RMI-Dourbes ionosonde database:

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SUMMARY

The purpose of this report is to introduce the comprehensive Dourbes ionosonde database accumulated during more than 50 years of regular measurements at the RMI Geophysical Centre in Dourbes (4.6°E, 50.1°N). Long-term data time series were produced. All automatically-scaled data are now corrected and statistically analysed in terms of gaps identification and consistency with older formats. Statistical evaluation of the digisonde's automatic scaling of the most frequently used ionospheric parameters was performed using automatic and manually scaled data from the last decade. Additional information about the daily performance of the digisonde and the data archival formats is also added.

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1. Introduction

The purpose of this report is to present the comprehensive Dourbes ionosonde database accumulated during more than 50 years of continuous measurements at the RMI Geophysical Centre in Dourbes (4.6°E, 50.1°N).

First, the vertical incidence sounding measurements will be briefly reviewed. Next, the Dourbes ionosonde instrumentation and observations during the years will be outlined. In the following section, the database technical development and data availability are presented. A comparison is made between automatically- and manually- scaled key ionospheric characteristics. The report will conclude with a summary and an outlook for further developments. Supplementary material is provided at the end of the document that include description of the data formats used and data availability statistics.

2. Vertical incidence sounding measurements – a brief review

The vertical ionospheric remains one of the most accurate and important ionosphere-monitoring techniques (*Davies*, 1990; *Hargreaves*, 1992; *Reinisch*, 1996a, 1996b). In this technique, low- and high-frequency radio waves are transmitted upward and reflected in the ionosphere at the height where the refractive index becomes zero for vertical incidence, or sin(φ_0), where φ_0 is the incidence angle.

The standard piece of equipment employed for the purpose is called ionospheric sounder (ionosonde), in which a transmitter and a receiver are swept synchronously in frequency, and the propagation time t_g (or the corresponding virtual height $h' = 0.5\, c\, t_g$, c - the speed of light) of the reflected signal recorded for each of the transmitted frequencies. Thus, the resulting ionogram is an instantaneous record of the ionospheric conditions (above the sounder) indicated by the relationship between the frequency of the radio pulse emitted upwards and the virtual heights of echoes reflected from the ionosphere (*Wakai* et al., 1987). In a typical ionogram (**Fig.2-1**), the frequency range covers the interval 1-20 MHz and the height range covers 0-1000 km.

In other words, an ionogram is a graph of time vs. transmitted frequency. The ionospheric layer appears as a smooth curve separated from each other by an asymptote at the critical frequency of that layer. The upward-curving sections at the beginning of each layer are due to the transmitted wave being slowed by, but not reflected from, the underlying ionization which has a plasma frequency close to (but not equalling) the transmitted frequency. The critical frequency of each layer is scaled from the asymptote, and the virtual height of each layer is scaled from the lowest point on each curve. In the frequency range close to the highest plasma frequency of the ionospheric layers, the radio echoes are observed being split into 2 traces – the ordinary and extraordinary components corresponding to lower and higher frequency traces respectively – owing to the presence of geomagnetic field. The ionogram can be interpreted also as a profile of electron density (N_e) against altitude. The electron density is deduced from the plasma frequency (f_p) using the formula ($f_p^2\,[kHz] = 80.5\; N_e\; [\mathrm{cm}^{-2}]$).

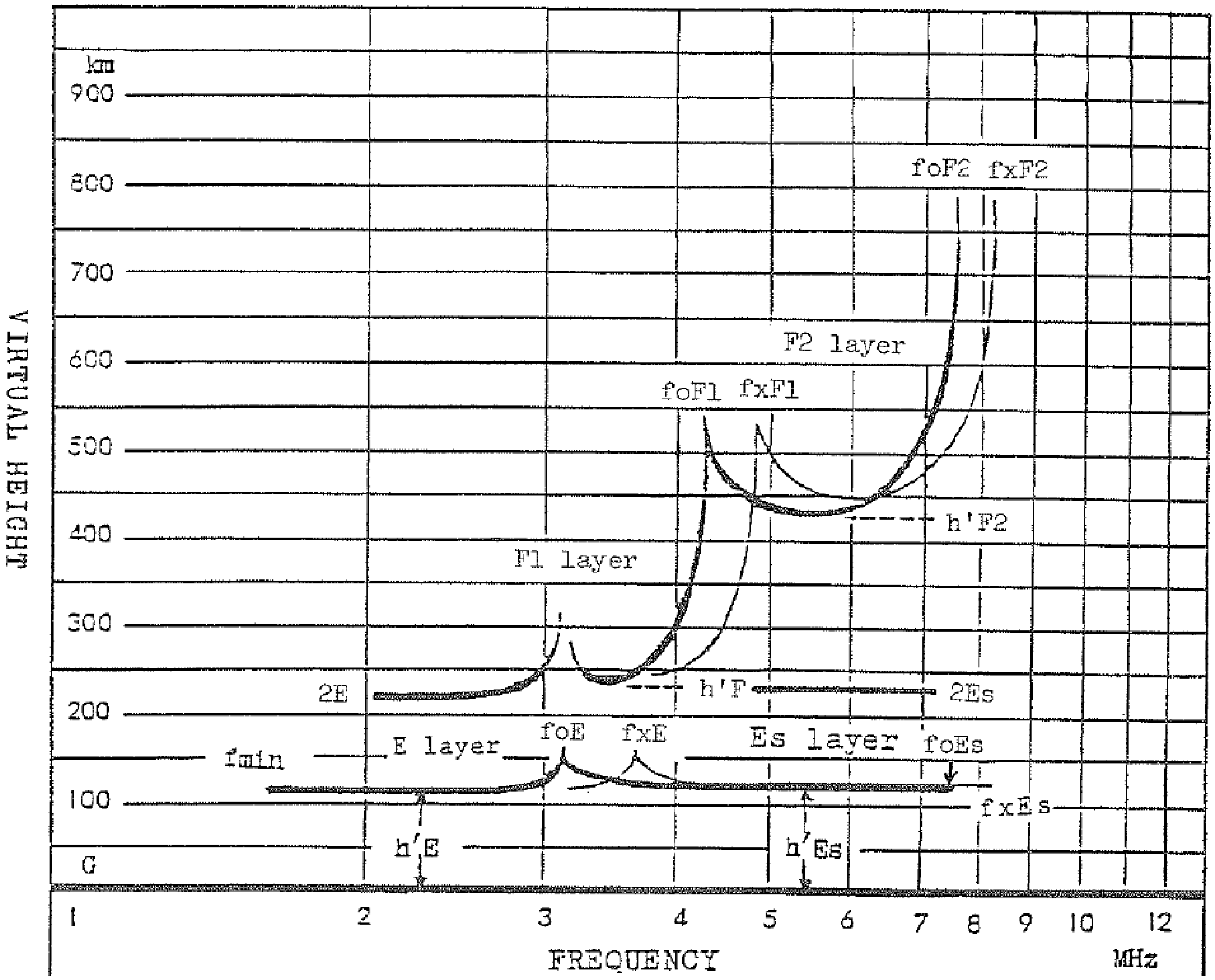

Fig.2-1. A typical ionogram with the key ionospheric characteristics (Source: *Wakai* et al., 1987).

The original sounding method has been improved substantially during the years (*Reinisch*, 1996a, 1996b; *Reinisch* et al., 2005; and the references therein). For example, digitisation was introduced. Topside sounders were developed and placed onboard satellites, thus allowing probing the ionosphere from above. Also, with precise timing available, the transmitter and the receiver can be separated and thus sounding can be performed over oblique paths. Strength and direction of the echo can now be measured. Furthermore, automated scaling of ionograms was developed, broadening the digital ionosonde applications and immensely helping the user and the ionospheric/space weather research and services in general.

3. Ionosonde measurements at the RMI Geophysical Centre in Dourbes

The Belgian ionosonde in Dourbes (URSI code: DB049) provides regular observations of the ionosphere since 1957. The first (analogue) ionosonde (**Fig.3-1**), installed at the site in 1957, recorded the ionograms on photographic films (**Fig.3-2**).

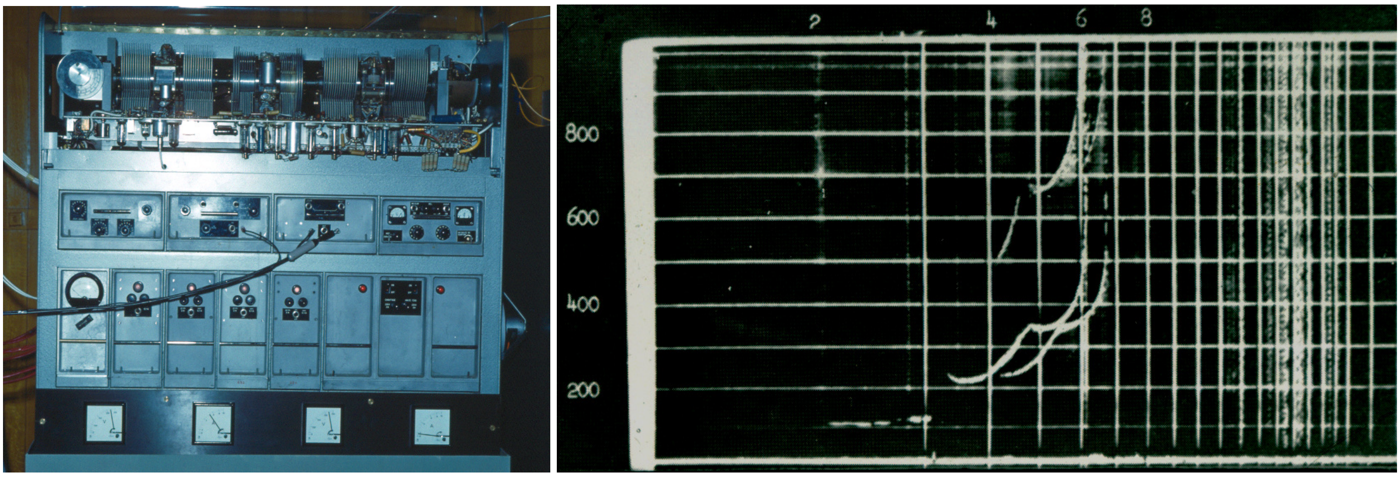

Fig.3-1. Dourbes ionosonde during the years – the analogue “Ionosonde Panoramique” (left) and one of the first ionograms (right) recorded.

The digital sounding started in September 1970 with a Digisonde-128 and continued, since 1984, with a Digisonde-256, both developed and produced by the University of Massachusetts Lowell.

Fig.3-2. Dourbes ionosonde during the years – the digital ionosondes DGS-128 (left), and DGS-256 (right).

Currently, the vertical ionospheric soundings in Dourbes (http://digisonde.oma.be/) are carried out by a digital sounder (DGS-256) featuring the operational parameters given in **Table 3-1**.

Operational Parameter	*Range*	*ionogram settings for DB049*
frequency range	0.5 - 30 [MHz]	1-16
frequency scale	linear or logarithmic	linear
frequency steps	5, 10, 25, 50, 100, 200 [kHz]	100 [kHz]
range resolution	2.5, 5.0, 10.0 [km]	5.0 [km]
number of range pixels	128, 256	128
range start	selectable	60 [km]
pulse repetition range	50, 100, 200 [s^{-1}]	100 [s^{-1}]
pulse width	66, 133 [µs]	66 [µs]
transmitter RF power	≤ 10 [kW]	5 [kW]
duration of ionogram	selectable	4 [min]
phase code	interpulse pseudo-random biphase coding	
digitization	12 bit linear	
amplitude resolution	0.25 [dB]	
phase resolution	1.4°	
Doppler resolution	4 [Hz] or 12 [Hz]	4 [Hz]
wave polarization	O/X	
data display	video and paper	
data storage	disk, cartridge	

Table 3-1. Dourbes Ionosonde (DGS-256) – operational parameters and settings (after *Reinisch*, 1996a, 1996b).

The digisonde employs a 'delta' transmit antenna (**Fig.3-3**) and 7 receive antennas (**Fig.3-4**).

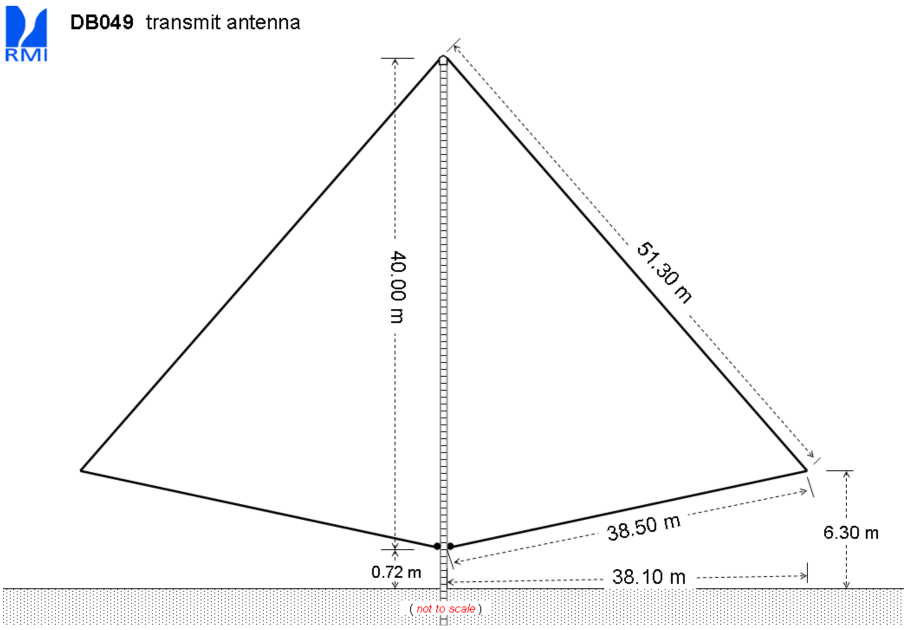

Fig.3-3. Dourbes ionosonde's transmit antenna (*Jodogne*, 1974): multiwire design, height: 40 m, orientation: NE-SW.

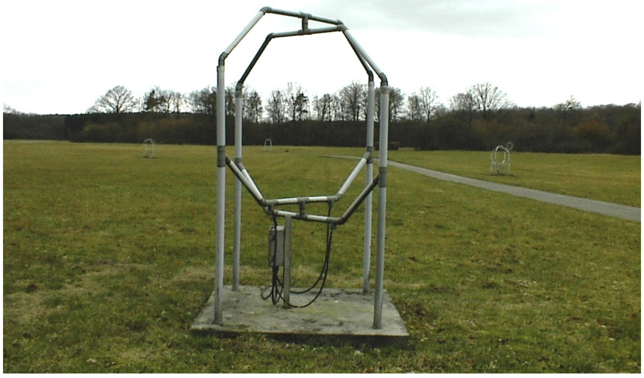

Fig.3-4. Dourbes ionosonde's receive antennas.

DGS-256 automatically scales the latest ionogram and immediately displays a table of the key automatically-scaled ionospheric characteristics. An example of a digitally-recorded ionogram at Dourbes is provided in **Fig.3-5**.

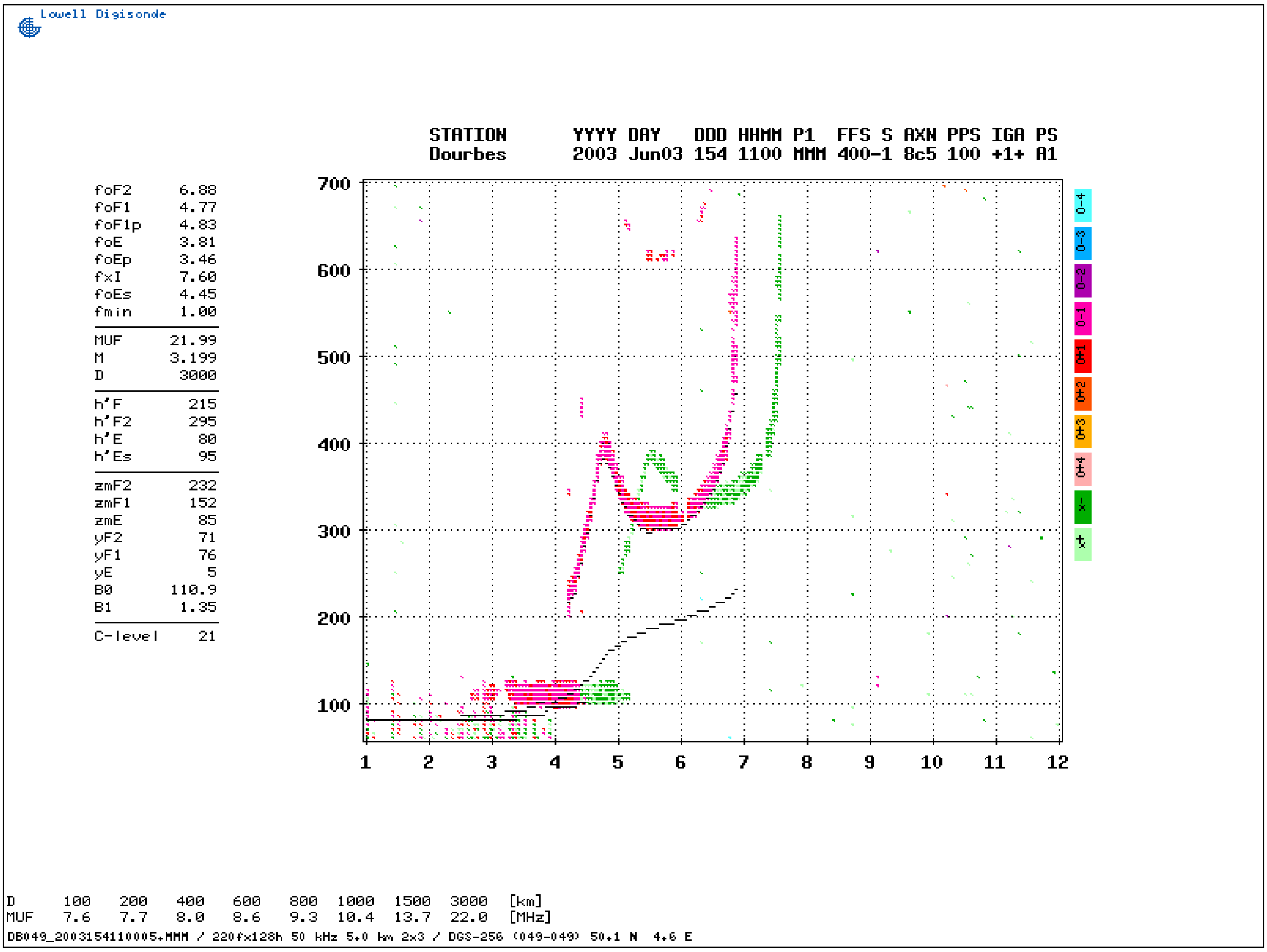

Fig.3-5. DGS-256 digital ionogram recorded at 11:00UT on 3 June 2003.

Some information about the screen display is provided next.

DGS-256/ARTIST Ionogram Screen Display

Ionospheric (autoscaled) characteristics/parameters table:

Char.	Unit	Description
foF2	MHz	F2 layer critical frequency, incl. adjustment by the true height profile algorithm
foF1	MHz	F1 layer critical frequency
foF1p	MHz	Predicted value of foF1
foE	MHz	E layer critical frequency
foEp	MHz	Predicted value of foE
fxI	MHz	Maximum frequency of F-trace
foEs	MHz	Es layer critical frequency
fmin	MHz	Minimum frequency of ionogram echoes
MUF(D)	MHz	Maximum usable frequency for ground distance D
M(D)	-	M(D) = MUF(D)/foF2
D	km	Distance for MUF calculation
h'F	km	Minimum virtual height of F trace
h'F2	km	Minimum virtual height of F2 trace
h'E	km	Minimum virtual height of E trace
h'Es	km	Minimum virtual height of Es trace
zmF2	km	Peak height of F2-layer
zmF1	km	Peak height of F1-layer
zmE	km	Peak height of E-layer
yF2	km	Half thickness of the F2 layer, parabolic model
yF1	km	Half thickness of the F1 layer, parabolic model
yE	km	Half thickness of E layer
B0	km	IRI thickness parameter
B1	-	IRI profile shape parameter
C-level	-	Confidence level: two digits, each ranging from 1 (highest confidence) to 5 (lowest confidence)

System settings from the ionogram preface:

P1	-	Data storage format: 1 – MMM (Modified Maximum Method), 4 – RSF (Routine Scientific Format)
FFS S	-z	Nominal Frequency, 100 Hz resolution / Fine Frequency Step, 1 kHz resolution
AXN	-	Phase Code, Number of Samples
PPS	pps	(Pulse) Repetition Rate (pps)
IGA	-	Frequency and Gain corrections
PS	-	Program Type (A,B,C,F,G) and Set/Schedule (1,2,3)

Colour legend for echo status (ionogram consisting of amplitudes of maximum Doppler lines)

x+, x-	green scale, Extraordinary polarization
o ±1, 2, 3, 4	red scale, Ordinary polarization

4. Dourbes ionosonde database – technical development and data availability

Over the years large datasets with ionosonde measurements was accumulated in Dourbes that, unfortunately were scattered on different carriers – from paper to DVDs. The problem was exacerbated by the existence of different archival formats and addition of new ionospheric characteristics, especially after the introduction of the digital ionosonde an the automatic scaling of ionograms. The efforts in the last couple of years were aimed at the complete overhaul of this comprehensive ionosonde data collection and creating a proper database to be used for both research and developing user-oriented services. It was mandatory to identify all data gaps and find the reasons behind them in order to avoid them in future, especially if due to technicalities. Special attention was paid to the manual scaling of the ionograms from the last decade. All automatically-scaled data are now manually corrected. Based on that, long-term data time series were produced. Statistical evaluation of the digisonde's automatic scaling of the most frequently used ionospheric parameters was performed using automatic and manually scaled data from the last years. A (monthly) summary of data availability is provided in **Table 4-1**. Daily statistics are also produced for the period since 2002, results can be found in the Annex.

Data Availability – Monthly Details
Note: *Daily files may be incomplete.*

Year	1	2	3	4	5	6	7	8	9	10	11	12	Format
2010	31	28	31	30	31	30	31	31	30	31	30	31	SAO
2009	31	28	31	30	31	30	31	31	30	31	30	31	SAO
2008	31	29	31	30	31	30	31	31	30	31	30	31	SAO
2007	31	28	31	30	31	30	31	31	30	31	30	31	SAO
2006	31	28	31	30	31	30	31	31	30	31	30	31	SAO
2005	31	28	31	30	31	7	31	31	30	31	30	31	SAO
2004	31	29	31	30	17	30	31	31	24	31	30	31	SAO
2003	31	28	31	30	31	29	2	0	9	28	30	31	SAO
2002	0	28	31	29	16	30	30	31	30	31	30	31	SAO
2001	31	28	31	30	31	30	31	31	30	31	30	0	URSI-I
2000	0	29	31	30	31	30	31	31	30	31	30	31	URSI-I
1999	31	28	31	28	31	30	31	31	30	31	30	22	URSI-I
1998	31	28	31	30	31	30	31	30	30	31	30	31	URSI-I
1997	31	28	31	30	31	30	31	31	30	31	30	31	URSI-I
1996	31	29	31	30	31	30	31	31	30	31	30	31	URSI-I
1995	31	28	31	30	31	30	31	31	30	31	30	31	URSI-I
1994	30	28	31	30	31	30	31	31	30	31	30	31	URSI-I
1993	31	28	30	30	31	30	31	30	30	31	29	31	URSI-I
1992	31	29	28	30	31	30	28	31	30	31	30	31	URSI-I
1991	31	28	31	30	31	30	30	31	30	31	30	31	URSI-I
1990	31	28	31	30	31	30	31	31	30	31	30	31	URSI-I
1989	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1988	31	29	31	30	31	30	31	31	30	31	29	31	URSI-A
1987	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1986	31	28	31	30	31	29	31	31	30	31	30	31	URSI-A
1985	31	28	31	30	31	30	31	31	30	30	30	31	URSI-A
1984	31	29	31	30	31	30	31	31	30	31	30	31	URSI-A
1983	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1982	31	28	31	30	31	28	31	31	30	31	30	31	URSI-A
1981	30	28	31	26	31	30	31	31	30	31	30	31	URSI-A
1980	31	29	31	30	30	30	31	31	28	31	30	31	URSI-A
1979	31	28	31	30	31	30	30	31	30	31	30	31	URSI-A
1978	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1977	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1976	31	29	31	30	31	29	31	31	30	31	30	31	URSI-A
1975	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1974	31	28	31	30	31	30	31	31	30	31	30	31	URSI-A
1973	31	28	31	30	31	18	31	31	30	31	30	31	URSI-A
1972	31	29	31	30	31	29	31	31	30	31	30	31	URSI-A
1971	30	28	31	30	30	30	31	31	30	29	30	31	URSI-A
1970	31	28	31	30	29	30	31	31	30	31	30	30	URSI-A
1969	30	28	31	29	31	30	22	31	28	30	30	31	URSI-A
1968	30	27	30	30	31	30	31	31	30	31	28	30	URSI-A
1967	31	28	31	29	28	28	31	21	29	31	28	31	URSI-A
1966	31	28	31	30	31	30	30	31	30	31	30	31	URSI-A
1965	31	27	29	30	31	30	31	29	30	30	30	31	URSI-A
1964	31	27	30	30	31	30	31	31	29	31	29	31	URSI-A
1963	31	28	30	28	31	28	31	31	30	31	30	31	URSI-A
1962	31	28	31	30	29	30	31	31	30	30	30	31	URSI-A
1961	31	27	31	29	30	30	31	30	30	31	30	31	URSI-A
1960	31	29	31	22	31	30	31	30	30	31	28	31	URSI-A
1959	31	27	31	27	28	28	27	31	30	31	30	30	URSI-A
1958	30	28	31	30	30	30	30	31	30	24	30	31	URSI-A
1957	-	-	-	-	-	-	-	29	29	25	30	30	URSI-A

SAO – Standard Archiving Output format, URSI-I the URSI IIWG format - Report UAG-23 WDC-A, URSI-A – URSI/AGI Brussels '56 and Lindau-Tokyo'57

Table 4-1. Dourbes ionosonde database catalogue, 1957-2010.

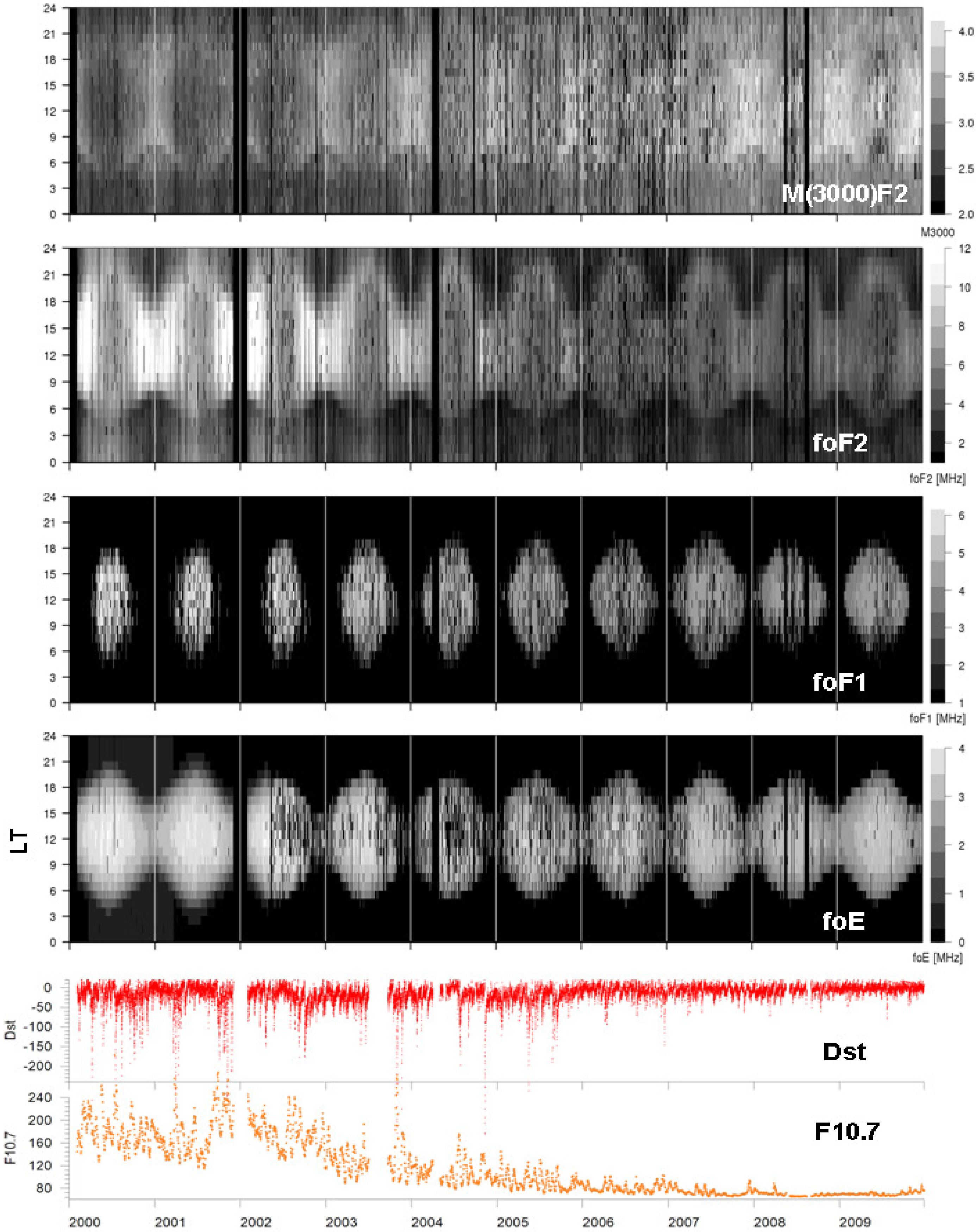

Fig.4-1. Manually-scaled ionospheric characteristics, critical frequencies (foF2, foF1, foE) and propagation factor M(3000)F2, for years 2000-2009. Solar and geomagnetic activity indices, F10.7 and Dst, plotted at the bottom.

As an example, plotted on **Fig.4-1** is the local time behaviour (manually-scaled values) of the ionospheric critical frequencies (foF2, foF1, foE) and propagation factor M(3000)F2 over an almost complete solar activity cycle, from year 2000 through 2009. Clearly seen are the main features of this behaviour, typical for the mid-latitude ionosphere (*Davies*, 1990; *Hargreaves*, 1992; *Jodogne and Stankov*, 2002).

The ionosonde database is updated in real time from the Standard Archiving Output (.SAO) files generated by the digisonde. After each sounding, the latest file is transferred from the measurement computer in Dourbes to a centralized storage and processing server in Uccle. In Uccle, the .SAO files are parsed to extract the scaled ionospheric characteristics. The parser inserts these characteristics into a table in a relational database management system (PostgreSQL on Linux), along with a timestamp and housekeeping information to trace any inserted row back to the original file. In the event that an .SAO file is modified after it was parsed, the housekeeping information is used to delete all rows belonging to the previous version of the file, and the parser inserts the data from modified file again.

As the file format has changed several times over the course of the ionosonde operations in Dourbes (since 1957), multiple parsers have been written and run to insert the historical data in the same database table. This results in a single time series in a single format. At the time of writing the table contains just under 500 000 records, which take about 150MB of disk space.

Manual corrections are performed on ionograms, as the automated analysis sometimes misinterprets the sounding echoes, resulting in erroneous values for the scaled ionospheric characteristics. To distinguish corrected values from uncorrected, and to be able to compare and correlate both, a second table with the same structure is created on the database, in a separate schema.

The search path on the database is configured in such a way that the user by default receives the corrected data, but can request the uncorrected data by explicitly specifying the appropriate schema. As the correction of ionograms requires manual intervention, the corrected values are not available in real time. Subsequent processing steps which take ionospheric characteristics as input (e.g. LIEDR) must choose between reliability and availability, and query the database for either the corrected or the uncorrected values respectively.

For security reasons, a second database with the same data is maintained on the web server providing access to the SWANS website (http://swans.meteo.be). Images on the website are generated dynamically by querying the database when a user accesses a webpage. Since the images typically show a time series of one or more scaled ionospheric characteristics, appropriate indexes have been created on the tables to improve performance.

Access to the database is through any of the standard PostgreSQL interfaces available in most modern programming languages, through graphical user interfaces such as pgAdmin, or through the web interface phpPgAdmin. All access is protected by passwords, in combination with a system to assign read-only/read-write privileges to specific users.

5. Comparison between automatically- and manually- scaled iono characteristics

Since the early 1990s, the needs for real-time ionospheric measurements and updates have been on the increase following on the requirements for timely corrections to precise satellite ranging systems. Present-day applications (e.g. *Stankov* et al., 2003; *Warnant* et al., 2007) rely on operational automatic scaling by ionosondes (*Reinisch and Huang*, 1983; *Reinisch* et al., 2005) for obtaining regularly the most important ionospheric characteristics. It is obviously impossible to immediately scale/correct manually and distribute the ionospheric characteristics values at the current standard rate of 4 ionograms per hour.

Clearly, the automated processing has the advantages of speed and significantly reduced cost of data processing. This allows us to utilise the instantaneous ionospheric sounding data for the operation of our space weather services (http://swans.meteo.be/ionosphere) and to further develop advanced nowcasting and forecasting services required by the users.

Real-time ionospheric data provision from modern digital ionosondes offers important input to address the above-mentioned needs. Nowadays, the digisonde is a powerful tool in ionospheric nowcast because of its improved reliability, accuracy and precision, its ability to automatically scale and analyse the sounding data, and also to promptly distribute the results through internet connections.

However, various studies have already pointed at some deficiencies (e.g. *McNamara*, 2001; *Reinisch* et al., 2005; *Sauli* et al., 2007; *Bamford* et al., 2008). For example, a premature truncation of the scaled F2 trace are sometimes allowed by the autoscaling software (caused by echo trace gaps due to restricted frequency bands and/or bands of strong interference). Also, a comparison of the true-height electron density profiles inverted from ionograms using the POLAN and NHPC methods showed significant systematic differences.

It is important therefore that a detailed statistical analysis of the Dourbes ionosonde database is performed. This report addresses the question of whether the reliance on automatic ionogram scaling has been at the expense of accuracy in the scaled ionospheric characteristics.

An earlier comparison of manual versus automatic computer processing from the first years of the digital processing at Dourbes has been performed by *Jodogne* (1998). However, since that comparison was done for the old versions of the digisonde software, ARTIST and ADEP, it is necessary now to analyse the results from the last decade when the ARTIST-4 version was employed.

For the purpose, hourly data from the period covering year 2002 through 2009 will be analysed. The period comprises both solar maximum and minimum conditions, geomagnetically quiet and disturbed/storm conditions. The analysis will focus on the scaling of the most important ionospheric characteristics: the critical frequencies (foF2, foF1, and foE), the minimum virtual heights (h'F2, h'F, and h'E), and the propagation factor M(D) (the maximum transmission frequency possible on a distance D, in this case D = 3000 km, i.e. M(D) = M(3000)F2). For each of these characteristics, the quantity investigated was the residual error, defined as the difference between the autoscaled (Xa) and manually scaled (Xm) values from the same sounding. The approach implicitly assumes that the manually-scaled values are correct. All manual corrections have been performed by two experienced ionogram scalers.

