.82
6/30/2009	24:00:00	88	1004.29	2.09	225.57	370.41	12.22	25.6	25.62	14.34
7/31/2009	24:00:00	88.08	1004.9	2.72	228.43	581.76	13.61	25.15	25.19	10.79
8/31/2009	24:00:00	88.52	1004.25	2.78	234.09	546.75	13.97	25.17	25.21	10.95
9/30/2009	24:00:00	88	1004.63	2.27	233.93	356.23	13.28	25.57	25.59	13.90
10/31/2009	24:00:00	88.3	1002.86	1.87	236.94	586.48	12.28	25.5	25.47	13.09
11/30/2009	24:00:00	82.03	1002.47	0.54	271.69	197.17	15.27	25.75	25.51	15.41
12/31/2009	24:00:00	73.23	1002.6	0.62	337.51	13.86	17.81	26.05	25.36	14.55
1/31/2010	24:00:00	74.95	1002.41	0.65	275.11	28.89	16.58	26.42	25.93	16.80
2/28/2010	24:00:00	81.25	1001.57	1.57	237.79	75.74	12.58	27.23	27.14	21.19
3/31/2010	24:00:00	82.08	1002.01	1.56	223.12	83.44	12.50	27.24	27.16	21.34
4/30/2010	24:00:00	84.75	1001.32	1.86	218.39	153.20	13.26	27.48	27.51	22.05
5/31/2010	24:00:00	86.14	1002.29	2.12	215.19	286.08	14.10	27.08	27.17	19.82
6/30/2010	24:00:00	87.34	1004.51	2.11	216.53	420.34	12.66	25.95	26.03	15.39
7/31/2010	24:00:00	87.15	1004.63	2.38	226.73	371.01	14.15	25.15	25.24	12.07
8/31/2010	24:00:00	87.43	1004.48	2.71	224.46	319.84	15.13	25.19	25.29	11.98
9/30/2010	24:00:00	88.33	1003.68	2.24	226.83	443.64	13.46	25.14	25.18	11.98
10/31/2010	24:00:00	88.61	1002.9	1.96	223.13	271.35	13.49	25.43	25.44	14.12
11/30/2010	24:00:00	86.06	1001.54	1.19	230.22	469.77	12.76	25.96	25.93	15.73
12/31/2010	24:00:00	75.49	1001.18	0.63	357.3	30.25	17.80	25.34	24.83	12.58
1/31/2011	24:00:00	69.74	1001.07	1.32	22.64	6.67	18.21	24.65	23.83	7.77
2/28/2011	24:00:00	83.02	1001.18	1.89	236.15	96.93	11.80	26.35	26.31	17.96
3/31/2011	24:00:00	83.28	1000.75	2	227.72	116.30	13.77	26.87	26.94	19.64
4/30/2011	24:00:00	85.11	1000.72	1.98	218.71	157.90	12.27	26.69	26.73	19.22
5/31/2011	24:00:00	87.62	1002.25	1.94	217.05	293.45	11.48	26.41	26.37	17.82
6/30/2011	24:00:00	88.45	1003.89	2.32	221.14	379.01	11.58	25.64	25.65	14.35
7/31/2011	24:00:00	88.14	1004.26	2.63	225.58	417.21	14.37	25.07	25.12	11.25
8/31/2011	24:00:00	88.47	1004.53	2.82	232.64	452.40	14.20	24.89	24.92	10.23
9/30/2011	24:00:00	88.23	1004.64	2.09	231.24	298.85	13.80	25.15	25.21	12.84
10/31/2011	24:00:00	88.79	1002.13	1.64	226.62	501.24	11.88	25.33	25.32	13.30
11/30/2011	24:00:00	82.64	1002.29	0.85	256.12	180.66	14.59	25.85	25.65	15.83
12/31/2011	24:00:00	71.04	1002.89	1.3	9.57	13.24	18.51	24.15	23.23	5.73
1/31/2012	24:00:00	72.74	1002.66	0.62	344.19	49.12	16.27	24.78	24.1	9.92
2/28/2012	24:00:00	82.89	1000.94	2.09	238.03	116.51	13.24	26.33	26.51	17.88
3/31/2012	24:00:00	83.16	1001.56	1.73	241.32	79.28	12.73	26.89	26.92	20.25
4/30/2012	24:00:00	85.57	1001.57	2.23	227.73	238.73	13.15	26.64	26.66	18.21
5/31/2012	24:00:00	86.51	1003.25	1.89	228.56	508.00	12.52	26.09	26.1	15.48
6/30/2012	24:00:00	87.77	1004.66	2.11	234.98	386.93	12.27	25.42	25.46	13.59
7/31/2012	24:00:00	87.61	1004.74	2.66	231.13	389.42	14.15	24.87	24.94	10.64
8/31/2012	24:00:00	86.6	1005.32	2.76	235.79	260.78	16.40	24.79	24.9	10.40
9/30/2012	24:00:00	87.81	1005.13	2.26	231.06	338.73	14.43	25.16	25.23	12.36
10/31/2012	24:00:00	88.53	1003	1.83	229.26	709.81	12.95	25.44	25.47	12.39
11/30/2012	24:00:00	86.37	1002.33	1.2	230.02	276.24	11.49	25.97	25.87	16.75
12/31/2012	24:00:00	77.59	1002.39	0.94	354.23	86.22	14.95	24.57	24.05	9.88
1/31/2013	24:00:00	78.02	1002.9	0.64	313.73	74.31	14.41	25.48	25.02	13.97
2/28/2013	24:00:00	82.17	1001.35	1.49	244.13	69.19	11.88	26.4	26.26	18.33
3/31/2013	24:00:00	84.53	1001.87	2.15	213.99	125.31	13.23	26.85	26.9	19.55
4/30/2013	24:00:00	84.74	1002.35	1.83	216.29	201.80	13.23	26.79	26.85	19.37

