

Local Earthquakes Recorded by Polish Seismic Stations 2004

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1. General information

The majority of seismic events recorded in Poland are caused by mining activity in the Upper Silesian Coal Basin and Lubin Copper Basin. Induced seismicity is observed less frequently in the Rybnik Coal District and Bełchatów Open-Pit Mining area.

The year 2004 was exceptional due to the occurrence of tectonic earthquakes, which even caused a slight, mainly non-structural damage to buildings. On November 30, 2004, an earthquake of local magnitude $M = 4.4$, macroseismic intensity $I_0 = 7$ in the EMS scale, followed by a long series of aftershocks occurred in the southern margin of the intramontane Orawa-Nowy Targ Basin, Western Carpathians (Guterch 2006). On September 21, 2004, earthquakes of local magnitudes $M = 5.0$, 5.3 , and 4.3 were observed in the Sambia Peninsula, western part of the Kaliningrad enclave, Russia. Two strongest Kaliningrad earthquakes were widely felt in northeastern Poland. The Kaliningrad earthquakes are rare examples of intraplate earthquakes in the low-seismic area.

Eight seismic stations were in operation in 2004 at the Institute of Geophysics, Polish Academy of Sciences: Górka Klasztorna (GKP), Kalwaria Paławska (KWP), Książ (KSP), Niedzica (NIE), Ojców (OJC), Racibórz (RAC), Suwałki (SUW) and Warszawa (WAR). Station parameters are given in Table 1. The location of seismic stations operated by the Institute of Geophysics and by research centers associated with coal mining (Katowice, Bełchatów) and copper mining (Lubin) is presented in Fig. 1.

Table 1
Seismic stations – site information and equipment

Station	Location	Date of opening	Current equipment		Foundation
			Seismometers	DAS	
GKP – Górka Klasztorna	53.2697 N 17.2367 E 115 m	Jun 2004	STS-2 (VBB)	MK-6	Post-glacial sediments
KSP – Książ	50.8428 N 16.2931 E 353 m	Jan 1971	STS-2 (VBB) BB-13 (BB) GS-13 (SP) SM-3 (SP)	MK-6 MK-2 MK-2 analogue	Consolidated sandstone, Lower Carboniferous
KWP – Kalwaria Paławska	49.6314 N 22.7075 E 448 m	Jun 1999	STS-2 (VBB)	Quanterra	Carpathian Flysh
NIE – Niedzica	49.4189 N 20.3131 E 649 m	May 1960	SM-3 (SP)	MK-5	Limestone
OJC – Ojców	50.2196 N 19.7984 E 391 m	Sep 1991	STS-2 (VBB) GS-13 (SP) SM-3 (SP)	MK-6 MK-2 analogue	Limestone
RAC – Racibórz	50.0833 N 18.1942 E 209 m	Jan 1948*	KIRNOS (LP) SM-3 (SP)	MK-5 MK-5	Alluvial sands and clay
SUW – Suwałki	54.0125 N 23.1808 E 152 m	Nov 1995	STS-2 (VBB)	Quanterra	Post-glacial sediments
WAR – Warszawa	52.2417 N 21.0236 E 110 m	Jan 1939	STS-2 (VBB)	MK-6	Alluvial sands and clay

Seismometers: SP – short-period, LP – long-period, BB – broadband, VBB – very broadband
Data acquisition system (DAS): Quanterra Q380 – in cooperation with GEOFON network;
MK-2, MK-5, and MK-6 described by Wiszniowski (2002)

* Date of reactivation after the World War II

The bulletin contains a list of local earthquakes which occurred in 2004 in Poland. The full description of each earthquake contains: epicentral location (ϕ , λ), time of origin (H), local magnitude (M). The location of events listed in this bulletin is given in Fig. 2. For comparison, location of the same events done by NEIC is presented in Fig. 3.

Magnitudes of all earthquakes listed in this bulletin are based on spectral method. This method allows conversion of the recorded ground particle velocities into ground particle displacements. The modified FFT method has been applied, for which

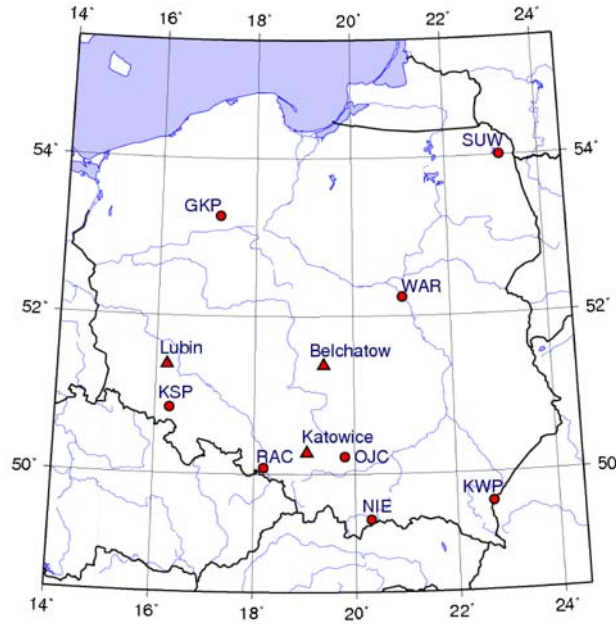


Fig. 1. Seismic stations operated by the Institute of Geophysics, Polish Academy of Sciences (●), and local seismic networks operated by mines (▲).

a multitaper method (Thomson 1982, Park *et al.* 1987) has been used instead of a single taper window. The multitaper method allows for a better and more reliable evaluation of spectrum. The scaling of the calculated spectra has been done using Parseval's theorem for every applied window separately (Niewiadomski 1997). The low frequency spectral level has been used to calculate seismic moment and magnitude (Brune 1970). In order to accelerate magnitude calculation a simple neural network is applied. The network takes filtered and averaged amplitudes of P-wave velocity records as the input data. The training was done on the basis of known examples of several hundred seismograms, where network's weight corrections were calculated by spectral method (Niewiadomski 2000). The performance of the applied neural networks for magnitude calculation is the same as that of multitaper method. The seismic source radiation pattern is not homogeneous, and it is why the magnitudes calculated by different seismic stations are not the same. Average values of magnitudes are presented in the bulletin.