At first, scatter plots of the automatically-scaled (auto-scaled) against the manually-scaled (manu-scaled) hourly characteristics have been produced for the 2002-2009 period (**Fig.5-1**).

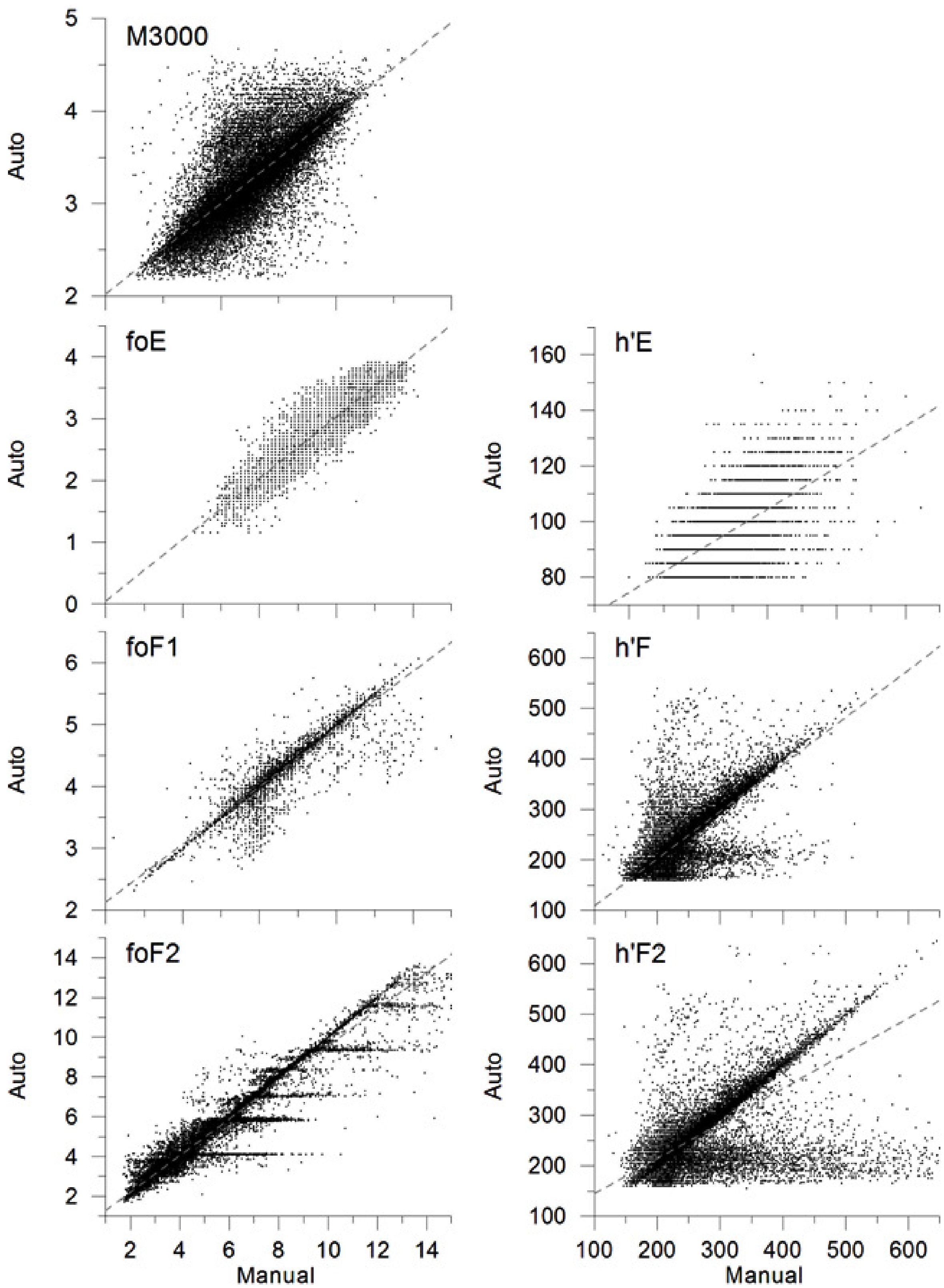

Fig.5-1. Comparison between automatically and manually-scaled ionospheric characteristics at Dourbes during the period 2002-2009. Left panels: scatter plot of the autoscaled vs. manually-scaled critical frequencies and propagation factor. Right panels: scatter plot of the autoscaled vs. manually-scaled virtual heights.

Each set of data was fitted with a line. For the frequency characteristics, the figure demonstrates that the fit is generally good, with a slope close to 1 and only small intercepts are observed (except for h'F2 and h'E). Nonetheless, a rather large scattering is observed for the virtual heights and the propagation factor, meaning that, in general, the virtual heights are determined less reliably than the critical frequencies. Also, prominent layers (ledges), extending to the right of the 'ideal' line (slope equalling 1), are observed in the foF2 plot.

It is obvious that the autoscaling algorithm scales preferentially (underestimates the true values of) the frequencies at around 4 MHz, 6, MHz, 7 MHz, 9.5 MHz, and 11.5 MHz. Investigations of raw ionogram data reveal that the phenomenon is most probably due to interference from other radio sources (*Bamford* et al. 2008). Since the digisonde checks the noise (interference) level for each sounding frequency and retains only signals that are larger than a pre-defined noise threshold, the presence of an external signal would significantly raise the noise floor and would thus cause a gap in the echo trace.

Further comparison results will be presented next, highlighting possible influences of the solar and geomagnetic activities on the performance of the automated scaling.

To have a better view on the behaviour of the autoscaling quality during different levels of solar activity, manually scaled characteristics are plotted together with residual errors computed after comparison with the auto-scaled values for the 2002-2009 period (**Fig.5-2**).

Generally, the critical frequencies decrease substantially as the solar activity decreases during the years, oppositely for the propagation factor M(3000)F2. The residual error plots show that the level of solar activity does not have a noticeable effect on the autoscaling algorithm for foF1, foE, and M(3000)F2. The foF2 characteristic however seems to be frequently (and on several occasions quite substantially) underestimated (causing higher residual errors) by the autoscaling procedure during high solar activity years compared to the period of minimum solar activity from year 2007 onwards. Given the higher number of geomagnetic storms during higher solar activity, it is necessary to look also at the possible influence of the geomagnetic activity.

The analysis of the residual error plots for the virtual heights shows some deficiencies of the autoscaling process. It appears that there is a frequent/systematic underestimation (often more than 20 km) of the h'E value through the entire period 2002-2009. Larger errors are observed for h'F in summer at low solar activity. For h'F2, a substantial seasonal effect is observed, with more frequent and larger residual errors (underestimation) made when autoscaling during the summers.

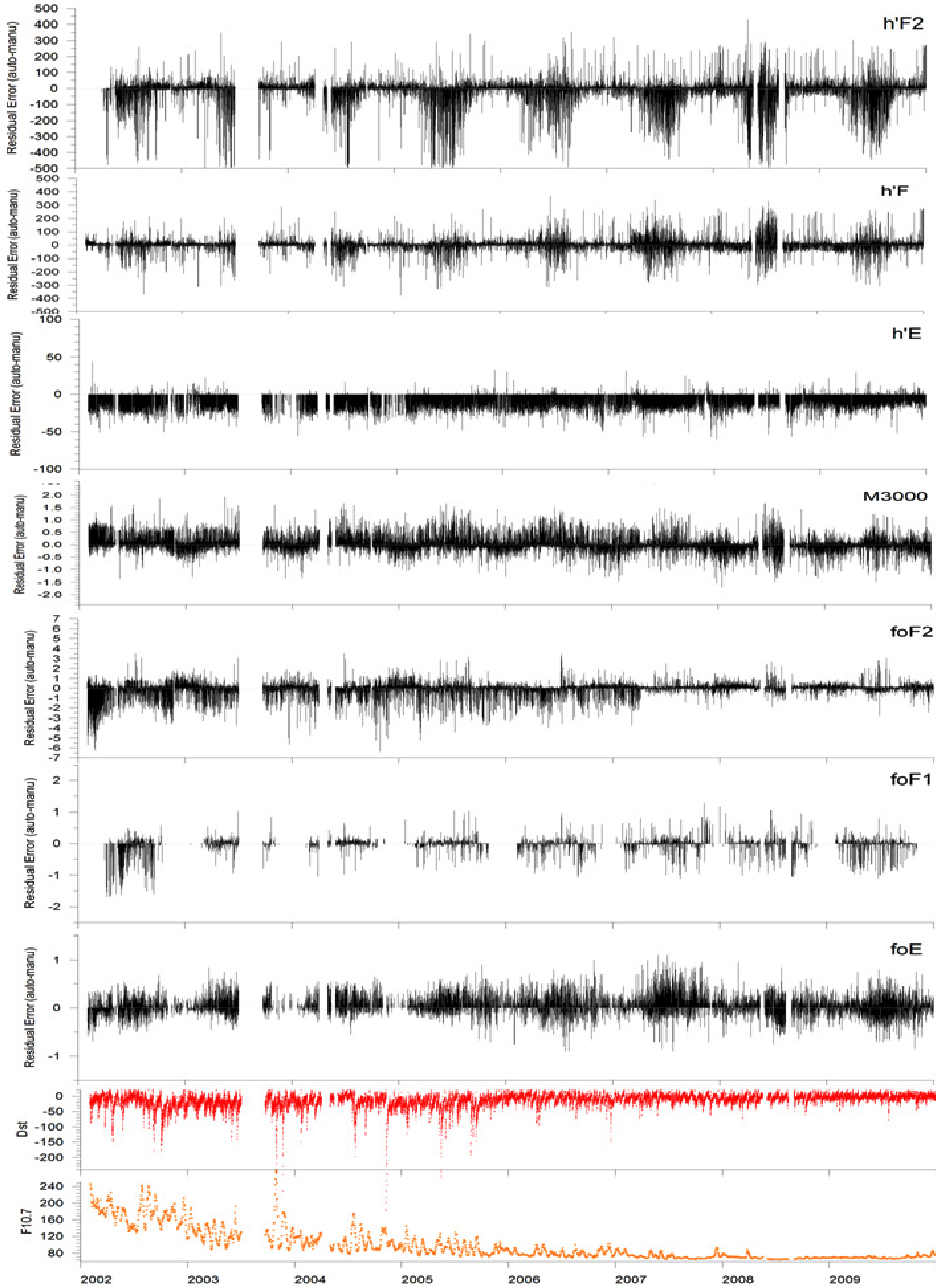

Fig.5-2. Comparison between automatically and manually-scaled ionospheric characteristics at Dourbes during the period 2002-2009. Residual errors (auto-scaled minus manually-scaled values) for the critical frequencies, virtual heights and propagation factor. The solar and geomagnetic activity indices, F10.7 and Dst, are plotted in the bottom panels.

To assess the quality of the automatic-scaling in varying geomagnetic activity conditions, the residual errors in the autoscaled hourly values were compared (**Fig.5-3**) with the Dst index. The great majority of the errors are concentrated close to the zero values of the axes suggesting that there is no obvious relationship between the Dst index and the errors in any of the autoscaled values. Examination of the correlation coefficient between Dst and each of the characteristics for each year reveals that the magnitude of the coefficient does not exceed 0.2, indicating essentially uncorrelated variables. From this aspect, the results are in concordance with a previous study of the Chilton digisonde autoscaling (*Bamford* et al., 2008). However, the Chilton results from the solar maximum year 2001 point at a possible (albeit weak) correlation between the foF2 autoscaling errors and Dst, suggesting that although the geomagnetic conditions may have an impact on the autoscaling accuracy, that impact is small and outweighed by other factors.

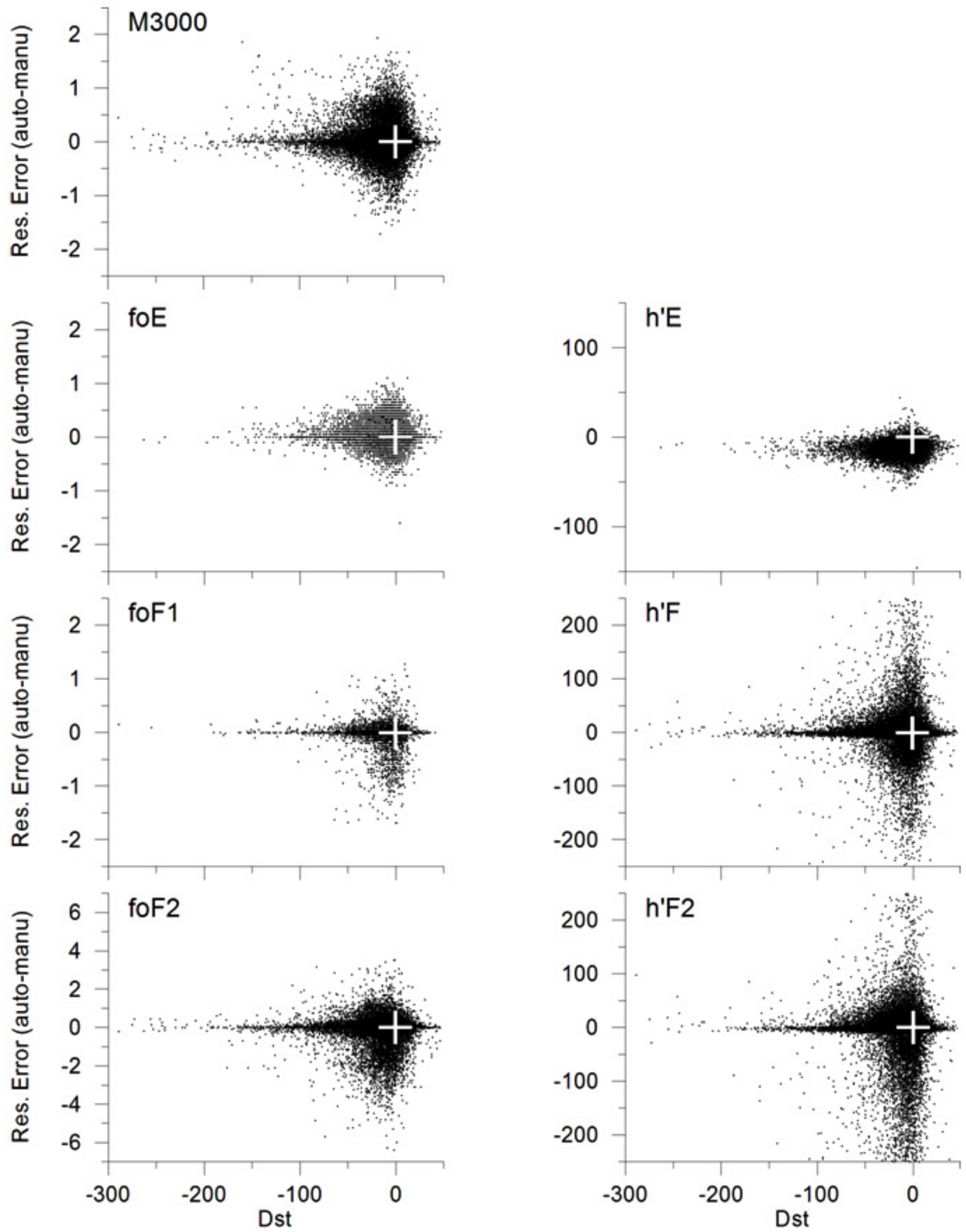

Fig.5-3. Comparison between automatically and manually-scaled ionospheric characteristics at Dourbes during the period 2002-2009. Scatter plots of the residual errors vs. geomagnetic activity index Dst for the critical frequencies and M3000 (left panels) and the virtual heights (right panels).

6. Summary and Outlook

The Dourbes ionosonde database, accumulated during a period of over 50 years, has been introduced. Presented were the instruments and archival formats used during that period together with the data availability and statistics. Our recent efforts were focused on developing a proper database, a database that is comprehensive, flexible and reliable, yet offering easy and fast access to all sorts/combinations of ionosonde characteristics. All automatically-scaled data are now corrected and statistically analysed in terms of gaps identification and consistency with older formats. In view of the real-time applications of the ionosonde measurements, a comparison was made between auto-scaled and manually-scaled ionospheric characteristics. The overall reliability of the digisonde proved to be very good, both during quiet and storm time ionospheric conditions.

One particular application of the digisonde measurements is the operational system for monitoring the vertical electron density distribution in the local ionosphere (*Stankov* et al., 2003). The purpose of the LIEDR (Local Ionospheric Electron Density Reconstruction) system is to acquire and process data from simultaneous and co-located ground-based GNSS TEC and digital ionosonde measurements, and subsequently to deduce the vertical electron density profile and display the resulting profilograms (**Fig.6-1**). The current update rate is 15 min and the latency is about 10 min. LIEDR is primarily designed to operate in continuous real-time mode for service applications and, simultaneously, to provide historical data/plots for research applications and further developments of the system.

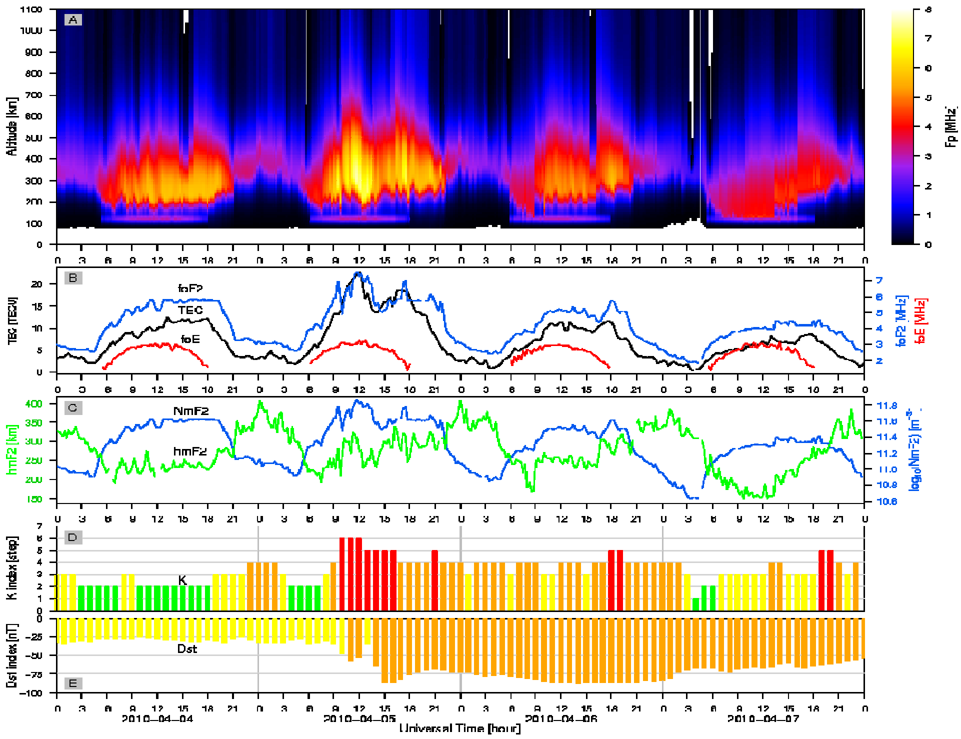

Fig.6-1. Real-time reconstruction of the electron density profile at Dourbes (4.6°E, 50.1°N) during the storm period 05-07 April 2010. The profilograms (top) show the reconstructed electron profiles (converted to plasma frequency).

The principal future development of the database include the regular addition of new measurement data and ensuring the compliance with the international standards for data archiving. With the upcoming installation of the new Lowell Digisonde 4D, the quality of ionospheric soundings and automated ionogram scaling is expected to be further improved. This will allow us to develop new value-added products and services for use by the international scientific community.

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ANNEX

ANNEX - A1: Ionospheric characteristics deduced from digisonde measurements

Names	Descriptions
foF2p	Predicted value of foF2
foF1p	Predicted value of foF1
foEp	Predicted value of foE
foF2	F2 layer critical frequency
foF1	F1 layer critical frequency
foE	E layer critical frequency
hmF2	Peak height F2-layer
hmF1	Peak height F1-layer
hmE	Peak height of E-layer
h`F2	Minimum virtual height of F2 trace
h`F	Minimum virtual height of F trace
h`E	Minimum virtual height of E trace
M(D)	MUF(D)/foF2
B0	IRI thickness parameter
B1	IRI profile shape parameter
scale F2	Scale height at the F2-peak
TEC	Total electron content
foEs	Es layer critical frequency
h`Es	Minimum virtual height of Es trace
fminEs	Minimum frequency of Es-layer
fmin	Minimum frequency of ionogram echoes
fminE	Minimum frequency of E-layer echoes
fxI	Maximum frequency of F trace
fminF	Minimum frequency of F-layer echoes
MUF(D)	Maximum usable frequency for ground distance D
D	Distance for MUF calculation
h`Ea	Minimum virtual height of auroral E-layer trace
QF	Average range spread of F-layer
FF	Frequency spread between fxF2 and fxI
FE	Frequency spread beyond foE
QE	Average range spread of E-layer
foP	Highest ordinary wave critical frequency of F region patch trace
h`P	Minimum virtual height of the trace used to determinate foP
fbEs	Blanketing frequency of Es-layer
type Es	Type Es
dlt foF2	Adjustment to the scaled foF2 during profile inversion
foEa	Critical frequency of auroral E-layer
yE	Half thickness of E-layer
yF1	Half thickness of F1-layer, parabolic model
yF2	Half thickness of F2-layer, parabolic model
fMUF	MUF/OblFactor
h`(fMUF)	Virtual height at MUF/OblFactor frequency
D1	IRI profile shape parameter, F1-layer
zhalfNm	The true height at half the maximum density in the F2-layer
DownF	Lowering of F-trace to the leading edge
DownE	Lowering of E-trace to the leading edge
DownEs	Lowering of Es-trace to the leading edge
f(h`F)	Frequency at which h`F occurs
f(h`F2)	Frequency at which h`F2 occurs

ANNEX – A2: Ionosonde archive formats (SAO, URSI-I, URSI-A)

Three different formats have been used for archiving the Dourbes ionosonde data during the years:

05/2002 – 12/2010 : Standard Archiving Output (SAO) Format

02/1990 – 04/2002: URSI-IIWG Format (CHARS)

07/1957 – 01/1990: URSI-AGI Brussels'56 Format

Each of these formats will be detailed in this annex in order to provide an easy reference for potential database users and developers. The SAO and URSI-IIWG formats are included "as is" from the University of Massachusetts-Lowell Center for Atmospheric Research (UMLCAR) website (http://ulcar.uml.edu/digisonde.html)

SAO Format (05/2002 – 12/2010)

Source: University of Massachusetts – Lowell (http://ulcar.uml.edu/~iag/SAO-4.htm)

Standard Archiving Output (SAO) Format (v. 4.3)

Introduction

Automatic scaling of ionogram data has come a long way and the quality of the autoscaled data has reached a remarkable level. Consequently the time has arrived to directly transfer ionosonde data to the World Data Centers using the Internet. We have begun to equip the Digisondes with Internet connections. The first Internet links were established between the Okinawa Digisonde (CRL, Japan) and the WDC-C2 in Tokyo, the Millstone Hill Digisonde (UML, USA) and the WDC-A in Boulder, Colorado, and Chilton Digisonde (RAL, GB) and the WDC-C1 in Chilton. All data generated in the Digisonde are made available for electronic transfer: ionogram data, scaled data, and drift data.

Starting in 1987, the Ionospheric Informatics Working Group (IIWG) of Commission G of URSI has developed recommendations for the data formats to be used for dissemination and archiving of scaled ionogram data and for the monthly ionospheric characteristics. The IIWG abstained (wisely) from trying to develop a common data format for the system-dependent ionogram and drift data.

The attached report gives a detailed description of the Standard Archiving Output (SAO) format. Each SAO (text) file contains the scaled data for one ionogram including the echo traces h'(f), echo amplitudes, frequency and range spread, etc. and the electron density profile.

The upgraded or new Digisondes produce the SAO files in real time for local recording and/or electronic transfer. The older Digisondes generate only binary files, but offline editing results are usually stored in the SAO format. Since these Digisonde ionograms SAO files are now becoming available to any user either through the WDC sites or via the web pages of the connected Digisonde stations it seems important to publish a description of the SAO format.

The SAO format was originally designed for storing Digisonde ionograms scaled by autoscaling software ARTIST and edited using ADEP utility. However, in subsequent releases a special effort was made to generalize SAO design so that it can hold scaled data produced by other sounder systems. With release of version 4.1, the degree of format universality became high enough to promote SAO as a standard format for exchange of scaled ionogram data.

SAO Format version 4.2

The SAO file structure has remained the same since it was developed by the IIWG in 1989, but the content has been expanded in subsequent releases. The following is a description of the SAO format version 4.2 [*Gamache et al.,* 1996].

A SAO file is an ASCII text file with a maximum line length of 120 characters. In order to concisely describe the database some definitions are necessary. The nomenclature is as follows:

File	a collection of many *Records*
Record	all data for a single observation (ionogram)
Group	all *Lines* of a datum type
Line	a sequence of *Elements* of a datum type, CR/LF terminated
Element	a single datum in the specified format

The *Record* structure is composed of two basic components: a **Data Index** and **Data**. The format and size of the **Data Index** is fixed. It describes the contents of the **Data** in the *Record*. The **Data** component of each *Record* contains a varying number of *Groups* as indicated by the **Data Index**. The format and length of data varies from one *Group* to the next; however, all data *Elements* within a single *Group* are of the same type and length. The number of characters in a given *Group* can easily exceed the 120 characters per line limit. In this case, the output overflows to succeeding lines, thus a data *Group* may extend over several *Lines*.

This format design allows storing variable amount of information per ionogram, depending not only on ionospheric conditions, but also on sounder system specifics. There is only a subset of *Groups* that have to be present in a *Record.* As explained below, all others may be omitted and their corresponding index in the **Data Index** section set to zero. Data systems engineers have to decide which *Groups* to use to report data available from their sounders, if different from Digisonde. There are three situations, described in detail below, where system-specific data can be readily ingested using existing SAO-4 format:

- System Description line (using *tokens* of an arbitrary format)
- Operator's Message (using any text format)
- Sounder Settings (by requesting a version indicator and submitting format specification to their local WDC)

Groups 57 to 79 are currently vacant for specification formats of other data items currently missing from SAO-4. Each addition of a Group has to be accompanied with a new release of SAO 4 format (versions 4.2, 4.3,...) which contains format specification for the new Group. If necessary. the number of vacant *Groups* may be expanded by addition of new line(s) in the **Data Index**.

Data Index

The Data Index contains 80 three digit integers. The position in the list corresponds to the data for the data *Group* number. These are shown in Table 1. The first integer is the **number of *Elements*** in the data *Group* 1, Geophysical Constants, in the current *Record*. The second integer represents the **number of *Elements*** in the second data *Group*, System Description, etc. A value of zero indicates that there is no data for the *Group* in the *Record*. Position 80 of the Data Index array is not used to specify the format of the data to follow. It is reserved for the SAO 4.2 Version Indicator which is set to 4.

If the demand for vacant *Groups* grows beyond the existing limit, the Data Index will have to expand and include more lines. The 80th element of the Data Index will still be used as the Version Indicator so that the reading logic will be aware of extra index lines.

Column **Req.** of Table 1 indicates which Groups are required to specify in a minimum content SAO-4 file. Red "x" marks indicate mandatory groups. If trace points are availble for output in the file, each trace has to be specified with at least two groups (virtual heights and frequencies) as indicated by a "xx" cyan marks.

Table 1. SAO Record Format

Group	Req.	FORTRAN Format	Description	Reference
	x	2(40I3)	DATA FILE INDEX	
1	x	16F7.3	GEOPHYSICAL CONSTANTS	Table 2
2		A120	SYSTEM DESCRIPTION AND OPERATOR'S MESSAGE	
3	x	120A1	TIME STAMP AND SOUNDER SETTINGS	Table 3,4,5
4	x	15F8.3	SCALED IONOSPHERIC CHARACTERISTICS	Table 6,7
5		60I2	ANALYSIS FLAGS	Table 8
6		16F7.3	DOPPLER TRANSLATION TABLE	
			O-TRACE POINTS - F2 LAYER	
7	xx	15F8.3	VIRTUAL HEIGHTS	
8		15F8.3	TRUE HEIGHTS	
9		40I3	AMPLITUDES	
10		120I1	DOPPLER NUMBERS	
11	xx	15F8.3	FREQUENCIES	
			O-TRACE POINTS - F1 LAYER	
12	xx	15F8.3	VIRTUAL HEIGHTS	
13		15F8.3	TRUE HEIGHTS	
14		40I3	AMPLITUDES	
15		120I1	DOPPLER NUMBERS	
16	xx	15F8.3	FREQUENCIES	
			O-TRACE POINTS - E LAYER	
17	xx	15F8.3	VIRTUAL HEIGHTS	
18		15F8.3	TRUE HEIGHTS	
19		40I3	AMPLITUDES	
20		120I1	DOPPLER NUMBERS	
21	xx	15F8.3	FREQUENCIES	
			X-TRACE POINTS - F2 LAYER	
22		15F8.3	VIRTUAL HEIGHTS	
23		40I3	AMPLITUDES	
24		120I1	DOPPLER NUMBERS	
25		15F8.3	FREQUENCIES	

			X-TRACE POINTS - F1 LAYER	
26		15F8.3	VIRTUAL HEIGHTS	
27		40I3	AMPLITUDES	
28		120I1	DOPPLER NUMBERS	
29		15F8.3	FREQUENCIES	
			X-TRACE POINTS - E LAYER	
30		15F8.3	VIRTUAL HEIGHTS	
31		40I3	AMPLITUDES	
32		120I1	DOPPLER NUMBERS	
33		15F8.3	FREQUENCIES	
34		40I3	MEDIAN AMPLITUDES OF F ECHOES	
35		40I3	MEDIAN AMPLITUDES OF E ECHOES	
36		40I3	MEDIAN AMPLITUDES OF ES ECHOES	
37		10E11.6E1	TRUE HEIGHTS COEFFICIENTS F2 LAYER UMLCAR METHOD	Table 9
38		10E11.6E1	TRUE HEIGHTS COEFFICIENTS F1 LAYER UMLCAR METHOD	Table 9
39		10E11.6E1	TRUE HEIGHTS COEFFICIENTS E LAYER UMLCAR METHOD	Table 9
40		6E20.12E2	QUAZI-PARABOLIC SEGMENTS FITTED TO THE PROFILE	Table 10
41		120I1	EDIT FLAGS - CHARACTERISTICS	Table 12
42		10E11.6E1	VALLEY DESCRIPTION - W,D UMLCAR MODEL	
			O-TRACE POINTS - Es LAYER	
43		15F8.3	VIRTUAL HEIGHTS	
44		40I3	AMPLITUDES	
45		120I1	DOPPLER NUMBERS	
46		15F8.3	FREQUENCIES	
			O-TRACE POINTS - E AURORAL LAYER	
47		15F8.3	VIRTUAL HEIGHTS	
48		40I3	AMPLITUDES	
49		120I1	DOPPLER NUMBERS	
50		15F8.3	FREQUENCIES	
			TRUE HEIGHT PROFILE	
51		15F8.3	TRUE HEIGHTS	
52		15F8.3	PLASMA FREQUENCIES	
53		15E8.3E1	ELECTRON DENSITIES [e/cm^3]	
			URSI QUALIFYING AND DESCRIPTIVE LETTERS	
54		120A1	QUALIFYING LETTERS	
55		120A1	DESCRIPTIVE LETTERS	
56		120I1	EDIT FLAGS - TRACES AND PROFILE	Table 13
80		--	(Reserved)	

Group 1: Geophysical Constants

The values of the Geophysical Constants shown in Table 2 are specified for the station producing the data in the file. Frequencies are in MHz, angles are in degrees.

Table 2. Geophysical Constants

Position	Req	Description
1	x	Gyrofrequency (MHz)
2	x	Dip angle (-90.0 to 90.0 degrees)
3	x	Geographic Latitude (-90.0 to +90.0 degrees)
4	x	Geographic Longitude East(0.0 to 359.9 degrees)
5		Sunspot Number for the current year

Group 2: System Description and Operator's Message

This Group allows the user to give a description of the system which recorded the data and to store a free format text message. The Group 2 is given in A120 format, so the Data Index entry for the Group 2 counts total number of 120-character *Lines* of text. One text line is used to store system description; if an operator's message is given, it takes another text line. Thus, the Data Index can be 0 (no information), 1 (system description) or 2 (system description and operator's message).

The minimum contents of the System Description line should include sounder model and station IDs. To accommodate all possible station-specific information in an organized and flexible fashion, the concept of a *token* is introduced. System Description line is arranged in comma-separated tokens, where each token consists of a registered keyword and a data field. The first token is always the sounder model, local station ID and URSI station code number. One space character separates sounder model and IDs. Station IDs are separated by a forward slash. Local station ID is determined by host institution or sounder manufacturer. URSI station code number is assigned through World Data Center A for Solar-Terrestrial Physics.

For example, the System Description Line for a UMLCAR Digisonde Portable Sounder may look like this:

DPS-4 042/MHJ45, ARTIST 1297, NH 1.3, ADEP 2.19

It contains four tokens:

- **DPS-4 042/MHJ45** -- keyword **DPS-4** indicates the Digisonde model "DPS-4", and data filed **042/MHJ45** contains UMASS Lowell Station ID *(042)* and URSI station code number *(MHJ45)*
- **ARTIST 1297** -- keyword **ARTIST** indicates ARTIST software, and **1297** is the ARTIST version number,
- **NH 1.3** -- keyword **NH** indicates true height profile inversion algorithm, and **1.3** is the algorithm version number,
- **ADEP 2.19** -- keyword **ADEP** indicates ADEP software, and **2.19** is the ADEP version number.

Thus, each item that the data support engineer needs in include into the SAO-4 System Description line has to form a token where the item is preceeded by a keyword. Another example can be given for a DISS sounder:

DISS 038/, NAME Wallops Island, WMOID HIGL BTGS 04231, ARTIST 0790, NH 1.3, ADEP 2.19

The SAO reading routine works as a simple string parser. It has to get the first word in the System Description line to identify the sounder system. Then, depending on the sounder model, it can scan the rest of the line for keywords and fill appropriate structures with corresponding data field contents. If the sounder model could not be identified, then the system Description line is used only as single text line, without analysis of individual tokens.

Group 3: Timestamp and Sounder Settings

Group 3 contains three fileds: **Version Indicator**, **Timestamp** of the measurement and a **Sounder Settings.** Only the first two fields are required in the minimum contents of the Group. In the minimum case, the Version Indicator should be set to AA as shown in the Table 3.

Table 3. Minimum Contents of Group 3

Number	Req.	Description	Possible Values
1-2.	x	Version Indicator	AA
3-6.	x	4 digit Year.	(1976-...)
7-9.	x	Day of Year	(1-366)
10-11.	x	Month	(1-12)
12-13.	x	Day of Month	(1-31)
14-15.	x	Hour [All times and dates correspond to UT.]	(0-23)
16-17.	x	Minutes	(0-59)
18-19.	x	Seconds	(0-59)

The Sounder Settings field is intended to allow users to assign codes that identify how the measurement is made with reference to particular sounders. For each particular sounder system, the format of System Preface Parameters Group must be personalized and a unique two-letter Version Indicator should be chosen to distinguish it from other sounder systems. The Version Indicator is then stored in the first two positions of the Group 3.

DPS data is represented by "FF" Version Indicator, and "FE" is allocated for Digisonde 256 data. Example formats of this Group for Digisonde Portable Sounder (DPS) and Digisonde 256 are shown in Table 4 and Table 5, respectively.