5/31/2013	24:00:00	86.87	1003.24	1.84	225.58	360.86	12.24	26.31	26.3	17.08
6/30/2013	24:00:00	88.45	1004.32	2.38	228.74	602.86	12.65	25.48	25.49	12.44
7/31/2013	24:00:00	88.01	1005.29	2.65	227.05	590.12	14.42	24.77	24.85	9.36
8/31/2013	24:00:00	86.84	1004.58	2.78	229.91	264.27	16.05	24.71	24.83	10.18
9/30/2013	24:00:00	89.1	1004.51	2.27	230.99	651.86	12.53	25.07	25.08	10.90
10/31/2013	24:00:00	88.07	1003.71	1.68	234.03	599.28	13.27	25.45	25.49	13.02
11/30/2013	24:00:00	86.65	1001.97	1.33	226.08	194.12	12.13	25.84	25.8	16.59
12/31/2013	24:00:00	82.47	1002.98	0.56	260.01	129.59	16.32	25.29	25.05	13.85
1/31/2014	24:00:00	76.16	1002.48	0.81	264.36	58.69	15.64	26.02	25.44	15.08
2/28/2014	24:00:00	79.61	1001.32	1.36	250.74	46.42	13.81	26.8	26.79	19.74
3/31/2014	24:00:00	84.91	1001.79	2.06	224.17	156.40	12.51	26.68	26.74	19.08
4/30/2014	24:00:00	85.55	1002.16	2.02	224.13	243.45	13.04	26.64	26.7	18.55
5/31/2014	24:00:00	85.59	1002.46	1.66	220.62	394.08	14.02	26.61	26.71	18.04
6/30/2014	24:00:00	86.8	1004.23	2.07	231.06	430.96	12.66	26.07	26.12	15.68
7/31/2014	24:00:00	85.86	1006.13	2.69	221.09	296.96	15.95	25.35	25.55	12.63
8/31/2014	24:00:00	86.2	1005.26	2.64	230.04	351.16	15.06	24.98	25.11	11.07
9/30/2014	24:00:00	86.91	1004.68	2.19	233.42	389.87	13.68	25.16	25.27	12.34
10/31/2014	24:00:00	86.96	1003.6	1.72	234.11	537.07	12.73	25.65	25.73	14.09
11/30/2014	24:00:00	84.16	1002.82	1.21	227.89	312.39	13.39	26.24	26.27	17.30
12/31/2014	24:00:00	72.31	1003.21	0.41	309.77	30.24	17.28	26.19	25.65	15.62
1/31/2015	24:00:00	70.62	1004.04	1.05	19.61	20.46	17.42	24.19	23.73	7.51
2/28/2015	24:00:00	82.41	1002.05	2.01	236.52	115.57	11.96	26.88	27.05	20.17
3/31/2015	24:00:00	82.64	1001.71	1.83	233.31	134.10	13.14	26.94	27.01	20.04
4/30/2015	24:00:00	83.39	1002.64	1.73	218.04	90.31	13.19	26.96	27.08	20.64
5/31/2015	24:00:00	85.75	1003.23	1.85	217.88	265.61	12.38	26.64	26.65	18.64
6/30/2015	24:00:00	87.76	1005.12	2.67	220.71	459.00	13.13	25.55	25.64	13.10
7/31/2015	24:00:00	86.58	1005.03	2.67	224.11	659.50	14.42	25.53	25.67	11.83
8/31/2015	24:00:00	86.66	1004.81	2.85	222.63	376.11	14.73	25.43	25.58	12.57
9/30/2015	24:00:00	87.64	1004.46	2.59	224.84	511.60	13.39	25.53	25.64	12.85
10/31/2015	24:00:00	88.17	1003.85	2.08	229.47	527.05	11.82	25.71	25.73	14.13
11/30/2015	24:00:00	83.17	1003	0.94	240.34	391.45	14.80	26.29	26.3	16.97
12/31/2015	24:00:00	65	1004.61	2.42	41.76	2.99	18.86	23.59	22.56	1.39
1/31/2016	24:00:00	65.64	1003.65	1.12	27.84	7.32	19.44	25.24	24.59	9.91
2/28/2016	24:00:00	72.96	1002.22	1.29	260.27	26.87	15.81	27.33	27.39	20.89
3/31/2016	24:00:00	83.91	1002.29	2.21	232.25	176.80	13.10	27.62	27.76	22.30
4/30/2016	24:00:00	84.1	1001.87	2.12	222.51	144.87	13.42	27.55	27.7	22.28
5/31/2016	24:00:00	86.01	1003.92	1.99	223.71	380.50	12.78	26.79	26.8	18.46
6/30/2016	24:00:00	86.26	1005.38	2.13	237.7	471.35	13.04	25.89	25.93	14.60
7/31/2016	24:00:00	87.76	1005.04	2.42	236.75	515.57	13.01	25.23	25.3	11.88
8/31/2016	24:00:00	88.27	1005.01	2.55	230.08	394.05	13.36	25.11	25.15	11.78
9/30/2016	24:00:00	89.09	1004.68	2.22	231.15	528.38	12.22	25.26	25.29	12.35
10/31/2016	24:00:00	87.45	1002.77	1.49	228.65	317.69	13.02	25.97	25.97	16.35
11/30/2016	24:00:00	84.59	1002.21	0.99	233.71	463.91	13.42	26.68	26.61	18.24
12/31/2016	24:00:00	79.4	1002.25	0.39	326.36	48.24	14.37	25.86	25.51	16.24
1/31/2017	24:00:00	78.95	1002.25	1.02	267.25	54.07	13.98	26.03	25.65	16.10
2/28/2017	24:00:00	75.78	1001.86	0.59	254.13	24.82	13.59	26.56	26.27	18.61
3/31/2017	24:00:00	84.53	1001.36	2.01	222.93	124.85	13.14	27.13	27.19	20.79
4/30/2017	24:00:00	84.79	1001.7	1.62	210.95	157.08	12.72	27.03	27.02	20.62
5/31/2017	24:00:00	86.27	1003.02	1.71	218.87	234.04	13.59	26.81	26.87	19.54
6/30/2017	24:00:00	87.79	1003.91	1.92	230.73	331.57	11.90	26.04	25.98	16.17

7/31/2017	24:00:00	88.32	1005.65	2.47	227.84	427.20	14.94	25.21	25.26	11.81
8/31/2017	24:00:00	89.56	1004.73	2.58	232.11	344.69	13.71	24.87	24.86	11.04
9/30/2017	24:00:00	89.33	1004.4	2.22	235.07	494.56	13.13	25.23	25.19	12.07
10/31/2017	24:00:00	87.38	1003.22	1.63	231.88	317.44	13.26	25.94	25.98	16.14
11/30/2017	24:00:00	83.16	1002.4	0.95	232.66	308.28	13.92	26.21	26.16	17.06
12/31/2017	24:00:00	77.79	1002.28	0.68	303.61	56.16	15.53	26.19	25.86	16.76
1/31/2018	24:00:00	67.19	1002.8	1.01	7.45	10.28	17.68	24.72	23.83	7.96
2/28/2018	24:00:00	80.94	1000.86	1.88	239.27	119.52	13.40	27.06	27.08	20.11
3/31/2018	24:00:00	84.48	1002.02	2.2	222.69	165.80	13.61	26.77	26.83	18.96
4/30/2018	24:00:00	85.49	1002.06	2.28	216.76	176.64	13.27	26.62	26.66	18.40
5/31/2018	24:00:00	86.4	1002.91	2.08	227.22	222.77	13.98	26.41	26.41	17.48
6/30/2018	24:00:00	88.49	1004.65	2.23	235.82	400.32	12.37	25.62	25.58	14.00
7/31/2018	24:00:00	88.61	1005.2	2.25	237.36	321.77	13.93	25.26	25.27	12.86
8/31/2018	24:00:00	88.38	1005.23	2.51	231.12	267.74	15.65	24.98	25.01	11.48
9/30/2018	24:00:00	88.81	1003.33	1.98	227.43	514.92	12.80	25.39	25.36	12.86
10/31/2018	24:00:00	87.98	1003.04	1.68	232.14	507.39	12.95	25.88	25.84	14.89
11/30/2018	24:00:00	84.97	1001.93	1.01	240.59	278.19	13.78	26.71	26.65	19.21
12/31/2018	24:00:00	72.78	1003.18	0.71	338.7	13.35	16.47	25.78	25.04	13.52
1/31/2019	24:00:00	76.8	1003.07	0.96	261.69	73.18	15.06	26.05	25.64	15.61
2/28/2019	24:00:00	74.94	1002.27	1	258.17	79.38	12.77	26.41	26	17.09
3/31/2019	24:00:00	84.8	1002.14	2	229.26	155.37	11.76	27.01	27.01	20.35
4/30/2019	24:00:00	84.59	1001.64	2.02	219.4	180.16	13.10	27.46	27.48	21.66
5/31/2019	24:00:00	86.78	1002.41	1.81	229.22	285.89	12.41	26.69	26.67	18.81
6/30/2019	24:00:00	86.96	1004.84	2.26	229.59	402.03	14.25	26.13	26.2	15.61
7/31/2019	24:00:00	88.29	1004.82	2.29	235.15	450.13	13.62	25.38	25.38	12.65
8/31/2019	24:00:00	88.5	1005.77	2.47	229.28	316.28	15.49	25.2	25.2	12.08
9/30/2019	24:00:00	88.8	1004.45	2.11	228.83	335.88	13.61	25.54	25.51	13.96
10/31/2019	24:00:00	88.02	1003.07	1.78	228.71	286.95	14.10	25.29	25.24	13.38
11/30/2019	24:00:00	85.96	1001.87	1.2	240.35	270.41	12.77	26.56	26.51	18.82
12/31/2019	24:00:00	72.26	1002.41	1.08	351.69	14.06	18.48	25.65	24.95	12.29

Appendix 2: The Maximum Annual Streamflow Data of the Selected Rivers**Discharge Records in cubic meter/sec**

Year	River Ivo	River Ajali	River Imo	River Otamiri	River Adada
1978/79	0.00	-	270.00	12.10	-
1979/80	11.33	12.15	158.40	12.90	50.28
1980/81	-	12.65	-	10.55	42.51
1981/82	-	12.24	-	11.48	46.95
1982/83	11.33	12.61	158.37	7.20	46.71
1983/84	11.18	12.55	156.04	10.70	57.13
1984/85	10.91	12.61	126.20	9.38	50.53
1985/86	10.91	12.55	194.40	11.78	45.67
1986/87	10.91	11.8	115.00	13.54	47.86
1987/88	10.90	12.27	223.20	-	47.99
1988/89	10.91	12.44	142.85	-	50.15

Source: Anambra Imo River Basin Development Authority.