2. Interpretation of P and S waves

In light of results provided by seismic refraction and wide angle reflection experiment CELEBRATION 2000 (Guterch *et al.* 2003), interpretation of seismic waves recorded in Poland at regional distances, between about 180 km and 600 km, should be revised. Seismic record sections of profile CEL05 (Grad *et al.* 2006), the longest seismic profile in Central Europe, extending from the East European Craton

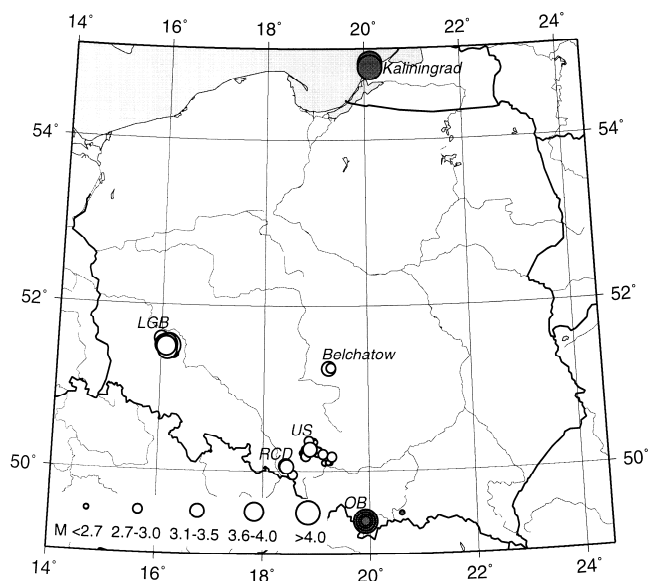


Fig. 2. Epicentres of earthquakes recorded in 2004 by Polish seismic network. ○ – mining induced seismic events: the Upper Silesia Coal Basin (US), Rybnik Coal District (RCD), Lubin-Głogów Copper Basin (LGB), and Belchatów Open-Pit Mining area. ● – tectonic earthquakes recorded in the Orawa-Nowy Targ Basin (OB), Western Carpathians and Sambia Peninsula, Kaliningrad enclave of Russia.

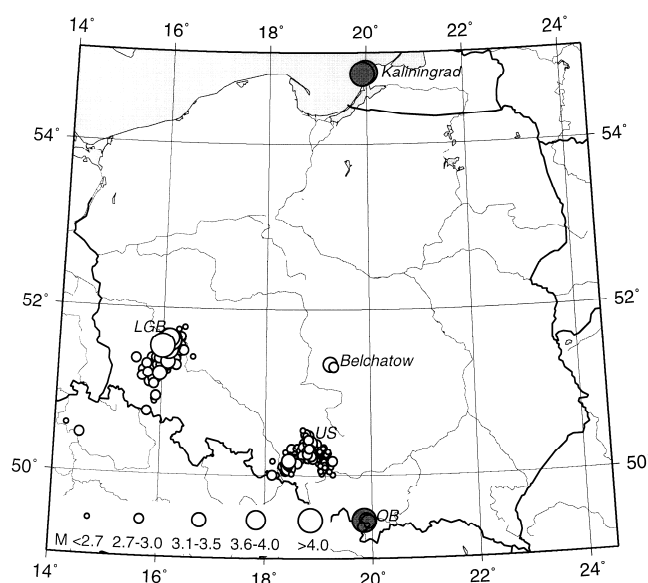


Fig. 3. Epicentres of earthquakes recorded in 2004 by NEIC. ○ – mining induced seismic events: the Upper Silesia Coal Basin (US), Lubin-Głogów Copper Basin (LGB), and Belchatów Open-Pit Mining area. ● – tectonic earthquakes recorded in the Orawa-Nowy Targ Basin (OB), Western Carpathians and Sambia Peninsula, Kaliningrad enclave of Russia.

across the Trans European Suture Zone, Carpathians, to the Panonian Basin, were chosen for travel time comparison. Although the lithosphere structures along seismic ray ways traveling between every source–station positions are different, the main pattern of seismic field of P and S waves, derived from profile CEL05, can be used as the unique source of information, especially for S waves.

Generally, at regional distances of more than about 180 km, the direct Pg wave does not occur in first arrivals and follows the Pn wave. First arrivals of Pn waves are weak and have been recorded in Poland only for earthquakes with magnitude $M > 2.7$. According to record sections along profile CEL05, Pn is usually followed by much stronger reflected wave from the Moho, PmP, or twice reflected wave from the Moho, PmPPmP. These waves are interpreted as Pg in routine seismic bulletins according to the Jeffreys–Bullen or Herrin travel times, available for distances up to about 800 km. Pg waves at these distances, according to record sections of profile CEL05, are too weak to be recorded and are overlaid by much dynamically stronger PmP and PmPPmP waves. At distances of more than about 450–460 km, the P wave, i.e., the lithospheric wave, should be recorded in first arrivals. The same concerns, in general, the S waves. The Sn wave is followed according to CEL05 data by much stronger wave SmS reflected from the Moho, interpreted in routine seismic bulletins according to Jeffreys–Bullen and Herrin travel times as Sg. Wave Sg is too weak to be recorded according to the CEL05 travel sections. At distances of more than 450–460 km, the S wave, i.e., the lithospheric wave, should be recorded in first S arrivals.