Table 4. DPS System Preface Parameters

Number	Description	Possible Values
1-2.	Version Indicator	FF
3-6.	4 digit Year.	(1976-...)
7-9.	Day of Year	(1-366)
10-11.	Month	(1-12)
12-13.	Day of Month	(1-31)
14-15.	Hour [All times and dates correspond to UT.]	(0-23)
16-17.	Minutes	(0-59)
18-19.	Seconds	(0-59)
20-22.	Receiver Station ID (three digits)	(000-999)
23-25.	Transmitter Station ID.	(000-999)
26.	DPS Schedule	(1-6)
27.	DPS Program	(1-7)
28-32.	Start Frequency, 1 kHz resolution	(01000 - 45000)
33-36.	Coarse Frequency Step, 1 kHz resolution	(1-2000)
37-41.	Stop Frequency, 1 kHz resolution	(01000 - 45000)
42-45.	DPS Fine Frequency Step, 1 kHz resolution	(0000 - 9999)
46.	Multiplexing disabled [0 - multiplexing enabled, 1 - disabled].	(0,1)
47.	Number of DPS Small Steps in a scan	(1 to F)
48.	DPS Phase Code	(1-4, 9-C)
49.	Alternative antenna setup [0 - standard, 1 - alternative].	(0,1)
50.	DPS Antenna Options	(0 to F)
51.	Total FFT samples [power of 2]	(3-7)
52.	DPS Radio Silent Mode [1 - no transmission]	(0,1)
53-55.	Pulse Repetition Rate (pps)	(0-999)
56-59.	Range Start, 1 km resolution	(0-9999)
60.	DPS Range Increment [2 - 2.5 km, 5 - 5 km, A - 10 km]	(2,5,A)
61-64.	Number of ranges	(1-9999)
65-68.	Scan Delay, 15 km units	(0-1500)
69.	DPS Base Gain	(0-F, encoded)
70.	DPS Frequency Search Enabled	(0,1)
71.	DPS Operating Mode [0 - Vertical beam, 5 - multi-beam ionogram]	(0-7)
72.	ARTIST Enabled	(0,1)
73.	DPS Data Format [1 - MMM, 4 - RSF, 5 - SBF]	(0-6)
74.	On-line printer selection [0 - no printer,1 - b/w, 2 - color]	(0,1,2)
75-76.	Ionogram thresholded for FTP transfer [0-no thresholding]	(0-20, encoded)
77.	High interference condition [1 - extra 12 dB attenuation]	(0,1)

Table 5. Digisonde 256 System Preface Parameters

Number	Code	Description	Possible Values
1-2.	-	Version Indicator	FE
3-6.	-	4 digit Year.	(1976-...)
7-9.	-	Day of Year	(1-366)
10-11.	-	Month	(1-12)
12-13.	-	Day of Month	(1-31)
14-15.	-	Hour [All times and dates correspond to UT.]	(0-23)
16-17.	-	Minutes	(0-59)
18-19.	-	Seconds	(0-59)
20-30.	-	Digisonde Preface Timestamp	YYDDDHHMMSS
31.	S	Program Set	(1-3)
32.	P	Program Type	(A,B,C,F,G)
33-38.	J	Journal	encoded
39-44.	F	Nominal Frequency, 100 Hz resolution	(001000 - 045000)
45-51.	P#	Output Controls	encoded
52-53.	SS	Start Frequency, 1 MHz resolution	(00-10)
54.	Q	Frequency Increment	(0-9,A-C,encoded)
55-56.	UU	Stop frequency, 1 MHz resolution	(01-30)
57-59.	CAB	Test Output	encoded
60-62.	V	Station ID	(000-999)
63.	X	Phase Code	(0-F, encoded)
64.	L	Antenna Azimuth	(0-F, encoded)
65.	Z	Antenna Scan	(0-7, encoded)
66.	T	Antenna Option and Doppler Spacing	(0-F, encoded)
67.	N	Number of Samples	(1-8)
68.	R	Repetition Rate	(0,2-8,A,B, encoded)
69.	W	Pulse width and code	(0-7, encoded)
70.	K	Time control	encoded
71.	I*	Frequency correction	(0-4, encoded)
72.	G*	Gain correction	(0-7, encoded)
73.	H	Range increment	(0-3,8-C, encoded)
74.	E	Range start	(0-7, encoded)
75.	I	Frequency Search	(0-7, encoded)
76.	G	Nominal Gain	(0-F, encoded)
77.	-	Spare	0

Group 4: Scaled Ionospheric Characteristics

The Scaled Ionospheric Characteristics may be obtained by ARTIST, ADEP, some other autoscaling or editing/validating software, or typed in manually. All numbers represent either frequency in Megahertz or altitude in kilometers except as indicated in Table 6. The format *F8.3* (DDDD.DDD) is used to report the characteristics which is equivalent to 1 kHz precision in frequencies and 1 m precision in heights. The accuracy of the stored values is usually 1 ionogram pixel (frequency step or height increment) except as indicated in Table 6.

There are currently 49 Scaled Ionospheric Characteristics defined. It is possible to report less than 48 characteristics and indicate that in the Data Index section of the record. Otherwise, all characteristics which are not scaled for a particular ionogram must be set to a default "No reading" value of 9999.000.

Table 6. Scaled Ionospheric Characteristics

#	Description	Units	Accuracy	No reading
1	foF2 : F2 layer critical frequency, including the adjustment by the true height profile algorithm	MHz	at least quarter of frequency increment	9999.000
2	foF1 : F1 layer critical frequency	MHz	1 frequency increment	9999.000
3	M(D) = MUF(D)/foF2	-	-	9999.000
4	MUF(D) : Maximum usable frequency for ground distance D	MHz	1 frequency increment	9999.000
5	fmin: minimum frequency of ionogram echoes	MHz	1 frequency increment	9999.000
6	foEs : Es layer critical frequency	MHz	1 frequency increment	9999.000
7	fminF : Minimum frequency of F-layer echoes	MHz	1 frequency increment	9999.000
8	fminE : Minimum frequency of E-layer echoes	MHz	1 frequency increment	9999.000
9	foE : E layer critical frequency	MHz	1 frequency increment	9999.000
10	fxI : Maximum frequency of F-trace	MHz	1 frequency increment	9999.000
11	h'F : Minimum virtual height of F trace	km	1 height increment	9999.000
12	h'F2 : Minimum virtual height of F2 trace	km	1 height increment	9999.000
13	h'E : Minimum virtual height of E trace	km	1 height increment	9999.000
14	h'Es : Minimum virtual height of Es trace	km	1 height increment	9999.000
15	zmE : Peak height of E-layer	km	1 height increment	9999.000
16	yE : Half thickness of E layer	km	1 height increment	9999.000
17	QF : Average range spread of F layer	km	1 height increment	9999.000
18	QE : Average range spread of E layer	km	1 height increment	9999.000
19	DownF : Lowering of F trace to the leading edge	km	1 height increment	9999.000
20	DownE : Lowering of E trace to the leading edge	km	1 height increment	9999.000
21	DownEs : Lowering of Es trace to the leading edge	km	1 height increment	9999.000
22	FF : Frequency spread between fxF2 and fxI	MHz	1 frequency increment	9999.000
23	FE : Frequency spread beyond foE	MHz	1 frequency increment	9999.000
24	D : Distance for MUF calculation	km	1 km	9999.000
25	fMUF : MUF/OblFactor	MHz	1 frequency increment	9999.000
26	h'(fMUF) : Virtual height at MUF/OblFactor frequency	MHz	1 height increment	9999.000
27	delta_foF2 : Adjustment to the scaled foF2 during profile inversion	MHz	1 kHz	9999.000
28	foEp : predicted value of foE	MHz	±0.3 MHz	9999.000
29	f(h'F) : frequency at which h'F occurs	MHz	1 frequency increment	9999.000
30	f(h'F2) : frequency at which h'F2 occurs	MHz	1 frequency increment	9999.000
31	foF1p : predicted value of foF1	MHz	± 0.5 MHz	9999.000
32	peak height of F2 layer	km		9999.000
33	peak height of F1 layer	km		9999.000
34	zhalfNm : the true height at half the maximum density in the F2 layer	km	1 km	9999.000
35	foF2p : predicted value of foF2	MHz	± 2.0 MHz	9999.000
36	fminEs : minimum frequency of Es layer	MHz	1 frequency increment	9999.000
37	yF2 : half thickness of the F2 layer, parabolic model	km	100 m	9999.000
38	yF1 : half thickness of the F1 layer, parabolic model	km	100 m	9999.000
39	TEC : total electron content	10^{16} m^{-2}	-	9999.000
40	Scale height at the F2 peak	km	1km	9999.000

41	B0, IRI thickness parameter	km	-	9999.000
42	B1, IRI profile shape parameter	-	-	9999.000
43	D1, IRI profile shape parameter, F1 layer	-	-	9999.000
44	foEa, critical frequency of auroral E layer	MHz	1 frequency increment	9999.000
45	h'Ea, minimum virtual height of auroral E layer trace	km	1 height increment	9999.000
46	foP, highest ordinary wave critical frequency of F region patch trace	MHz	1 frequency increment	9999.000
47	h'P, minimum virtual height of the trace used to determine foP	km	1 height increment	9999.000
48	fbEs, blanketing frequency of Es layer	MHz	1 frequency increment	9999.000
49	Type Es	-	See Table 7	9999.000

Type Es is a letter characteristic which has to be reported in the Table 6 as a number using Lookup Table 7.

Table 7. Lookup Table for Type Es Characteristic

Type Es	Value reported in Group 4	Description
A	1.0	Auroral
C	2.0	Cusp
D	3.0	below 95 km
F	4.0	Flat
H	5.0	Height discontinuity with normal E
K	6.0	in the presence of night E
L	7.0	Flat Es below E
N	8.0	Non-standard
Q	9.0	Diffuse and non-blanketing
R	10.0	Retardation

Group 5: ARTIST Analysis Flags

The ARTIST Analysis Flags are a sequence of two digit integers (60I2 format) which indicate and qualify some of the ARTIST scaled results. Table 8 is a description of the flags and the meaning of their possible values.

Table 8. ARTIST Flags

Position	Content	Description
1	1	foE scaled using E-region trace data
	2	No E-region trace obtained, only predicted foE available
	3	No E-region trace obtained, but foE scaled using F trace
2	0	No F trace scaled
	1	E layer profile only
	2	Separate soliutions for E and F layers
	4	Frequency range error in E trace
	5	Frequency range error in F2 trace
	6	Frequency range error in F1 trace
	7	Physically unreasonable E trace
	8	Physically unreasonable F2 trace
	9	Physically unreasonable F1 trace
	10	F1 layer solution too thick

	11	Oscillating solution in F1 layer
	12	F2 trace too short
	13	F1 trace too short
	18	Oscillating solution in F1 layer
	25	Root in F1 layer too severe to correct
	26	Root in F2 layer too severe to correct
3		Not used
4	0	foF1 not scaled
	1	foF1 scaled
5	0	No AWS Qualifier applies
	1	Blanketing Sporadic E
	2	Non-Deviative Absorption
	3	Equipment Outage
	4	foF2 greater than equipment limits
	5	fmin lower than equipment limits
	6	Spread F
	7	foF2 less than foF1
	8	Interference
	9	Deviative absorption
6-9		Not used
10	11-55	Confidence level: two digits, each ranging from 1 (highest confidence) to 5 (lowest confidence)
11-19		Not used
20		Internal ARTIST use

Group 6: Doppler Translation Table

The Doppler Translation Table is a sequence of floating point numbers in the 16F7.3 format which convert the trace Doppler Number into a Doppler frequency in Hertz. These numbers should be read into a floating point array. Using the Doppler Number as an index to that array will result in the Doppler shift for the scaled trace point in question. The first element of the Doppler translation table corresponds to the Doppler number 0.

Trace Points

The following Groups include ionogram trace information obtained in some automated or interactive manner. The data format and content is identical for any of the F2, F1, E, or Es traces with either ordinary (O) or extraordinary (X) polarization although not all traces may be present in any one ionogram. For example, the ARTIST program currently does not scale the complete X-traces, however space has been provided for implementation of this feature at a later date.

The data for each trace are contained in five *Groups*. For the F2 O-trace they are in *Groups* 7, 8, 9, 10, and 11; for the F1 O-trace they are in *Groups* 12, 13, 14, 15, and 16; etc. (see Table 1). The groups for sporadic E, auroral night E leayrs and all extraordinary data groups do not contain the true height group. Also, Groups 51, 52, and 53 are reserved for an accurate representation of the electron density profile, including the valley. There is a one-to-one positional correspondence between *elements* in these five *Groups*, in that the first Virtual Height, True Height, Amplitude, Doppler Number and Frequency all correspond to the first Trace point on the ionogram. The same is true of the second point, and so on throughout the entire trace.

Autoscaling or editing software may interpolate or extrapolate missing trace points to maintain consistent frequency stepping within the trace or provide better accuracy of the scaled characteristics. Because of explicit specification of all trace point frequencies in the SAO format, the interpolated or extrapolated points may be omitted. However, in this case the value of true hieght obtained for that frequency will be missing as well. If included, the interpolated/extrapolated points shall be reported with amplitude set to 0 and Doppler number set to 9.

Groups 7, 12, 17, 22, 26, 30, 43, 47: Trace Virtual Heights

This *group* consists of a number of Virtual Heights in 15F8.3 format for the layer indicated. The number of these heights depends upon the length of the trace on the corresponding ionogram. Virtual Heights are reported in kilometers of altitude. Virtual heights of 0 km can be present in this group as "no-value" filler of missing trace points added to preserve continuous frequency stepping.

Groups 8, 13, 18: True Heights

This *group* consists of a number of True Heights in 15F8.3 format for the layer indicated. The number of these heights depends upon the length of the trace on the corresponding ionogram (compare to complete profiles specification in *Groups* 51-53). True Heights are reported in kilometers of altitude.

Groups 9, 14, 19, 23, 27, 31, 44, 48: Trace Amplitudes

The amplitude in dB of each trace point is recorded in 40I3 format.

Groups 10, 15, 20, 24, 28, 32, 45, 49: Trace Doppler Numbers

The Doppler Number, as measured by the Digisonde, for each trace point is recorded here in 120I1 format. To convert this number to an actual Doppler shift in Hertz, use this integer as the index to the Doppler Translation Table provided in *Group* 6. Index for 8 element Doppler Translation Table runs from 0 to 7. Value 9 is reported for interpolated or extrapolated points where information about Doppler frequency shift is unavailable.

Groups 11, 16, 21, 25, 29, 33, 46, 50: Trace Frequencies

The frequency (in MHz) of the trace point is given in this *Group* in the 15F8.3 format. Originally, this *Group* was provided for the possibility of uneven frequency stepping and would normally be left empty for Digisonde ionograms with a constant frequency step. This is no longer acceptable. The sounder settings which are required to restore linear step frequencies can be obtained only from a valid Sounder Settings *Group* 3 and Scaled Characteristics *Group* 4 and may appear to be missing for some sounder systems.

Group 34: Median Amplitude of F Echo

These values are an amplitude in dB for the F trace. It is calculated every integer MHz between fminF and foF2. See Code 4 for fmin and foF2. The Median Amplitude is calculated by taking the median of the trace amplitudes over a 0.5 MHz in frequency by five height range rectangle and then scaling this median value to appear as if it were at 100 km altitude.

Group 35: Median Amplitude of E Echo

Same as per Code 34, but for the E echo between fminE and foE.

Group 36: Median Amplitude of Es Echo

Same as per Code 34, but for the Es echo between fminE and foEs.

Group 37: True Height Coefficients for the F2 Layer

The True Height Data for F2 layer from the UMLCAR method are stored in the E11.6E1 format. There are up to 10 *elements*. The meaning of each *element* is given in Table 9.

Table 9. True Height Coefficients

Position	Parameter	Description
1	fstart	Start frequency (MHz) of the F2 layer
2	fend	The end frequency of the F2 layer
3	zpeak	The height of the peak of the F2 layer
4	dev	The fitting error in km/point.
5-9	A0-A4	Shifted Chebyshev polynomial coefficients
10	zhalfNm	Height at half peak electron density

Group 38: True Height Coefficients for the F1 Layer

The True Height Data for the F1 layer from the UMLCAR method have the same format as those for the F2 layer (*Group* 37) above with the exception of zhalfNm (see Table 9).

Group 39: True Height Coefficients for the E Layer

The True Height Data for the E layer from the UMLCAR method have a format very similar to that for the F2 and F1 layers (*Codes* 37 and 38) above. The difference lies in that there are only seven *elements* stored in this *Group*. The first four parameters are fstart, fend, zpeak and dev as defined for the F2 layer. There are, however, only three coefficients for the shifted Chebyshev polynomials (A0 - A2) for the E layer true height.

Group 40: Quazi-Parabolic Segments Fitted to the Profile

An arbitrary number of parabolic segments may be fitted to the profile to approximate its shape. Each segment can be expressed as:

$$f_N^2 = A/R^2 + B/R + C$$

where

f_N is the plasma frequency in MHz,
A, B, and C are the parabolic coefficients
R is the distance from the center of the Earth in km, which varies from R1 to R2 for the segment.

If *n* segments are fitted to the profile, the Group 40 will contain *n*+1 entries. The first *n* entries store 6 values per segment (R1, R2, A, B, C, and fitting error E) in the E20.12E2 format, and the last lines contains the Earth radius, as is shown in Table 10.

Table 10. QP Segments reported in Group 40

#	Value 1	Value 2	Value 3	Value 4	Value 5	Value 6
1	R11	R12	A1	B1	C1	E1
2	R21	R22	A2	B2	C2	E2
...						
n	R*n*1	R*n*2	A*n*	B*n*	C*n*	E*n*
n+1	R_e	-	-	-	-	-

The Earth radius, R_e, is the actual value used in the fitting process and is given in SAO file to ensure proper restoring of the profile shape.

Group 41: Edit Flags: Characteristics

The edit flags are written in 120I1 format and are used to indicate whether the reported ionospheric characteristics are result of autoscaling, manual input, or long-term prediction. One edit flag is a sum of three indicators, EDITED(1), PREDICTED(2) and VALIDATED(4). Table 11 shows possible combinations of the indicators.

Table 11. Edit Flag (characteristics) and its possible meanings

EDITED	PREDICTED	VALIDATED	EDIT FLAG VALUE	Description
0	0	0	0+0+0 = 0	autoscaled value
0	0	4	0+0+4 = 4	autoscaled value, validated by an operator
1	0	4	1+0+4 = 5	manually specified value; the autoscaled value was incorrect or unavailable
0	2	0	0+2+0 = 2	long-term prediction

The position in the edit flag list corresponds to the order of the characteristics listed in Table 6. A complete list is given in Table 12. The edit flags may be used to set the slash (/) indicators in the URSI-IIWG characteristics database, if the indicators are not given in the *Groups* 54-55.

Table 12. Edit Flags: Characteristics

#	Scaled Characteristic	Description
1	foF2	F2 layer critical frequency
2	foF1	F1 layer critical frequency
3	M(D)	M-factor, MUF(D)/foF2, for distance D
4	MUF(D)	Maximum usable frequency for distance D
5	fmin	Minimum frequency for E or F echoes

6	foEs	Es layer critical frequency
7	fminF	Minimum frequency of F-trace
8	fminE	Minimum frequency of E-trace
9	foE	E layer critical frequency
10	fxI	Maximum frequency of F-trace
11	h'F	Minimum virtual height of F trace
12	h'F2	Minimum virtual height of F2 trace
13	h'E	Minimum virtual height of E trace
14	h'Es	Minimum virtual height of Es layer
15	HOM	Peak of E layer using parabolic model
16	Ym	Corresponding half thickness of E layer
17	QF	Average range spread of F-trace
18	QE	Average range spread of E-trace
19	Down F2	Lowering of F-trace maximum to leading edge
20	Down E	Lowering of E-trace maximum to leading edge
21	Down Es	Lowering of Es-trace maximum to leading edge
22	FF	Frequency spread between fxF2 and fxI
23	FE	As FF but considered beyond foE
24	D	Distance used for MUF calculation
25	fMUF(D)	MUF(D)/obliquity factor(
26	h'MUF(D)	Virtual height at fMUF
27	foF2c	correction to add to foF2 to get actual foF2
28	foEp	Predicted foE
29	f(h'F)	Frequency at which hminF occurs
30	f(h'F2)	Frequency at which hminF2 occurs
31	foF1p	Predicted foF1
32	Zpeak	Peak height F2 layer
33	ZpeakF1	Peak height F2 layer
34	zhalfnm	Height at half peak electron density
35	foF2p	Predicted foF2
36	fminEs	Minimum frequency of Es layer
37	YF2	Half-thickness of F2 layer in parabolic model
38	YF1	Half-thickness of F1 layer in parabolic model
39	TEC	Total electron content
40	HscaleF2	Scale height at F2 peak
41	B0	IRI thickness parameter
42	B1	IRI profile shape parameter
43	D1	IRI F1 profile shape parameter
44	foEa	Critical frequency of auroral E layer
45	h'Ea	Minimum virtual height of auroral E layer trace
46	foP	Highest ordinary wave critical frequency of F region patch trace
47	h'P	Minimum virtual height of the trace used to determine foP
48	fbEs	Blanketing frequency of Es layer
49	Type Es	Type of Es layer

Group 42: Valley Characteristics UMLCAR model

The current content for this Group is two parameters describing the width and depth of the valley region in the UMLCAR model.

Group 51-53: True Height Profile

The complete true height profile of electron density up to 800 km is given here, including all layers and the valley. The profile is reported with the true height as the argument of the N(h) function, i.e. all heights within the valid range are scanned with a fixed increment, say, 1 km, and put in Group 51. Corresponding frequencies and electron densities are given in Group 52 and Group 53. Also, a few additional height points are reported in the groups: all peak heights of the layers and the starting height of the profile. The additional points might not be multiples of the height increment. One-to-one positional correspondence of individual elements in Groups 51-53 is preserved, so that, for example, the first element of Groups 51-53 refers to the starting height of the profile. The height increment and coverage for the profile specification is determined by the program which created the SAO file.

Group 54-55: Qualifying and Descriptive Letters

These two groups store URSI Qualifying (Group 54) and Descriptive (Group 55) letters *[URSI Handbook of Ionogram Interpretation and Reduction, 1972]* using 120A1 format. The letters are used by manual scaling operators to reflect reliability of measurement and indicate the presence of certain ionospheric phenomena. The layout of the Groups 54-55 corresponds to Table 6 (Scaled Ionospheric Characteristics). The number of items stored in the Groups 54 and 55 must be the same as in Group 6. When no qualifying or descriptive letter is applied to a characteristic but its value has been verified or edited, the correspoding entry in the Group 54 should read "/" (forward slash) and Group 55 should read " " (space) [see IIWG regulations, Table 3]. For autoscaled data, the IIWG regulations suggest storing "/" in both groups, but SAO-4 file created by the autoscaling software may simply omit Groups 54 and 55 and report only Group 41 (Edit Flags).

Group 56: Edit Flags: Traces and Profile

The edit flags are written in 120I1 format and correspond to whether ionogram traces and profile were modified as a result of manual scaling of the data. Autoscaling software must not report this group to distinguish it from the manual editing/validating. If no trace points were adjusted and profile was not recalculated in the process of manual editing/validation, the Group 56 must still be reported with all zero settings to distinguish it from autoscaled data.

Table 13. Edit Flags: Traces and Profile

#	Name	Description
1	F2 trace	F2 trace points were edited
2	F1 trace	F1 trace points were edited
3	E trace	E trace points were edited
4	z(h)	true height was recalculated with edited traces
5	Es trace	Es trace points were edited

References

Gamache R. R., I.A. Galkin, and B. W. Reinisch, "A Database Record Structure for Ionogram Data", University of Lowell Center for Atmospheric Research, UMLCAR 96-01, 1996.

URSI Handbook of Ionogram Interpretation and Reduction. Ed. W.R.Pigott and K.Rawer. WDC-A for STP, 1972.

URSI-IIWG Format (02/1990 – 04/2002)

Source: University of Massachusetts – Lowell (http://ulcar.uml.edu/~iag/CHARS.htm)

URSI IIWG Format (CHARS) For Archiving Monthly Ionospheric Characteristics

Introduction

The format "CHARS" is now used by the World Data Centers (WDC) for archival of the monthly ionospheric characteristics; it was first introduced in 1989 by *Gamache and Reinisch* [1989a]. The CHARS "database" is actually a collection of the flat ASCII files each storing a month of data. This design was essentially an inexpensive way to provide potential users of the data with a platform-independent access to the CHARS database contents. The FORTRAN source code for reading the CHARS files has been released in a scientific report [*Gamache and Reinisch*, 1994]. The software for automatic creation of CHARS files from the individual ionogram SAO-4 files is currently under development.

The Ionospheric Informatics Working Group (IIWG) of URSI Commission G had recommended the CHARS format as a standard for ionogram data dessimination and archival in 1989. This format was then accepted as the URSI standard at the URSI general Assmebly in Prague, 1990. This report present the general description of the CHARS format with the latest updates as of November 1997.

CHARS Format for Ionospheric Characteristics

The CHARS file is a flat ASCII text file containing all available data for a month, including time series of major characteristics and their hourly statistical features (medians, deciles, etc.) It is reasonable to expect that the sounding schedule would not be strictly regular within the observation month. To solve a problem of uneven time sampling, a special header record is introduced into CHAR files *[Gamache and Reinisch,* 1989*b]* to serve as a key to encoding/decoding the remainder of the file.

Historically, the maximum length of individual text lines in a CHARS file was set to 120 characters so that it still could be printed without wrapping. The number of lines in a file is determined by the number of days in the month, the number of measurements made each day, and the number of characteristics being archived.

The structure of the CHARS file is shown in Table 1. It consists of two headers, **Station Header** and **Data Header**, followed by the main **Data Group**.

Station Header

The Station Header is one line comprising informative and encoding data. It contains the **Station Name**, *(A30)* format, where the data were recorded and the **Station Code** in *(A5)* format; the **meridian time** used by the station to indicate if time is recorded in UT or LT on the records is given next in *(I4)* format followed by the station coordinates, **Latitude N** and **Longitude E** both in *(F5.1)* format; next there are two *(A10)* format variables describing the **Scaling type**, this takes the value *Manual* or *Automatic*, and the **Data editing** variable which can be *Edited*, *Non-Edited*, or *Mixed*.; last in this line is space for the **Ionosonde system name** in *(A30)* format. Total length of the Station Header is 99 characters plus CR and LF.

Data Header

Data Header contains information necessary to properly arrange and represent the Data Group. It starts with the **Year**, **Month**, **Number of days** in the month, **M;** the **Number of characteristics** archived in the CHARS file, **K**; the **Total number of measurements** reported for the CHARS file, and the **Number of daily measurements** made for each of the **M** days. Two lines of integers in (30I4) format are required to store this part.

Then, a repeating format of *(12A10)* is used to list the **Names** of the particular characteristics being archived. There are **K** of them, hence more that one line might be required to fit all names. For example if one were archiving only the critical frequencies foF2, foF1, and foE, **K** would be three, and the characteristics list would be ' foF2' ' foF1' ' foE'. A list of the names of the characteristics, the units, and URSI codes taken from UAG23 [*Piggott and Rawer*, 1978] are given in Table 2. The URSI list has been enhanced with characteristics that are scaled by the Digisonde ARTIST [*Reinisch and Huang*, 1983; *Tang et al*., 1989]. The Chebyshev coefficients [*Huang and Reinisch*. 1996] used to represent the electron profile of ionosphere are also given, also the best B0 and B1 parameters [*Reinisch and Huang*, 1997] for the IRI F2 profile. and the calculated ionospheric electron content.

Next, the **Units** corresponding to the characteristics list (see Table 2) are given in the file, these are in *(12A10)* repeating format. The last lines of the Data Header are for the **URSI codes** specified for each of the characteristics (see Table 2) and are written in *(60A2)* repeating format.

From the information in this Data Header one knows immediately how many data for the time or for each characteristic are to be read. From the number of measurements for each day the time data can be separated into the times for the individual days of the month and the measured characteristics can uniquely be associated with a given time on a given day.

Finally, the Data Header contains the measurement times for the month. With uneven time spacing the measurement times must be recorded to associate with the reported characteristics. This requires that hours, minutes, and seconds of each measurement be entered into the database. To conserve space, the times are written once per month and the reported characteristics are written to correspond to these times. The measurement times are written in a *(30(3I2))* repeating format corresponding to the **hours**, **minutes**, and **seconds**, HHMMSS, of the measurements. The number of lines needed for this is determined by the data sampling rate for the month.

Table 1. IIWG CHARS File Structure for Flexible Data Rates

File Section	FORTRAN Format	Description
Station Header	A30	Station Name
	A5	Station code
	I4	Meridian time used by station on records
	F5.1	Latitude N
	F5.1	Longitude E
	A10	Scaling type: Manual/Automatic
	A10	Data editing: Edited/Non-edited/Mixed
	A30	Ionosonde system name
Data Header	30I4... *	Year
		Month
		Number of days in the month, **M**
		Number of Characteristics, **K**
		Numbers of measurements total
		Numbers of measurements for each of the **M** days (N_i, i=1..**M**)
	12A10...*	Names
	12A10...*	Units
	12A10...*	List of corresponding URSI codes
	20(3I2)...*	Measurement times HH:MM:SS for each of **M** days, (N_i values)
Data Group	24(I3,2A1)...*	N_1 values of *characteristic **1*** (Day **1**)
		N_2 values of *characteristic **1*** (Day **2**)
		...
		N_M values of *characteristic **1*** (Day **M**)
	24(I3,2A1)	24 hourly medians for *characteristic 1*
	24(I2,I3)	24 x 2 hourly counts and ranges
	24(I3,2A1)	24 hourly upper quartiles
	24(I3,2A1)	24 hourly lower quartiles
	24(I3,2A1)	24 hourly upper deciles
	24(I3,2A1)	24 hourly lower deciles
		Repeated for *characteristic **2***
		...
		Repeated for *characteristic **K***

* The format is repeated for as many lines as needed to store the data

Table 2. List of Characteristics, URSI codes, Factors, and Units

GROUP	CHARACTERISTIC ARTIST Name	#	URSI Name	#	Factor	Units	UAG23 ref.#	DEFINITION
F2	foF2	1	foF2	**00**	.1	MHz	1.11	The ordinary wave critical frequency of the highest stratification in the F region
			fxF2	**01**	.1	MHz	1.11	The extraordinary wave critical frequency
			fzF2	**02**	.1	MHz	1.11	The z-mode wave critical frequency
	M(D)	3	M3000F2	**03**	.01		1.50	The maximum usable frequency at a defined distance divided by the critical frequency of that layer
	h'F2	12	h'F2	**04**		km	1.33	The minimum virtual height of the ordinary wave trace for the highest stable stratification in the F region
			hpF2	**05**		km	1.41	The virtual height of the ordinary wave mode at the frequency given by 0.834 of foF2 (or other 7.34)
			h'Ox	**06**		km	1.39	The virtual height of the x trace at foF2
	MUF(D)	4	MUF3000F2	**07**	.1	MHz	1.5C	The standard transmission curve for 3000 km
			hc	**08**		km	1.42	The height of the maximum obtained by fitting a theoretical h'F curve for the parabola of best fit to the observed ordinary wave trace near foF2 and correcting for underlying ionization
	ScaleF2	40	qc	**09**		km	7.34	Scale height
F1	foF1	2	foF1	**10**	.01	MHz	1.13	The ordinary wave F1 critical frequency
			fxF1	**11**	.01	MHz	1.13	The extraordinary wave F1 critical frequency
				12				
			M3000F1	**13**	.01	MHz	1.50	See Code 03
			h'F1	**14**		km	1.30	The minimum virtual height of reflection at a point where the trace is horizontal
				15				
	h'F	11	h'F	**16**		km	1.32	The minimum virtual height of the ordinary wave trace taken as a whole
			MUF3000F1	**17**	.1	MHz	1.5C	See Code 07
				18				

				19				
E	foE	9	foE	**20**	.01	MHz	1.14	The ordinary wave critical frequency of the lowest thick layer which causes a discontinuity
				21				
			foE2	**22**	.01	MHz	1.16	The critical frequency of an occulting thick layer which sometimes appears between the normal E and F1 layers
	foEa	44	foEa	**23**	.01	MHz		The critical frequency of night time auroral E layer
	h'E	13	h'E	**24**		km	1.34	The minimum virtual height of the normal E layer trace
				25				
			h'E2	**26**		km	1.36	The minimum virtual height of the E2 layer trace
	h'Ea	45	h'Ea	**27**		km		The minimum virtual height of the night time auroral E layer trace
				28				
				29				
Es	foEs	6	foEs	**30**	.1	MHz	1.17	The highest ordinary wave frequency at which a mainly continuous Es trace is observed
			fxEs	**31**	.1	MHz	1.17	The highest extraordinary wave frequency at which a mainly continuous Es trace is observed
	fbEs	48	fbEs	**32**	.1	MHz	1.18	The blanketing frequency of the Es layer
			ftEs	**33**	.1	MHz		Top frequency Es any mode.
	h'Es	14	h'Es	**34**		km	1.35	The minimum height of the trace used to give foEs
				35				
	Type Es	49	Type Es	**36**			7.26	A characterization of the shape of the Es trace
				37				
				38				
				39				
Other 1			foF1.5	**40**	.01	MHz	1.12	The ordinary wave critical frequency of the intermediate stratification between F1 and F2
				41				
	fmin	5	fmin	**42**	.1	MHz	1.19	The lowest frequency at which echo traces are observed on the ionogram

			M3000F1.5	**43**	.01	MHz	1.50	See Code O3
			h'F1.5	**44**		km	1.38	The minimum virtual height of the ordinary wave trace between foF1 and foF1.5 (equals h'F2 7.34)
				45				
				46				
			fm2	**47**	.1	MHz	1.14	The minimum frequency of the second order trace
			hm	**48**		km	7.34	The height of the maximum density of the F2 layer calculated by the Titheridge method
			fm2	**47**	.1	MHz	1.25	The minimum frequency of the third order trace
Spread F, Oblique			foI	**50**	.1	MHz	1.26	The top ordinary wave frequency of spread F traces
	fxI	10	fxI	**51**	.1	MHz	1.21	The top frequency of spread F traces
			fmI	**52**	.1	MHz	1.23	The lowest frequency of spread F traces
			M3000I	**53**	.01	MHz	1.50	See Code 03
			h'I	**54**		km	1.37	The minimum slant range of the spread F traces
	foP	46	foP	**55**	.1	MHz		Highest ordinary wave critical frequency of F region patch trace
	h'P	47	h'P	**56**		km		Minimum virtual height of the trace used to determine foP
			dfs	**57**	.1	MHz	1.22	The frequency spread of the scatter pattern
				58			7.34	Frequency range of spread fxI-foF2
				59				
N(h) Titheridge	fhpF2	30	fh'F2	**60**	.1	MHz	7.34	The frequency at which h'F2 is measured
	fhpF	29	fh'F	**61**	.1	MHz	7.34	The frequency at which h'F is measured
				62				
			h'mF1	**63**		km	7.34	The maximum virtual height in the o-mode F1 cusp
			h1	**64**		km	7.34	True height at f1 Titheridge method
			h2	**65**		km	7.34	True height at f2 Titheridge method
			h3	**66**		km	7.34	True height at f3 Titheridge method
			h4	**67**		km	7.34	True height at f4 Titheridge method
			h5	**68**		km	7.34	True height at f5 Titheridge method
			H	**69**		km	7.34	Effective scale height at hmF2 Titheridge method