Appendix 3: Pictorial Views of Southeastern Rivers with Point of Data Sources

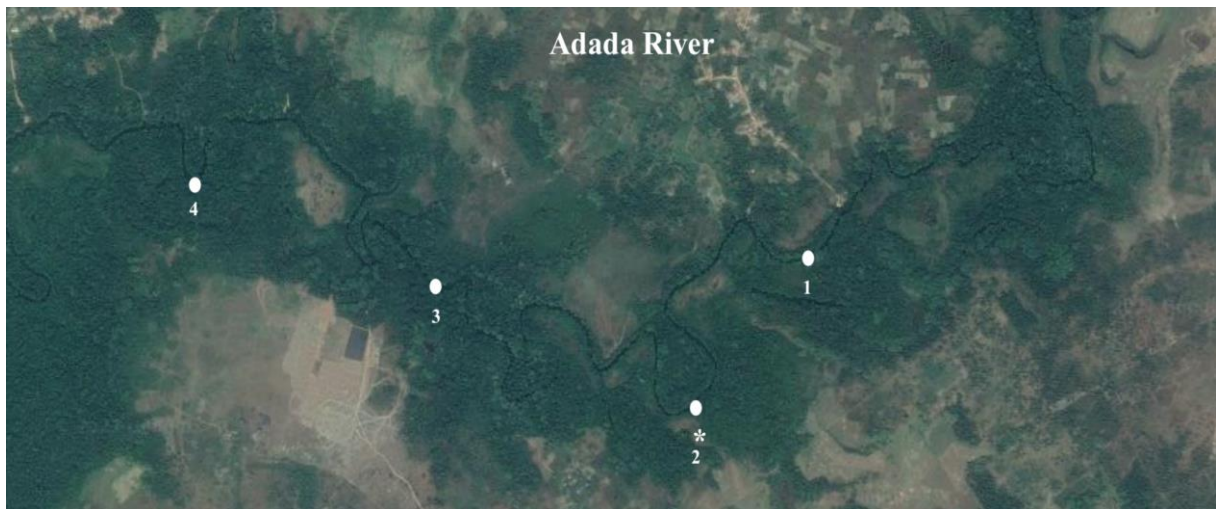


Figure A3-1. Selected locations along Adada River

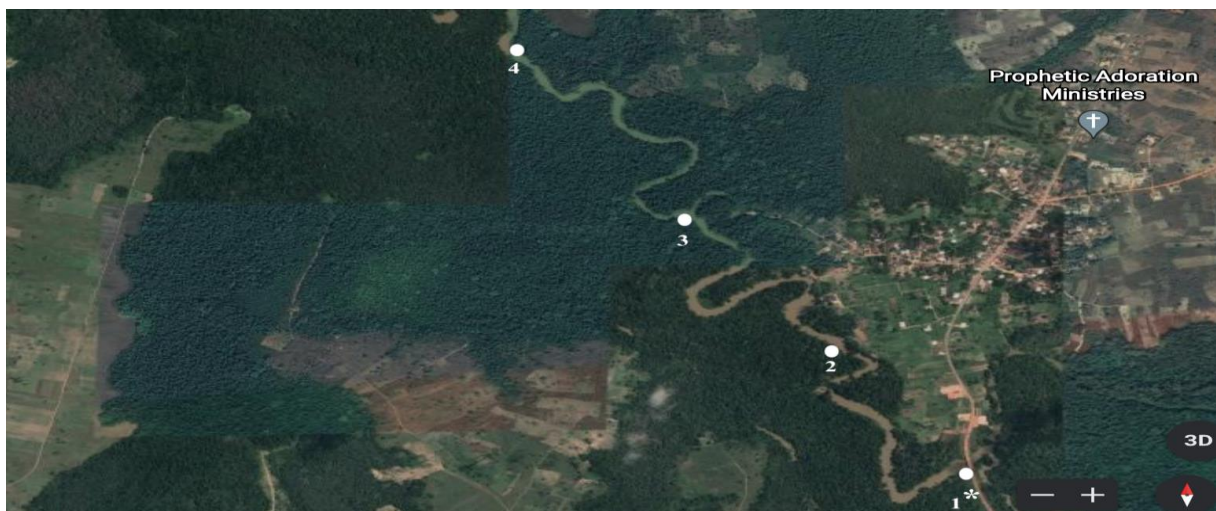


Figure A3-2. Selected locations along Ajali River



Figure A3-3. Selected locations along Imo River3



Figure A3-4. Selected locations along Ivo River



Figure A3-5. Selected locations along Otamiri River

Appendix 4: Results of Forecast on Other Locations and Rivers for Arima Model 1 and 2.

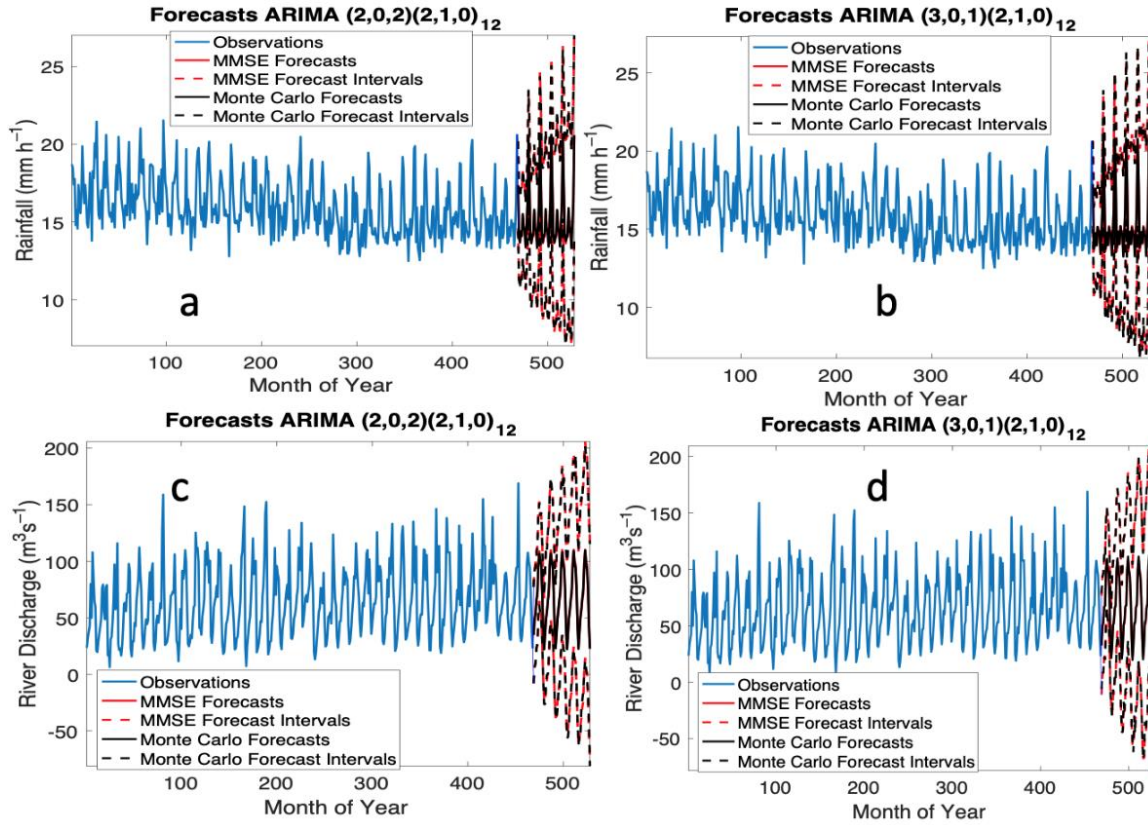


Figure A4- 1. Forecast for Adada River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

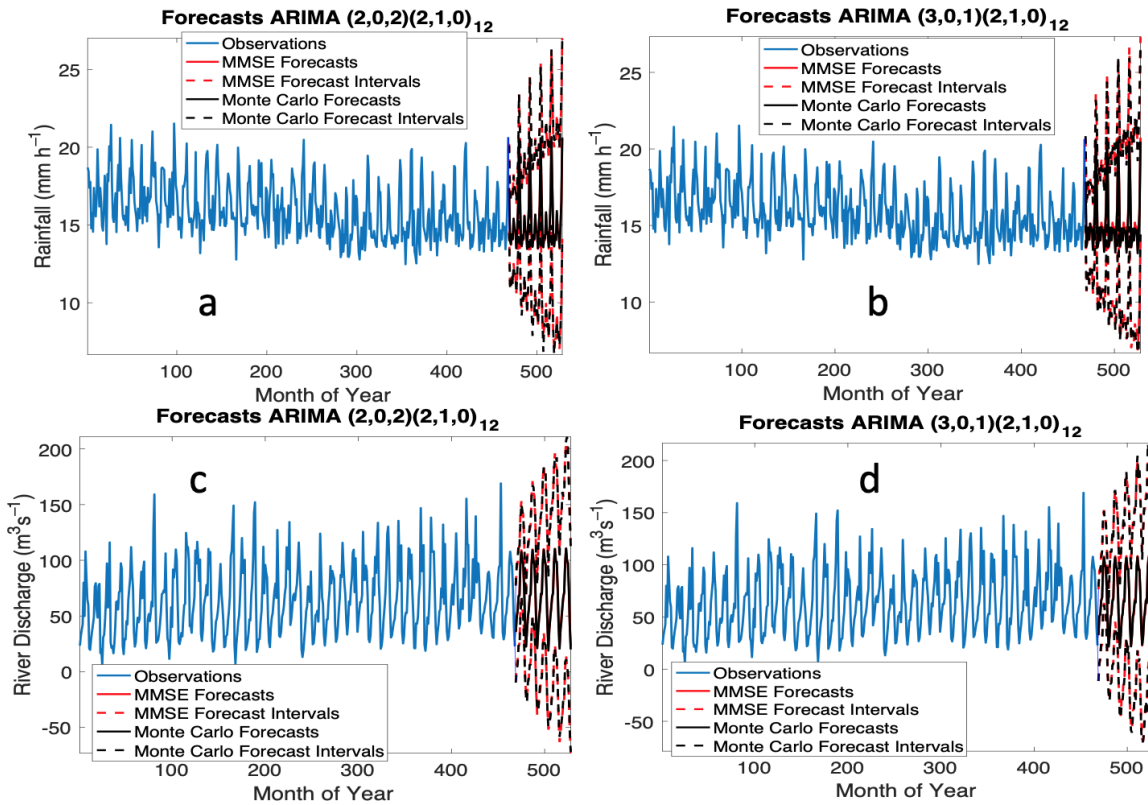


Figure A4-2. Forecast for Adada River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