Time differences between the first arrivals of Pn and the following waves PmP, PmPPmP, Sn, SmS according to CEL05 data and average time differences between the first arrivals of Pn wave and Pg, Sn, Sg interpreted according to Jeffreys–Bullen travel times for Lubin–Głogów events recorded by a few Polish stations are given in Table 2. It seems that at regional distances of more than about 180 km the onsets interpreted as Pg and Sg phases are probably arrivals of waves PmP, or PmPPmP and SmS i.e. reflected from the Moho. Examples of such interpretation for Lubin–Głogów event recorded by OJC at a distance of 296 km and Kaliningrad earthquake recorded by GKP at a distance of 280 km are presented in Figs. 4 and 5, respectively.

The interpretation of phases given in the bulletin is made according to Jeffreys–Bullen and Herrin travel times. Only for earthquakes near Kaliningrad on September 21, 2004, and in the Orawa Basin, Western Carpathians in November and December 2004 suggested interpretation of waves PmP/PmPPmP and SmS instead of Pg and Sg is done.

3. Induced seismicity

Out of several thousand of seismic events induced by mining in Poland each year, only those with magnitude $M > 2.6$ for the Lubin–Głogów Copper Basin and with $M > 2.0$ for the Upper Silesia Coal Basin and Rybnik Coal District are listed in this bulletin. Occasionally, quakes of lower magnitude for the Lubin–Głogów Copper Basin have been given if the event was recorded by the NEIC Monthly Listing.

Table 2

Time differences between the first arrivals of Pn and the following waves PmP, PmPPmP, Sn, SmS, SmSSmS according to CEL05 data and average time differences between first arrivals of Pn wave and Pg, Sn, Sg waves interpreted according to Jeffreys–Bullen travel times for Lubin-Głogów events, recorded by RAC, OJC, NIE, KWP, and SUW. CEL – CEL05 data after Grad *et al.* (2006), OBS – recorded by seismic stations

Distance [km]			215	300	380	515	555
Time differences Δt [s]	(PmP – Pn)	CEL	1.6	3.4	–	–	–
	(PmPPmP – Pn/P)	CEL	–	9.1	10.4	12.6	–
	(Pg– Pn)	OBS	RAC 3-4.5	OJC 8.5-10	NIE 9.5-10	KWP 12-15	SUW 18-22
	(Sn – Pn)	CEL	25.6	32.6	39.6	–	–
	(S – P)	CEL	–	–	–	52.5	55.4
	(Sn – Pn)	OBS	RAC 23- 25	OJC 30-33	–	KWP 48-55	SUW 55-59
	(SmS – Pn)	CEL	27.4	41.6	–	–	–
	(SmSSmS – Pn/P)	CEL	–	48.6	57.9	74.8	–
	(Sg – Pn)	OBS	RAC 29-31	OJC 43-45	NIE 54-57	KWP 75-87	–

3.1 Upper Silesia and Rybnik Coal District

Epical location of Upper Silesian and Rybnik Coal District earthquakes was made by the Central Mining Institute in Katowice. Only if such data were missing, the coordinates were estimated at the Institute of Geophysics. The epicenters determined at the Central Mining Institute are labelled (GIG). The other two source parameters, the time of origin and magnitude, are determined at the Institute of Geophysics. The origin times are based on the Pg and Sg arrivals recorded at stations OJC, NIE, KSP, and RAC. Seismic events with magnitude $M > 2.4$ recorded in the Upper Silesia and Rybnik Coal District in 2004 are presented in Fig. 6.

3.2 Lubin-Głogów Copper Basin

Epical locations of tremors from the Lubin-Głogów Copper Basin were made by the Copper Mining-Metallurgical Company in Lubin on the basis of the local seismic networks at Lubin, Polkowice, Rudna and Sieroszowice mines. The average accuracy of epicenter location is about 50 m and occasionally even 20 m. Most of seismic events in the Lubin-Głogów Copper Basin occur at depths between 500 and 1000 m. The other two source parameters, the time of origin and magnitude, are determined at the Institute of Geophysics. The origin times are estimated from the arrival times of the Pg waves recorded by KSP assuming Pg velocity of 6.1 km/s.