T.E.C.			I2000	**70**	10^{16}	e/m2	7.34	Ionospheric electron content Faraday technique
			I	**71**	10^{16}	e/m2	7.34	Total electron content to geostationary satellite
	ITEC	39	I1000	**72**	10^{16}	e/m2	7.34	Ionospheric electron content to height 1000 km using Digisonde technique
				73				
				74				
				75				
				76				
				77				
				78				
			T	**79**	10^{16}	e/m2	7.34	Total sub-peak content Titheridge method
Other 2	fminF	7	FMINF	**80**	.1	MHz		Minimum frequency of F trace (50 kHz increments) Equals fbEs when E present
	fminE	8	FMINE	**81**	.1	MHz		Minimum frequency of E trace (50 kHz increments).
	zE	15	HOM	**82**		km		Parabolic E layer peak height
	yE	16	yE	**83**		km		Parabolic E layer semi-thickness
	QF	17	QF	**84**		km		Average range spread of F trace
	QE	18	QE	**85**		km		Average range spread of E trace
	FF	22	FF	**86**	.01	MHz		Frequency spread between fxF2 and fxI
	FE	23	FE	**87**	.01	MHz		As FF but considered beyond foE
	fMUF(D)	25	fMUF3000	**88**	.01	MHz		MUF(D)/obliquity factor
	hpMUF(D)	26	h'MUF3000	**89**		km		Virtual height at fMUF
N(h)	zmE	15	zmE	**90**		km		Peak height E layer
	zmF1	33	zmF1	**91**		km		Peak height F1 layer
	zmF2	32	zmF2	**92**		km		Peak height F2 layer
	zhalfNm	34	zhalfNm	**93**		km		True height at half peak electron density
	yF2	37	yF2	**94**		km		Parabolic F2 layer semi-thickness
	yF1	38	yF1	**95**		km		Parabolic F1 layer semi-thickness
				96				
				97				
				98				
				99				

Digisonde profile, F2 layer			[A0F2]	**A0**		km		Coefficient A0, truncated to integer km
			<A0F2>	**A1**		m		A0 - [A0], truncation remainder
			[A1F2]	**A2**		km		Coefficient A1, truncated
			<A1F2>	**A3**		m		A1 - [A1]
			[A2F2]	**A4**		km		Coefficient A2, truncated
			<A2F2>	**A5**		m		A2 - [A2]
			[A3F2]	**A6**		km		Coefficient A3, truncated
			<A3F2>	**A7**		m		A3 - [A3]
			[A4F2]	**A8**		km		Coefficient A4, truncated
			<A4F2>	**A9**		m		A4 - [A4]
			[fsF2]	**AA**		MHz		starting frequency, truncated
			<fsF2>	**AB**		kHz		fs - [fs]
			[fmF2]	**AC**		MHz		ending frequency, truncated
			<fmF2>	**AD**		kHz		fm - [fm]
			[hmF2]	**AE**		km		peak height, truncated
			<hmF2>	**AF**		m		hm - [hm]
			EppF2	**AG**	0.1	km		error per point, an average mismatch of original h'(f) trace and the trace reconstructed from the calculated profile
Digisonde profile, F1 layer			[A0F1]	**B0**		km		Coefficient A0, truncated to integer km
			<A0F1>	**B1**		m		A0 - [A0], truncation remainder
			[A1F1]	**B2**		km		Coefficient A1
			<A1F1>	**B3**		m		A1 - [A1]
			[A2F1]	**B4**		km		Coefficient A2
			<A2F1>	**B5**		m		A2 - [A2]
			[A3F1]	**B6**		km		Coefficient A3
			<A3F1>	**B7**		m		A3 - [A3]
			[A4F1]	**B8**		km		Coefficient A4
			<A4F1>	**B9**		m		A4 - [A4]
			[fsF1]	**BA**		MHz		starting frequency of the layer, truncate
			<fsF1>	**BB**		kHz		fs - [fs]
			[fmF1]	**BC**		MHz		ending frequency fm
			<fmF1>	**BD**		kHz		fm - [fm]
			[hmF1]	**BE**		km		peak height
			<hmF1>	**BF**		m		hm - [hm]
			EppF1	**BG**	0.1	km		error per point, an average

								mismatch of original h'(f) trace and the trace reconstructed from the calculated profile
Digisonde profile, E layer			[A0E]	**C0**		km		Coefficient A0, truncated to integer km
			<A0E>	**C1**		m		A0 - [A0], truncation remainder
			[A1E]	**C2**		km		Coefficient A1
			<A1E>	**C3**		m		A1 - [A1]
			[A2E]	**C4**		km		Coefficient A2
			<A2E>	**C5**		m		A2 - [A2]
			[W]	**C6**		km		Valley width [W], truncated
			<W>	**C7**		m		W - [W]
			[D]	**C8**		km		Valley depth [D], truncated
			<D>	**C9**		m		D - [D]
			[fsE]	**CA**		MHz		starting frequency
			<fsE>	**CB**		kHz		fs - [fs]
			[fmE]	**CC**		MHz		ending frequency
			<fmE>	**CD**		kHz		fm - [fm]
			[hmE]	**CE**		km		peak height
			<hmE>	**CF**		m		hm - [hm]
			EppE	**CG**	0.1	km		error per point, an average mismatch of original h'(f) trace and the trace reconstructed from the calculated profile
			ValleyID	**CH**				Valley Model ID
IRI	B0	41	B0	**D0**		km		IRI Thickness parameter
	B1	42	B1	**D1**	0.1			IRI Profile Shape parameter
	D1	43	D1	**D2**	0.1			IRI Profile Shape parameter, F1 layer
				D3				
				D4				
				D5				
				D6				
				D7				
				D8				
				D9				

Data Group

The Data Group contains the actual values of the characteristics and the corresponding hourly medians and statistics. The group is comprised of a number of lines per each archived characteristic which are repeated for each characteristic. The order of the characteristics follows that given in the "List of characteristics". On a per characteristic basis, for each characteristic one has the N1 values of the characteristic for day 1 corresponding to the reported measurement times for day 1. These are followed by the values for day 2, day 3, ... for each of the **M** days of the month. The characteristics are written in a repeating *(24(I3,2A1))* format corresponding to the integer value (I3) of the characteristic and the qualifying and descriptive letters [see UAG 23]. The actual values of the characteristics can be obtained by multiplying the integer value by the value found in the corresponding Units list (group 2) of the database record (see Table 2). Thus a value of 86 reported for foF2 is multiplied by the Units factor 0.1 MHz to give a foF2 value of 8.6 MHz.

The IIWG Workshop suggested the use of two slashes, //, in place of the qualifying and descriptive letters for monthly characteristics data that were autoscaled but not validated or "edited", i.e. where no quality control procedure has been applied. This code has been extended to consider data that have been edited but no descriptive or qualifying letters introduced. With two positions to fill and the use of a single or double slash there are four codes which can be defined. The first is no slashes implying the use of the descriptive or qualifying letters. The next is the use of two slashes which signifies no editing. The third choice is to put a slash in the first position followed by a blank. This is used to signify autoscaled data that have been edited but no descriptive or qualifying letters are used. The last possibility is a blank in the first position followed by the slash. This is not currently used thus it leaves the possibility for future extension of the code The codes are summarized in Table 3.

Table 3. IIWG Codes for the Descriptive and Qualifying Fields of the Characteristics.

Symbolic code	Description
Q D	Qualifying and descriptive letters used according to UAG #23A.
/	Data, edited but no qualifying and descriptive letters used.
/	No current meaning, for future extension.
/ /	Autoscaled data, no editing, no qualifying and descriptive letters used.

Immediately following the characteristics data are the **hourly medians** given in a *(24(I3,2A1))* format; the **counts** for the hourly medians and the **range** in *(24(I2,I3))* format; the **upper quartiles** in a *(24(I3,2A1))* format; the **lower quartiles** in a *(24(I3,2A1))* format; then the **upper deciles** in a *(24(I3,2A1))* format; and finally the **lower quartiles** again in a *(24(I3,2A1))* format.
The above sections are repeated for each characteristic given in the "characteristics list." This completes the CHARS file, i.e. a month of characteristics data.

References

Gamache R. R. and B. W. Reinisch, Proceedings from the International Workshop on "Digital Ionogram Data Formats for World Data Center Archiving," University of Lowell Center for Atmospheric Research, November 1989a.

Gamache R. R. and B. W. Reinisch, "Ionogram Characteristics at Uneven Data Rates," Presented at URSI Working Group G.4 Ionospheric Informatics International Workshop, July, 1989., University of Lowell Center for Atmospheric Research, 1989b.

Gamache R. R. and B. W. Reinisch, "Ionospheric Characteristics Data Format for Archiving at the World Data Centers", University of Lowell Center for Atmospheric Research, Sci.Report 467, 1994.

Reinisch B.W., and X. Huang, Automatic calculation of electron density profiles from digital ionograms, 3, Processing of bottomside ionograms, Radio Sci., 18, 472-492, 1983.

Tang, J., R.R. Gamache, and B.W. Reinisch, Progress on ARTIST improvements, Sci. Rep. No. 14, GL-TR-89-0185, Air Force Geophys. Lab., Hanscom AFB, Mass., 1989.

URSI-AGI (URSI-AGI Brussels'56) **Format** (07/1957 – 01/1990)

Description:

```
1  1 049  79 01  31 00   036   035   035   032   029   026     025      R   094   114   121   122
1  2 049  79 01  31 00   117   125   122   109   103     R   079JR      R 043UR   037   036   033
```

Values, Qualicatifs symbols and Descriptive symbols.
Charatestic code
Day
Month
Year
Station indicatif
1 00:00 to 11:00 values
2 12:00 to 23:00 values
1Line off characteristics

```
2  1 049  79 01  40 00   035   034   032   029   028   028     028   041   078   104   110   110
2  2 049  79 01  40 00   115   114   108   100   094  071 R    058   045   038   036   036   036
```

Values, Qualicatifs symbols and Descriptive symbols.
Median, Quartile, interval codes
Day
Month
Year
Station indicatif
1 00:00 to 11:00 values
2 12:00 to 23:00 values
2 Line of mediane values, quartile values,etc…

ANNEX – A3: Digisonde performance – daily statistics

Presented on a daily basis are two statistics, DIS and AIS:

A) **D**igital **I**onospheric **S**ounding (**DIS**) success rate (the percentage ratio of successfully-performed soundings to planned soundings)

B) **A**utomated **I**onogram **S**caling (**AIS**) success rate (the percentage ratio of successful automated ionogram scalings to successfully-performed soundings)

For the purpose, SAO Explorer 'Contour' files are used and automated regular starts are counted only when the interval between two consecutive soundings is either 20 minutes (set at the 00, 20, and 40 minutes after the hour mark) or 15 minutes (set at the 00, 15, 30 and 45 minutes after the hour mark).

Presented here are the results for years 2002 - 2010.

2002

DATE	DOY	DIS	DIS%	AIS	AIS%
28 01 2002	028	16	66.7	16	100.0
29 01 2002	029	24	100.0	24	100.0
30 01 2002	030	24	100.0	24	100.0
31 01 2002	031	24	100.0	24	100.0
01 02 2002	032	24	100.0	24	100.0
02 02 2002	033	24	100.0	23	95.8
03 02 2002	034	24	100.0	23	95.8
04 02 2002	035	24	100.0	20	83.3
05 02 2002	036	24	100.0	24	100.0
06 02 2002	037	24	100.0	23	95.8
07 02 2002	038	24	100.0	23	95.8
08 02 2002	039	24	100.0	22	91.7
09 02 2002	040	24	100.0	23	95.8
10 02 2002	041	24	100.0	20	83.3
11 02 2002	042	24	100.0	24	100.0
12 02 2002	043	24	100.0	24	100.0
13 02 2002	044	24	100.0	24	100.0
14 02 2002	045	24	100.0	23	95.8
15 02 2002	046	24	100.0	23	95.8
16 02 2002	047	24	100.0	24	100.0
17 02 2002	048	24	100.0	24	100.0
18 02 2002	049	24	100.0	23	95.8
19 02 2002	050	24	100.0	24	100.0
20 02 2002	051	24	100.0	23	95.8
21 02 2002	052	24	100.0	22	91.7
22 02 2002	053	24	100.0	24	100.0
23 02 2002	054	23	95.8	22	95.7
24 02 2002	055	24	100.0	22	91.7
25 02 2002	056	24	100.0	24	100.0
26 02 2002	057	24	100.0	24	100.0
27 02 2002	058	24	100.0	23	95.8
28 02 2002	059	24	100.0	23	95.8
01 03 2002	060	24	100.0	24	100.0
02 03 2002	061	24	100.0	22	91.7
03 03 2002	062	24	100.0	22	91.7
04 03 2002	063	24	100.0	22	91.7
05 03 2002	064	24	100.0	23	95.8
06 03 2002	065	24	100.0	24	100.0
07 03 2002	066	24	100.0	24	100.0
08 03 2002	067	24	100.0	23	95.8
09 03 2002	068	24	100.0	24	100.0
10 03 2002	069	24	100.0	23	95.8
11 03 2002	070	24	100.0	22	91.7
12 03 2002	071	24	100.0	24	100.0
13 03 2002	072	24	100.0	24	100.0
14 03 2002	073	24	100.0	24	100.0
15 03 2002	074	24	100.0	24	100.0
16 03 2002	075	24	100.0	23	95.8
17 03 2002	076	24	100.0	24	100.0
18 03 2002	077	24	100.0	22	91.7
19 03 2002	078	24	100.0	24	100.0
20 03 2002	079	24	100.0	24	100.0
21 03 2002	080	24	100.0	24	100.0
22 03 2002	081	24	100.0	24	100.0
23 03 2002	082	24	100.0	23	95.8
24 03 2002	083	24	100.0	23	95.8
25 03 2002	084	24	100.0	23	95.8
26 03 2002	085	24	100.0	23	95.8
27 03 2002	086	24	100.0	23	95.8
28 03 2002	087	24	100.0	24	100.0
29 03 2002	088	24	100.0	24	100.0
30 03 2002	089	24	100.0	24	100.0
31 03 2002	090	24	100.0	24	100.0
01 04 2002	091	24	100.0	24	100.0
02 04 2002	092	24	100.0	24	100.0
03 04 2002	093	24	100.0	24	100.0
04 04 2002	094	24	100.0	24	100.0
05 04 2002	095	24	100.0	22	91.7
06 04 2002	096	24	100.0	23	95.8
07 04 2002	097	24	100.0	23	95.8
08 04 2002	098	24	100.0	24	100.0
09 04 2002	099	24	100.0	24	100.0
10 04 2002	100	24	100.0	24	100.0
11 04 2002	101	24	100.0	22	91.7
12 04 2002	102	24	100.0	24	100.0
13 04 2002	103	24	100.0	24	100.0
14 04 2002	104	24	100.0	24	100.0
15 04 2002	105	24	100.0	24	100.0
16 04 2002	106	24	100.0	22	91.7
17 04 2002	107	24	100.0	23	95.8
18 04 2002	108	24	100.0	21	87.5
19 04 2002	109	24	100.0	24	100.0
20 04 2002	110	24	100.0	20	83.3
21 04 2002	111	24	100.0	23	95.8
22 04 2002	112	24	100.0	22	91.7
23 04 2002	113	23	95.8	23	100.0
24 04 2002	114	24	100.0	22	91.7
25 04 2002	115	24	100.0	24	100.0
26 04 2002	116	24	100.0	22	91.7
27 04 2002	117	24	100.0	0	0.0
28 04 2002	118	24	100.0	9	37.5
29 04 2002	119	24	100.0	24	100.0
30 04 2002	120	24	100.0	22	91.7
01 05 2002	121	24	100.0	21	87.5
02 05 2002	122	24	100.0	23	95.8
03 05 2002	123	24	100.0	23	95.8
04 05 2002	124	24	100.0	24	100.0
05 05 2002	125	24	100.0	24	100.0
06 05 2002	126	24	100.0	23	95.8
07 05 2002	127	24	100.0	22	91.7
08 05 2002	128	24	100.0	23	95.8
09 05 2002	129	23	95.8	22	95.7
10 05 2002	130	24	100.0	22	91.7
11 05 2002	131	24	100.0	24	100.0
12 05 2002	132	24	100.0	24	100.0
13 05 2002	133	24	100.0	24	100.0
14 05 2002	134	24	100.0	24	100.0
15 05 2002	135	23	95.8	22	95.7
16 05 2002	136	19	79.2	18	94.7
17 05 2002	137	23	95.8	20	87.0
18 05 2002	138	24	100.0	22	91.7
19 05 2002	139	24	100.0	15	62.5

20 05 2002	140	24	100.0	24	100.0	21 07 2002	202	24	100.0	21	87.5
21 05 2002	141	24	100.0	23	95.8	22 07 2002	203	24	100.0	19	79.2
22 05 2002	142	24	100.0	22	91.7	23 07 2002	204	24	100.0	22	91.7
23 05 2002	143	24	100.0	22	91.7	24 07 2002	205	24	100.0	21	87.5
24 05 2002	144	24	100.0	22	91.7	25 07 2002	206	24	100.0	21	87.5
25 05 2002	145	24	100.0	23	95.8	26 07 2002	207	24	100.0	22	91.7
26 05 2002	146	24	100.0	20	83.3	27 07 2002	208	24	100.0	21	87.5
27 05 2002	147	24	100.0	20	83.3	28 07 2002	209	24	100.0	21	87.5
28 05 2002	148	24	100.0	23	95.8	29 07 2002	210	24	100.0	24	100.0
29 05 2002	149	24	100.0	21	87.5	30 07 2002	211	18	75.0	15	83.3
30 05 2002	150	24	100.0	23	95.8	31 07 2002	212	24	100.0	21	87.5
31 05 2002	151	24	100.0	23	95.8	01 08 2002	213	24	100.0	22	91.7
01 06 2002	152	24	100.0	22	91.7	02 08 2002	214	24	100.0	19	79.2
02 06 2002	153	24	100.0	18	75.0	03 08 2002	215	24	100.0	23	95.8
03 06 2002	154	24	100.0	21	87.5	04 08 2002	216	24	100.0	20	83.3
04 06 2002	155	24	100.0	22	91.7	05 08 2002	217	24	100.0	18	75.0
05 06 2002	156	24	100.0	22	91.7	06 08 2002	218	24	100.0	23	95.8
06 06 2002	157	24	100.0	22	91.7	07 08 2002	219	24	100.0	21	87.5
07 06 2002	158	24	100.0	23	95.8	08 08 2002	220	24	100.0	20	83.3
08 06 2002	159	24	100.0	14	58.3	09 08 2002	221	24	100.0	17	70.8
09 06 2002	160	24	100.0	20	83.3	10 08 2002	222	24	100.0	19	79.2
10 06 2002	161	24	100.0	17	70.8	11 08 2002	223	24	100.0	21	87.5
11 06 2002	162	24	100.0	21	87.5	12 08 2002	224	24	100.0	21	87.5
12 06 2002	163	24	100.0	19	79.2	13 08 2002	225	23	95.8	18	78.3
13 06 2002	164	24	100.0	21	87.5	14 08 2002	226	24	100.0	20	83.3
14 06 2002	165	24	100.0	23	95.8	15 08 2002	227	24	100.0	23	95.8
15 06 2002	166	24	100.0	22	91.7	16 08 2002	228	24	100.0	20	83.3
16 06 2002	167	24	100.0	23	95.8	17 08 2002	229	24	100.0	19	79.2
17 06 2002	168	24	100.0	21	87.5	18 08 2002	230	24	100.0	14	58.3
18 06 2002	169	24	100.0	22	91.7	19 08 2002	231	24	100.0	23	95.8
19 06 2002	170	24	100.0	22	91.7	20 08 2002	232	24	100.0	20	83.3
20 06 2002	171	20	83.3	16	80.0	21 08 2002	233	24	100.0	21	87.5
21 06 2002	172	24	100.0	21	87.5	22 08 2002	234	24	100.0	24	100.0
22 06 2002	173	24	100.0	17	70.8	23 08 2002	235	24	100.0	23	95.8
23 06 2002	174	24	100.0	22	91.7	24 08 2002	236	24	100.0	22	91.7
24 06 2002	175	24	100.0	21	87.5	25 08 2002	237	24	100.0	23	95.8
25 06 2002	176	24	100.0	21	87.5	26 08 2002	238	24	100.0	22	91.7
26 06 2002	177	24	100.0	20	83.3	27 08 2002	239	21	87.5	18	85.7
27 06 2002	178	24	100.0	19	79.2	28 08 2002	240	17	70.8	16	94.1
28 06 2002	179	24	100.0	23	95.8	29 08 2002	241	24	100.0	23	95.8
29 06 2002	180	24	100.0	17	70.8	30 08 2002	242	24	100.0	24	100.0
30 06 2002	181	24	100.0	22	91.7	31 08 2002	243	24	100.0	24	100.0
01 07 2002	182	24	100.0	21	87.5	01 09 2002	244	24	100.0	23	95.8
02 07 2002	183	24	100.0	22	91.7	02 09 2002	245	24	100.0	23	95.8
03 07 2002	184	24	100.0	22	91.7	03 09 2002	246	24	100.0	23	95.8
04 07 2002	185	24	100.0	19	79.2	04 09 2002	247	24	100.0	24	100.0
05 07 2002	186	24	100.0	21	87.5	05 09 2002	248	24	100.0	23	95.8
06 07 2002	187	24	100.0	18	75.0	06 09 2002	249	23	95.8	23	100.0
07 07 2002	188	24	100.0	19	79.2	07 09 2002	250	24	100.0	24	100.0
08 07 2002	189	24	100.0	21	87.5	08 09 2002	251	24	100.0	20	83.3
09 07 2002	190	24	100.0	19	79.2	09 09 2002	252	24	100.0	23	95.8
10 07 2002	191	23	95.8	19	82.6	10 09 2002	253	24	100.0	23	95.8
11 07 2002	192	24	100.0	21	87.5	11 09 2002	254	24	100.0	24	100.0
12 07 2002	193	24	100.0	18	75.0	12 09 2002	255	24	100.0	23	95.8
13 07 2002	194	24	100.0	23	95.8	13 09 2002	256	24	100.0	23	95.8
14 07 2002	195	24	100.0	20	83.3	14 09 2002	257	24	100.0	24	100.0
15 07 2002	196	24	100.0	18	75.0	15 09 2002	258	24	100.0	24	100.0
16 07 2002	197	24	100.0	23	95.8	16 09 2002	259	24	100.0	24	100.0
17 07 2002	198	24	100.0	22	91.7	17 09 2002	260	24	100.0	24	100.0
18 07 2002	199	24	100.0	23	95.8	18 09 2002	261	0	0.0	0	0.0
19 07 2002	200	24	100.0	21	87.5	19 09 2002	262	24	100.0	22	91.7
20 07 2002	201	24	100.0	19	79.2	20 09 2002	263	24	100.0	24	100.0

21 09 2002	264	24	100.0	24	100.0
22 09 2002	265	24	100.0	24	100.0
23 09 2002	266	24	100.0	24	100.0
24 09 2002	267	24	100.0	24	100.0
25 09 2002	268	24	100.0	24	100.0
26 09 2002	269	24	100.0	24	100.0
27 09 2002	270	24	100.0	23	95.8
28 09 2002	271	24	100.0	23	95.8
29 09 2002	272	24	100.0	24	100.0
30 09 2002	273	24	100.0	24	100.0
01 10 2002	274	24	100.0	23	95.8
02 10 2002	275	24	100.0	21	87.5
03 10 2002	276	24	100.0	23	95.8
04 10 2002	277	24	100.0	21	87.5
05 10 2002	278	24	100.0	23	95.8
06 10 2002	279	24	100.0	23	95.8
07 10 2002	280	24	100.0	23	95.8
08 10 2002	281	24	100.0	22	91.7
09 10 2002	282	24	100.0	24	100.0
10 10 2002	283	24	100.0	24	100.0
11 10 2002	284	24	100.0	23	95.8
12 10 2002	285	24	100.0	24	100.0
13 10 2002	286	24	100.0	24	100.0
14 10 2002	287	24	100.0	23	95.8
15 10 2002	288	24	100.0	24	100.0
16 10 2002	289	24	100.0	23	95.8
17 10 2002	290	24	100.0	23	95.8
18 10 2002	291	24	100.0	23	95.8
19 10 2002	292	24	100.0	24	100.0
20 10 2002	293	24	100.0	24	100.0
21 10 2002	294	24	100.0	24	100.0
22 10 2002	295	17	70.8	17	100.0
23 10 2002	296	24	100.0	24	100.0
24 10 2002	297	24	100.0	23	95.8
25 10 2002	298	24	100.0	24	100.0
26 10 2002	299	24	100.0	23	95.8
27 10 2002	300	24	100.0	23	95.8
28 10 2002	301	24	100.0	24	100.0
29 10 2002	302	24	100.0	22	91.7
30 10 2002	303	24	100.0	24	100.0
31 10 2002	304	24	100.0	24	100.0
01 11 2002	305	24	100.0	23	95.8
02 11 2002	306	24	100.0	23	95.8
03 11 2002	307	24	100.0	22	91.7
04 11 2002	308	24	100.0	24	100.0
05 11 2002	309	24	100.0	23	95.8
06 11 2002	310	24	100.0	24	100.0
07 11 2002	311	24	100.0	24	100.0
08 11 2002	312	24	100.0	24	100.0
09 11 2002	313	24	100.0	24	100.0
10 11 2002	314	24	100.0	24	100.0
11 11 2002	315	24	100.0	24	100.0
12 11 2002	316	24	100.0	23	95.8
13 11 2002	317	24	100.0	24	100.0
14 11 2002	318	24	100.0	24	100.0
15 11 2002	319	24	100.0	24	100.0
16 11 2002	320	24	100.0	24	100.0
17 11 2002	321	24	100.0	24	100.0
18 11 2002	322	24	100.0	24	100.0
19 11 2002	323	24	100.0	23	95.8
20 11 2002	324	24	100.0	24	100.0
21 11 2002	325	24	100.0	1	4.2
22 11 2002	326	24	100.0	0	0.0
23 11 2002	327	24	100.0	0	0.0
24 11 2002	328	24	100.0	0	0.0
25 11 2002	329	24	100.0	15	62.5
26 11 2002	330	24	100.0	24	100.0
27 11 2002	331	24	100.0	23	95.8
28 11 2002	332	24	100.0	23	95.8
29 11 2002	333	24	100.0	23	95.8
30 11 2002	334	24	100.0	24	100.0
01 12 2002	335	24	100.0	24	100.0
02 12 2002	336	24	100.0	23	95.8
03 12 2002	337	24	100.0	24	100.0
04 12 2002	338	24	100.0	24	100.0
05 12 2002	339	24	100.0	22	91.7
06 12 2002	340	24	100.0	20	83.3
07 12 2002	341	24	100.0	18	75.0
08 12 2002	342	24	100.0	23	95.8
09 12 2002	343	24	100.0	23	95.8
10 12 2002	344	24	100.0	23	95.8
11 12 2002	345	24	100.0	21	87.5
12 12 2002	346	24	100.0	23	95.8
13 12 2002	347	24	100.0	24	100.0
14 12 2002	348	24	100.0	23	95.8
15 12 2002	349	24	100.0	18	75.0
16 12 2002	350	24	100.0	24	100.0
17 12 2002	351	24	100.0	22	91.7
18 12 2002	352	24	100.0	24	100.0
19 12 2002	353	24	100.0	24	100.0
20 12 2002	354	24	100.0	23	95.8
21 12 2002	355	24	100.0	24	100.0
22 12 2002	356	24	100.0	20	83.3
23 12 2002	357	24	100.0	23	95.8
24 12 2002	358	24	100.0	24	100.0
25 12 2002	359	24	100.0	23	95.8
26 12 2002	360	24	100.0	22	91.7
27 12 2002	361	24	100.0	22	91.7
28 12 2002	362	24	100.0	24	100.0
29 12 2002	363	24	100.0	22	91.7
30 12 2002	364	24	100.0	18	75.0
31 12 2002	365	24	100.0	22	91.7

2003

DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2003	001	24	100.0	22	91.7
02 01 2003	002	24	100.0	23	95.8
03 01 2003	003	24	100.0	23	95.8
04 01 2003	004	24	100.0	19	79.2
05 01 2003	005	24	100.0	21	87.5
06 01 2003	006	24	100.0	19	79.2
07 01 2003	007	24	100.0	21	87.5
08 01 2003	008	24	100.0	24	100.0
09 01 2003	009	24	100.0	24	100.0
10 01 2003	010	24	100.0	24	100.0

11 01 2003	011	24	100.0	24	100.0	14 03 2003	073	24	100.0	24	100.0
12 01 2003	012	24	100.0	24	100.0	15 03 2003	074	21	87.5	21	100.0
13 01 2003	013	24	100.0	23	95.8	16 03 2003	075	24	100.0	24	100.0
14 01 2003	014	24	100.0	23	95.8	17 03 2003	076	24	100.0	23	95.8
15 01 2003	015	24	100.0	24	100.0	18 03 2003	077	24	100.0	23	95.8
16 01 2003	016	24	100.0	24	100.0	19 03 2003	078	24	100.0	24	100.0
17 01 2003	017	24	100.0	24	100.0	20 03 2003	079	24	100.0	23	95.8
18 01 2003	018	24	100.0	23	95.8	21 03 2003	080	24	100.0	24	100.0
19 01 2003	019	24	100.0	24	100.0	22 03 2003	081	24	100.0	24	100.0
20 01 2003	020	24	100.0	23	95.8	23 03 2003	082	24	100.0	23	95.8
21 01 2003	021	24	100.0	24	100.0	24 03 2003	083	24	100.0	23	95.8
22 01 2003	022	24	100.0	24	100.0	25 03 2003	084	24	100.0	24	100.0
23 01 2003	023	24	100.0	24	100.0	26 03 2003	085	24	100.0	24	100.0
24 01 2003	024	24	100.0	24	100.0	27 03 2003	086	24	100.0	24	100.0
25 01 2003	025	24	100.0	21	87.5	28 03 2003	087	24	100.0	24	100.0
26 01 2003	026	24	100.0	23	95.8	29 03 2003	088	24	100.0	24	100.0
27 01 2003	027	24	100.0	24	100.0	30 03 2003	089	24	100.0	24	100.0
28 01 2003	028	24	100.0	24	100.0	31 03 2003	090	24	100.0	23	95.8
29 01 2003	029	24	100.0	24	100.0	01 04 2003	091	24	100.0	24	100.0
30 01 2003	030	24	100.0	23	95.8	02 04 2003	092	24	100.0	24	100.0
31 01 2003	031	24	100.0	24	100.0	03 04 2003	093	24	100.0	24	100.0
01 02 2003	032	24	100.0	24	100.0	04 04 2003	094	24	100.0	24	100.0
02 02 2003	033	24	100.0	23	95.8	05 04 2003	095	24	100.0	24	100.0
03 02 2003	034	24	100.0	22	91.7	06 04 2003	096	24	100.0	24	100.0
04 02 2003	035	24	100.0	23	95.8	07 04 2003	097	24	100.0	24	100.0
05 02 2003	036	24	100.0	23	95.8	08 04 2003	098	24	100.0	24	100.0
06 02 2003	037	24	100.0	24	100.0	09 04 2003	099	24	100.0	24	100.0
07 02 2003	038	24	100.0	24	100.0	10 04 2003	100	24	100.0	24	100.0
08 02 2003	039	24	100.0	24	100.0	11 04 2003	101	24	100.0	22	91.7
09 02 2003	040	24	100.0	24	100.0	12 04 2003	102	24	100.0	24	100.0
10 02 2003	041	24	100.0	24	100.0	13 04 2003	103	24	100.0	24	100.0
11 02 2003	042	24	100.0	24	100.0	14 04 2003	104	24	100.0	24	100.0
12 02 2003	043	24	100.0	24	100.0	15 04 2003	105	24	100.0	24	100.0
13 02 2003	044	24	100.0	24	100.0	16 04 2003	106	24	100.0	24	100.0
14 02 2003	045	24	100.0	24	100.0	17 04 2003	107	24	100.0	23	95.8
15 02 2003	046	24	100.0	24	100.0	18 04 2003	108	24	100.0	24	100.0
16 02 2003	047	24	100.0	24	100.0	19 04 2003	109	24	100.0	24	100.0
17 02 2003	048	24	100.0	24	100.0	20 04 2003	110	24	100.0	20	83.3
18 02 2003	049	24	100.0	24	100.0	21 04 2003	111	24	100.0	0	0.0
19 02 2003	050	24	100.0	24	100.0	22 04 2003	112	24	100.0	9	37.5
20 02 2003	051	24	100.0	24	100.0	23 04 2003	113	24	100.0	22	91.7
21 02 2003	052	24	100.0	24	100.0	24 04 2003	114	24	100.0	24	100.0
22 02 2003	053	24	100.0	24	100.0	25 04 2003	115	24	100.0	24	100.0
23 02 2003	054	24	100.0	24	100.0	26 04 2003	116	24	100.0	24	100.0
24 02 2003	055	24	100.0	23	95.8	27 04 2003	117	24	100.0	24	100.0
25 02 2003	056	24	100.0	24	100.0	28 04 2003	118	24	100.0	24	100.0
26 02 2003	057	24	100.0	24	100.0	29 04 2003	119	24	100.0	24	100.0
27 02 2003	058	24	100.0	22	91.7	30 04 2003	120	24	100.0	24	100.0
28 02 2003	059	24	100.0	24	100.0	01 05 2003	121	24	100.0	24	100.0
01 03 2003	060	24	100.0	24	100.0	02 05 2003	122	24	100.0	24	100.0
02 03 2003	061	24	100.0	24	100.0	03 05 2003	123	24	100.0	24	100.0
03 03 2003	062	24	100.0	24	100.0	04 05 2003	124	24	100.0	24	100.0
04 03 2003	063	24	100.0	24	100.0	05 05 2003	125	24	100.0	24	100.0
05 03 2003	064	24	100.0	24	100.0	06 05 2003	126	24	100.0	24	100.0
06 03 2003	065	24	100.0	24	100.0	07 05 2003	127	24	100.0	20	83.3
07 03 2003	066	24	100.0	24	100.0	08 05 2003	128	24	100.0	22	91.7
08 03 2003	067	24	100.0	24	100.0	09 05 2003	129	24	100.0	23	95.8
09 03 2003	068	24	100.0	24	100.0	10 05 2003	130	24	100.0	23	95.8
10 03 2003	069	24	100.0	24	100.0	11 05 2003	131	24	100.0	23	95.8
11 03 2003	070	24	100.0	24	100.0	12 05 2003	132	24	100.0	24	100.0
12 03 2003	071	24	100.0	24	100.0	13 05 2003	133	24	100.0	22	91.7
13 03 2003	072	24	100.0	24	100.0	14 05 2003	134	24	100.0	24	100.0