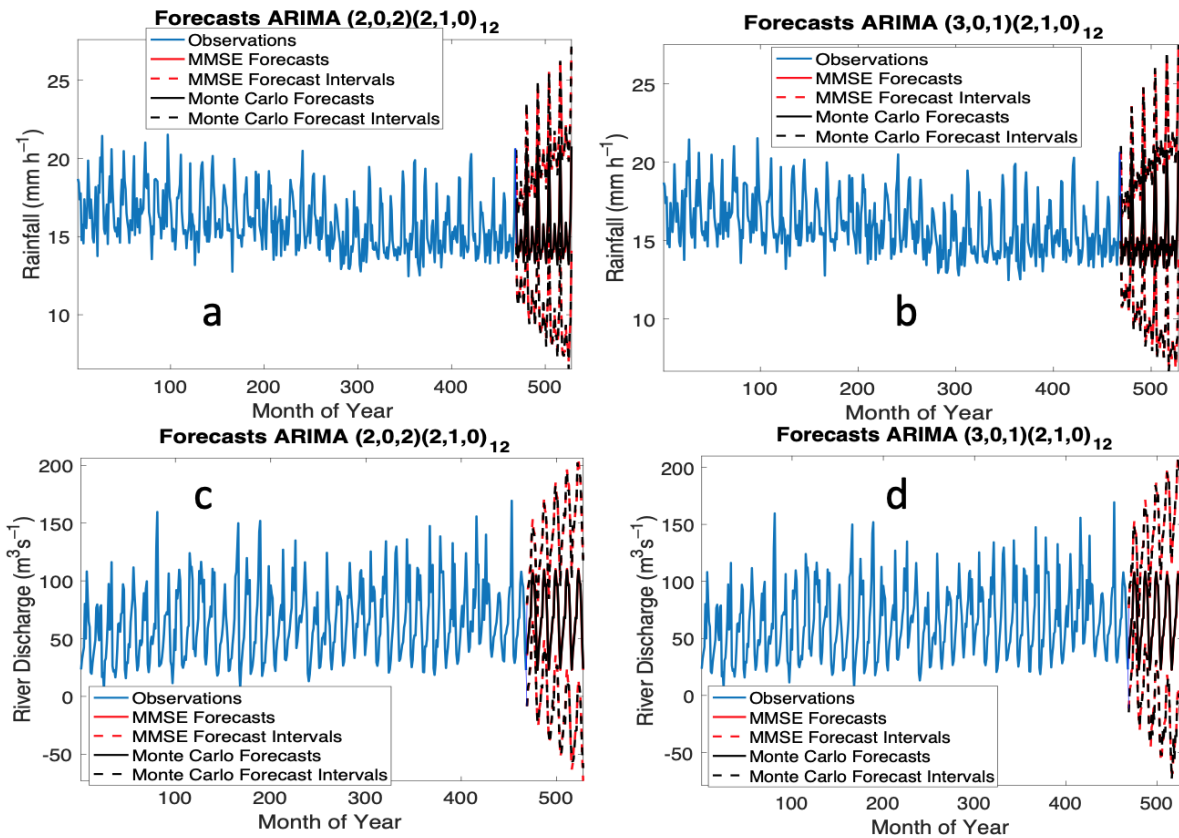


Figure A4-3. Forecast for Adada River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

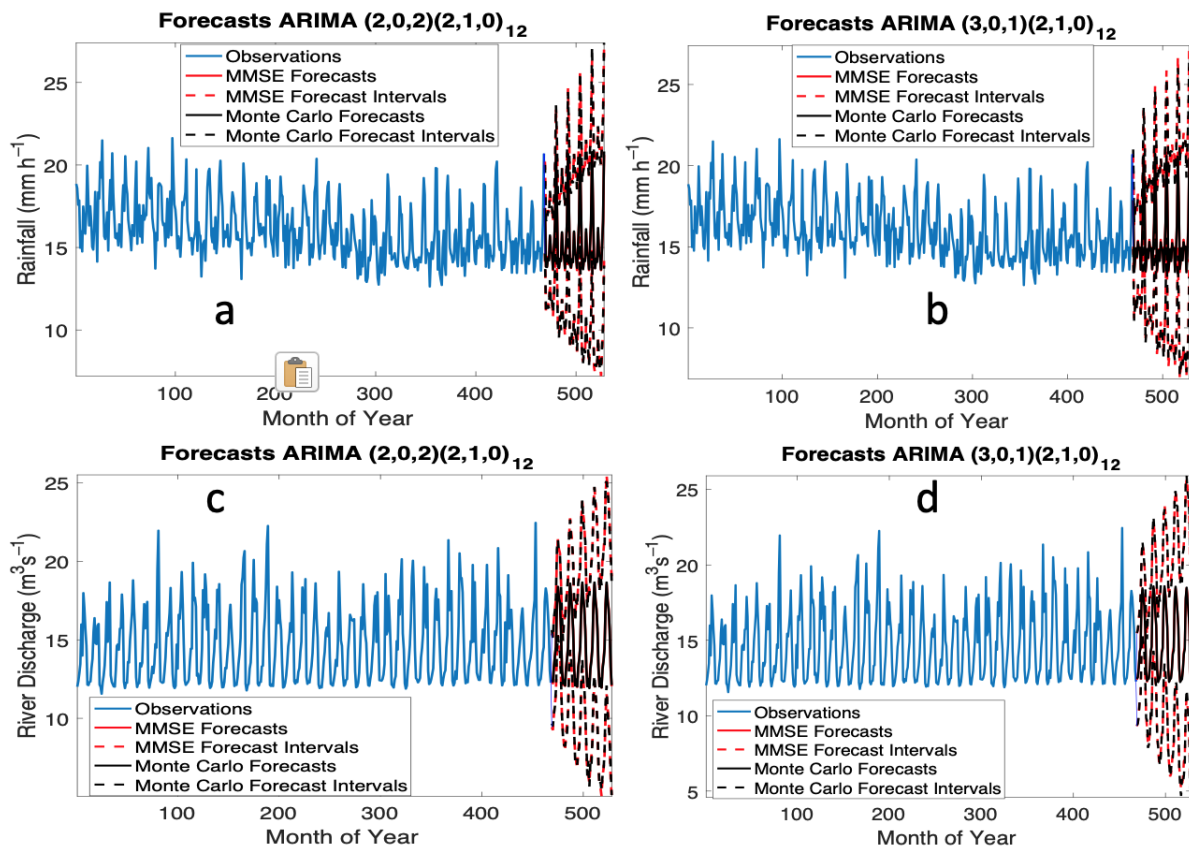


Figure A4-4. Forecast for Ajali River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