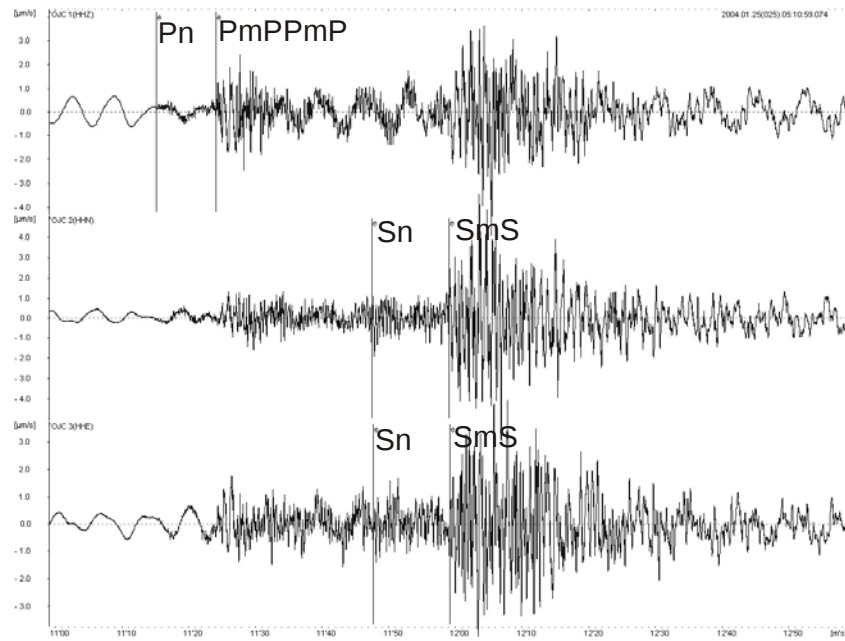


Fig. 4. Lubin-Głogów event on 25 January 2004, of $M = 3.7$ recorded by Ojców (OJC) at a distance of 297 km. PmPPmP – wave P twice reflected from Moho, SmS – wave S reflected from the Moho.

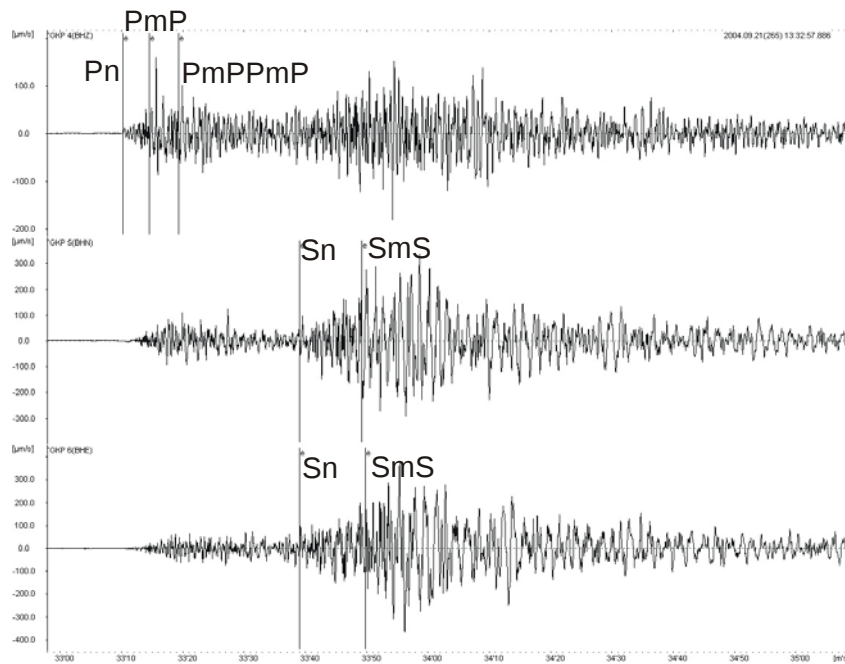


Fig. 5. Kaliningrad earthquake on 21 September 2004, of $M = 5.3$ recorded by Górka Klasztorna (GKP) at a distance of 259 km. PmP, PmPPmP – wave P once and twice reflected from the Moho. SmS – wave S reflected from the Moho.

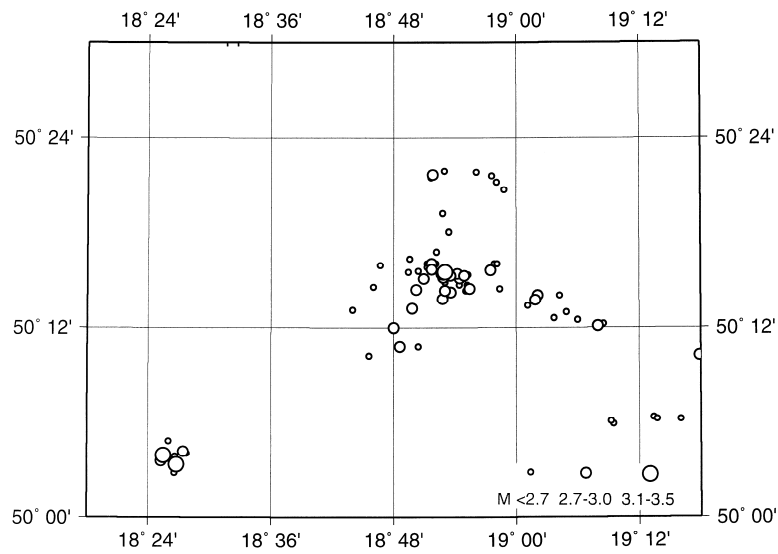


Fig. 6. Mining induced earthquakes recorded in the Upper Silesia and Rybnik Coal District in 2004. Epicentral location of earthquakes made by mining seismic networks of the Central Mining Institute in Katowice.