15 05 2003	135	24	100.0	24	100.0	16 07 2003	197	0	0.0	0	0.0
16 05 2003	136	24	100.0	24	100.0	17 07 2003	198	0	0.0	0	0.0
17 05 2003	137	24	100.0	24	100.0	18 07 2003	199	0	0.0	0	0.0
18 05 2003	138	24	100.0	24	100.0	19 07 2003	200	0	0.0	0	0.0
19 05 2003	139	24	100.0	24	100.0	20 07 2003	201	0	0.0	0	0.0
20 05 2003	140	24	100.0	23	95.8	21 07 2003	202	0	0.0	0	0.0
21 05 2003	141	24	100.0	23	95.8	22 07 2003	203	0	0.0	0	0.0
22 05 2003	142	24	100.0	23	95.8	23 07 2003	204	0	0.0	0	0.0
23 05 2003	143	23	95.8	20	87.0	24 07 2003	205	0	0.0	0	0.0
24 05 2003	144	16	66.7	15	93.8	25 07 2003	206	0	0.0	0	0.0
25 05 2003	145	24	100.0	22	91.7	26 07 2003	207	0	0.0	0	0.0
26 05 2003	146	24	100.0	20	83.3	27 07 2003	208	0	0.0	0	0.0
27 05 2003	147	24	100.0	22	91.7	28 07 2003	209	0	0.0	0	0.0
28 05 2003	148	24	100.0	20	83.3	29 07 2003	210	0	0.0	0	0.0
29 05 2003	149	24	100.0	23	95.8	30 07 2003	211	0	0.0	0	0.0
30 05 2003	150	24	100.0	24	100.0	31 07 2003	212	0	0.0	0	0.0
31 05 2003	151	24	100.0	22	91.7	01 08 2003	213	0	0.0	0	0.0
01 06 2003	152	24	100.0	24	100.0	02 08 2003	214	0	0.0	0	0.0
02 06 2003	153	24	100.0	22	91.7	03 08 2003	215	0	0.0	0	0.0
03 06 2003	154	24	100.0	22	91.7	04 08 2003	216	0	0.0	0	0.0
04 06 2003	155	24	100.0	20	83.3	05 08 2003	217	0	0.0	0	0.0
05 06 2003	156	24	100.0	19	79.2	06 08 2003	218	0	0.0	0	0.0
06 06 2003	157	24	100.0	21	87.5	07 08 2003	219	0	0.0	0	0.0
07 06 2003	158	24	100.0	20	83.3	08 08 2003	220	0	0.0	0	0.0
08 06 2003	159	21	87.5	20	95.2	09 08 2003	221	0	0.0	0	0.0
09 06 2003	160	24	100.0	19	79.2	10 08 2003	222	0	0.0	0	0.0
10 06 2003	161	24	100.0	24	100.0	11 08 2003	223	0	0.0	0	0.0
11 06 2003	162	24	100.0	21	87.5	12 08 2003	224	0	0.0	0	0.0
12 06 2003	163	24	100.0	22	91.7	13 08 2003	225	0	0.0	0	0.0
13 06 2003	164	24	100.0	23	95.8	14 08 2003	226	0	0.0	0	0.0
14 06 2003	165	16	66.7	16	100.0	15 08 2003	227	0	0.0	0	0.0
15 06 2003	166	24	100.0	24	100.0	16 08 2003	228	0	0.0	0	0.0
16 06 2003	167	24	100.0	18	75.0	17 08 2003	229	0	0.0	0	0.0
17 06 2003	168	24	100.0	19	79.2	18 08 2003	230	0	0.0	0	0.0
18 06 2003	169	24	100.0	21	87.5	19 08 2003	231	0	0.0	0	0.0
19 06 2003	170	24	100.0	18	75.0	20 08 2003	232	0	0.0	0	0.0
20 06 2003	171	24	100.0	19	79.2	21 08 2003	233	0	0.0	0	0.0
21 06 2003	172	24	100.0	18	75.0	22 08 2003	234	0	0.0	0	0.0
22 06 2003	173	24	100.0	20	83.3	23 08 2003	235	0	0.0	0	0.0
23 06 2003	174	24	100.0	20	83.3	24 08 2003	236	0	0.0	0	0.0
24 06 2003	175	24	100.0	22	91.7	25 08 2003	237	0	0.0	0	0.0
25 06 2003	176	24	100.0	20	83.3	26 08 2003	238	0	0.0	0	0.0
26 06 2003	177	24	100.0	21	87.5	27 08 2003	239	0	0.0	0	0.0
27 06 2003	178	24	100.0	22	91.7	28 08 2003	240	0	0.0	0	0.0
28 06 2003	179	24	100.0	21	87.5	29 08 2003	241	0	0.0	0	0.0
29 06 2003	180	24	100.0	17	70.8	30 08 2003	242	0	0.0	0	0.0
30 06 2003	181	24	100.0	18	75.0	31 08 2003	243	0	0.0	0	0.0
01 07 2003	182	24	100.0	24	100.0	01 09 2003	244	0	0.0	0	0.0
02 07 2003	183	0	0.0	0	0.0	02 09 2003	245	0	0.0	0	0.0
03 07 2003	184	0	0.0	0	0.0	03 09 2003	246	0	0.0	0	0.0
04 07 2003	185	0	0.0	0	0.0	04 09 2003	247	0	0.0	0	0.0
05 07 2003	186	0	0.0	0	0.0	05 09 2003	248	0	0.0	0	0.0
06 07 2003	187	0	0.0	0	0.0	06 09 2003	249	0	0.0	0	0.0
07 07 2003	188	0	0.0	0	0.0	07 09 2003	250	0	0.0	0	0.0
08 07 2003	189	0	0.0	0	0.0	08 09 2003	251	0	0.0	0	0.0
09 07 2003	190	0	0.0	0	0.0	09 09 2003	252	0	0.0	0	0.0
10 07 2003	191	0	0.0	0	0.0	10 09 2003	253	0	0.0	0	0.0
11 07 2003	192	0	0.0	0	0.0	11 09 2003	254	0	0.0	0	0.0
12 07 2003	193	0	0.0	0	0.0	12 09 2003	255	0	0.0	0	0.0
13 07 2003	194	0	0.0	0	0.0	13 09 2003	256	0	0.0	0	0.0
14 07 2003	195	0	0.0	0	0.0	14 09 2003	257	0	0.0	0	0.0
15 07 2003	196	0	0.0	0	0.0	15 09 2003	258	0	0.0	0	0.0

16 09 2003	259	0	0.0	0	0.0
17 09 2003	260	0	0.0	0	0.0
18 09 2003	261	0	0.0	0	0.0
19 09 2003	262	0	0.0	0	0.0
20 09 2003	263	0	0.0	0	0.0
21 09 2003	264	0	0.0	0	0.0
22 09 2003	265	24	100.0	24	100.0
23 09 2003	266	24	100.0	23	95.8
24 09 2003	267	24	100.0	24	100.0
25 09 2003	268	24	100.0	24	100.0
26 09 2003	269	24	100.0	24	100.0
27 09 2003	270	22	91.7	19	86.4
28 09 2003	271	14	58.3	11	78.6
29 09 2003	272	24	100.0	24	100.0
30 09 2003	273	24	100.0	24	100.0
01 10 2003	274	24	100.0	24	100.0
02 10 2003	275	24	100.0	24	100.0
03 10 2003	276	24	100.0	23	95.8
04 10 2003	277	24	100.0	24	100.0
05 10 2003	278	24	100.0	23	95.8
06 10 2003	279	24	100.0	24	100.0
07 10 2003	280	15	62.5	15	100.0
08 10 2003	281	17	70.8	16	94.1
09 10 2003	282	24	100.0	24	100.0
10 10 2003	283	24	100.0	24	100.0
11 10 2003	284	24	100.0	24	100.0
12 10 2003	285	24	100.0	22	91.7
13 10 2003	286	24	100.0	24	100.0
14 10 2003	287	24	100.0	24	100.0
15 10 2003	288	24	100.0	24	100.0
16 10 2003	289	24	100.0	23	95.8
17 10 2003	290	24	100.0	23	95.8
18 10 2003	291	24	100.0	22	91.7
19 10 2003	292	24	100.0	23	95.8
20 10 2003	293	23	95.8	22	95.7
21 10 2003	294	24	100.0	24	100.0
22 10 2003	295	24	100.0	19	79.2
23 10 2003	296	24	100.0	24	100.0
24 10 2003	297	24	100.0	23	95.8
25 10 2003	298	24	100.0	24	100.0
26 10 2003	299	24	100.0	24	100.0
27 10 2003	300	24	100.0	24	100.0
28 10 2003	301	23	95.8	20	87.0
29 10 2003	302	24	100.0	21	87.5
30 10 2003	303	24	100.0	23	95.8
31 10 2003	304	24	100.0	23	95.8
01 11 2003	305	24	100.0	19	79.2
02 11 2003	306	24	100.0	19	79.2
03 11 2003	307	24	100.0	23	95.8
04 11 2003	308	24	100.0	23	95.8
05 11 2003	309	24	100.0	24	100.0
06 11 2003	310	24	100.0	24	100.0
07 11 2003	311	23	95.8	23	100.0
08 11 2003	312	23	95.8	23	100.0
09 11 2003	313	24	100.0	24	100.0
10 11 2003	314	24	100.0	24	100.0
11 11 2003	315	24	100.0	24	100.0
12 11 2003	316	24	100.0	23	95.8
13 11 2003	317	24	100.0	23	95.8
14 11 2003	318	24	100.0	23	95.8
15 11 2003	319	24	100.0	23	95.8
16 11 2003	320	24	100.0	21	87.5
17 11 2003	321	24	100.0	21	87.5
18 11 2003	322	24	100.0	22	91.7
19 11 2003	323	24	100.0	22	91.7
20 11 2003	324	24	100.0	21	87.5
21 11 2003	325	24	100.0	23	95.8
22 11 2003	326	24	100.0	24	100.0
23 11 2003	327	24	100.0	23	95.8
24 11 2003	328	24	100.0	24	100.0
25 11 2003	329	24	100.0	23	95.8
26 11 2003	330	24	100.0	24	100.0
27 11 2003	331	24	100.0	23	95.8
28 11 2003	332	24	100.0	24	100.0
29 11 2003	333	24	100.0	24	100.0
30 11 2003	334	24	100.0	23	95.8
01 12 2003	335	24	100.0	23	95.8
02 12 2003	336	24	100.0	24	100.0
03 12 2003	337	24	100.0	24	100.0
04 12 2003	338	24	100.0	24	100.0
05 12 2003	339	24	100.0	24	100.0
06 12 2003	340	24	100.0	24	100.0
07 12 2003	341	24	100.0	22	91.7
08 12 2003	342	24	100.0	24	100.0
09 12 2003	343	24	100.0	21	87.5
10 12 2003	344	24	100.0	23	95.8
11 12 2003	345	24	100.0	19	79.2
12 12 2003	346	24	100.0	17	70.8
13 12 2003	347	24	100.0	20	83.3
14 12 2003	348	24	100.0	21	87.5
15 12 2003	349	23	95.8	23	100.0
16 12 2003	350	24	100.0	23	95.8
17 12 2003	351	24	100.0	24	100.0
18 12 2003	352	24	100.0	24	100.0
19 12 2003	353	24	100.0	24	100.0
20 12 2003	354	24	100.0	24	100.0
21 12 2003	355	24	100.0	20	83.3
22 12 2003	356	24	100.0	23	95.8
23 12 2003	357	24	100.0	23	95.8
24 12 2003	358	24	100.0	23	95.8
25 12 2003	359	24	100.0	24	100.0
26 12 2003	360	24	100.0	24	100.0
27 12 2003	361	24	100.0	24	100.0
28 12 2003	362	24	100.0	24	100.0
29 12 2003	363	22	91.7	22	100.0
30 12 2003	364	20	83.3	20	100.0
31 12 2003	365	24	100.0	24	100.0

2004

DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2004	001	24	100.0	24	100.0
02 01 2004	002	24	100.0	23	95.8
03 01 2004	003	24	100.0	24	100.0
04 01 2004	004	23	95.8	22	95.7

05 01 2004	005	11	45.8	9	81.8
06 01 2004	006	24	100.0	21	87.5
07 01 2004	007	15	62.5	14	93.3
08 01 2004	008	24	100.0	24	100.0
09 01 2004	009	24	100.0	24	100.0
10 01 2004	010	24	100.0	23	95.8
11 01 2004	011	24	100.0	22	91.7
12 01 2004	012	24	100.0	24	100.0
13 01 2004	013	17	70.8	17	100.0
14 01 2004	014	24	100.0	24	100.0
15 01 2004	015	24	100.0	24	100.0
16 01 2004	016	24	100.0	24	100.0
17 01 2004	017	24	100.0	23	95.8
18 01 2004	018	23	95.8	21	91.3
19 01 2004	019	24	100.0	24	100.0
20 01 2004	020	24	100.0	24	100.0
21 01 2004	021	24	100.0	23	95.8
22 01 2004	022	24	100.0	24	100.0
23 01 2004	023	24	100.0	23	95.8
24 01 2004	024	24	100.0	21	87.5
25 01 2004	025	24	100.0	20	83.3
26 01 2004	026	24	100.0	23	95.8
27 01 2004	027	22	91.7	21	95.5
28 01 2004	028	18	75.0	17	94.4
29 01 2004	029	12	50.0	11	91.7
30 01 2004	030	12	50.0	11	91.7
31 01 2004	031	24	100.0	24	100.0
01 02 2004	032	24	25.0	24	100.0
02 02 2004	033	24	25.0	24	100.0
03 02 2004	034	24	25.0	24	100.0
04 02 2004	035	24	25.0	24	100.0
05 02 2004	036	24	25.0	24	100.0
06 02 2004	037	24	25.0	24	100.0
07 02 2004	038	24	25.0	24	100.0
08 02 2004	039	24	25.0	24	100.0
09 02 2004	040	24	25.0	24	100.0
10 02 2004	041	24	25.0	24	100.0
11 02 2004	042	23	24.0	23	100.0
12 02 2004	043	23	24.0	23	100.0
13 02 2004	044	24	25.0	22	91.7
14 02 2004	045	23	24.0	23	100.0
15 02 2004	046	24	25.0	24	100.0
16 02 2004	047	21	21.9	21	100.0
17 02 2004	048	24	25.0	24	100.0
18 02 2004	049	24	25.0	24	100.0
19 02 2004	050	24	25.0	24	100.0
20 02 2004	051	24	25.0	24	100.0
21 02 2004	052	24	25.0	24	100.0
22 02 2004	053	23	24.0	22	95.7
23 02 2004	054	23	24.0	23	100.0
24 02 2004	055	24	25.0	24	100.0
25 02 2004	056	23	24.0	22	95.7
26 02 2004	057	22	22.9	22	100.0
27 02 2004	058	24	25.0	24	100.0
28 02 2004	059	23	24.0	23	100.0
29 02 2004	060	24	25.0	24	100.0
01 03 2004	061	24	100.0	24	100.0
02 03 2004	062	23	95.8	23	100.0
03 03 2004	063	24	100.0	16	66.7
04 03 2004	064	24	100.0	16	66.7
05 03 2004	065	23	95.8	22	95.7
06 03 2004	066	24	100.0	24	100.0

07 03 2004	067	24	100.0	24	100.0
08 03 2004	068	24	100.0	24	100.0
09 03 2004	069	24	100.0	24	100.0
10 03 2004	070	24	100.0	23	95.8
11 03 2004	071	24	100.0	23	95.8
12 03 2004	072	24	100.0	22	91.7
13 03 2004	073	12	50.0	11	91.7
14 03 2004	074	24	100.0	24	100.0
15 03 2004	075	24	100.0	23	95.8
16 03 2004	076	24	100.0	24	100.0
17 03 2004	077	24	100.0	24	100.0
18 03 2004	078	24	100.0	24	100.0
19 03 2004	079	22	91.7	22	100.0
20 03 2004	080	24	100.0	24	100.0
21 03 2004	081	24	100.0	23	95.8
22 03 2004	082	24	100.0	24	100.0
23 03 2004	083	24	100.0	24	100.0
24 03 2004	084	24	100.0	24	100.0
25 03 2004	085	24	100.0	24	100.0
26 03 2004	086	24	100.0	24	100.0
27 03 2004	087	24	100.0	24	100.0
28 03 2004	088	24	100.0	24	100.0
29 03 2004	089	24	100.0	24	100.0
30 03 2004	090	24	100.0	23	95.8
31 03 2004	091	24	100.0	24	100.0
01 04 2004	092	24	100.0	24	100.0
02 04 2004	093	24	100.0	24	100.0
03 04 2004	094	24	100.0	24	100.0
04 04 2004	095	24	100.0	24	100.0
05 04 2004	096	24	100.0	23	95.8
06 04 2004	097	24	100.0	24	100.0
07 04 2004	098	24	100.0	24	100.0
08 04 2004	099	24	100.0	24	100.0
09 04 2004	100	24	100.0	24	100.0
10 04 2004	101	24	100.0	24	100.0
11 04 2004	102	24	100.0	21	87.5
12 04 2004	103	24	100.0	21	87.5
13 04 2004	104	22	91.7	21	95.5
14 04 2004	105	23	95.8	23	100.0
15 04 2004	106	23	95.8	23	100.0
16 04 2004	107	24	100.0	24	100.0
17 04 2004	108	19	79.2	18	94.7
18 04 2004	109	24	100.0	24	100.0
19 04 2004	110	24	100.0	24	100.0
20 04 2004	111	23	95.8	23	100.0
21 04 2004	112	24	100.0	24	100.0
22 04 2004	113	24	100.0	24	100.0
23 04 2004	114	23	95.8	20	87.0
24 04 2004	115	24	100.0	22	91.7
25 04 2004	116	24	100.0	24	100.0
26 04 2004	117	24	100.0	24	100.0
27 04 2004	118	24	100.0	22	91.7
28 04 2004	119	24	100.0	22	91.7
29 04 2004	120	24	100.0	23	95.8
30 04 2004	121	24	100.0	23	95.8
01 05 2004	122	24	100.0	23	95.8
02 05 2004	123	24	100.0	22	91.7
03 05 2004	124	24	100.0	24	100.0
04 05 2004	125	22	91.7	22	100.0
05 05 2004	126	18	75.0	18	100.0
06 05 2004	127	24	100.0	23	95.8
07 05 2004	128	23	95.8	22	95.7

08 05 2004	129	17	70.8	16	94.1	09 07 2004	191	24	100.0	19	79.2
09 05 2004	130	24	100.0	22	91.7	10 07 2004	192	24	100.0	20	83.3
10 05 2004	131	24	100.0	20	83.3	11 07 2004	193	24	100.0	21	87.5
11 05 2004	132	24	100.0	23	95.8	12 07 2004	194	22	91.7	15	68.2
12 05 2004	133	24	100.0	20	83.3	13 07 2004	195	21	87.5	17	81.0
13 05 2004	134	16	66.7	13	81.3	14 07 2004	196	24	100.0	21	87.5
14 05 2004	135	0	0.0	0	0.0	15 07 2004	197	24	100.0	23	95.8
15 05 2004	136	0	0.0	0	0.0	16 07 2004	198	24	100.0	17	70.8
16 05 2004	137	0	0.0	0	0.0	17 07 2004	199	24	100.0	23	95.8
17 05 2004	138	0	0.0	0	0.0	18 07 2004	200	24	100.0	19	79.2
18 05 2004	139	0	0.0	0	0.0	19 07 2004	201	24	100.0	21	87.5
19 05 2004	140	0	0.0	0	0.0	20 07 2004	202	24	100.0	21	87.5
20 05 2004	141	0	0.0	0	0.0	21 07 2004	203	23	95.8	15	65.2
21 05 2004	142	0	0.0	0	0.0	22 07 2004	204	24	100.0	24	100.0
22 05 2004	143	0	0.0	0	0.0	23 07 2004	205	23	95.8	23	100.0
23 05 2004	144	0	0.0	0	0.0	24 07 2004	206	24	100.0	18	75.0
24 05 2004	145	0	0.0	0	0.0	25 07 2004	207	24	100.0	19	79.2
25 05 2004	146	0	0.0	0	0.0	26 07 2004	208	24	100.0	15	62.5
26 05 2004	147	0	0.0	0	0.0	27 07 2004	209	24	100.0	11	45.8
27 05 2004	148	0	0.0	0	0.0	28 07 2004	210	24	100.0	20	83.3
28 05 2004	149	24	100.0	21	87.5	29 07 2004	211	24	100.0	18	75.0
29 05 2004	150	24	100.0	20	83.3	30 07 2004	212	24	100.0	21	87.5
30 05 2004	151	23	95.8	18	78.3	31 07 2004	213	23	95.8	16	69.6
31 05 2004	152	24	100.0	21	87.5	01 08 2004	214	24	100.0	21	87.5
01 06 2004	153	22	91.7	16	72.7	02 08 2004	215	24	100.0	22	91.7
02 06 2004	154	24	100.0	23	95.8	03 08 2004	216	24	100.0	20	83.3
03 06 2004	155	24	100.0	23	95.8	04 08 2004	217	24	100.0	16	66.7
04 06 2004	156	22	91.7	21	95.5	05 08 2004	218	24	100.0	23	95.8
05 06 2004	157	24	100.0	21	87.5	06 08 2004	219	24	100.0	23	95.8
06 06 2004	158	24	100.0	24	100.0	07 08 2004	220	24	100.0	21	87.5
07 06 2004	159	23	95.8	21	91.3	08 08 2004	221	24	100.0	20	83.3
08 06 2004	160	23	95.8	22	95.7	09 08 2004	222	24	100.0	23	95.8
09 06 2004	161	23	95.8	23	100.0	10 08 2004	223	24	100.0	23	95.8
10 06 2004	162	24	100.0	22	91.7	11 08 2004	224	24	100.0	20	83.3
11 06 2004	163	24	100.0	19	79.2	12 08 2004	225	24	100.0	20	83.3
12 06 2004	164	24	100.0	21	87.5	13 08 2004	226	24	100.0	21	87.5
13 06 2004	165	15	62.5	13	86.7	14 08 2004	227	20	83.3	18	90.0
14 06 2004	166	24	100.0	23	95.8	15 08 2004	228	24	100.0	21	87.5
15 06 2004	167	24	100.0	22	91.7	16 08 2004	229	24	100.0	20	83.3
16 06 2004	168	24	100.0	23	95.8	17 08 2004	230	24	100.0	24	100.0
17 06 2004	169	24	100.0	20	83.3	18 08 2004	231	15	62.5	14	93.3
18 06 2004	170	24	100.0	21	87.5	19 08 2004	232	23	95.8	21	91.3
19 06 2004	171	24	100.0	20	83.3	20 08 2004	233	24	100.0	19	79.2
20 06 2004	172	24	100.0	22	91.7	21 08 2004	234	24	100.0	22	91.7
21 06 2004	173	24	100.0	18	75.0	22 08 2004	235	24	100.0	24	100.0
22 06 2004	174	23	95.8	18	78.3	23 08 2004	236	24	100.0	22	91.7
23 06 2004	175	24	100.0	15	62.5	24 08 2004	237	24	100.0	21	87.5
24 06 2004	176	24	100.0	19	79.2	25 08 2004	238	24	100.0	21	87.5
25 06 2004	177	24	100.0	21	87.5	26 08 2004	239	24	100.0	22	91.7
26 06 2004	178	24	100.0	22	91.7	27 08 2004	240	23	95.8	23	100.0
27 06 2004	179	23	95.8	18	78.3	28 08 2004	241	23	95.8	21	91.3
28 06 2004	180	22	91.7	19	86.4	29 08 2004	242	24	100.0	22	91.7
29 06 2004	181	19	79.2	16	84.2	30 08 2004	243	24	100.0	23	95.8
30 06 2004	182	24	100.0	23	95.8	31 08 2004	244	24	100.0	24	100.0
01 07 2004	183	24	100.0	20	83.3	01 09 2004	245	23	95.8	22	95.7
02 07 2004	184	24	100.0	23	95.8	02 09 2004	246	23	95.8	23	100.0
03 07 2004	185	24	100.0	17	70.8	03 09 2004	247	24	100.0	24	100.0
04 07 2004	186	24	100.0	19	79.2	04 09 2004	248	24	100.0	23	95.8
05 07 2004	187	24	100.0	22	91.7	05 09 2004	249	24	100.0	24	100.0
06 07 2004	188	24	100.0	20	83.3	06 09 2004	250	24	100.0	23	95.8
07 07 2004	189	23	95.8	18	78.3	07 09 2004	251	24	100.0	24	100.0
08 07 2004	190	24	100.0	18	75.0	08 09 2004	252	24	100.0	24	100.0

09 09 2004	253	23	95.8	23	100.0
10 09 2004	254	23	95.8	23	100.0
11 09 2004	255	24	100.0	23	95.8
12 09 2004	256	24	100.0	24	100.0
13 09 2004	257	24	100.0	24	100.0
14 09 2004	258	24	100.0	24	100.0
15 09 2004	259	24	100.0	24	100.0
16 09 2004	260	24	100.0	24	100.0
17 09 2004	261	24	100.0	24	100.0
18 09 2004	262	21	87.5	21	100.0
19 09 2004	263	24	100.0	24	100.0
20 09 2004	264	24	100.0	24	100.0
21 09 2004	265	24	100.0	24	100.0
22 09 2004	266	23	95.8	23	100.0
23 09 2004	267	24	100.0	24	100.0
24 09 2004	268	24	100.0	24	100.0
25 09 2004	269	24	100.0	24	100.0
26 09 2004	270	24	100.0	23	95.8
27 09 2004	271	24	100.0	23	95.8
28 09 2004	272	23	95.8	22	95.7
29 09 2004	273	21	87.5	20	95.2
30 09 2004	274	18	75.0	15	83.3
01 10 2004	275	23	95.8	20	87.0
02 10 2004	276	24	100.0	24	100.0
03 10 2004	277	24	100.0	24	100.0
04 10 2004	278	24	100.0	22	91.7
05 10 2004	279	24	100.0	22	91.7
06 10 2004	280	24	100.0	24	100.0
07 10 2004	281	23	95.8	23	100.0
08 10 2004	282	24	100.0	24	100.0
09 10 2004	283	24	100.0	24	100.0
10 10 2004	284	24	100.0	24	100.0
11 10 2004	285	24	100.0	24	100.0
12 10 2004	286	24	100.0	23	95.8
13 10 2004	287	18	75.0	18	100.0
14 10 2004	288	12	50.0	12	100.0
15 10 2004	289	74	98.7	74	100.0
16 10 2004	290	92	95.8	89	96.7
17 10 2004	291	83	86.5	83	100.0
18 10 2004	292	92	95.8	92	100.0
19 10 2004	293	89	92.7	88	98.9
20 10 2004	294	96	100.0	94	97.9
21 10 2004	295	91	94.8	89	97.8
22 10 2004	296	37	38.5	35	94.6
23 10 2004	297	91	94.8	85	93.4
24 10 2004	298	96	100.0	95	99.0
25 10 2004	299	95	99.0	95	100.0
26 10 2004	300	91	94.8	87	95.6
27 10 2004	301	71	74.0	65	91.5
28 10 2004	302	96	100.0	89	92.7
29 10 2004	303	95	99.0	95	100.0
30 10 2004	304	76	79.2	74	97.4
31 10 2004	305	68	70.8	67	98.5
01 11 2004	306	86	89.6	86	100.0
02 11 2004	307	80	83.3	79	98.8
03 11 2004	308	92	95.8	90	97.8
04 11 2004	309	66	68.8	58	87.9

05 11 2004	310	75	78.1	70	93.3
06 11 2004	311	81	84.4	74	91.4
07 11 2004	312	91	94.8	89	97.8
08 11 2004	313	88	91.7	67	76.1
09 11 2004	314	38	39.6	26	68.4
10 11 2004	315	50	52.1	26	52.0
11 11 2004	316	37	38.5	1	2.7
12 11 2004	317	94	97.9	63	67.0
13 11 2004	318	91	94.8	78	85.7
14 11 2004	319	90	93.8	80	88.9
15 11 2004	320	71	74.0	69	97.2
16 11 2004	321	78	81.3	73	93.6
17 11 2004	322	33	34.4	33	100.0
18 11 2004	323	78	81.3	71	91.0
19 11 2004	324	80	83.3	80	100.0
20 11 2004	325	54	56.3	46	85.2
21 11 2004	326	92	95.8	91	98.9
22 11 2004	327	52	54.2	44	84.6
23 11 2004	328	83	86.5	82	98.8
24 11 2004	329	96	100.0	89	92.7
25 11 2004	330	59	61.5	55	93.2
26 11 2004	331	88	91.7	80	90.9
27 11 2004	332	93	96.9	91	97.8
28 11 2004	333	90	93.8	84	93.3
29 11 2004	334	95	99.0	93	97.9
30 11 2004	335	75	78.1	69	92.0
01 12 2004	336	54	100.0	52	96.3
02 12 2004	337	24	100.0	24	100.0
03 12 2004	338	24	100.0	24	100.0
04 12 2004	339	24	100.0	24	100.0
05 12 2004	340	23	95.8	21	91.3
06 12 2004	341	22	91.7	21	95.5
07 12 2004	342	24	100.0	23	95.8
08 12 2004	343	24	100.0	23	95.8
09 12 2004	344	24	100.0	23	95.8
10 12 2004	345	24	100.0	24	100.0
11 12 2004	346	23	95.8	20	87.0
12 12 2004	347	24	100.0	19	79.2
13 12 2004	348	24	100.0	22	91.7
14 12 2004	349	24	100.0	23	95.8
15 12 2004	350	23	95.8	22	95.7
16 12 2004	351	20	83.3	17	85.0
17 12 2004	352	24	100.0	23	95.8
18 12 2004	353	22	91.7	21	95.5
19 12 2004	354	8	33.3	8	100.0
20 12 2004	355	22	91.7	20	90.9
21 12 2004	356	24	100.0	24	100.0
22 12 2004	357	24	100.0	23	95.8
23 12 2004	358	23	95.8	23	100.0
24 12 2004	359	22	91.7	21	95.5
25 12 2004	360	12	50.0	11	91.7
26 12 2004	361	23	95.8	21	91.3
27 12 2004	362	24	100.0	23	95.8
28 12 2004	363	14	58.3	12	85.7
29 12 2004	364	20	83.3	18	90.0
30 12 2004	365	19	79.2	19	100.0
31 12 2004	366	23	95.8	22	95.7

2005

DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2005	001	24	100.0	23	95.8
02 01 2005	002	24	100.0	23	95.8
03 01 2005	003	19	79.2	13	68.4
04 01 2005	004	24	100.0	24	100.0
05 01 2005	005	10	41.7	10	100.0
06 01 2005	006	16	66.7	15	93.8
07 01 2005	007	17	70.8	16	94.1
08 01 2005	008	17	70.8	5	29.4
09 01 2005	009	24	100.0	18	75.0
10 01 2005	010	24	100.0	24	100.0
11 01 2005	011	22	91.7	17	77.3
12 01 2005	012	14	58.3	14	100.0
13 01 2005	013	24	100.0	23	95.8
14 01 2005	014	23	95.8	20	87.0
15 01 2005	015	17	70.8	15	88.2
16 01 2005	016	24	100.0	24	100.0
17 01 2005	017	17	70.8	14	82.4
18 01 2005	018	36	65.5	34	94.4
19 01 2005	019	75	78.1	73	97.3
20 01 2005	020	92	95.8	65	70.7
21 01 2005	021	89	92.7	78	87.6
22 01 2005	022	92	95.8	62	67.4
23 01 2005	023	96	100.0	84	87.5
24 01 2005	024	95	99.0	92	96.8
25 01 2005	025	87	90.6	86	98.9
26 01 2005	026	88	91.7	86	97.7
27 01 2005	027	79	82.3	77	97.5
28 01 2005	028	89	92.7	87	97.8
29 01 2005	029	81	84.4	81	100.0
30 01 2005	030	91	94.8	83	91.2
31 01 2005	031	83	86.5	83	100.0
01 02 2005	032	49	51.0	47	95.9
02 02 2005	033	93	96.9	90	96.8
03 02 2005	034	92	95.8	90	97.8
04 02 2005	035	85	88.5	85	100.0
05 02 2005	036	90	93.8	89	98.9
06 02 2005	037	86	89.6	84	97.7
07 02 2005	038	91	94.8	88	96.7
08 02 2005	039	74	77.1	69	93.2
09 02 2005	040	92	95.8	87	94.6
10 02 2005	041	22	22.9	21	95.5
11 02 2005	042	93	96.9	87	93.5
12 02 2005	043	89	92.7	84	94.4
13 02 2005	044	62	64.6	60	96.8
14 02 2005	045	14	14.6	13	92.9
15 02 2005	046	93	96.9	91	97.8
16 02 2005	047	94	97.9	88	93.6
17 02 2005	048	61	63.5	59	96.7
18 02 2005	049	77	80.2	74	96.1
19 02 2005	050	77	80.2	76	98.7
20 02 2005	051	54	56.3	52	96.3
21 02 2005	052	95	99.0	93	97.9
22 02 2005	053	94	97.9	93	98.9
23 02 2005	054	82	85.4	81	98.8
24 02 2005	055	96	100.0	96	100.0
25 02 2005	056	96	100.0	96	100.0
26 02 2005	057	96	100.0	94	97.9
27 02 2005	058	94	97.9	91	96.8
28 02 2005	059	75	78.1	73	97.3
01 03 2005	060	70	72.9	70	100.0
02 03 2005	061	90	93.8	87	96.7
03 03 2005	062	90	93.8	90	100.0
04 03 2005	063	87	90.6	85	97.7
05 03 2005	064	81	84.4	79	97.5
06 03 2005	065	93	96.9	92	98.9
07 03 2005	066	93	96.9	86	92.5
08 03 2005	067	87	90.6	87	100.0
09 03 2005	068	35	36.5	34	97.1
10 03 2005	069	29	30.2	28	96.6
11 03 2005	070	48	50.0	47	97.9
12 03 2005	071	82	85.4	78	95.1
13 03 2005	072	95	99.0	94	98.9
14 03 2005	073	43	44.8	40	93.0
15 03 2005	074	81	84.4	80	98.8
16 03 2005	075	88	91.7	87	98.9
17 03 2005	076	96	100.0	96	100.0
18 03 2005	077	96	100.0	95	99.0
19 03 2005	078	96	100.0	96	100.0
20 03 2005	079	90	93.8	89	98.9
21 03 2005	080	91	94.8	91	100.0
22 03 2005	081	76	79.2	76	100.0
23 03 2005	082	89	92.7	88	98.9
24 03 2005	083	90	93.8	90	100.0
25 03 2005	084	96	100.0	95	99.0
26 03 2005	085	75	78.1	73	97.3
27 03 2005	086	96	100.0	96	100.0
28 03 2005	087	96	100.0	96	100.0
29 03 2005	088	96	100.0	96	100.0
30 03 2005	089	42	43.8	42	100.0
31 03 2005	090	95	99.0	94	98.9
01 04 2005	091	40	41.7	39	97.5
02 04 2005	092	92	95.8	92	100.0
03 04 2005	093	87	90.6	87	100.0
04 04 2005	094	55	57.3	54	98.2
05 04 2005	095	52	54.2	52	100.0
06 04 2005	096	96	100.0	95	99.0
07 04 2005	097	96	100.0	96	100.0
08 04 2005	098	86	89.6	83	96.5
09 04 2005	099	43	44.8	43	100.0
10 04 2005	100	93	96.9	91	97.8
11 04 2005	101	91	94.8	88	96.7
12 04 2005	102	88	91.7	87	98.9
13 04 2005	103	64	66.7	63	98.4
14 04 2005	104	73	76.0	72	98.6
15 04 2005	105	96	100.0	96	100.0
16 04 2005	106	96	100.0	96	100.0
17 04 2005	107	88	91.7	88	100.0
18 04 2005	108	80	83.3	79	98.8
19 04 2005	109	95	99.0	95	100.0
20 04 2005	110	96	100.0	95	99.0
21 04 2005	111	93	96.9	89	95.7
22 04 2005	112	41	42.7	41	100.0