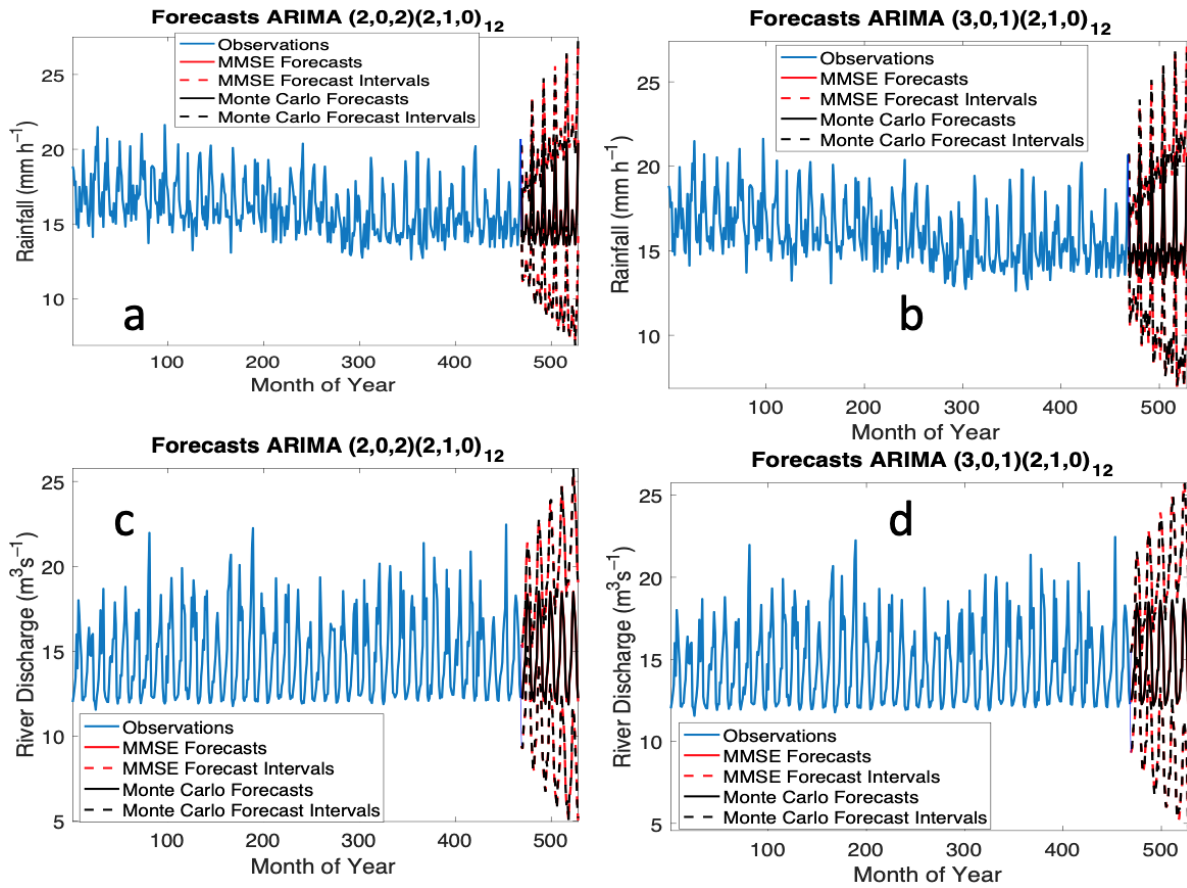


Figure A4-5. Forecast for Ajali River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

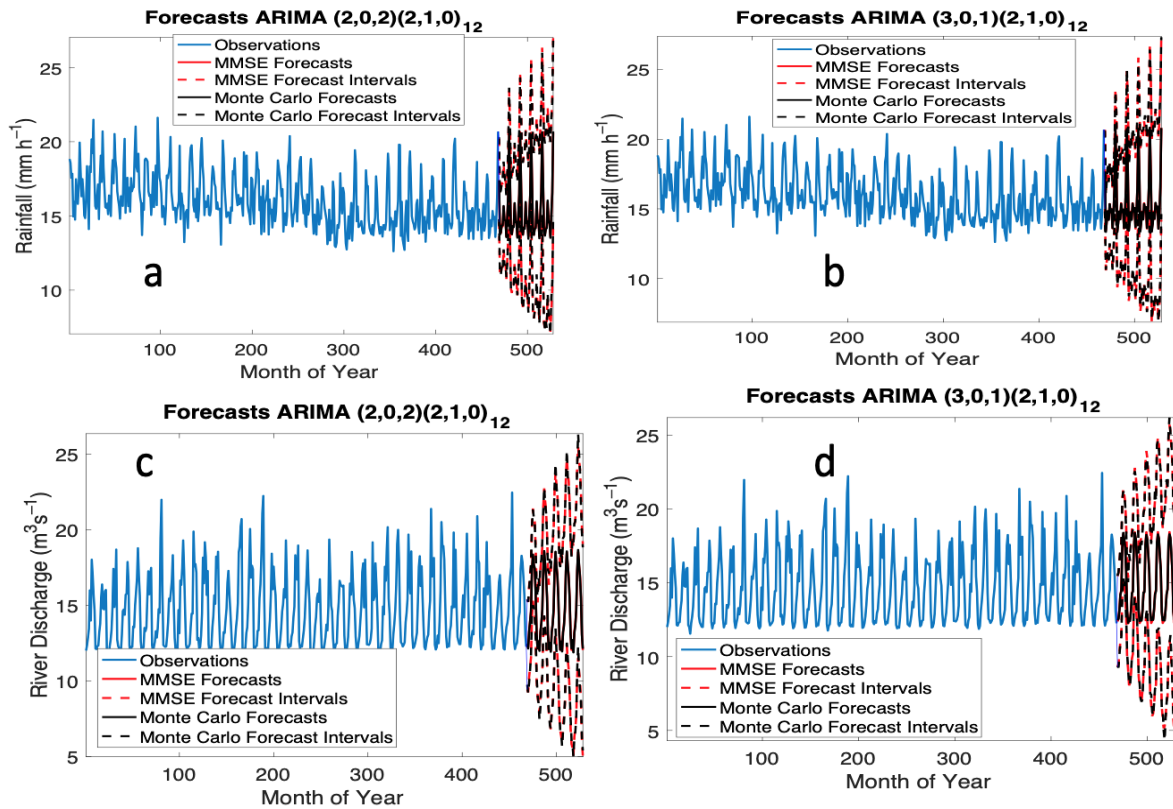


Figure A4-6. Forecast for Ajali River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

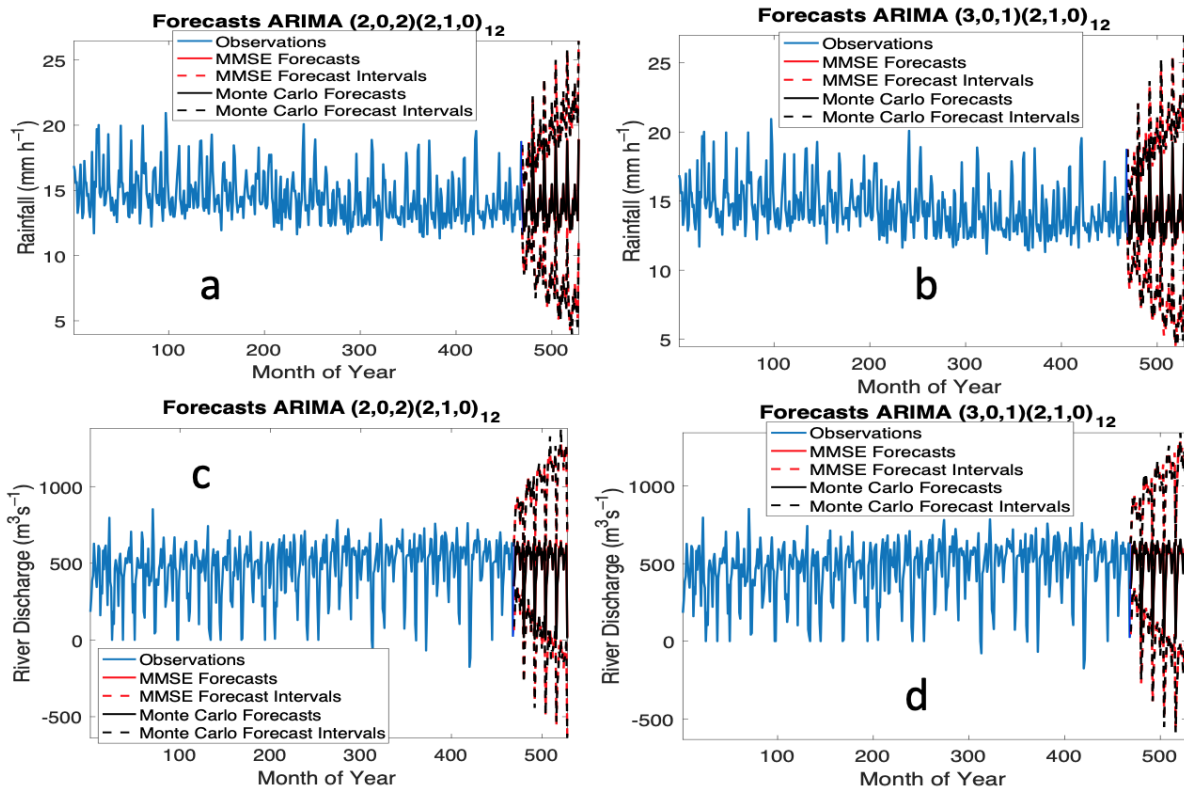


Figure A4-7. Forecast for Imo River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