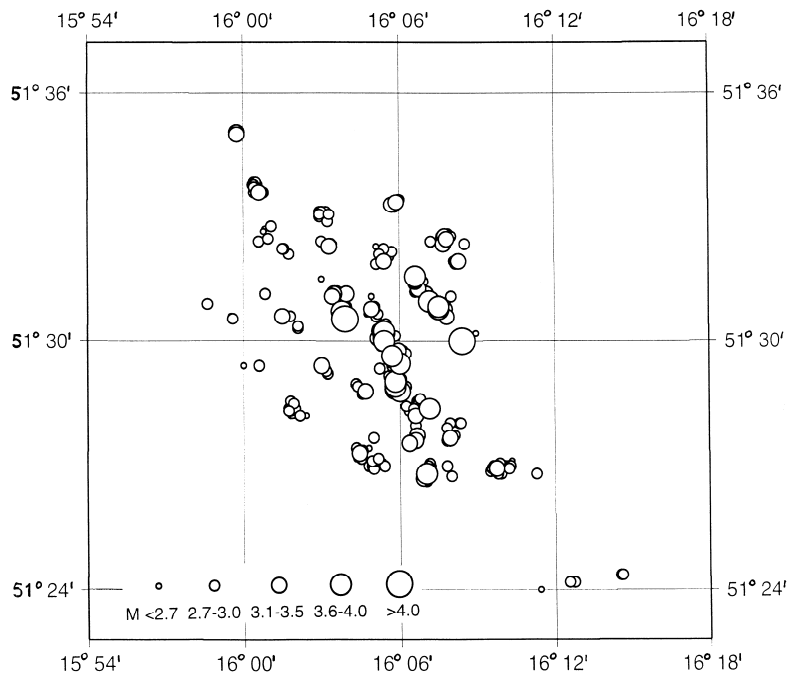


Fig. 7. Mining induced earthquakes recorded in the Lubin-Głogów Copper Basin in 2004. Epicentral location of earthquakes made by mining seismic networks of the Copper Mining-Metallurgical Company in Lubin.

Seismic events with magnitude $M > 2.7$ recorded in the Lubin-Głogów Copper Basin in 2004 are presented in Fig. 7. All these events occurred within the area of the Lubin-Głogów copper mines. Dispersion of epicentres follows NW-SE direction, the area of earthquake occurrences is about 25 km long (see also Fig. 2). NEIC epicentres of events in the Lubin-Głogów Copper Basin are widely dispersed NE-SW and could delineate an artificial seismic line, about 100 km long, in SW Poland (see Fig. 3).

A general interpretation is given of seismic waves of Lubin-Głogów events recorded by NIE and RAC, i.e., phases P and S, and occasionally phases Pn and Sn for stronger events of $M > 2.7$.

3.3 *Bełchatów Open-Pit Mining area*

Epicentral location and time of origin of the Bełchatów earthquakes were made at the Bełchatów Open-Pit Coal Mine on the basis of the local seismic network.

4. Local tectonic earthquakes

4.1 *Orawa-Nowy Targ Basin, Western Carpathians*

The series of earthquakes that began on November 30, 2004, occurred in the southern margin of the Orawa-Nowy Targ Basin, in the area where the Pieniny Klippen Belt is expected to be crossed by the Ruženberok-Mszana-Dolna deep fault (Guterch 2006). Seismic events of $M \leq 3.3$ were observed there also on September 11, 1995 (Guterch *et al.* 2005). The main earthquake of November 30, 2004 was followed by long series of aftershocks. The strongest aftershocks occurred on December 2 of $M = 3.6$, December 9 of $M = 3.4$, and in the year 2005 on January 23, January 29, and June 2 of $M = 3.1, 3.4, 3.2$, respectively. Out of 270 events, 44% occurred within 24 hours after the strongest one. The main earthquake was not preceded by any foreshocks.

Every aftershock of magnitude $M_L > 2.5$ was followed by increased seismic activity and was recorded by a sufficient number of stations to determine the epicenter data. Epicenters of seismic events were determined after records of the nearest stations in the Czech Republic, Poland and Slovakia, by Dębski *et al.* (1997) method, assuming the mean Moho depth $h = 35$ km. A dispersion of instrumental epicenters seems to be caused by location errors that reach up to 10 km for weakest events. Seismic events of $M < 2.0$ were recorded only by station NIE. Only two events, on February 18 of $M = 2.7$ and $M = 2.5$, originated from another source, about 7 km west from the epicenter of the main earthquake of November 30, 2004.

The earthquakes were mostly felt in the SE area of Czarny Dunajec bounded by the villages: Bystre Stare Górne, Czerwienne, Ratułów, Sierockie, Skrzypne Dolne, Skrzypne Górne, Ciche Dolne and Ciche Górne. On November 30, 2004, most houses in this area sustained damage of grade 1 and many of grade 2 in the EMS scale. Slight thin cracks in plaster inside and outside the houses commonly occurred. Chimneys were partly damaged in many houses, i.e., twisted and/or cracked above or below the roof, top pieces fell down. Exceptionally, a whole chimney came down. A few buildings sustained moderate structural damage of grade 2-3.

Intensities were strongly attenuated with distance and the earthquake was usually not felt 50 km from the epicenter. Only in cities such as Kraków, Zabrze and Racibórz was the earthquake felt by individuals on high floors, especially strongly if the building was located on poorly consolidated grounds or there was a high level of underground water. Macroseismic intensities are available for events of $M > 2.8$. Macroseismic epicenters are the same for the main earthquake and foreshocks, they are also given in the bulletin. The foci of earthquakes are shallow, less than 5 km, originated in the Podhale Flysch basement of the Orawa-Nowy Targ Basin. The macroseismic map in the EMS-98 scale of the main earthquake is presented in Fig. 8.