23 04 2005	113	95	99.0	94	98.9	24 06 2005	175	96	100.0	80	83.3
24 04 2005	114	96	100.0	96	100.0	25 06 2005	176	94	97.9	83	88.3
25 04 2005	115	96	100.0	96	100.0	26 06 2005	177	96	100.0	91	94.8
26 04 2005	116	92	95.8	88	95.7	27 06 2005	178	79	82.3	64	81.0
27 04 2005	117	96	100.0	91	94.8	28 06 2005	179	96	100.0	91	94.8
28 04 2005	118	91	94.8	78	85.7	29 06 2005	180	96	100.0	87	90.6
29 04 2005	119	96	100.0	96	100.0	30 06 2005	181	95	99.0	80	84.2
30 04 2005	120	96	100.0	91	94.8	01 07 2005	182	86	89.6	69	80.2
01 05 2005	121	94	97.9	91	96.8	02 07 2005	183	75	78.1	66	88.0
02 05 2005	122	91	94.8	87	95.6	03 07 2005	184	90	93.8	77	85.6
03 05 2005	123	94	97.9	91	96.8	04 07 2005	185	77	80.2	58	75.3
04 05 2005	124	88	91.7	84	95.5	05 07 2005	186	59	61.5	48	81.4
05 05 2005	125	96	100.0	94	97.9	06 07 2005	187	51	53.1	36	70.6
06 05 2005	126	84	87.5	84	100.0	07 07 2005	188	88	91.7	75	85.2
07 05 2005	127	90	93.8	85	94.4	08 07 2005	189	96	100.0	77	80.2
08 05 2005	128	68	70.8	67	98.5	09 07 2005	190	78	81.3	74	94.9
09 05 2005	129	96	100.0	80	83.3	10 07 2005	191	96	100.0	93	96.9
10 05 2005	130	95	99.0	90	94.7	11 07 2005	192	92	95.8	91	98.9
11 05 2005	131	96	100.0	96	100.0	12 07 2005	193	74	77.1	61	82.4
12 05 2005	132	96	100.0	95	99.0	13 07 2005	194	94	97.9	89	94.7
13 05 2005	133	95	99.0	92	96.8	14 07 2005	195	56	58.3	34	60.7
14 05 2005	134	79	82.3	73	92.4	15 07 2005	196	89	92.7	69	77.5
15 05 2005	135	65	67.7	61	93.8	16 07 2005	197	68	70.8	60	88.2
16 05 2005	136	94	97.9	83	88.3	17 07 2005	198	89	92.7	72	80.9
17 05 2005	137	94	97.9	78	83.0	18 07 2005	199	96	100.0	94	97.9
18 05 2005	138	88	91.7	82	93.2	19 07 2005	200	95	99.0	83	87.4
19 05 2005	139	64	66.7	46	71.9	20 07 2005	201	95	99.0	89	93.7
20 05 2005	140	96	100.0	83	86.5	21 07 2005	202	96	100.0	82	85.4
21 05 2005	141	93	96.9	71	76.3	22 07 2005	203	90	93.8	73	81.1
22 05 2005	142	75	78.1	58	77.3	23 07 2005	204	66	68.8	59	89.4
23 05 2005	143	96	100.0	88	91.7	24 07 2005	205	83	86.5	72	86.7
24 05 2005	144	81	84.4	71	87.7	25 07 2005	206	96	100.0	89	92.7
25 05 2005	145	87	90.6	84	96.6	26 07 2005	207	96	100.0	80	83.3
26 05 2005	146	95	99.0	90	94.7	27 07 2005	208	46	47.9	33	71.7
27 05 2005	147	96	100.0	89	92.7	28 07 2005	209	65	67.7	55	84.6
28 05 2005	148	46	47.9	44	95.7	29 07 2005	210	93	96.9	57	61.3
29 05 2005	149	87	90.6	77	88.5	30 07 2005	211	94	97.9	84	89.4
30 05 2005	150	94	97.9	77	81.9	31 07 2005	212	66	68.8	46	69.7
31 05 2005	151	68	70.8	53	77.9	01 08 2005	213	91	94.8	80	87.9
01 06 2005	152	95	99.0	65	68.4	02 08 2005	214	87	90.6	80	92.0
02 06 2005	153	84	87.5	64	76.2	03 08 2005	215	74	77.1	62	83.8
03 06 2005	154	96	100.0	50	52.1	04 08 2005	216	88	91.7	74	84.1
04 06 2005	155	96	100.0	0	0.0	05 08 2005	217	92	95.8	84	91.3
05 06 2005	156	95	99.0	54	56.8	06 08 2005	218	71	74.0	67	94.4
06 06 2005	157	96	100.0	90	93.8	07 08 2005	219	96	100.0	92	95.8
07 06 2005	158	96	100.0	93	96.9	08 08 2005	220	63	65.6	49	77.8
08 06 2005	159	96	100.0	90	93.8	09 08 2005	221	70	72.9	61	87.1
09 06 2005	160	90	93.8	76	84.4	10 08 2005	222	95	99.0	80	84.2
10 06 2005	161	79	82.3	53	67.1	11 08 2005	223	93	96.9	80	86.0
11 06 2005	162	90	93.8	62	68.9	12 08 2005	224	93	96.9	88	94.6
12 06 2005	163	96	100.0	82	85.4	13 08 2005	225	96	100.0	83	86.5
13 06 2005	164	13	13.5	12	92.3	14 08 2005	226	96	100.0	88	91.7
14 06 2005	165	69	71.9	65	94.2	15 08 2005	227	89	92.7	64	71.9
15 06 2005	166	95	99.0	87	91.6	16 08 2005	228	96	100.0	64	66.7
16 06 2005	167	90	93.8	79	87.8	17 08 2005	229	94	97.9	88	93.6
17 06 2005	168	91	94.8	84	92.3	18 08 2005	230	10	10.4	9	90.0
18 06 2005	169	71	74.0	67	94.4	19 08 2005	231	96	100.0	93	96.9
19 06 2005	170	87	90.6	68	78.2	20 08 2005	232	96	100.0	83	86.5
20 06 2005	171	84	87.5	73	86.9	21 08 2005	233	48	50.0	44	91.7
21 06 2005	172	94	97.9	79	84.0	22 08 2005	234	86	89.6	84	97.7
22 06 2005	173	88	91.7	83	94.3	23 08 2005	235	73	76.0	67	91.8
23 06 2005	174	93	96.9	84	90.3	24 08 2005	236	95	99.0	90	94.7

25 08 2005	237	95	99.0	66	69.5	26 10 2005	299	58	80.6	55	94.8
26 08 2005	238	96	100.0	70	72.9	27 10 2005	300	53	73.6	50	94.3
27 08 2005	239	96	100.0	75	78.1	28 10 2005	301	66	91.7	64	97.0
28 08 2005	240	96	100.0	88	91.7	29 10 2005	302	72	100.0	72	100.0
29 08 2005	241	88	91.7	83	94.3	30 10 2005	303	69	95.8	69	100.0
30 08 2005	242	45	51.7	42	93.3	31 10 2005	304	68	94.4	67	98.5
31 08 2005	243	70	97.2	68	97.1	01 11 2005	305	55	76.4	55	100.0
01 09 2005	244	57	79.2	45	78.9	02 11 2005	306	71	98.6	71	100.0
02 09 2005	245	68	94.4	58	85.3	03 11 2005	307	71	98.6	67	94.4
03 09 2005	246	72	100.0	68	94.4	04 11 2005	308	57	79.2	53	93.0
04 09 2005	247	71	98.6	69	97.2	05 11 2005	309	72	100.0	70	97.2
05 09 2005	248	71	98.6	71	100.0	06 11 2005	310	71	98.6	68	95.8
06 09 2005	249	68	94.4	67	98.5	07 11 2005	311	72	100.0	71	98.6
07 09 2005	250	72	100.0	70	97.2	08 11 2005	312	70	97.2	70	100.0
08 09 2005	251	72	100.0	69	95.8	09 11 2005	313	45	62.5	45	100.0
09 09 2005	252	67	93.1	62	92.5	10 11 2005	314	53	73.6	53	100.0
10 09 2005	253	59	81.9	55	93.2	11 11 2005	315	66	91.7	64	97.0
11 09 2005	254	64	88.9	59	92.2	12 11 2005	316	70	97.2	69	98.6
12 09 2005	255	69	95.8	65	94.2	13 11 2005	317	62	86.1	62	100.0
13 09 2005	256	56	77.8	54	96.4	14 11 2005	318	68	94.4	61	89.7
14 09 2005	257	35	48.6	35	100.0	15 11 2005	319	70	97.2	67	95.7
15 09 2005	258	72	100.0	62	86.1	16 11 2005	320	72	100.0	70	97.2
16 09 2005	259	41	56.9	34	82.9	17 11 2005	321	70	97.2	63	90.0
17 09 2005	260	56	77.8	48	85.7	18 11 2005	322	62	86.1	60	96.8
18 09 2005	261	72	100.0	71	98.6	19 11 2005	323	70	97.2	70	100.0
19 09 2005	262	71	98.6	71	100.0	20 11 2005	324	72	100.0	71	98.6
20 09 2005	263	67	93.1	64	95.5	21 11 2005	325	72	100.0	71	98.6
21 09 2005	264	38	52.8	38	100.0	22 11 2005	326	69	95.8	69	100.0
22 09 2005	265	70	97.2	70	100.0	23 11 2005	327	60	83.3	59	98.3
23 09 2005	266	71	98.6	71	100.0	24 11 2005	328	62	86.1	59	95.2
24 09 2005	267	30	41.7	29	96.7	25 11 2005	329	44	61.1	30	68.2
25 09 2005	268	70	97.2	70	100.0	26 11 2005	330	69	95.8	67	97.1
26 09 2005	269	72	100.0	72	100.0	27 11 2005	331	63	87.5	59	93.7
27 09 2005	270	67	93.1	67	100.0	28 11 2005	332	39	54.2	27	69.2
28 09 2005	271	67	93.1	67	100.0	29 11 2005	333	69	95.8	62	89.9
29 09 2005	272	57	79.2	53	93.0	30 11 2005	334	62	86.1	59	95.2
30 09 2005	273	41	42.3	41	100.0	01 12 2005	335	69	95.8	68	98.6
01 10 2005	274	110	76.4	102	92.7	02 12 2005	336	70	97.2	65	92.9
02 10 2005	275	91	63.2	89	97.8	03 12 2005	337	62	86.1	62	100.0
03 10 2005	276	112	84.8	109	97.3	04 12 2005	338	54	75.0	53	98.1
04 10 2005	277	72	100.0	72	100.0	05 12 2005	339	44	61.1	41	93.2
05 10 2005	278	71	98.6	69	97.2	06 12 2005	340	71	98.6	69	97.2
06 10 2005	279	72	100.0	72	100.0	07 12 2005	341	69	95.8	69	100.0
07 10 2005	280	72	100.0	72	100.0	08 12 2005	342	63	87.5	63	100.0
08 10 2005	281	72	100.0	70	97.2	09 12 2005	343	64	88.9	60	93.8
09 10 2005	282	72	100.0	67	93.1	10 12 2005	344	30	41.7	28	93.3
10 10 2005	283	70	97.2	64	91.4	11 12 2005	345	37	51.4	35	94.6
11 10 2005	284	72	100.0	71	98.6	12 12 2005	346	53	73.6	52	98.1
12 10 2005	285	55	76.4	55	100.0	13 12 2005	347	72	100.0	71	98.6
13 10 2005	286	57	79.2	55	96.5	14 12 2005	348	36	50.0	33	91.7
14 10 2005	287	55	76.4	51	92.7	15 12 2005	349	39	54.2	34	87.2
15 10 2005	288	72	100.0	71	98.6	16 12 2005	350	20	27.8	20	100.0
16 10 2005	289	58	80.6	56	96.6	17 12 2005	351	42	58.3	40	95.2
17 10 2005	290	59	81.9	57	96.6	18 12 2005	352	68	94.4	66	97.1
18 10 2005	291	55	76.4	55	100.0	19 12 2005	353	52	72.2	48	92.3
19 10 2005	292	47	65.3	47	100.0	20 12 2005	354	72	100.0	71	98.6
20 10 2005	293	72	100.0	72	100.0	21 12 2005	355	72	100.0	70	97.2
21 10 2005	294	70	97.2	70	100.0	22 12 2005	356	31	43.1	29	93.5
22 10 2005	295	72	100.0	70	97.2	23 12 2005	357	71	98.6	71	100.0
23 10 2005	296	70	97.2	68	97.1	24 12 2005	358	63	87.5	59	93.7
24 10 2005	297	70	97.2	70	100.0	25 12 2005	359	70	97.2	69	98.6
25 10 2005	298	68	94.4	65	95.6	26 12 2005	360	60	83.3	59	98.3

27 12 2005	361	56	77.8	56	100.0	30 12 2005	364	33	45.8	32	97.0
28 12 2005	362	65	90.3	62	95.4	31 12 2005	365	69	95.8	67	97.1
29 12 2005	363	67	93.1	63	94.0						

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DATE	DOY	DIS	DIS%	AIS	AIS%	DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2006	001	72	100.0	72	100.0	23 02 2006	054	68	94.4	67	98.5
02 01 2006	002	72	100.0	67	93.1	24 02 2006	055	32	44.4	32	100.0
03 01 2006	003	72	100.0	71	98.6	25 02 2006	056	68	94.4	66	97.1
04 01 2006	004	53	73.6	50	94.3	26 02 2006	057	57	79.2	57	100.0
05 01 2006	005	72	100.0	72	100.0	27 02 2006	058	57	79.2	56	98.2
06 01 2006	006	57	79.2	54	94.7	28 02 2006	059	72	100.0	71	98.6
07 01 2006	007	34	47.2	29	85.3	01 03 2006	060	54	75.0	51	94.4
08 01 2006	008	26	36.1	25	96.2	02 03 2006	061	63	87.5	62	98.4
09 01 2006	009	71	98.6	66	93.0	03 03 2006	062	40	55.6	39	97.5
10 01 2006	010	65	90.3	63	96.9	04 03 2006	063	69	95.8	66	95.7
11 01 2006	011	50	69.4	48	96.0	05 03 2006	064	62	86.1	62	100.0
12 01 2006	012	64	88.9	64	100.0	06 03 2006	065	70	97.2	69	98.6
13 01 2006	013	40	55.6	40	100.0	07 03 2006	066	65	90.3	55	84.6
14 01 2006	014	63	87.5	58	92.1	08 03 2006	067	33	45.8	31	93.9
15 01 2006	015	67	93.1	63	94.0	09 03 2006	068	71	98.6	69	97.2
16 01 2006	016	32	44.4	30	93.8	10 03 2006	069	64	88.9	63	98.4
17 01 2006	017	40	55.6	34	85.0	11 03 2006	070	64	88.9	63	98.4
18 01 2006	018	54	75.0	53	98.1	12 03 2006	071	72	100.0	72	100.0
19 01 2006	019	41	56.9	37	90.2	13 03 2006	072	62	86.1	61	98.4
20 01 2006	020	22	30.6	21	95.5	14 03 2006	073	36	50.0	35	97.2
21 01 2006	021	72	100.0	71	98.6	15 03 2006	074	66	91.7	66	100.0
22 01 2006	022	71	98.6	63	88.7	16 03 2006	075	72	100.0	71	98.6
23 01 2006	023	65	90.3	62	95.4	17 03 2006	076	69	95.8	67	97.1
24 01 2006	024	66	91.7	62	93.9	18 03 2006	077	72	100.0	70	97.2
25 01 2006	025	70	97.2	67	95.7	19 03 2006	078	72	100.0	55	76.4
26 01 2006	026	57	79.2	54	94.7	20 03 2006	079	72	100.0	59	81.9
27 01 2006	027	41	56.9	35	85.4	21 03 2006	080	70	97.2	69	98.6
28 01 2006	028	22	30.6	15	68.2	22 03 2006	081	66	91.7	65	98.5
29 01 2006	029	65	90.3	62	95.4	23 03 2006	082	72	100.0	66	91.7
30 01 2006	030	72	100.0	68	94.4	24 03 2006	083	44	61.1	42	95.5
31 01 2006	031	49	68.1	44	89.8	25 03 2006	084	68	94.4	65	95.6
01 02 2006	032	42	58.3	39	92.9	26 03 2006	085	49	68.1	48	98.0
02 02 2006	033	39	54.2	37	94.9	27 03 2006	086	31	43.1	30	96.8
03 02 2006	034	24	33.3	23	95.8	28 03 2006	087	69	95.8	65	94.2
04 02 2006	035	39	54.2	35	89.7	29 03 2006	088	54	75.0	51	94.4
05 02 2006	036	24	33.3	23	95.8	30 03 2006	089	44	61.1	43	97.7
06 02 2006	037	34	47.2	33	97.1	31 03 2006	090	72	100.0	71	98.6
07 02 2006	038	68	94.4	68	100.0	01 04 2006	091	48	66.7	48	100.0
08 02 2006	039	66	91.7	66	100.0	02 04 2006	092	54	75.0	54	100.0
09 02 2006	040	72	100.0	68	94.4	03 04 2006	093	54	75.0	53	98.1
10 02 2006	041	67	93.1	64	95.5	04 04 2006	094	70	97.2	68	97.1
11 02 2006	042	37	51.4	36	97.3	05 04 2006	095	59	81.9	49	83.1
12 02 2006	043	70	97.2	69	98.6	06 04 2006	096	49	68.1	46	93.9
13 02 2006	044	37	51.4	35	94.6	07 04 2006	097	67	93.1	66	98.5
14 02 2006	045	72	100.0	71	98.6	08 04 2006	098	64	88.9	63	98.4
15 02 2006	046	63	87.5	61	96.8	09 04 2006	099	72	100.0	70	97.2
16 02 2006	047	72	100.0	59	81.9	10 04 2006	100	37	51.4	36	97.3
17 02 2006	048	49	68.1	24	49.0	11 04 2006	101	72	100.0	70	97.2
18 02 2006	049	69	95.8	68	98.6	12 04 2006	102	72	100.0	71	98.6
19 02 2006	050	58	80.6	55	94.8	13 04 2006	103	59	81.9	58	98.3
20 02 2006	051	71	98.6	68	95.8	14 04 2006	104	51	70.8	41	80.4
21 02 2006	052	68	94.4	68	100.0	15 04 2006	105	45	62.5	28	62.2
22 02 2006	053	29	40.3	29	100.0	16 04 2006	106	68	94.4	54	79.4

17 04 2006	107	72	100.0	68	94.4	18 06 2006	169	26	36.1	18	69.2
18 04 2006	108	72	100.0	71	98.6	19 06 2006	170	72	100.0	43	59.7
19 04 2006	109	51	70.8	49	96.1	20 06 2006	171	70	97.2	47	67.1
20 04 2006	110	72	100.0	69	95.8	21 06 2006	172	70	97.2	50	71.4
21 04 2006	111	35	48.6	35	100.0	22 06 2006	173	71	98.6	59	83.1
22 04 2006	112	39	54.2	38	97.4	23 06 2006	174	72	100.0	41	56.9
23 04 2006	113	58	80.6	54	93.1	24 06 2006	175	72	100.0	45	62.5
24 04 2006	114	72	100.0	70	97.2	25 06 2006	176	60	83.3	52	86.7
25 04 2006	115	60	83.3	59	98.3	26 06 2006	177	64	88.9	44	68.8
26 04 2006	116	72	100.0	69	95.8	27 06 2006	178	70	97.2	58	82.9
27 04 2006	117	40	55.6	40	100.0	28 06 2006	179	72	100.0	55	76.4
28 04 2006	118	45	62.5	44	97.8	29 06 2006	180	71	98.6	56	78.9
29 04 2006	119	47	65.3	47	100.0	30 06 2006	181	42	58.3	39	92.9
30 04 2006	120	70	97.2	70	100.0	01 07 2006	182	69	95.8	57	82.6
01 05 2006	121	55	76.4	53	96.4	02 07 2006	183	72	100.0	52	72.2
02 05 2006	122	58	80.6	56	96.6	03 07 2006	184	54	75.0	41	75.9
03 05 2006	123	32	44.4	32	100.0	04 07 2006	185	50	69.4	42	84.0
04 05 2006	124	59	81.9	59	100.0	05 07 2006	186	60	83.3	54	90.0
05 05 2006	125	56	77.8	52	92.9	06 07 2006	187	72	100.0	39	54.2
06 05 2006	126	40	55.6	39	97.5	07 07 2006	188	67	93.1	31	46.3
07 05 2006	127	54	75.0	51	94.4	08 07 2006	189	55	76.4	30	54.5
08 05 2006	128	41	56.9	37	90.2	09 07 2006	190	67	93.1	50	74.6
09 05 2006	129	57	79.2	53	93.0	10 07 2006	191	47	65.3	35	74.5
10 05 2006	130	45	62.5	45	100.0	11 07 2006	192	28	38.9	22	78.6
11 05 2006	131	48	66.7	45	93.8	12 07 2006	193	70	97.2	47	67.1
12 05 2006	132	71	98.6	68	95.8	13 07 2006	194	72	100.0	46	63.9
13 05 2006	133	71	98.6	51	71.8	14 07 2006	195	62	86.1	51	82.3
14 05 2006	134	65	90.3	62	95.4	15 07 2006	196	72	100.0	63	87.5
15 05 2006	135	53	73.6	50	94.3	16 07 2006	197	71	98.6	55	77.5
16 05 2006	136	60	83.3	56	93.3	17 07 2006	198	54	75.0	32	59.3
17 05 2006	137	58	80.6	50	86.2	18 07 2006	199	64	88.9	53	82.8
18 05 2006	138	64	88.9	50	78.1	19 07 2006	200	72	100.0	61	84.7
19 05 2006	139	48	66.7	34	70.8	20 07 2006	201	66	91.7	63	95.5
20 05 2006	140	61	84.7	55	90.2	21 07 2006	202	67	93.1	60	89.6
21 05 2006	141	72	100.0	62	86.1	22 07 2006	203	70	97.2	55	78.6
22 05 2006	142	59	81.9	50	84.7	23 07 2006	204	72	100.0	49	68.1
23 05 2006	143	63	87.5	56	88.9	24 07 2006	205	41	56.9	33	80.5
24 05 2006	144	57	79.2	51	89.5	25 07 2006	206	59	81.9	42	71.2
25 05 2006	145	67	93.1	50	74.6	26 07 2006	207	72	100.0	39	54.2
26 05 2006	146	33	45.8	31	93.9	27 07 2006	208	72	100.0	61	84.7
27 05 2006	147	72	100.0	69	95.8	28 07 2006	209	71	98.6	63	88.7
28 05 2006	148	69	95.8	64	92.8	29 07 2006	210	72	100.0	55	76.4
29 05 2006	149	58	80.6	53	91.4	30 07 2006	211	72	100.0	54	75.0
30 05 2006	150	70	97.2	61	87.1	31 07 2006	212	55	76.4	47	85.5
31 05 2006	151	68	94.4	55	80.9	01 08 2006	213	68	94.4	50	73.5
01 06 2006	152	33	45.8	32	97.0	02 08 2006	214	60	83.3	42	70.0
02 06 2006	153	69	95.8	63	91.3	03 08 2006	215	72	100.0	54	75.0
03 06 2006	154	43	59.7	24	55.8	04 08 2006	216	72	100.0	53	73.6
04 06 2006	155	59	81.9	40	67.8	05 08 2006	217	72	100.0	57	79.2
05 06 2006	156	64	88.9	48	75.0	06 08 2006	218	71	98.6	48	67.6
06 06 2006	157	40	55.6	35	87.5	07 08 2006	219	59	81.9	57	96.6
07 06 2006	158	55	76.4	32	58.2	08 08 2006	220	71	98.6	68	95.8
08 06 2006	159	49	68.1	31	63.3	09 08 2006	221	70	97.2	58	82.9
09 06 2006	160	70	97.2	53	75.7	10 08 2006	222	72	100.0	61	84.7
10 06 2006	161	69	95.8	53	76.8	11 08 2006	223	72	100.0	57	79.2
11 06 2006	162	70	97.2	62	88.6	12 08 2006	224	56	77.8	48	85.7
12 06 2006	163	72	100.0	41	56.9	13 08 2006	225	72	100.0	53	73.6
13 06 2006	164	70	97.2	27	38.6	14 08 2006	226	66	91.7	43	65.2
14 06 2006	165	55	76.4	46	83.6	15 08 2006	227	72	100.0	60	83.3
15 06 2006	166	55	76.4	37	67.3	16 08 2006	228	72	100.0	67	93.1
16 06 2006	167	53	73.6	36	67.9	17 08 2006	229	31	43.1	29	93.5
17 06 2006	168	60	83.3	44	73.3	18 08 2006	230	59	81.9	55	93.2

19 08 2006	231	32	44.4	26	81.3
20 08 2006	232	65	90.3	59	90.8
21 08 2006	233	66	91.7	54	81.8
22 08 2006	234	46	63.9	45	97.8
23 08 2006	235	55	76.4	51	92.7
24 08 2006	236	71	98.6	66	93.0
25 08 2006	237	28	38.9	24	85.7
26 08 2006	238	69	95.8	66	95.7
27 08 2006	239	70	97.2	59	84.3
28 08 2006	240	72	100.0	65	90.3
29 08 2006	241	36	50.0	31	86.1
30 08 2006	242	72	100.0	59	81.9
31 08 2006	243	47	65.3	44	93.6
01 09 2006	244	47	65.3	46	97.9
02 09 2006	245	16	22.2	16	100.0
03 09 2006	246	35	48.6	34	97.1
04 09 2006	247	35	48.6	35	100.0
05 09 2006	248	50	69.4	48	96.0
06 09 2006	249	68	94.4	67	98.5
07 09 2006	250	44	61.1	42	95.5
08 09 2006	251	50	69.4	50	100.0
09 09 2006	252	72	100.0	70	97.2
10 09 2006	253	66	91.7	65	98.5
11 09 2006	254	71	98.6	71	100.0
12 09 2006	255	58	80.6	57	98.3
13 09 2006	256	59	81.9	58	98.3
14 09 2006	257	71	98.6	71	100.0
15 09 2006	258	39	54.2	38	97.4
16 09 2006	259	60	83.3	60	100.0
17 09 2006	260	45	62.5	45	100.0
18 09 2006	261	72	100.0	70	97.2
19 09 2006	262	47	65.3	47	100.0
20 09 2006	263	44	61.1	44	100.0
21 09 2006	264	31	43.1	29	93.5
22 09 2006	265	67	93.1	67	100.0
23 09 2006	266	55	76.4	53	96.4
24 09 2006	267	71	98.6	66	93.0
25 09 2006	268	72	100.0	67	93.1
26 09 2006	269	67	93.1	61	91.0
27 09 2006	270	49	68.1	49	100.0
28 09 2006	271	3	4.2	3	100.0
29 09 2006	272	25	34.7	24	96.0
30 09 2006	273	37	51.4	36	97.3
01 10 2006	274	53	73.6	42	79.2
02 10 2006	275	48	66.7	42	87.5
03 10 2006	276	71	98.6	69	97.2
04 10 2006	277	72	100.0	71	98.6
05 10 2006	278	38	52.8	38	100.0
06 10 2006	279	53	73.6	53	100.0
07 10 2006	280	39	54.2	39	100.0
08 10 2006	281	43	59.7	41	95.3
09 10 2006	282	40	55.6	37	92.5
10 10 2006	283	38	52.8	35	92.1
11 10 2006	284	63	87.5	62	98.4
12 10 2006	285	17	23.6	17	100.0
13 10 2006	286	8	11.1	7	87.5
14 10 2006	287	23	31.9	23	100.0
15 10 2006	288	51	70.8	49	96.1
16 10 2006	289	24	33.3	24	100.0
17 10 2006	290	56	77.8	55	98.2
18 10 2006	291	71	98.6	70	98.6
19 10 2006	292	71	98.6	71	100.0
20 10 2006	293	65	90.3	63	96.9
21 10 2006	294	57	79.2	54	94.7
22 10 2006	295	69	95.8	60	87.0
23 10 2006	296	27	37.5	25	92.6
24 10 2006	297	20	27.8	16	80.0
25 10 2006	298	61	84.7	56	91.8
26 10 2006	299	72	100.0	66	91.7
27 10 2006	300	59	81.9	54	91.5
28 10 2006	301	50	69.4	44	88.0
29 10 2006	302	40	55.6	38	95.0
30 10 2006	303	71	98.6	67	94.4
31 10 2006	304	63	87.5	62	98.4
01 11 2006	305	39	54.2	38	97.4
02 11 2006	306	39	54.2	38	97.4
03 11 2006	307	54	75.0	52	96.3
04 11 2006	308	7	9.7	5	71.4
05 11 2006	309	15	20.8	13	86.7
06 11 2006	310	15	20.8	9	60.0
07 11 2006	311	64	88.9	62	96.9
08 11 2006	312	72	100.0	70	97.2
09 11 2006	313	38	52.8	37	97.4
10 11 2006	314	43	59.7	43	100.0
11 11 2006	315	13	18.1	13	100.0
12 11 2006	316	51	70.8	50	98.0
13 11 2006	317	48	66.7	47	97.9
14 11 2006	318	60	83.3	60	100.0
15 11 2006	319	68	94.4	65	95.6
16 11 2006	320	28	38.9	26	92.9
17 11 2006	321	64	88.9	64	100.0
18 11 2006	322	47	65.3	44	93.6
19 11 2006	323	67	93.1	66	98.5
20 11 2006	324	45	62.5	44	97.8
21 11 2006	325	72	100.0	68	94.4
22 11 2006	326	70	97.2	66	94.3
23 11 2006	327	30	41.7	30	100.0
24 11 2006	328	48	66.7	41	85.4
25 11 2006	329	68	94.4	66	97.1
26 11 2006	330	58	80.6	54	93.1
27 11 2006	331	54	75.0	52	96.3
28 11 2006	332	49	68.1	48	98.0
29 11 2006	333	66	91.7	64	97.0
30 11 2006	334	47	65.3	46	97.9
01 12 2006	335	55	76.4	50	90.9
02 12 2006	336	50	69.4	47	94.0
03 12 2006	337	64	88.9	58	90.6
04 12 2006	338	50	69.4	46	92.0
05 12 2006	339	18	25.0	17	94.4
06 12 2006	340	56	77.8	54	96.4
07 12 2006	341	70	97.2	70	100.0
08 12 2006	342	71	98.6	59	83.1
09 12 2006	343	68	94.4	65	95.6
10 12 2006	344	43	59.7	38	88.4
11 12 2006	345	31	43.1	29	93.5
12 12 2006	346	72	100.0	71	98.6
13 12 2006	347	60	83.3	58	96.7
14 12 2006	348	55	76.4	52	94.5
15 12 2006	349	53	73.6	52	98.1
16 12 2006	350	69	95.8	51	73.9
17 12 2006	351	42	58.3	36	85.7
18 12 2006	352	39	54.2	37	94.9
19 12 2006	353	41	56.9	40	97.6
20 12 2006	354	51	70.8	48	94.1

21 12 2006	355	24	33.3	22	91.7	27 12 2006	361	18	25.0	16	88.9
22 12 2006	356	36	50.0	30	83.3	28 12 2006	362	9	12.5	9	100.0
23 12 2006	357	41	56.9	36	87.8	29 12 2006	363	35	48.6	33	94.3
24 12 2006	358	69	95.8	67	97.1	30 12 2006	364	46	63.9	44	95.7
25 12 2006	359	47	65.3	43	91.5	31 12 2006	365	26	36.1	21	80.8
26 12 2006	360	8	11.1	8	100.0						

2007

DATE	DOY	DIS	DIS%	AIS	AIS%	DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2007	001	60	83.3	55	91.7	20 02 2007	051	26	36.1	25	96.2
02 01 2007	002	39	54.2	35	89.7	21 02 2007	052	56	77.8	56	100.0
03 01 2007	003	14	19.4	14	100.0	22 02 2007	053	72	100.0	72	100.0
04 01 2007	004	25	34.7	24	96.0	23 02 2007	054	69	95.8	68	98.6
05 01 2007	005	53	73.6	52	98.1	24 02 2007	055	58	80.6	57	98.3
06 01 2007	006	30	41.7	30	100.0	25 02 2007	056	66	91.7	63	95.5
07 01 2007	007	38	52.8	34	89.5	26 02 2007	057	20	27.8	19	95.0
08 01 2007	008	60	83.3	56	93.3	27 02 2007	058	72	100.0	72	100.0
09 01 2007	009	67	93.1	65	97.0	28 02 2007	059	72	100.0	72	100.0
10 01 2007	010	59	81.9	54	91.5	01 03 2007	060	72	100.0	70	97.2
11 01 2007	011	62	86.1	59	95.2	02 03 2007	061	29	40.3	29	100.0
12 01 2007	012	40	55.6	38	95.0	03 03 2007	062	61	84.7	61	100.0
13 01 2007	013	43	59.7	41	95.3	04 03 2007	063	35	48.6	35	100.0
14 01 2007	014	20	27.8	20	100.0	05 03 2007	064	48	66.7	48	100.0
15 01 2007	015	1	1.4	1	100.0	06 03 2007	065	50	69.4	48	96.0
16 01 2007	016	24	33.3	22	91.7	07 03 2007	066	48	66.7	48	100.0
17 01 2007	017	19	26.4	18	94.7	08 03 2007	067	44	61.1	44	100.0
18 01 2007	018	67	93.1	66	98.5	09 03 2007	068	44	61.1	44	100.0
19 01 2007	019	58	80.6	53	91.4	10 03 2007	069	67	93.1	65	97.0
20 01 2007	020	53	73.6	50	94.3	11 03 2007	070	40	55.6	40	100.0
21 01 2007	021	69	95.8	68	98.6	12 03 2007	071	50	69.4	48	96.0
22 01 2007	022	30	41.7	30	100.0	13 03 2007	072	8	11.1	8	100.0
23 01 2007	023	62	86.1	59	95.2	14 03 2007	073	44	61.1	44	100.0
24 01 2007	024	29	40.3	29	100.0	15 03 2007	074	44	61.1	44	100.0
25 01 2007	025	59	81.9	55	93.2	16 03 2007	075	63	87.5	63	100.0
26 01 2007	026	64	88.9	59	92.2	17 03 2007	076	48	66.7	47	97.9
27 01 2007	027	50	69.4	47	94.0	18 03 2007	077	43	59.7	43	100.0
28 01 2007	028	51	70.8	48	94.1	19 03 2007	078	54	75.0	54	100.0
29 01 2007	029	68	94.4	68	100.0	20 03 2007	079	59	81.9	56	94.9
30 01 2007	030	34	47.2	29	85.3	21 03 2007	080	35	48.6	35	100.0
31 01 2007	031	22	30.6	20	90.9	22 03 2007	081	40	55.6	39	97.5
01 02 2007	032	69	95.8	65	94.2	23 03 2007	082	34	47.2	33	97.1
02 02 2007	033	37	51.4	36	97.3	24 03 2007	083	52	72.2	51	98.1
03 02 2007	034	65	90.3	61	93.8	25 03 2007	084	72	100.0	70	97.2
04 02 2007	035	32	44.4	30	93.8	26 03 2007	085	59	81.9	55	93.2
05 02 2007	036	47	65.3	46	97.9	27 03 2007	086	72	100.0	71	98.6
06 02 2007	037	71	98.6	71	100.0	28 03 2007	087	66	91.7	61	92.4
07 02 2007	038	37	51.4	35	94.6	29 03 2007	088	28	38.9	27	96.4
08 02 2007	039	61	84.7	54	88.5	30 03 2007	089	63	87.5	61	96.8
09 02 2007	040	66	91.7	63	95.5	31 03 2007	090	55	76.4	52	94.5
10 02 2007	041	59	81.9	56	94.9	01 04 2007	091	43	59.7	39	90.7
11 02 2007	042	56	77.8	51	91.1	02 04 2007	092	72	100.0	65	90.3
12 02 2007	043	28	38.9	25	89.3	03 04 2007	093	33	45.8	33	100.0
13 02 2007	044	54	75.0	54	100.0	04 04 2007	094	35	48.6	30	85.7
14 02 2007	045	61	84.7	56	91.8	05 04 2007	095	49	68.1	44	89.8
15 02 2007	046	37	51.4	31	83.8	06 04 2007	096	72	100.0	66	91.7
16 02 2007	047	69	95.8	65	94.2	07 04 2007	097	72	100.0	67	93.1
17 02 2007	048	71	98.6	70	98.6	08 04 2007	098	72	100.0	67	93.1
18 02 2007	049	66	91.7	65	98.5	09 04 2007	099	72	100.0	67	93.1
19 02 2007	050	68	94.4	67	98.5	10 04 2007	100	72	100.0	64	88.9