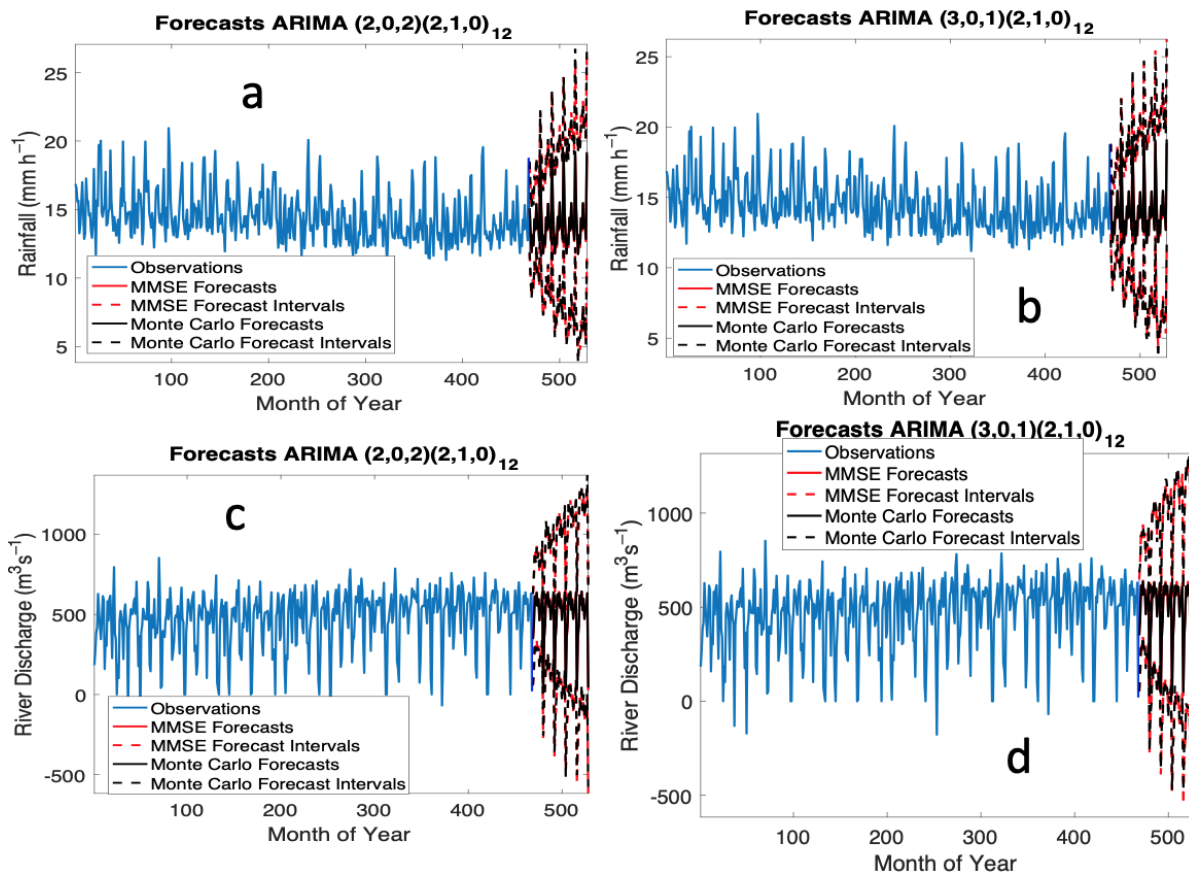


Figure A4-8. Forecast for Imo River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

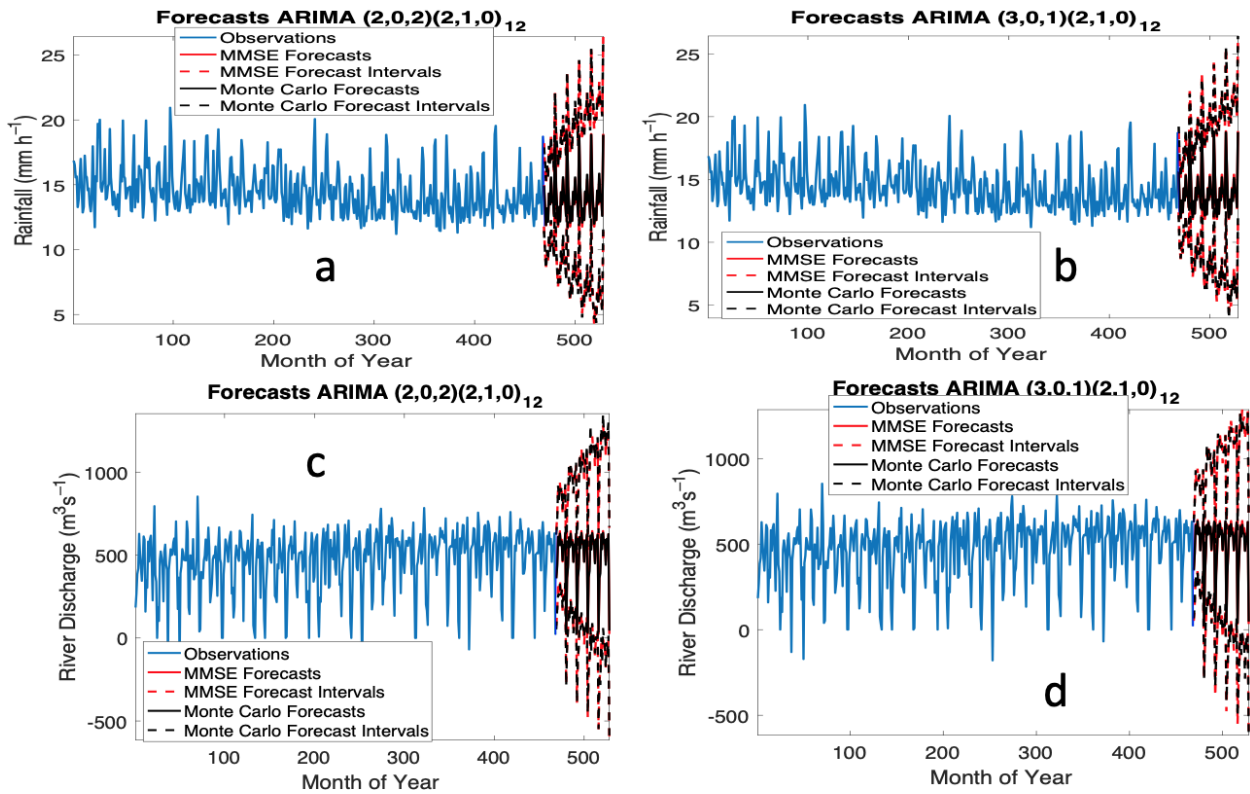


Figure A4-9. Forecast for Imo River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

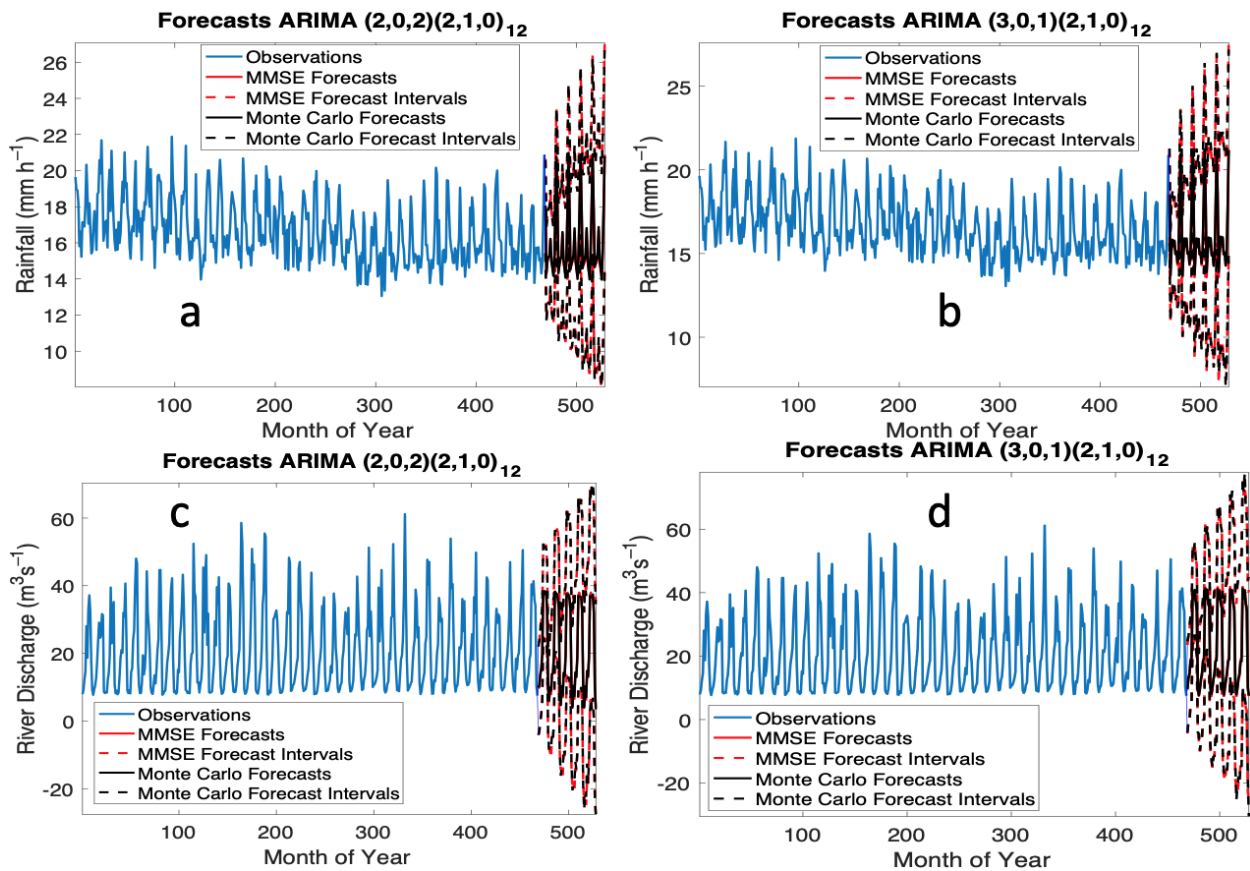


Figure A4-10. Forecast for Ivo River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