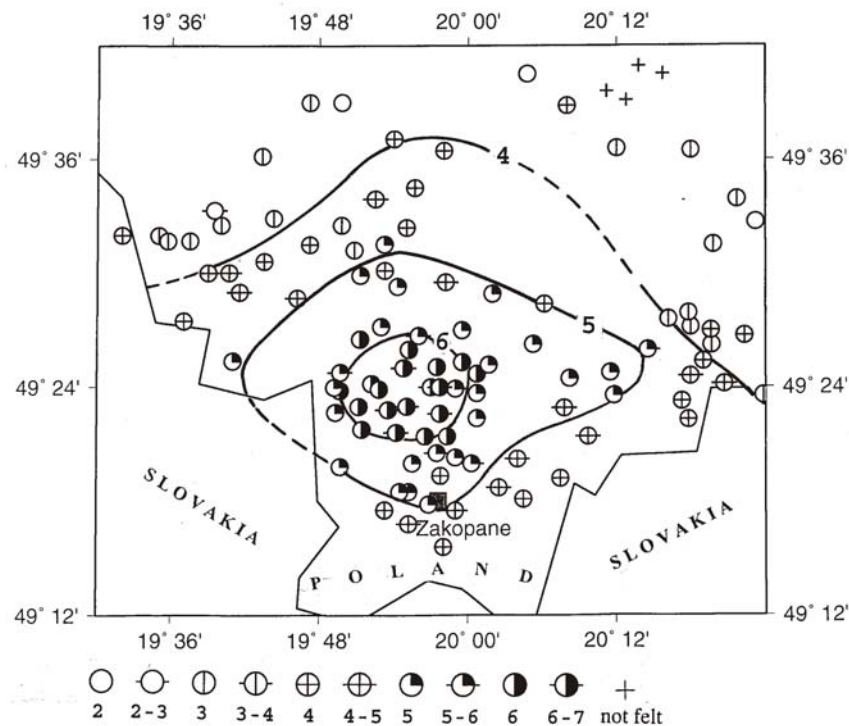


Fig. 8. Macroseismic map in the EMS-98 scale of the main earthquake in the Orawa-Nowy Targ, Western Carpathians, on November 30, 2004.

4.2 Kaliningrad earthquakes recorded in Poland on September 21, 2004

Kaliningrad earthquakes of local magnitudes $M = 5.0$ and $M = 5.3$ recorded on September 21, 2004, on 11:05 UTC and 13:32 UTC were widely felt in northeastern Poland. The second event was felt stronger, but in many cases the differences were almost negligible. It was possible to evaluate intensities for 399 localities recorded the first event, and for 569 localities recorded the second one. Negative responses arrived from 65 localities. The negative responses help to determine perceptibility area of the earthquakes south of the epicentres. Intensities recorded in Poland during both Kaliningrad earthquakes are presented in Figs. 9 and 10.

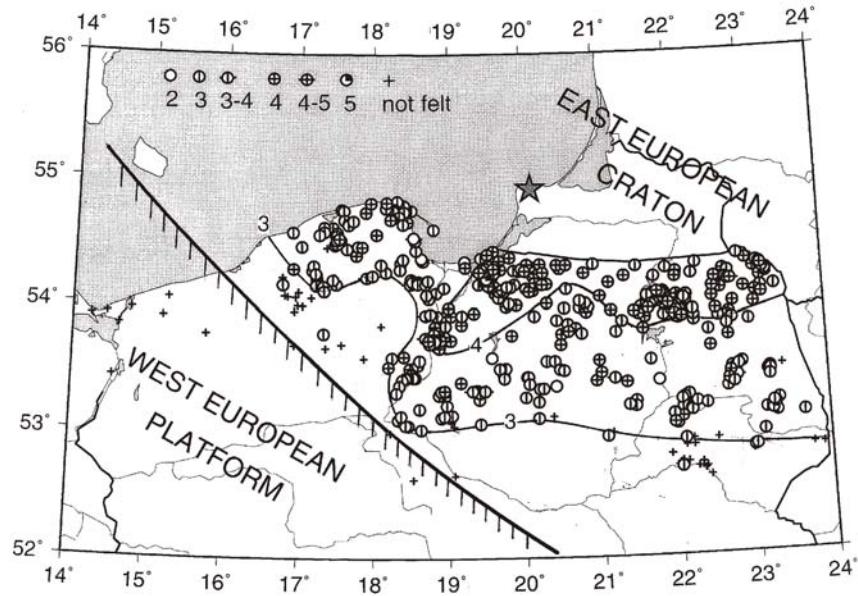


Fig. 9. Intensities of the Kaliningrad earthquake of $M = 5.0$ recorded in Poland on September 21, 2004 at 11:05 UTC. Intensity values in the EMS-98 scale, the Trans European Suture Zone is marked.

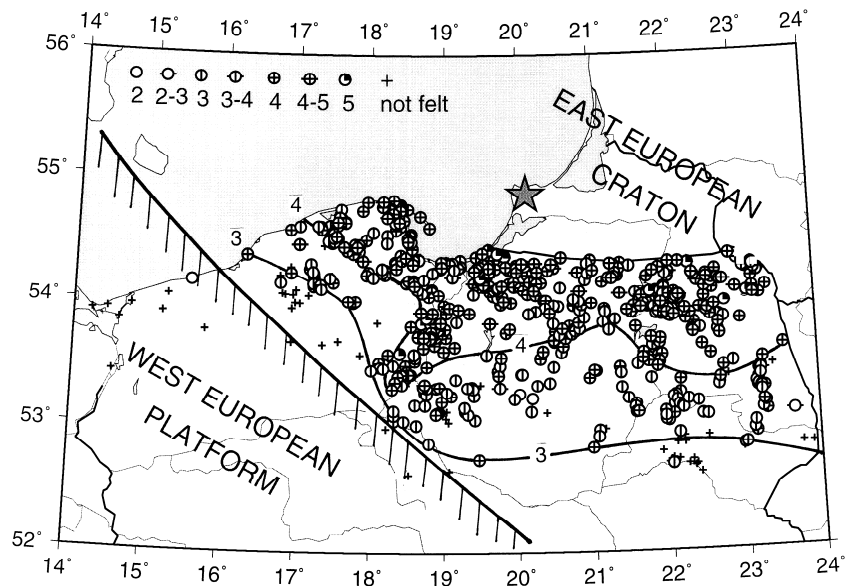


Fig. 10. Intensities of the Kaliningrad earthquake of $M = 5.3$ recorded in Poland on September 21, 2004 at 13:32 UTC. Intensity values in the EMS-98 scale, the Trans European Suture Zone is marked.