11 04 2007	101	72	100.0	69	95.8	12 06 2007	163	72	100.0	63	87.5
12 04 2007	102	72	100.0	68	94.4	13 06 2007	164	72	100.0	55	76.4
13 04 2007	103	72	100.0	66	91.7	14 06 2007	165	72	100.0	63	87.5
14 04 2007	104	72	100.0	69	95.8	15 06 2007	166	72	100.0	66	91.7
15 04 2007	105	72	100.0	68	94.4	16 06 2007	167	72	100.0	53	73.6
16 04 2007	106	72	100.0	68	94.4	17 06 2007	168	72	100.0	59	81.9
17 04 2007	107	72	100.0	66	91.7	18 06 2007	169	72	100.0	64	88.9
18 04 2007	108	72	100.0	71	98.6	19 06 2007	170	72	100.0	62	86.1
19 04 2007	109	72	100.0	72	100.0	20 06 2007	171	72	100.0	53	73.6
20 04 2007	110	72	100.0	65	90.3	21 06 2007	172	72	100.0	53	73.6
21 04 2007	111	72	100.0	68	94.4	22 06 2007	173	72	100.0	55	76.4
22 04 2007	112	72	100.0	67	93.1	23 06 2007	174	72	100.0	42	58.3
23 04 2007	113	72	100.0	67	93.1	24 06 2007	175	72	100.0	50	69.4
24 04 2007	114	0	0.0	0	0.0	25 06 2007	176	72	100.0	49	68.1
25 04 2007	115	0	0.0	0	0.0	26 06 2007	177	72	100.0	52	72.2
26 04 2007	116	72	100.0	65	90.3	27 06 2007	178	72	100.0	62	86.1
27 04 2007	117	72	100.0	65	90.3	28 06 2007	179	72	100.0	61	84.7
28 04 2007	118	72	100.0	58	80.6	29 06 2007	180	72	100.0	59	81.9
29 04 2007	119	72	100.0	63	87.5	30 06 2007	181	72	100.0	54	75.0
30 04 2007	120	72	100.0	58	80.6	01 07 2007	182	72	100.0	65	90.3
01 05 2007	121	72	100.0	60	83.3	02 07 2007	183	72	100.0	61	84.7
02 05 2007	122	72	100.0	69	95.8	03 07 2007	184	72	100.0	63	87.5
03 05 2007	123	72	100.0	59	81.9	04 07 2007	185	72	100.0	49	68.1
04 05 2007	124	72	100.0	64	88.9	05 07 2007	186	72	100.0	59	81.9
05 05 2007	125	72	100.0	59	81.9	06 07 2007	187	72	100.0	50	69.4
06 05 2007	126	72	100.0	66	91.7	07 07 2007	188	72	100.0	57	79.2
07 05 2007	127	72	100.0	65	90.3	08 07 2007	189	72	100.0	55	76.4
08 05 2007	128	72	100.0	62	86.1	09 07 2007	190	72	100.0	61	84.7
09 05 2007	129	72	100.0	58	80.6	10 07 2007	191	72	100.0	64	88.9
10 05 2007	130	72	100.0	57	79.2	11 07 2007	192	72	100.0	58	80.6
11 05 2007	131	72	100.0	62	86.1	12 07 2007	193	72	100.0	60	83.3
12 05 2007	132	72	100.0	61	84.7	13 07 2007	194	72	100.0	71	98.6
13 05 2007	133	72	100.0	59	81.9	14 07 2007	195	72	100.0	65	90.3
14 05 2007	134	72	100.0	57	79.2	15 07 2007	196	72	100.0	55	76.4
15 05 2007	135	72	100.0	59	81.9	16 07 2007	197	72	100.0	66	91.7
16 05 2007	136	72	100.0	60	83.3	17 07 2007	198	72	100.0	60	83.3
17 05 2007	137	72	100.0	66	91.7	18 07 2007	199	72	100.0	68	94.4
18 05 2007	138	72	100.0	55	76.4	19 07 2007	200	72	100.0	60	83.3
19 05 2007	139	72	100.0	63	87.5	20 07 2007	201	72	100.0	59	81.9
20 05 2007	140	72	100.0	58	80.6	21 07 2007	202	72	100.0	56	77.8
21 05 2007	141	72	100.0	62	86.1	22 07 2007	203	72	100.0	56	77.8
22 05 2007	142	72	100.0	58	80.6	23 07 2007	204	72	100.0	55	76.4
23 05 2007	143	72	100.0	57	79.2	24 07 2007	205	72	100.0	42	58.3
24 05 2007	144	72	100.0	55	76.4	25 07 2007	206	72	100.0	52	72.2
25 05 2007	145	72	100.0	61	84.7	26 07 2007	207	72	100.0	54	75.0
26 05 2007	146	72	100.0	54	75.0	27 07 2007	208	72	100.0	66	91.7
27 05 2007	147	72	100.0	58	80.6	28 07 2007	209	72	100.0	65	90.3
28 05 2007	148	72	100.0	58	80.6	29 07 2007	210	72	100.0	67	93.1
29 05 2007	149	69	95.8	55	79.7	30 07 2007	211	72	100.0	69	95.8
30 05 2007	150	72	100.0	62	86.1	31 07 2007	212	72	100.0	56	77.8
31 05 2007	151	72	100.0	62	86.1	01 08 2007	213	72	100.0	64	88.9
01 06 2007	152	72	100.0	61	84.7	02 08 2007	214	72	100.0	66	91.7
02 06 2007	153	72	100.0	65	90.3	03 08 2007	215	72	100.0	69	95.8
03 06 2007	154	72	100.0	62	86.1	04 08 2007	216	72	100.0	67	93.1
04 06 2007	155	72	100.0	63	87.5	05 08 2007	217	72	100.0	47	65.3
05 06 2007	156	72	100.0	60	83.3	06 08 2007	218	72	100.0	59	81.9
06 06 2007	157	72	100.0	48	66.7	07 08 2007	219	72	100.0	62	86.1
07 06 2007	158	72	100.0	60	83.3	08 08 2007	220	72	100.0	56	77.8
08 06 2007	159	72	100.0	58	80.6	09 08 2007	221	72	100.0	53	73.6
09 06 2007	160	72	100.0	60	83.3	10 08 2007	222	72	100.0	65	90.3
10 06 2007	161	72	100.0	60	83.3	11 08 2007	223	72	100.0	60	83.3
11 06 2007	162	68	94.4	59	86.8	12 08 2007	224	72	100.0	60	83.3

13 08 2007	225	72	100.0	53	73.6	14 10 2007	287	72	100.0	67	93.1
14 08 2007	226	72	100.0	66	91.7	15 10 2007	288	72	100.0	70	97.2
15 08 2007	227	72	100.0	56	77.8	16 10 2007	289	72	100.0	72	100.0
16 08 2007	228	72	100.0	64	88.9	17 10 2007	290	72	100.0	71	98.6
17 08 2007	229	72	100.0	50	69.4	18 10 2007	291	71	98.6	67	94.4
18 08 2007	230	72	100.0	58	80.6	19 10 2007	292	72	100.0	67	93.1
19 08 2007	231	72	100.0	66	91.7	20 10 2007	293	72	100.0	69	95.8
20 08 2007	232	72	100.0	69	95.8	21 10 2007	294	72	100.0	71	98.6
21 08 2007	233	72	100.0	58	80.6	22 10 2007	295	72	100.0	72	100.0
22 08 2007	234	72	100.0	43	59.7	23 10 2007	296	72	100.0	70	97.2
23 08 2007	235	72	100.0	67	93.1	24 10 2007	297	72	100.0	71	98.6
24 08 2007	236	72	100.0	66	91.7	25 10 2007	298	72	100.0	72	100.0
25 08 2007	237	72	100.0	67	93.1	26 10 2007	299	72	100.0	61	84.7
26 08 2007	238	72	100.0	69	95.8	27 10 2007	300	72	100.0	54	75.0
27 08 2007	239	72	100.0	71	98.6	28 10 2007	301	72	100.0	70	97.2
28 08 2007	240	72	100.0	65	90.3	29 10 2007	302	72	100.0	63	87.5
29 08 2007	241	72	100.0	66	91.7	30 10 2007	303	72	100.0	60	83.3
30 08 2007	242	72	100.0	70	97.2	31 10 2007	304	72	100.0	58	80.6
31 08 2007	243	72	100.0	67	93.1	01 11 2007	305	72	100.0	64	88.9
01 09 2007	244	72	100.0	60	83.3	02 11 2007	306	72	100.0	67	93.1
02 09 2007	245	72	100.0	69	95.8	03 11 2007	307	72	100.0	68	94.4
03 09 2007	246	72	100.0	63	87.5	04 11 2007	308	72	100.0	70	97.2
04 09 2007	247	72	100.0	70	97.2	05 11 2007	309	59	81.9	52	88.1
05 09 2007	248	72	100.0	55	76.4	06 11 2007	310	72	100.0	59	81.9
06 09 2007	249	72	100.0	72	100.0	07 11 2007	311	72	100.0	64	88.9
07 09 2007	250	72	100.0	69	95.8	08 11 2007	312	72	100.0	60	83.3
08 09 2007	251	72	100.0	68	94.4	09 11 2007	313	72	100.0	70	97.2
09 09 2007	252	72	100.0	64	88.9	10 11 2007	314	72	100.0	66	91.7
10 09 2007	253	72	100.0	61	84.7	11 11 2007	315	72	100.0	64	88.9
11 09 2007	254	72	100.0	65	90.3	12 11 2007	316	72	100.0	69	95.8
12 09 2007	255	72	100.0	58	80.6	13 11 2007	317	72	100.0	67	93.1
13 09 2007	256	72	100.0	69	95.8	14 11 2007	318	72	100.0	67	93.1
14 09 2007	257	72	100.0	70	97.2	15 11 2007	319	72	100.0	71	98.6
15 09 2007	258	72	100.0	71	98.6	16 11 2007	320	72	100.0	64	88.9
16 09 2007	259	72	100.0	71	98.6	17 11 2007	321	72	100.0	67	93.1
17 09 2007	260	72	100.0	72	100.0	18 11 2007	322	72	100.0	71	98.6
18 09 2007	261	72	100.0	72	100.0	19 11 2007	323	72	100.0	67	93.1
19 09 2007	262	72	100.0	71	98.6	20 11 2007	324	72	100.0	64	88.9
20 09 2007	263	72	100.0	70	97.2	21 11 2007	325	72	100.0	65	90.3
21 09 2007	264	72	100.0	66	91.7	22 11 2007	326	67	93.1	56	83.6
22 09 2007	265	72	100.0	65	90.3	23 11 2007	327	72	100.0	55	76.4
23 09 2007	266	72	100.0	62	86.1	24 11 2007	328	72	100.0	58	80.6
24 09 2007	267	72	100.0	69	95.8	25 11 2007	329	72	100.0	65	90.3
25 09 2007	268	72	100.0	70	97.2	26 11 2007	330	72	100.0	61	84.7
26 09 2007	269	72	100.0	68	94.4	27 11 2007	331	72	100.0	52	72.2
27 09 2007	270	72	100.0	70	97.2	28 11 2007	332	72	100.0	55	76.4
28 09 2007	271	72	100.0	66	91.7	29 11 2007	333	72	100.0	58	80.6
29 09 2007	272	72	100.0	62	86.1	30 11 2007	334	72	100.0	55	76.4
30 09 2007	273	72	100.0	60	83.3	01 12 2007	335	72	100.0	50	69.4
01 10 2007	274	70	97.2	68	97.1	02 12 2007	336	72	100.0	48	66.7
02 10 2007	275	72	100.0	72	100.0	03 12 2007	337	72	100.0	53	73.6
03 10 2007	276	72	100.0	71	98.6	04 12 2007	338	72	100.0	58	80.6
04 10 2007	277	72	100.0	68	94.4	05 12 2007	339	72	100.0	66	91.7
05 10 2007	278	72	100.0	70	97.2	06 12 2007	340	72	100.0	68	94.4
06 10 2007	279	72	100.0	72	100.0	07 12 2007	341	72	100.0	68	94.4
07 10 2007	280	72	100.0	72	100.0	08 12 2007	342	72	100.0	68	94.4
08 10 2007	281	72	100.0	70	97.2	09 12 2007	343	72	100.0	69	95.8
09 10 2007	282	72	100.0	72	100.0	10 12 2007	344	72	100.0	71	98.6
10 10 2007	283	72	100.0	71	98.6	11 12 2007	345	72	100.0	70	97.2
11 10 2007	284	72	100.0	70	97.2	12 12 2007	346	72	100.0	70	97.2
12 10 2007	285	72	100.0	72	100.0	13 12 2007	347	72	100.0	64	88.9
13 10 2007	286	72	100.0	69	95.8	14 12 2007	348	72	100.0	72	100.0

15 12 2007	349	72	100.0	70	97.2
16 12 2007	350	72	100.0	69	95.8
17 12 2007	351	72	100.0	66	91.7
18 12 2007	352	72	100.0	71	98.6
19 12 2007	353	72	100.0	69	95.8
20 12 2007	354	72	100.0	70	97.2
21 12 2007	355	72	100.0	69	95.8
22 12 2007	356	72	100.0	69	95.8
23 12 2007	357	72	100.0	69	95.8
24 12 2007	358	72	100.0	65	90.3
25 12 2007	359	72	100.0	61	84.7
26 12 2007	360	72	100.0	69	95.8
27 12 2007	361	72	100.0	66	91.7
28 12 2007	362	72	100.0	65	90.3
29 12 2007	363	72	100.0	62	86.1
30 12 2007	364	72	100.0	71	98.6
31 12 2007	365	72	100.0	69	95.8

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DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2008	001	72	100.0	68	94.4
02 01 2008	002	72	100.0	65	90.3
03 01 2008	003	72	100.0	66	91.7
04 01 2008	004	72	100.0	68	94.4
05 01 2008	005	72	100.0	65	90.3
06 01 2008	006	72	100.0	67	93.1
07 01 2008	007	72	100.0	65	90.3
08 01 2008	008	72	100.0	64	88.9
09 01 2008	009	72	100.0	67	93.1
10 01 2008	010	72	100.0	68	94.4
11 01 2008	011	72	100.0	68	94.4
12 01 2008	012	72	100.0	66	91.7
13 01 2008	013	72	100.0	65	90.3
14 01 2008	014	72	100.0	66	91.7
15 01 2008	015	72	100.0	58	80.6
16 01 2008	016	72	100.0	62	86.1
17 01 2008	017	72	100.0	64	88.9
18 01 2008	018	72	100.0	68	94.4
19 01 2008	019	72	100.0	71	98.6
20 01 2008	020	72	100.0	67	93.1
21 01 2008	021	72	100.0	63	87.5
22 01 2008	022	72	100.0	61	84.7
23 01 2008	023	72	100.0	63	87.5
24 01 2008	024	72	100.0	54	75.0
25 01 2008	025	72	100.0	64	88.9
26 01 2008	026	72	100.0	69	95.8
27 01 2008	027	72	100.0	69	95.8
28 01 2008	028	72	100.0	70	97.2
29 01 2008	029	72	100.0	67	93.1
30 01 2008	030	72	100.0	65	90.3
31 01 2008	031	72	100.0	68	94.4
01 02 2008	032	72	100.0	68	94.4
02 02 2008	033	72	100.0	61	84.7
03 02 2008	034	72	100.0	62	86.1
04 02 2008	035	72	100.0	70	97.2
05 02 2008	036	72	100.0	71	98.6
06 02 2008	037	72	100.0	71	98.6
07 02 2008	038	72	100.0	68	94.4
08 02 2008	039	72	100.0	69	95.8
09 02 2008	040	72	100.0	66	91.7
10 02 2008	041	72	100.0	67	93.1
11 02 2008	042	72	100.0	66	91.7
12 02 2008	043	84	97.7	74	88.1
13 02 2008	044	95	99.0	84	88.4
14 02 2008	045	96	100.0	70	72.9
15 02 2008	046	96	100.0	93	96.9
16 02 2008	047	96	100.0	95	99.0
17 02 2008	048	96	100.0	92	95.8
18 02 2008	049	96	100.0	92	95.8
19 02 2008	050	96	100.0	95	99.0
20 02 2008	051	96	100.0	95	99.0
21 02 2008	052	96	100.0	95	99.0
22 02 2008	053	96	100.0	93	96.9
23 02 2008	054	96	100.0	93	96.9
24 02 2008	055	96	100.0	95	99.0
25 02 2008	056	96	100.0	95	99.0
26 02 2008	057	96	100.0	94	97.9
27 02 2008	058	96	100.0	94	97.9
28 02 2008	059	96	100.0	92	95.8
29 02 2008	060	96	100.0	90	93.8
01 03 2008	061	96	100.0	95	99.0
02 03 2008	062	96	100.0	92	95.8
03 03 2008	063	96	100.0	95	99.0
04 03 2008	064	96	100.0	95	99.0
05 03 2008	065	96	100.0	96	100.0
06 03 2008	066	96	100.0	96	100.0
07 03 2008	067	96	100.0	96	100.0
08 03 2008	068	96	100.0	96	100.0
09 03 2008	069	96	100.0	92	95.8
10 03 2008	070	96	100.0	94	97.9
11 03 2008	071	96	100.0	95	99.0
12 03 2008	072	96	100.0	95	99.0
13 03 2008	073	96	100.0	96	100.0
14 03 2008	074	96	100.0	95	99.0
15 03 2008	075	96	100.0	96	100.0
16 03 2008	076	96	100.0	95	99.0
17 03 2008	077	96	100.0	94	97.9
18 03 2008	078	96	100.0	96	100.0
19 03 2008	079	96	100.0	95	99.0
20 03 2008	080	96	100.0	93	96.9
21 03 2008	081	96	100.0	94	97.9
22 03 2008	082	96	100.0	95	99.0
23 03 2008	083	96	100.0	94	97.9
24 03 2008	084	96	100.0	94	97.9
25 03 2008	085	96	100.0	95	99.0
26 03 2008	086	96	100.0	96	100.0
27 03 2008	087	96	100.0	96	100.0
28 03 2008	088	96	100.0	95	99.0
29 03 2008	089	96	100.0	94	97.9
30 03 2008	090	96	100.0	93	96.9
31 03 2008	091	96	100.0	95	99.0
01 04 2008	092	96	100.0	93	96.9
02 04 2008	093	96	100.0	95	99.0
03 04 2008	094	96	100.0	96	100.0

04 04 2008	095	96	100.0	95	99.0
05 04 2008	096	96	100.0	96	100.0
06 04 2008	097	96	100.0	94	97.9
07 04 2008	098	96	100.0	96	100.0
08 04 2008	099	96	100.0	96	100.0
09 04 2008	100	96	100.0	95	99.0
10 04 2008	101	96	100.0	96	100.0
11 04 2008	102	96	100.0	96	100.0
12 04 2008	103	96	100.0	96	100.0
13 04 2008	104	96	100.0	94	97.9
14 04 2008	105	96	100.0	95	99.0
15 04 2008	106	96	100.0	95	99.0
16 04 2008	107	96	100.0	95	99.0
17 04 2008	108	96	100.0	92	95.8
18 04 2008	109	96	100.0	94	97.9
19 04 2008	110	96	100.0	96	100.0
20 04 2008	111	96	100.0	96	100.0
21 04 2008	112	96	100.0	96	100.0
22 04 2008	113	96	100.0	92	95.8
23 04 2008	114	96	100.0	93	96.9
24 04 2008	115	96	100.0	95	99.0
25 04 2008	116	96	100.0	90	93.8
26 04 2008	117	96	100.0	96	100.0
27 04 2008	118	96	100.0	95	99.0
28 04 2008	119	96	100.0	94	97.9
29 04 2008	120	96	100.0	94	97.9
30 04 2008	121	96	100.0	92	95.8
01 05 2008	122	96	100.0	94	97.9
02 05 2008	123	85	88.5	83	97.6
03 05 2008	124	59	61.5	56	94.9
04 05 2008	125	96	100.0	93	96.9
05 05 2008	126	96	100.0	93	96.9
06 05 2008	127	96	100.0	92	95.8
07 05 2008	128	96	100.0	94	97.9
08 05 2008	129	96	100.0	96	100.0
09 05 2008	130	96	100.0	91	94.8
10 05 2008	131	96	100.0	84	87.5
11 05 2008	132	96	100.0	86	89.6
12 05 2008	133	96	100.0	87	90.6
13 05 2008	134	66	68.8	55	83.3
14 05 2008	135	70	72.9	64	91.4
15 05 2008	136	96	100.0	91	94.8
16 05 2008	137	96	100.0	94	97.9
17 05 2008	138	96	100.0	89	92.7
18 05 2008	139	96	100.0	84	87.5
19 05 2008	140	96	100.0	92	95.8
20 05 2008	141	96	100.0	80	83.3
21 05 2008	142	96	100.0	89	92.7
22 05 2008	143	96	100.0	81	84.4
23 05 2008	144	96	100.0	87	90.6
24 05 2008	145	96	100.0	54	56.3
25 05 2008	146	96	100.0	68	70.8
26 05 2008	147	96	100.0	70	72.9
27 05 2008	148	96	100.0	71	74.0
28 05 2008	149	96	100.0	72	75.0
29 05 2008	150	96	100.0	54	56.3
30 05 2008	151	96	100.0	61	63.5
31 05 2008	152	96	100.0	66	68.8
01 06 2008	153	96	100.0	58	60.4
02 06 2008	154	96	100.0	68	70.8
03 06 2008	155	96	100.0	76	79.2
04 06 2008	156	96	100.0	77	80.2

05 06 2008	157	96	100.0	81	84.4
06 06 2008	158	96	100.0	81	84.4
07 06 2008	159	96	100.0	70	72.9
08 06 2008	160	96	100.0	68	70.8
09 06 2008	161	96	100.0	72	75.0
10 06 2008	162	96	100.0	78	81.3
11 06 2008	163	96	100.0	90	93.8
12 06 2008	164	96	100.0	89	92.7
13 06 2008	165	96	100.0	81	84.4
14 06 2008	166	96	100.0	88	91.7
15 06 2008	167	96	100.0	93	96.9
16 06 2008	168	96	100.0	85	88.5
17 06 2008	169	96	100.0	89	92.7
18 06 2008	170	96	100.0	83	86.5
19 06 2008	171	96	100.0	92	95.8
20 06 2008	172	96	100.0	82	85.4
21 06 2008	173	96	100.0	74	77.1
22 06 2008	174	96	100.0	74	77.1
23 06 2008	175	96	100.0	79	82.3
24 06 2008	176	96	100.0	63	65.6
25 06 2008	177	96	100.0	64	66.7
26 06 2008	178	96	100.0	65	67.7
27 06 2008	179	96	100.0	66	68.8
28 06 2008	180	96	100.0	76	79.2
29 06 2008	181	96	100.0	85	88.5
30 06 2008	182	96	100.0	68	70.8
01 07 2008	183	96	100.0	66	68.8
02 07 2008	184	96	100.0	69	71.9
03 07 2008	185	96	100.0	76	79.2
04 07 2008	186	96	100.0	68	70.8
05 07 2008	187	96	100.0	79	82.3
06 07 2008	188	96	100.0	66	68.8
07 07 2008	189	96	100.0	62	64.6
08 07 2008	190	96	100.0	82	85.4
09 07 2008	191	65	67.7	44	67.7
10 07 2008	192	96	100.0	66	68.8
11 07 2008	193	96	100.0	52	54.2
12 07 2008	194	96	100.0	65	67.7
13 07 2008	195	96	100.0	55	57.3
14 07 2008	196	96	100.0	59	61.5
15 07 2008	197	96	100.0	64	66.7
16 07 2008	198	96	100.0	61	63.5
17 07 2008	199	61	63.5	38	62.3
18 07 2008	200	55	57.3	37	67.3
19 07 2008	201	96	100.0	78	81.3
20 07 2008	202	96	100.0	61	63.5
21 07 2008	203	96	100.0	69	71.9
22 07 2008	204	96	100.0	79	82.3
23 07 2008	205	96	100.0	74	77.1
24 07 2008	206	96	100.0	50	52.1
25 07 2008	207	96	100.0	65	67.7
26 07 2008	208	96	100.0	56	58.3
27 07 2008	209	77	80.2	41	53.2
28 07 2008	210	65	67.7	36	55.4
29 07 2008	211	96	100.0	67	69.8
30 07 2008	212	96	100.0	66	68.8
31 07 2008	213	96	100.0	62	64.6
01 08 2008	214	96	100.0	65	67.7
02 08 2008	215	96	100.0	76	79.2
03 08 2008	216	96	100.0	78	81.3
04 08 2008	217	96	100.0	66	68.8
05 08 2008	218	96	100.0	83	86.5

06 08 2008	219	96	100.0	73	76.0
07 08 2008	220	96	100.0	61	63.5
08 08 2008	221	96	100.0	67	69.8
09 08 2008	222	96	100.0	70	72.9
10 08 2008	223	96	100.0	70	72.9
11 08 2008	224	96	100.0	76	79.2
12 08 2008	225	96	100.0	56	58.3
13 08 2008	226	96	100.0	45	46.9
14 08 2008	227	96	100.0	69	71.9
15 08 2008	228	96	100.0	69	71.9
16 08 2008	229	96	100.0	66	68.8
17 08 2008	230	96	100.0	60	62.5
18 08 2008	231	96	100.0	62	64.6
19 08 2008	232	96	100.0	81	84.4
20 08 2008	233	96	100.0	71	74.0
21 08 2008	234	96	100.0	73	76.0
22 08 2008	235	96	100.0	83	86.5
23 08 2008	236	96	100.0	77	80.2
24 08 2008	237	96	100.0	88	91.7
25 08 2008	238	86	89.6	79	91.9
26 08 2008	239	96	100.0	79	82.3
27 08 2008	240	77	80.2	63	81.8
28 08 2008	241	85	88.5	69	81.2
29 08 2008	242	96	100.0	82	85.4
30 08 2008	243	96	100.0	91	94.8
31 08 2008	244	96	100.0	94	97.9
01 09 2008	245	94	97.9	92	97.9
02 09 2008	246	96	100.0	88	91.7
03 09 2008	247	96	100.0	96	100.0
04 09 2008	248	96	100.0	92	95.8
05 09 2008	249	96	100.0	86	89.6
06 09 2008	250	96	100.0	90	93.8
07 09 2008	251	96	100.0	96	100.0
08 09 2008	252	96	100.0	88	91.7
09 09 2008	253	96	100.0	94	97.9
10 09 2008	254	96	100.0	96	100.0
11 09 2008	255	96	100.0	94	97.9
12 09 2008	256	96	100.0	91	94.8
13 09 2008	257	96	100.0	93	96.9
14 09 2008	258	96	100.0	95	99.0
15 09 2008	259	96	100.0	96	100.0
16 09 2008	260	96	100.0	88	91.7
17 09 2008	261	96	100.0	88	91.7
18 09 2008	262	96	100.0	90	93.8
19 09 2008	263	96	100.0	92	95.8
20 09 2008	264	96	100.0	95	99.0
21 09 2008	265	96	100.0	90	93.8
22 09 2008	266	96	100.0	88	91.7
23 09 2008	267	96	100.0	92	95.8
24 09 2008	268	96	100.0	95	99.0
25 09 2008	269	96	100.0	96	100.0
26 09 2008	270	96	100.0	94	97.9
27 09 2008	271	96	100.0	96	100.0
28 09 2008	272	96	100.0	96	100.0
29 09 2008	273	96	100.0	95	99.0
30 09 2008	274	96	100.0	95	99.0
01 10 2008	275	96	100.0	94	97.9
02 10 2008	276	96	100.0	94	97.9
03 10 2008	277	96	100.0	90	93.8
04 10 2008	278	96	100.0	94	97.9
05 10 2008	279	96	100.0	95	99.0
06 10 2008	280	96	100.0	94	97.9
07 10 2008	281	96	100.0	96	100.0
08 10 2008	282	96	100.0	95	99.0
09 10 2008	283	96	100.0	96	100.0
10 10 2008	284	96	100.0	96	100.0
11 10 2008	285	96	100.0	91	94.8
12 10 2008	286	96	100.0	96	100.0
13 10 2008	287	96	100.0	93	96.9
14 10 2008	288	96	100.0	93	96.9
15 10 2008	289	96	100.0	93	96.9
16 10 2008	290	96	100.0	92	95.8
17 10 2008	291	96	100.0	91	94.8
18 10 2008	292	96	100.0	95	99.0
19 10 2008	293	96	100.0	95	99.0
20 10 2008	294	96	100.0	95	99.0
21 10 2008	295	96	100.0	96	100.0
22 10 2008	296	96	100.0	90	93.8
23 10 2008	297	96	100.0	74	77.1
24 10 2008	298	95	99.0	76	80.0
25 10 2008	299	96	100.0	95	99.0
26 10 2008	300	96	100.0	95	99.0
27 10 2008	301	96	100.0	90	93.8
28 10 2008	302	96	100.0	93	96.9
29 10 2008	303	96	100.0	96	100.0
30 10 2008	304	96	100.0	93	96.9
31 10 2008	305	96	100.0	92	95.8
01 11 2008	306	96	100.0	94	97.9
02 11 2008	307	96	100.0	94	97.9
03 11 2008	308	96	100.0	94	97.9
04 11 2008	309	96	100.0	94	97.9
05 11 2008	310	96	100.0	95	99.0
06 11 2008	311	96	100.0	96	100.0
07 11 2008	312	96	100.0	96	100.0
08 11 2008	313	96	100.0	92	95.8
09 11 2008	314	96	100.0	95	99.0
10 11 2008	315	96	100.0	95	99.0
11 11 2008	316	96	100.0	96	100.0
12 11 2008	317	79	82.3	78	98.7
13 11 2008	318	96	100.0	93	96.9
14 11 2008	319	96	100.0	94	97.9
15 11 2008	320	96	100.0	87	90.6
16 11 2008	321	96	100.0	93	96.9
17 11 2008	322	96	100.0	94	97.9
18 11 2008	323	96	100.0	93	96.9
19 11 2008	324	96	100.0	95	99.0
20 11 2008	325	96	100.0	95	99.0
21 11 2008	326	96	100.0	90	93.8
22 11 2008	327	96	100.0	89	92.7
23 11 2008	328	96	100.0	92	95.8
24 11 2008	329	96	100.0	95	99.0
25 11 2008	330	96	100.0	93	96.9
26 11 2008	331	96	100.0	93	96.9
27 11 2008	332	96	100.0	91	94.8
28 11 2008	333	96	100.0	89	92.7
29 11 2008	334	96	100.0	95	99.0
30 11 2008	335	96	100.0	93	96.9
01 12 2008	336	96	100.0	90	93.8
02 12 2008	337	96	100.0	91	94.8
03 12 2008	338	96	100.0	89	92.7
04 12 2008	339	96	100.0	95	99.0
05 12 2008	340	96	100.0	89	92.7
06 12 2008	341	96	100.0	92	95.8
07 12 2008	342	96	100.0	92	95.8

08 12 2008	343	96	100.0	91	94.8	20 12 2008	355	96	100.0	80	83.3
09 12 2008	344	96	100.0	91	94.8	21 12 2008	356	96	100.0	91	94.8
10 12 2008	345	96	100.0	93	96.9	22 12 2008	357	96	100.0	92	95.8
11 12 2008	346	96	100.0	87	90.6	23 12 2008	358	96	100.0	93	96.9
12 12 2008	347	96	100.0	95	99.0	24 12 2008	359	96	100.0	93	96.9
13 12 2008	348	96	100.0	90	93.8	25 12 2008	360	96	100.0	90	93.8
14 12 2008	349	96	100.0	92	95.8	26 12 2008	361	96	100.0	84	87.5
15 12 2008	350	96	100.0	92	95.8	27 12 2008	362	96	100.0	96	100.0
16 12 2008	351	96	100.0	91	94.8	28 12 2008	363	96	100.0	93	96.9
17 12 2008	352	96	100.0	88	91.7	29 12 2008	364	96	100.0	82	85.4
18 12 2008	353	96	100.0	93	96.9	30 12 2008	365	96	100.0	90	93.8
19 12 2008	354	96	100.0	89	92.7	31 12 2008	366	95	99.0	91	95.8