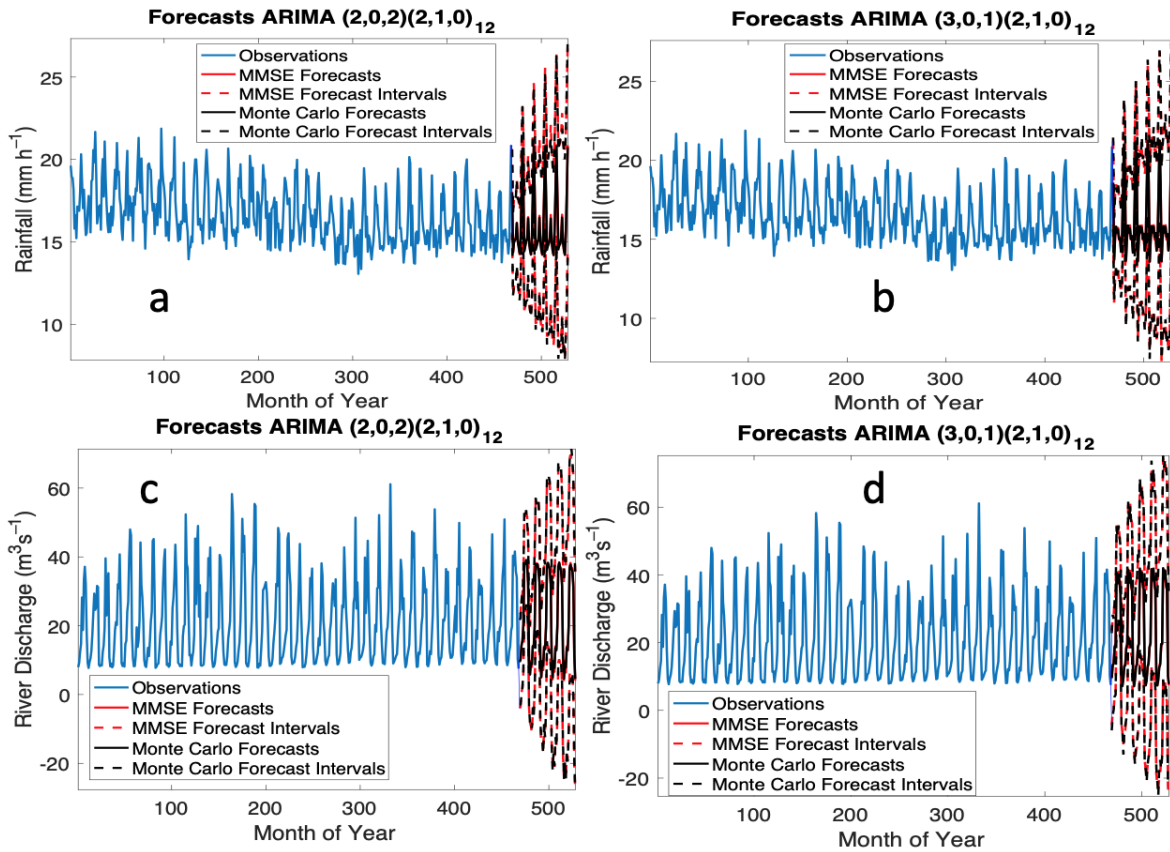


Figure A4-11. Forecast for Ivo River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

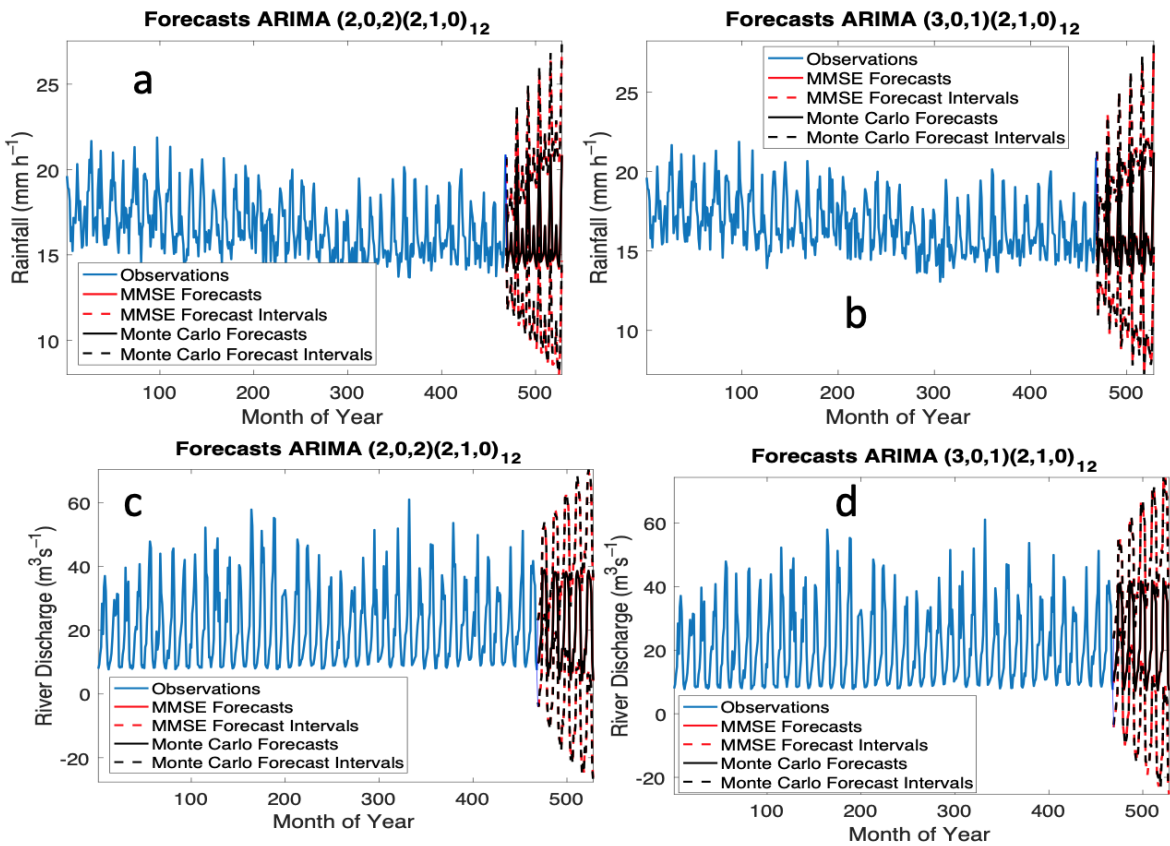


Figure A4-12. Forecast for Ivo River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