Reports about slight damage to individual or a few buildings came from 95 localities mainly in the area southwest from the epicenter. Almost all damages were non-structural, of grade 1 in the EMS scale, and sustained masonry buildings of vulnerability class A-B. The town Suwałki, at a distance of about 220 km from the epicenter, suffered most damage. The local authorities were reported about damage to 44 buildings. The majority of damage in Suwałki was also non-structural but some buildings were in good technical condition, less than 20 years old. A quite extensive damage sustained the XVII century, post Cameldolite complex located at the island of the Wigry Lake, 15 km east of Suwałki. About 120 different outside and inside cracks were found, some of the cracks were new, other were increased by the earthquakes.

In spite of some damage to buildings, the assessed macroseismic intensities reached $I = 5$ EMS only occasionally. Intensity 5 EMS is best confirmed for the strongest event at the western edge of the Polish-Russian border, the area in Poland closest to the epicenter. The earthquakes were not felt at distances of more than 200 km south of the epicenter, in central Poland, while the strongest earthquake was felt at exceptionally long distances up to 800 km north of the epicenter (Gregersen *et al.* 2005). Intensities were strongly attenuated in the edge area of the East European Craton and the earthquakes were not felt in Poland west of the Trans-European Suture Zone.

Epicenter data of the Kaliningrad earthquakes are given in the bulletin after Wiejacz (2006) for the two strongest events and after Nikonov (2004) for the third one.

The bulletin was made by Danuta Cerlica for induced earthquakes in Upper Silesia Coal Basin and by Ewa Tomaszewska in the Lubin-Głogów Copper Basin.

References

- Brune, J.N., 1970, *Tectonic stress and spectra of seismic shear waves from earthquakes*, J. Geophys. Res. **75**, 4997-5009.
- Dębski, W., B. Guterch, H. Lewandowska and P. Labak, 1997, *Earthquakes sequences in the Krynica region, Western Carpathians, 1992-1993*, Acta Geophys. Pol. **45**, 255-290.
- Grad, M., A. Guterch, G.R. Keller, T. Janik, E. Hegedűs, J. Vozár, A. Ślaczka, T. Tiira and J. Yliniemi, 2006, *Lithosperic structure beneath trans-Carpathian transect from Precambrian platform to Pannonian basin: CELEBRATION 2000 seismic profile CEL05*, J. Geophys. Res. **111**, B03301, doi:10.29/2005JB003647.
- Gregersen, S., P. Mäntyniemi, A.A. Nikonov, F.F. Aptikaev, A.S. Aleshin, B.A. Assinovskaya, V.V. Pogrebchenko, B. Guterch, V. Nikulin, A. Pacesa, R. Wahlstrom, J. Schweitzer, O. Kulhanek, C. Holmquist, C. Heinloo and V. Puura, 2004, *Felt reports at large distances of the earthquakes in non-seismic Kaliningrad in west Russia*. In: The Kaliningrad earthquake September 21, 2004 workshop materials, A Jöeleht (ed.), University of Tartu, 11-12.

- Guterch, A., M. Grad, G.R. Keller, K. Posgay, J. Vozár, A. Špičák, E. Brueckl, Z. Hajnal, H. Thybo, O. Selvi and CELEBRATION 2000 Experiment Team, 2003, *CELEBRATION 2000 Seismic Experiment*, Stud. Geophys. Geod. **47**, 659-669.
- Guterch, B., H. Lewandowska-Marciniak and J. Niewiadomski, 2005, *Earthquakes recorded in Poland along the Pieniny Klippen Belt, Western Carpathians*, Acta Geophys. Pol. **53**, 1, 27-45.
- Guterch, B., 2006, *Seismic events in the Orawa-Nowy Targ Basin, Western Carpathians, November 30, 2004 – December 2005*, Acta Geodyn. Geomater. **3**, No. 3 (143), 1-11.
- Niewiadomski, J., 1997, *Spectral analysis and seismic source parameters*. In: A.J. Mentecki (ed), "Seismic Monitoring in Mines", Chapman & Hall, 144-158.
- Niewiadomski, J., 2000, *Magnitude and neural networks*, Acta Montana, Ser A, 16 (118), 131-140.
- Nikonov, A.A., F.F. Aptikaev, A.S. Aleshin, B.A. Assinovskaya, V.V. Pogrebchenko and O.N. Ponomareva, 2004, *Kaliningrad earthquake of September 21, 2004, macroseismic data for near and mesoseismal zones*. In: The Kaliningrad earthquake September 21, 2004 workshop materials, A Jõelet (ed.), University of Tartu, 26-29.
- Park, J., C.R. Lindberg and F.L. Vernon III, 1987, *Multitaper spectral analysis of high frequency seismograms*, J. Geophys. Res. **92**, 12664-12674.
- Thomson, D.J., 1982, *Spectral estimation and harmonic analysis*, IEEE Proc. **70**, 1055-1096.
- Wiejacz, P., 2006, *The Kaliningrad earthquake of September 21, 2004*, Acta Geodyn. Geomater. **3**, No. 2 (142), 7-16.
- Wiszniowski, J., 2002, *Broadband seismic system: Effect of transfer band on detection and recording of seismic waves*, Publs. Inst. Geophys. Pol. Acad. Sc. B-27 (339).