2009

DATE	DOY	DIS	DIS%	AIS	AIS%	DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2009	001	96	100.0	93	96.9	14 02 2009	045	96	100.0	90	93.8
02 01 2009	002	96	100.0	93	96.9	15 02 2009	046	96	100.0	90	93.8
03 01 2009	003	96	100.0	92	95.8	16 02 2009	047	96	100.0	91	94.8
04 01 2009	004	96	100.0	93	96.9	17 02 2009	048	96	100.0	89	92.7
05 01 2009	005	96	100.0	92	95.8	18 02 2009	049	96	100.0	95	99.0
06 01 2009	006	96	100.0	90	93.8	19 02 2009	050	96	100.0	94	97.9
07 01 2009	007	96	100.0	92	95.8	20 02 2009	051	96	100.0	94	97.9
08 01 2009	008	96	100.0	87	90.6	21 02 2009	052	96	100.0	96	100.0
09 01 2009	009	96	100.0	94	97.9	22 02 2009	053	96	100.0	94	97.9
10 01 2009	010	96	100.0	89	92.7	23 02 2009	054	96	100.0	96	100.0
11 01 2009	011	96	100.0	91	94.8	24 02 2009	055	96	100.0	90	93.8
12 01 2009	012	96	100.0	84	87.5	25 02 2009	056	96	100.0	96	100.0
13 01 2009	013	96	100.0	94	97.9	26 02 2009	057	96	100.0	94	97.9
14 01 2009	014	96	100.0	93	96.9	27 02 2009	058	96	100.0	96	100.0
15 01 2009	015	96	100.0	94	97.9	28 02 2009	059	96	100.0	96	100.0
16 01 2009	016	96	100.0	95	99.0	01 03 2009	060	96	100.0	93	96.9
17 01 2009	017	96	100.0	95	99.0	02 03 2009	061	96	100.0	96	100.0
18 01 2009	018	96	100.0	94	97.9	03 03 2009	062	96	100.0	95	99.0
19 01 2009	019	96	100.0	93	96.9	04 03 2009	063	96	100.0	93	96.9
20 01 2009	020	96	100.0	88	91.7	05 03 2009	064	96	100.0	94	97.9
21 01 2009	021	96	100.0	82	85.4	06 03 2009	065	96	100.0	94	97.9
22 01 2009	022	96	100.0	95	99.0	07 03 2009	066	96	100.0	95	99.0
23 01 2009	023	96	100.0	82	85.4	08 03 2009	067	96	100.0	95	99.0
24 01 2009	024	96	100.0	85	88.5	09 03 2009	068	96	100.0	96	100.0
25 01 2009	025	96	100.0	87	90.6	10 03 2009	069	96	100.0	96	100.0
26 01 2009	026	96	100.0	88	91.7	11 03 2009	070	96	100.0	96	100.0
27 01 2009	027	96	100.0	94	97.9	12 03 2009	071	96	100.0	94	97.9
28 01 2009	028	96	100.0	92	95.8	13 03 2009	072	96	100.0	94	97.9
29 01 2009	029	96	100.0	90	93.8	14 03 2009	073	96	100.0	94	97.9
30 01 2009	030	96	100.0	93	96.9	15 03 2009	074	96	100.0	94	97.9
31 01 2009	031	96	100.0	80	83.3	16 03 2009	075	96	100.0	95	99.0
01 02 2009	032	96	100.0	93	96.9	17 03 2009	076	96	100.0	95	99.0
02 02 2009	033	96	100.0	93	96.9	18 03 2009	077	96	100.0	96	100.0
03 02 2009	034	96	100.0	95	99.0	19 03 2009	078	96	100.0	96	100.0
04 02 2009	035	96	100.0	93	96.9	20 03 2009	079	96	100.0	95	99.0
05 02 2009	036	96	100.0	95	99.0	21 03 2009	080	96	100.0	96	100.0
06 02 2009	037	96	100.0	95	99.0	22 03 2009	081	96	100.0	92	95.8
07 02 2009	038	96	100.0	91	94.8	23 03 2009	082	96	100.0	93	96.9
08 02 2009	039	96	100.0	89	92.7	24 03 2009	083	96	100.0	96	100.0
09 02 2009	040	96	100.0	95	99.0	25 03 2009	084	96	100.0	94	97.9
10 02 2009	041	96	100.0	95	99.0	26 03 2009	085	96	100.0	96	100.0
11 02 2009	042	96	100.0	94	97.9	27 03 2009	086	96	100.0	96	100.0
12 02 2009	043	96	100.0	95	99.0	28 03 2009	087	96	100.0	94	97.9
13 02 2009	044	96	100.0	92	95.8	29 03 2009	088	96	100.0	96	100.0

30 03 2009	089	96	100.0	96	100.0
31 03 2009	090	96	100.0	94	97.9
01 04 2009	091	96	100.0	96	100.0
02 04 2009	092	96	100.0	96	100.0
03 04 2009	093	96	100.0	95	99.0
04 04 2009	094	96	100.0	95	99.0
05 04 2009	095	96	100.0	96	100.0
06 04 2009	096	96	100.0	96	100.0
07 04 2009	097	96	100.0	94	97.9
08 04 2009	098	96	100.0	96	100.0
09 04 2009	099	96	100.0	94	97.9
10 04 2009	100	96	100.0	96	100.0
11 04 2009	101	96	100.0	95	99.0
12 04 2009	102	96	100.0	94	97.9
13 04 2009	103	96	100.0	95	99.0
14 04 2009	104	94	97.9	89	94.7
15 04 2009	105	96	100.0	96	100.0
16 04 2009	106	96	100.0	95	99.0
17 04 2009	107	96	100.0	92	95.8
18 04 2009	108	96	100.0	96	100.0
19 04 2009	109	96	100.0	89	92.7
20 04 2009	110	96	100.0	95	99.0
21 04 2009	111	96	100.0	92	95.8
22 04 2009	112	96	100.0	96	100.0
23 04 2009	113	96	100.0	96	100.0
24 04 2009	114	96	100.0	93	96.9
25 04 2009	115	96	100.0	95	99.0
26 04 2009	116	96	100.0	96	100.0
27 04 2009	117	95	99.0	95	100.0
28 04 2009	118	96	100.0	95	99.0
29 04 2009	119	96	100.0	93	96.9
30 04 2009	120	96	100.0	95	99.0
01 05 2009	121	96	100.0	93	96.9
02 05 2009	122	96	100.0	79	82.3
03 05 2009	123	96	100.0	85	88.5
04 05 2009	124	96	100.0	85	88.5
05 05 2009	125	96	100.0	95	99.0
06 05 2009	126	96	100.0	95	99.0
07 05 2009	127	96	100.0	88	91.7
08 05 2009	128	52	54.2	46	88.5
09 05 2009	129	96	100.0	87	90.6
10 05 2009	130	96	100.0	91	94.8
11 05 2009	131	96	100.0	87	90.6
12 05 2009	132	96	100.0	95	99.0
13 05 2009	133	96	100.0	80	83.3
14 05 2009	134	96	100.0	88	91.7
15 05 2009	135	96	100.0	92	95.8
16 05 2009	136	96	100.0	83	86.5
17 05 2009	137	96	100.0	83	86.5
18 05 2009	138	96	100.0	82	85.4
19 05 2009	139	96	100.0	86	89.6
20 05 2009	140	96	100.0	90	93.8
21 05 2009	141	96	100.0	82	85.4
22 05 2009	142	96	100.0	84	87.5
23 05 2009	143	96	100.0	83	86.5
24 05 2009	144	96	100.0	89	92.7
25 05 2009	145	95	99.0	64	67.4
26 05 2009	146	92	95.8	54	58.7
27 05 2009	147	96	100.0	83	86.5
28 05 2009	148	96	100.0	92	95.8
29 05 2009	149	96	100.0	75	78.1
30 05 2009	150	96	100.0	83	86.5
31 05 2009	151	96	100.0	66	68.8
01 06 2009	152	96	100.0	76	79.2
02 06 2009	153	96	100.0	76	79.2
03 06 2009	154	96	100.0	82	85.4
04 06 2009	155	96	100.0	71	74.0
05 06 2009	156	96	100.0	55	57.3
06 06 2009	157	96	100.0	67	69.8
07 06 2009	158	96	100.0	79	82.3
08 06 2009	159	96	100.0	90	93.8
09 06 2009	160	96	100.0	90	93.8
10 06 2009	161	96	100.0	81	84.4
11 06 2009	162	96	100.0	65	67.7
12 06 2009	163	96	100.0	69	71.9
13 06 2009	164	96	100.0	79	82.3
14 06 2009	165	96	100.0	68	70.8
15 06 2009	166	96	100.0	84	87.5
16 06 2009	167	96	100.0	59	61.5
17 06 2009	168	96	100.0	77	80.2
18 06 2009	169	96	100.0	85	88.5
19 06 2009	170	96	100.0	60	62.5
20 06 2009	171	96	100.0	57	59.4
21 06 2009	172	96	100.0	40	41.7
22 06 2009	173	96	100.0	58	60.4
23 06 2009	174	96	100.0	82	85.4
24 06 2009	175	96	100.0	66	68.8
25 06 2009	176	96	100.0	85	88.5
26 06 2009	177	96	100.0	63	65.6
27 06 2009	178	96	100.0	89	92.7
28 06 2009	179	96	100.0	88	91.7
29 06 2009	180	96	100.0	74	77.1
30 06 2009	181	96	100.0	79	82.3
01 07 2009	182	96	100.0	73	76.0
02 07 2009	183	96	100.0	75	78.1
03 07 2009	184	96	100.0	71	74.0
04 07 2009	185	96	100.0	78	81.3
05 07 2009	186	96	100.0	75	78.1
06 07 2009	187	93	96.9	63	67.7
07 07 2009	188	96	100.0	82	85.4
08 07 2009	189	96	100.0	63	65.6
09 07 2009	190	96	100.0	73	76.0
10 07 2009	191	96	100.0	78	81.3
11 07 2009	192	96	100.0	75	78.1
12 07 2009	193	96	100.0	81	84.4
13 07 2009	194	96	100.0	86	89.6
14 07 2009	195	96	100.0	89	92.7
15 07 2009	196	96	100.0	68	70.8
16 07 2009	197	96	100.0	68	70.8
17 07 2009	198	96	100.0	41	42.7
18 07 2009	199	96	100.0	66	68.8
19 07 2009	200	96	100.0	82	85.4
20 07 2009	201	96	100.0	83	86.5
21 07 2009	202	96	100.0	77	80.2
22 07 2009	203	96	100.0	81	84.4
23 07 2009	204	96	100.0	73	76.0
24 07 2009	205	96	100.0	76	79.2
25 07 2009	206	96	100.0	86	89.6
26 07 2009	207	96	100.0	71	74.0
27 07 2009	208	96	100.0	82	85.4
28 07 2009	209	96	100.0	84	87.5
29 07 2009	210	96	100.0	56	58.3
30 07 2009	211	96	100.0	87	90.6
31 07 2009	212	96	100.0	64	66.7

01 08 2009	213	96	100.0	81	84.4	02 10 2009	275	96	100.0	96	100.0
02 08 2009	214	96	100.0	76	79.2	03 10 2009	276	96	100.0	96	100.0
03 08 2009	215	96	100.0	83	86.5	04 10 2009	277	96	100.0	93	96.9
04 08 2009	216	96	100.0	55	57.3	05 10 2009	278	96	100.0	94	97.9
05 08 2009	217	96	100.0	74	77.1	06 10 2009	279	96	100.0	96	100.0
06 08 2009	218	96	100.0	63	65.6	07 10 2009	280	83	86.5	82	98.8
07 08 2009	219	96	100.0	91	94.8	08 10 2009	281	71	74.0	71	100.0
08 08 2009	220	96	100.0	82	85.4	09 10 2009	282	96	100.0	95	99.0
09 08 2009	221	96	100.0	89	92.7	10 10 2009	283	96	100.0	95	99.0
10 08 2009	222	96	100.0	89	92.7	11 10 2009	284	96	100.0	93	96.9
11 08 2009	223	96	100.0	81	84.4	12 10 2009	285	96	100.0	96	100.0
12 08 2009	224	96	100.0	89	92.7	13 10 2009	286	96	100.0	93	96.9
13 08 2009	225	96	100.0	90	93.8	14 10 2009	287	96	100.0	96	100.0
14 08 2009	226	96	100.0	89	92.7	15 10 2009	288	96	100.0	93	96.9
15 08 2009	227	96	100.0	81	84.4	16 10 2009	289	96	100.0	96	100.0
16 08 2009	228	96	100.0	60	62.5	17 10 2009	290	96	100.0	96	100.0
17 08 2009	229	96	100.0	78	81.3	18 10 2009	291	96	100.0	96	100.0
18 08 2009	230	96	100.0	86	89.6	19 10 2009	292	96	100.0	95	99.0
19 08 2009	231	96	100.0	88	91.7	20 10 2009	293	96	100.0	94	97.9
20 08 2009	232	72	75.0	61	84.7	21 10 2009	294	96	100.0	94	97.9
21 08 2009	233	44	45.8	36	81.8	22 10 2009	295	96	100.0	95	99.0
22 08 2009	234	96	100.0	90	93.8	23 10 2009	296	96	100.0	91	94.8
23 08 2009	235	96	100.0	89	92.7	24 10 2009	297	96	100.0	92	95.8
24 08 2009	236	96	100.0	84	87.5	25 10 2009	298	96	100.0	94	97.9
25 08 2009	237	96	100.0	80	83.3	26 10 2009	299	96	100.0	96	100.0
26 08 2009	238	96	100.0	75	78.1	27 10 2009	300	96	100.0	94	97.9
27 08 2009	239	96	100.0	73	76.0	28 10 2009	301	96	100.0	89	92.7
28 08 2009	240	96	100.0	90	93.8	29 10 2009	302	96	100.0	94	97.9
29 08 2009	241	96	100.0	84	87.5	30 10 2009	303	96	100.0	96	100.0
30 08 2009	242	96	100.0	95	99.0	31 10 2009	304	96	100.0	95	99.0
31 08 2009	243	96	100.0	83	86.5	01 11 2009	305	96	100.0	96	100.0
01 09 2009	244	96	100.0	85	88.5	02 11 2009	306	96	100.0	94	97.9
02 09 2009	245	96	100.0	91	94.8	03 11 2009	307	96	100.0	95	99.0
03 09 2009	246	96	100.0	93	96.9	04 11 2009	308	96	100.0	91	94.8
04 09 2009	247	96	100.0	94	97.9	05 11 2009	309	96	100.0	94	97.9
05 09 2009	248	96	100.0	95	99.0	06 11 2009	310	96	100.0	89	92.7
06 09 2009	249	96	100.0	92	95.8	07 11 2009	311	96	100.0	95	99.0
07 09 2009	250	96	100.0	84	87.5	08 11 2009	312	96	100.0	95	99.0
08 09 2009	251	96	100.0	61	63.5	09 11 2009	313	96	100.0	94	97.9
09 09 2009	252	96	100.0	80	83.3	10 11 2009	314	96	100.0	92	95.8
10 09 2009	253	96	100.0	92	95.8	11 11 2009	315	96	100.0	92	95.8
11 09 2009	254	96	100.0	95	99.0	12 11 2009	316	96	100.0	95	99.0
12 09 2009	255	96	100.0	95	99.0	13 11 2009	317	96	100.0	96	100.0
13 09 2009	256	96	100.0	95	99.0	14 11 2009	318	96	100.0	95	99.0
14 09 2009	257	96	100.0	93	96.9	15 11 2009	319	96	100.0	90	93.8
15 09 2009	258	96	100.0	95	99.0	16 11 2009	320	96	100.0	90	93.8
16 09 2009	259	96	100.0	93	96.9	17 11 2009	321	96	100.0	96	100.0
17 09 2009	260	96	100.0	93	96.9	18 11 2009	322	96	100.0	95	99.0
18 09 2009	261	96	100.0	95	99.0	19 11 2009	323	96	100.0	94	97.9
19 09 2009	262	96	100.0	94	97.9	20 11 2009	324	96	100.0	94	97.9
20 09 2009	263	96	100.0	95	99.0	21 11 2009	325	96	100.0	95	99.0
21 09 2009	264	96	100.0	87	90.6	22 11 2009	326	96	100.0	94	97.9
22 09 2009	265	96	100.0	93	96.9	23 11 2009	327	96	100.0	91	94.8
23 09 2009	266	96	100.0	96	100.0	24 11 2009	328	96	100.0	96	100.0
24 09 2009	267	96	100.0	95	99.0	25 11 2009	329	96	100.0	94	97.9
25 09 2009	268	96	100.0	95	99.0	26 11 2009	330	95	99.0	92	96.8
26 09 2009	269	96	100.0	96	100.0	27 11 2009	331	96	100.0	94	97.9
27 09 2009	270	96	100.0	93	96.9	28 11 2009	332	96	100.0	91	94.8
28 09 2009	271	96	100.0	90	93.8	29 11 2009	333	96	100.0	93	96.9
29 09 2009	272	96	100.0	96	100.0	30 11 2009	334	96	100.0	81	84.4
30 09 2009	273	96	100.0	96	100.0	01 12 2009	335	96	100.0	88	91.7
01 10 2009	274	96	100.0	96	100.0	02 12 2009	336	96	100.0	68	70.8

03 12 2009	337	96	100.0	86	89.6	18 12 2009	352	96	100.0	83	86.5
04 12 2009	338	96	100.0	79	82.3	19 12 2009	353	96	100.0	78	81.3
05 12 2009	339	96	100.0	81	84.4	20 12 2009	354	95	99.0	77	81.1
06 12 2009	340	96	100.0	89	92.7	21 12 2009	355	95	99.0	67	70.5
07 12 2009	341	96	100.0	92	95.8	22 12 2009	356	96	100.0	83	86.5
08 12 2009	342	96	100.0	90	93.8	23 12 2009	357	96	100.0	93	96.9
09 12 2009	343	96	100.0	94	97.9	24 12 2009	358	96	100.0	91	94.8
10 12 2009	344	96	100.0	91	94.8	25 12 2009	359	96	100.0	91	94.8
11 12 2009	345	96	100.0	90	93.8	26 12 2009	360	96	100.0	93	96.9
12 12 2009	346	96	100.0	95	99.0	27 12 2009	361	96	100.0	92	95.8
13 12 2009	347	96	100.0	88	91.7	28 12 2009	362	96	100.0	93	96.9
14 12 2009	348	96	100.0	81	84.4	29 12 2009	363	96	100.0	95	99.0
15 12 2009	349	96	100.0	78	81.3	30 12 2009	364	96	100.0	89	92.7
16 12 2009	350	96	100.0	87	90.6	31 12 2009	365	96	100.0	83	86.5
17 12 2009	351	96	100.0	94	97.9						

2010

DATE	DOY	DIS	DIS%	AIS	AIS%	DATE	DOY	DIS	DIS%	AIS	AIS%
01 01 2010	001	96	100.0	83	86.5	11 02 2010	042	96	100.0	92	95.8
02 01 2010	002	96	100.0	82	85.4	12 02 2010	043	96	100.0	94	97.9
03 01 2010	003	96	100.0	87	90.6	13 02 2010	044	96	100.0	87	90.6
04 01 2010	004	96	100.0	86	89.6	14 02 2010	045	96	100.0	96	100.0
05 01 2010	005	96	100.0	85	88.5	15 02 2010	046	96	100.0	93	96.9
06 01 2010	006	96	100.0	90	93.8	16 02 2010	047	96	100.0	89	92.7
07 01 2010	007	96	100.0	92	95.8	17 02 2010	048	96	100.0	96	100.0
08 01 2010	008	96	100.0	90	93.8	18 02 2010	049	96	100.0	92	95.8
09 01 2010	009	96	100.0	87	90.6	19 02 2010	050	96	100.0	94	97.9
10 01 2010	010	96	100.0	88	91.7	20 02 2010	051	96	100.0	95	99.0
11 01 2010	011	96	100.0	91	94.8	21 02 2010	052	96	100.0	96	100.0
12 01 2010	012	96	100.0	81	84.4	22 02 2010	053	96	100.0	96	100.0
13 01 2010	013	96	100.0	89	92.7	23 02 2010	054	96	100.0	94	97.9
14 01 2010	014	96	100.0	91	94.8	24 02 2010	055	96	100.0	95	99.0
15 01 2010	015	96	100.0	89	92.7	25 02 2010	056	96	100.0	91	94.8
16 01 2010	016	96	100.0	85	88.5	26 02 2010	057	96	100.0	95	99.0
17 01 2010	017	96	100.0	78	81.3	27 02 2010	058	96	100.0	96	100.0
18 01 2010	018	96	100.0	79	82.3	28 02 2010	059	96	100.0	96	100.0
19 01 2010	019	96	100.0	82	85.4	01 03 2010	060	96	100.0	93	96.9
20 01 2010	020	96	100.0	87	90.6	02 03 2010	061	96	100.0	94	97.9
21 01 2010	021	96	100.0	83	86.5	03 03 2010	062	96	100.0	96	100.0
22 01 2010	022	96	100.0	88	91.7	04 03 2010	063	96	100.0	94	97.9
23 01 2010	023	96	100.0	91	94.8	05 03 2010	064	96	100.0	93	96.9
24 01 2010	024	96	100.0	92	95.8	06 03 2010	065	96	100.0	95	99.0
25 01 2010	025	96	100.0	92	95.8	07 03 2010	066	96	100.0	95	99.0
26 01 2010	026	96	100.0	89	92.7	08 03 2010	067	96	100.0	95	99.0
27 01 2010	027	96	100.0	93	96.9	09 03 2010	068	96	100.0	92	95.8
28 01 2010	028	96	100.0	92	95.8	10 03 2010	069	96	100.0	91	94.8
29 01 2010	029	96	100.0	85	88.5	11 03 2010	070	96	100.0	91	94.8
30 01 2010	030	96	100.0	86	89.6	12 03 2010	071	96	100.0	95	99.0
31 01 2010	031	96	100.0	89	92.7	13 03 2010	072	96	100.0	92	95.8
01 02 2010	032	96	100.0	89	92.7	14 03 2010	073	96	100.0	96	100.0
02 02 2010	033	96	100.0	92	95.8	15 03 2010	074	96	100.0	94	97.9
03 02 2010	034	96	100.0	89	92.7	16 03 2010	075	96	100.0	82	85.4
04 02 2010	035	96	100.0	79	82.3	17 03 2010	076	96	100.0	96	100.0
05 02 2010	036	96	100.0	93	96.9	18 03 2010	077	96	100.0	96	100.0
06 02 2010	037	96	100.0	93	96.9	19 03 2010	078	96	100.0	95	99.0
07 02 2010	038	96	100.0	96	100.0	20 03 2010	079	96	100.0	96	100.0
08 02 2010	039	96	100.0	94	97.9	21 03 2010	080	96	100.0	96	100.0
09 02 2010	040	96	100.0	92	95.8	22 03 2010	081	96	100.0	96	100.0
10 02 2010	041	96	100.0	93	96.9	23 03 2010	082	96	100.0	96	100.0

24 03 2010	083	96	100.0	94	97.9
25 03 2010	084	96	100.0	95	99.0
26 03 2010	085	96	100.0	96	100.0
27 03 2010	086	96	100.0	96	100.0
28 03 2010	087	96	100.0	95	99.0
29 03 2010	088	96	100.0	85	88.5
30 03 2010	089	96	100.0	75	78.1
31 03 2010	090	96	100.0	96	100.0
01 04 2010	091	96	100.0	59	61.5
02 04 2010	092	96	100.0	72	75.0
03 04 2010	093	96	100.0	96	100.0
04 04 2010	094	96	100.0	93	96.9
05 04 2010	095	96	100.0	95	99.0
06 04 2010	096	96	100.0	95	99.0
07 04 2010	097	96	100.0	94	97.9
08 04 2010	098	96	100.0	92	95.8
09 04 2010	099	96	100.0	85	88.5
10 04 2010	100	96	100.0	96	100.0
11 04 2010	101	96	100.0	96	100.0
12 04 2010	102	96	100.0	95	99.0
13 04 2010	103	96	100.0	96	100.0
14 04 2010	104	96	100.0	95	99.0
15 04 2010	105	96	100.0	96	100.0
16 04 2010	106	96	100.0	95	99.0
17 04 2010	107	96	100.0	95	99.0
18 04 2010	108	96	100.0	96	100.0
19 04 2010	109	96	100.0	94	97.9
20 04 2010	110	96	100.0	96	100.0
21 04 2010	111	96	100.0	93	96.9
22 04 2010	112	96	100.0	93	96.9
23 04 2010	113	96	100.0	96	100.0
24 04 2010	114	96	100.0	96	100.0
25 04 2010	115	96	100.0	94	97.9
26 04 2010	116	96	100.0	96	100.0
27 04 2010	117	96	100.0	95	99.0
28 04 2010	118	96	100.0	94	97.9
29 04 2010	119	96	100.0	96	100.0
30 04 2010	120	96	100.0	94	97.9
01 05 2010	121	96	100.0	92	95.8
02 05 2010	122	96	100.0	96	100.0
03 05 2010	123	96	100.0	86	89.6
04 05 2010	124	96	100.0	94	97.9
05 05 2010	125	96	100.0	93	96.9
06 05 2010	126	96	100.0	94	97.9
07 05 2010	127	96	100.0	88	91.7
08 05 2010	128	96	100.0	91	94.8
09 05 2010	129	96	100.0	85	88.5
10 05 2010	130	96	100.0	93	96.9
11 05 2010	131	96	100.0	87	90.6
12 05 2010	132	96	100.0	91	94.8
13 05 2010	133	96	100.0	93	96.9
14 05 2010	134	96	100.0	93	96.9
15 05 2010	135	96	100.0	94	97.9
16 05 2010	136	96	100.0	93	96.9
17 05 2010	137	96	100.0	92	95.8
18 05 2010	138	96	100.0	69	71.9
19 05 2010	139	96	100.0	68	70.8
20 05 2010	140	96	100.0	80	83.3
21 05 2010	141	96	100.0	86	89.6
22 05 2010	142	96	100.0	94	97.9
23 05 2010	143	96	100.0	84	87.5
24 05 2010	144	96	100.0	81	84.4

25 05 2010	145	96	100.0	60	62.5
26 05 2010	146	96	100.0	49	51.0
27 05 2010	147	95	99.0	58	61.1
28 05 2010	148	96	100.0	69	71.9
29 05 2010	149	96	100.0	64	66.7
30 05 2010	150	96	100.0	78	81.3
31 05 2010	151	96	100.0	69	71.9
01 06 2010	152	96	100.0	51	53.1
02 06 2010	153	96	100.0	85	88.5
03 06 2010	154	96	100.0	88	91.7
04 06 2010	155	96	100.0	76	79.2
05 06 2010	156	96	100.0	64	66.7
06 06 2010	157	59	61.5	38	64.4
07 06 2010	158	97	101.0	57	58.8
08 06 2010	159	96	100.0	86	89.6
09 06 2010	160	96	100.0	64	66.7
10 06 2010	161	96	100.0	83	86.5
11 06 2010	162	96	100.0	71	74.0
12 06 2010	163	96	100.0	53	55.2
13 06 2010	164	96	100.0	57	59.4
14 06 2010	165	96	100.0	44	45.8
15 06 2010	166	96	100.0	77	80.2
16 06 2010	167	96	100.0	71	74.0
17 06 2010	168	96	100.0	77	80.2
18 06 2010	169	96	100.0	82	85.4
19 06 2010	170	96	100.0	73	76.0
20 06 2010	171	96	100.0	58	60.4
21 06 2010	172	96	100.0	57	59.4
22 06 2010	173	96	100.0	71	74.0
23 06 2010	174	66	68.8	54	81.8
24 06 2010	175	71	74.0	29	40.8
25 06 2010	176	96	100.0	77	80.2
26 06 2010	177	96	100.0	73	76.0
27 06 2010	178	96	100.0	82	85.4
28 06 2010	179	96	100.0	70	72.9
29 06 2010	180	96	100.0	81	84.4
30 06 2010	181	96	100.0	85	88.5
01 07 2010	182	96	100.0	74	77.1
02 07 2010	183	96	100.0	84	87.5
03 07 2010	184	96	100.0	85	88.5
04 07 2010	185	96	100.0	74	77.1
05 07 2010	186	95	99.0	61	64.2
06 07 2010	187	80	83.3	58	72.5
07 07 2010	188	96	100.0	85	88.5
08 07 2010	189	96	100.0	75	78.1
09 07 2010	190	95	99.0	65	68.4
10 07 2010	191	78	81.3	66	84.6
11 07 2010	192	96	100.0	90	93.8
12 07 2010	193	90	93.8	85	94.4
13 07 2010	194	96	100.0	96	100.0
14 07 2010	195	90	93.8	80	88.9
15 07 2010	196	96	100.0	84	87.5
16 07 2010	197	96	100.0	89	92.7
17 07 2010	198	96	100.0	84	87.5
18 07 2010	199	96	100.0	88	91.7
19 07 2010	200	96	100.0	73	76.0
20 07 2010	201	96	100.0	77	80.2
21 07 2010	202	96	100.0	85	88.5
22 07 2010	203	96	100.0	84	87.5
23 07 2010	204	85	88.5	78	91.8
24 07 2010	205	96	100.0	94	97.9
25 07 2010	206	91	94.8	85	93.4

26 07 2010	207	96	100.0	87	90.6	26 09 2010	269	96	100.0	95	99.0
27 07 2010	208	96	100.0	86	89.6	27 09 2010	270	96	100.0	96	100.0
28 07 2010	209	96	100.0	91	94.8	28 09 2010	271	96	100.0	95	99.0
29 07 2010	210	96	100.0	85	88.5	29 09 2010	272	96	100.0	94	97.9
30 07 2010	211	96	100.0	89	92.7	30 09 2010	273	95	99.0	94	98.9
31 07 2010	212	94	97.9	76	80.9	01 10 2010	274	96	100.0	92	95.8
01 08 2010	213	68	70.8	53	77.9	02 10 2010	275	96	100.0	92	95.8
02 08 2010	214	96	100.0	76	79.2	03 10 2010	276	96	100.0	94	97.9
03 08 2010	215	96	100.0	73	76.0	04 10 2010	277	96	100.0	93	96.9
04 08 2010	216	96	100.0	91	94.8	05 10 2010	278	96	100.0	96	100.0
05 08 2010	217	96	100.0	63	65.6	06 10 2010	279	96	100.0	94	97.9
06 08 2010	218	96	100.0	83	86.5	07 10 2010	280	96	100.0	92	95.8
07 08 2010	219	96	100.0	83	86.5	08 10 2010	281	96	100.0	93	96.9
08 08 2010	220	86	89.6	75	87.2	09 10 2010	282	96	100.0	96	100.0
09 08 2010	221	96	100.0	90	93.8	10 10 2010	283	96	100.0	95	99.0
10 08 2010	222	96	100.0	92	95.8	11 10 2010	284	96	100.0	87	90.6
11 08 2010	223	84	87.5	74	88.1	12 10 2010	285	96	100.0	93	96.9
12 08 2010	224	96	100.0	85	88.5	13 10 2010	286	96	100.0	95	99.0
13 08 2010	225	96	100.0	90	93.8	14 10 2010	287	96	100.0	90	93.8
14 08 2010	226	96	100.0	84	87.5	15 10 2010	288	96	100.0	95	99.0
15 08 2010	227	96	100.0	81	84.4	16 10 2010	289	96	100.0	95	99.0
16 08 2010	228	96	100.0	89	92.7	17 10 2010	290	96	100.0	92	95.8
17 08 2010	229	96	100.0	84	87.5	18 10 2010	291	96	100.0	94	97.9
18 08 2010	230	96	100.0	91	94.8	19 10 2010	292	96	100.0	92	95.8
19 08 2010	231	96	100.0	90	93.8	20 10 2010	293	96	100.0	96	100.0
20 08 2010	232	96	100.0	94	97.9	21 10 2010	294	96	100.0	96	100.0
21 08 2010	233	96	100.0	85	88.5	22 10 2010	295	96	100.0	96	100.0
22 08 2010	234	83	86.5	71	85.5	23 10 2010	296	96	100.0	92	95.8
23 08 2010	235	96	100.0	84	87.5	24 10 2010	297	96	100.0	86	89.6
24 08 2010	236	96	100.0	94	97.9	25 10 2010	298	96	100.0	90	93.8
25 08 2010	237	96	100.0	85	88.5	26 10 2010	299	96	100.0	88	91.7
26 08 2010	238	96	100.0	90	93.8	27 10 2010	300	96	100.0	93	96.9
27 08 2010	239	96	100.0	92	95.8	28 10 2010	301	96	100.0	96	100.0
28 08 2010	240	96	100.0	72	75.0	29 10 2010	302	96	100.0	94	97.9
29 08 2010	241	96	100.0	90	93.8	30 10 2010	303	96	100.0	94	97.9
30 08 2010	242	96	100.0	96	100.0	31 10 2010	304	96	100.0	95	99.0
31 08 2010	243	96	100.0	94	97.9	01 11 2010	305	96	100.0	94	97.9
01 09 2010	244	96	100.0	91	94.8	02 11 2010	306	96	100.0	94	97.9
02 09 2010	245	95	99.0	87	91.6	03 11 2010	307	96	100.0	93	96.9
03 09 2010	246	96	100.0	93	96.9	04 11 2010	308	96	100.0	94	97.9
04 09 2010	247	96	100.0	92	95.8	05 11 2010	309	96	100.0	91	94.8
05 09 2010	248	96	100.0	96	100.0	06 11 2010	310	96	100.0	94	97.9
06 09 2010	249	96	100.0	96	100.0	07 11 2010	311	96	100.0	95	99.0
07 09 2010	250	96	100.0	93	96.9	08 11 2010	312	96	100.0	95	99.0
08 09 2010	251	96	100.0	90	93.8	09 11 2010	313	96	100.0	92	95.8
09 09 2010	252	96	100.0	92	95.8	10 11 2010	314	96	100.0	94	97.9
10 09 2010	253	96	100.0	96	100.0	11 11 2010	315	96	100.0	92	95.8
11 09 2010	254	96	100.0	96	100.0	12 11 2010	316	96	100.0	94	97.9
12 09 2010	255	96	100.0	96	100.0	13 11 2010	317	96	100.0	94	97.9
13 09 2010	256	96	100.0	94	97.9	14 11 2010	318	96	100.0	92	95.8
14 09 2010	257	96	100.0	96	100.0	15 11 2010	319	96	100.0	96	100.0
15 09 2010	258	96	100.0	96	100.0	16 11 2010	320	96	100.0	80	83.3
16 09 2010	259	96	100.0	95	99.0	17 11 2010	321	96	100.0	92	95.8
17 09 2010	260	96	100.0	94	97.9	18 11 2010	322	96	100.0	94	97.9
18 09 2010	261	96	100.0	93	96.9	19 11 2010	323	96	100.0	95	99.0
19 09 2010	262	96	100.0	94	97.9	20 11 2010	324	96	100.0	95	99.0
20 09 2010	263	96	100.0	93	96.9	21 11 2010	325	96	100.0	95	99.0
21 09 2010	264	96	100.0	94	97.9	22 11 2010	326	96	100.0	91	94.8
22 09 2010	265	96	100.0	95	99.0	23 11 2010	327	96	100.0	96	100.0
23 09 2010	266	87	90.6	83	95.4	24 11 2010	328	96	100.0	92	95.8
24 09 2010	267	96	100.0	95	99.0	25 11 2010	329	96	100.0	89	92.7
25 09 2010	268	96	100.0	95	99.0	26 11 2010	330	96	100.0	90	93.8

27 11 2010	331	96	100.0	95	99.0	15 12 2010	349	96	100.0	92	95.8
28 11 2010	332	96	100.0	92	95.8	16 12 2010	350	96	100.0	96	100.0
29 11 2010	333	96	100.0	92	95.8	17 12 2010	351	96	100.0	94	97.9
30 11 2010	334	96	100.0	94	97.9	18 12 2010	352	96	100.0	90	93.8
01 12 2010	335	96	100.0	92	95.8	19 12 2010	353	45	46.9	43	95.6
02 12 2010	336	86	89.6	83	96.5	20 12 2010	354	63	65.6	60	95.2
03 12 2010	337	96	100.0	88	91.7	21 12 2010	355	96	100.0	94	97.9
04 12 2010	338	96	100.0	95	99.0	22 12 2010	356	96	100.0	93	96.9
05 12 2010	339	96	100.0	92	95.8	23 12 2010	357	96	100.0	92	95.8
06 12 2010	340	96	100.0	96	100.0	24 12 2010	358	96	100.0	86	89.6
07 12 2010	341	96	100.0	95	99.0	25 12 2010	359	96	100.0	95	99.0
08 12 2010	342	96	100.0	92	95.8	26 12 2010	360	96	100.0	94	97.9
09 12 2010	343	96	100.0	92	95.8	27 12 2010	361	96	100.0	91	94.8
10 12 2010	344	96	100.0	92	95.8	28 12 2010	362	96	100.0	90	93.8
11 12 2010	345	96	100.0	92	95.8	29 12 2010	363	96	100.0	94	97.9
12 12 2010	346	96	100.0	95	99.0	30 12 2010	364	96	100.0	95	99.0
13 12 2010	347	96	100.0	90	93.8	31 12 2010	365	96	100.0	89	92.7
14 12 2010	348	96	100.0	95	99.0						

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