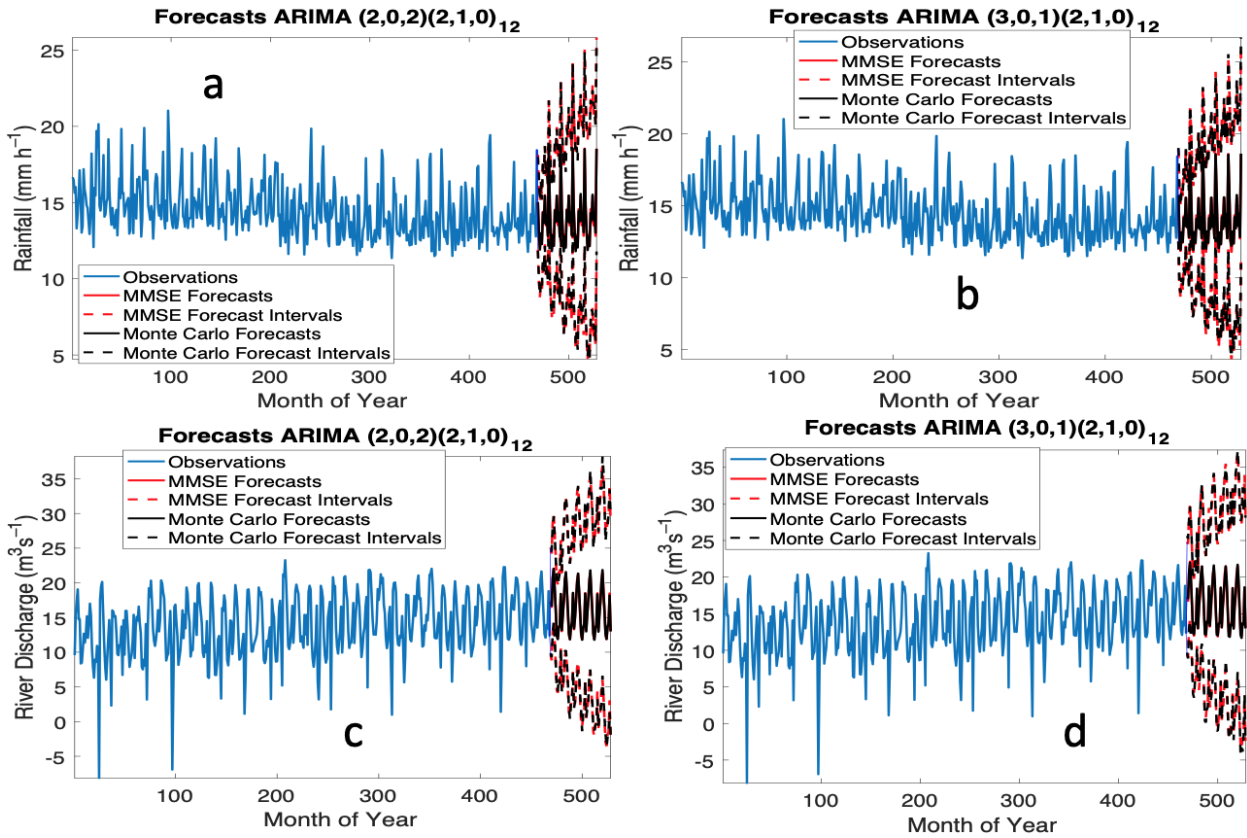


Figure A4-13. Forecast for Otanmiri River 2 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

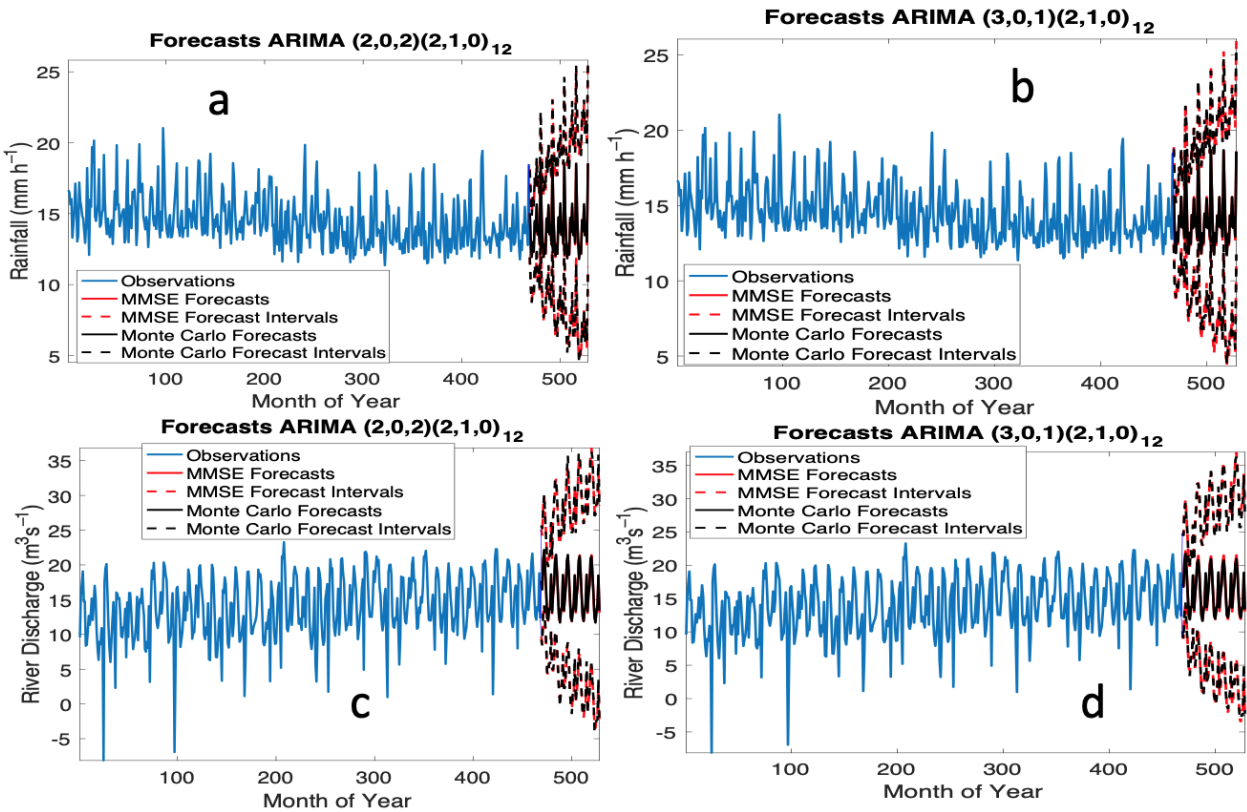


Figure A4-14. Forecast for Otanmiri River 3 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge

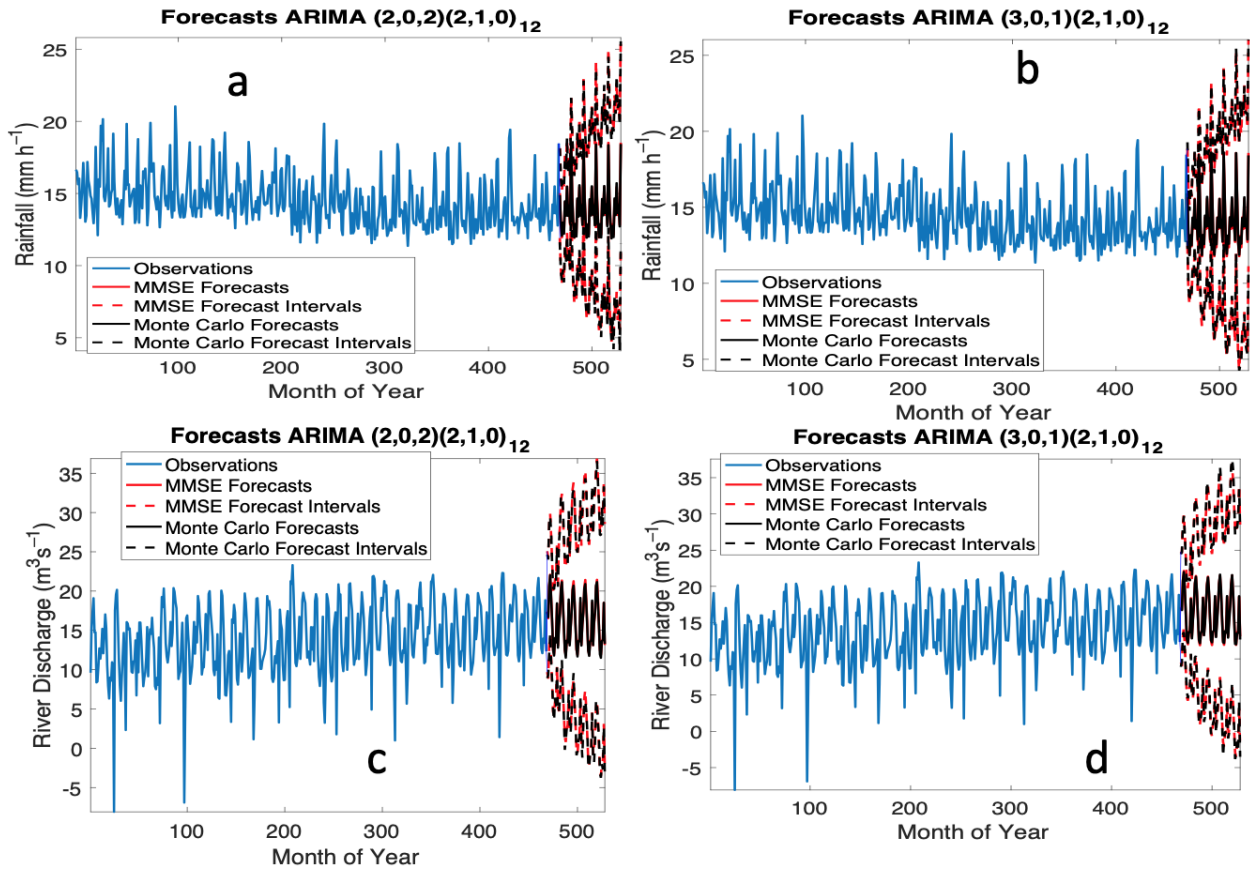


Figure A4-15. Forecast for Otanmiri River 4 location (a) ARIMA model 1 for rainfall (b) ARIMA model 2 for rainfall (c) ARIMA model 1 for river discharge (d) ARIMA model 2 for river discharge