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Upper Silesian Coal Basin 2004

JAN 1

GIG: $\Phi = 50.234^{\circ}\text{N}$, $\lambda = 19.033^{\circ}\text{E}$
H = 16:31:13.0, M = 2.0

OJC $\Delta = 55\text{km}$
Pg eZ 16 31 22.9
Sg iN 31 29.8

NIE $\Delta = 130\text{km}$
Pg eZ 16 31 36.5
Sg eE 31 52.6

KSP $\Delta = 205\text{km}$
Pg eNEZ 16 31 47.1
Sg eNEZ 32 12.6

JAN 2

GIG: $\Phi = 50.234^{\circ}\text{N}$, $\lambda = 19.035^{\circ}\text{E}$
H = 17:16:31.2, M = 2.3

OJC $\Delta = 55\text{km}$
Pg eZ 17 16 41.3
Sg eN 16 48.7

NIE $\Delta = 129\text{km}$
Pg eZ 17 16 54.4

KSP $\Delta = 206\text{km}$
Pg eNEZ 17 17 05.6
Sg eNEZ 17 30.8

JAN 2

GIG: $\Phi = 50.235^{\circ}\text{N}$, $\lambda = 19.036^{\circ}\text{E}$
H = 18:29:12.8, M = 2.2

OJC $\Delta = 55\text{km}$
Pg eZ 18 29 22.7
Sg eEN 29 30.0

NIE $\Delta = 130\text{km}$
Pg eZ 18 29 36.0
(Sg) eEZ 29 52.9

KSP $\Delta = 205\text{km}$
Pg eNEZ 18 29 47.4
Sg eNEZ 30 11.8

JAN 4

$\Phi = 50.27^{\circ}\text{N}$, $\lambda = 18.88^{\circ}\text{E}$
H = 14:09:24.6, M = 2.1

OJC $\Delta = 66\text{km}$
Pg eZ 14 09 36.6
Sg eE 09 45.0

NIE $\Delta = 140\text{km}$
Pg eZ 14 09 48.9
Sg eE 10 06.9

KSP $\Delta = 194\text{km}$
Pg eNEZ 14 09 57.5
Sg eNEZ 10 20.4

JAN 4

GIG: $\Phi = 50.264^{\circ}\text{N}$, $\lambda = 18.991^{\circ}\text{E}$
H = 16:01:33.3, M = 2.1

OJC $\Delta = 58\text{km}$
Pg eZ 16 01 44.0
Sg eE 01 51.6

NIE $\Delta = 134\text{km}$
Pg eZ 16 01 57.2
Sg eN 02 13.6

KSP $\Delta = 201\text{km}$
Pg eNEZ 16 02 07.2
Sg eNEZ 02 31.8

JAN 4

$\Phi = 50.37^{\circ}\text{N}$, $\lambda = 18.90^{\circ}\text{E}$
H = 21:36:36.9, M = 2.2

OJC $\Delta = 66\text{km}$
Pg eZ 21 36 49.1
Sg eE 36 57.3

NIE $\Delta = 146\text{km}$
Pg eZ 21 37 03.1
Sg eE 37 20.8

KSP $\Delta = 192\text{km}$
Pg eNEZ 21 37 08.9
(Sg) eNEZ 37 33.5

JAN 4

GIG: $\Phi = 50.234^{\circ}\text{N}$, $\lambda = 19.036^{\circ}\text{E}$
H = 21:44:02.7, M = 2.2

OJC $\Delta = 55\text{km}$
Pg eZ 21 44 13.1
Sg eN 44 20.0

NIE $\Delta = 129\text{km}$
Pg eZ 21 44 25.2
Sg eEN 44 42.1

KSP $\Delta = 205\text{km}$
Pg eNEZ 21 44 37.8
Sg eNEZ 45 01.9

JAN 6

GIG: $\Phi = 50.234^{\circ}\text{N}$, $\lambda = 19.035^{\circ}\text{E}$
H = 17:14:39.6, M = 2.3

OJC $\Delta = 55\text{km}$
Pg iZ 17 14 49.5 C
Sg iN 14 56.8

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NIE	$\Delta = 130\text{km}$		
Pg eZ		17	15 02.5
(Sg) eN		15	19.8
KSP	$\Delta = 205\text{km}$		
Pg eNEZ		17	15 13.8
Sg eNEZ		15	38.4
<u>JAN 7</u>			
GIG:	$\Phi = 50.237^\circ\text{N}, \lambda = 18.919^\circ\text{E}$		
	$H = 02:41:36.4, M = 2.2$		
OJC	$\Delta = 63\text{km}$		
Pg eZ		02	41 47.9
Sg eN		41	56.0
NIE	$\Delta = 136\text{km}$		
Pg eZ		02	42 00.2
(Sg) eE		42	18.3
KSP	$\Delta = 198\text{km}$		
Pg eNEZ		02	42 10.3
Sg eNEZ		42	33.8
<u>JAN 8</u>			
	$\Phi = 50.35^\circ\text{N}, \lambda = 18.92^\circ\text{E}$		
	$H = 18:44:21.7, M = 2.3$		
OJC	$\Delta = 64\text{km}$		
Pg iZ		18	44 33.0
Sg eE		44	40.9
NIE	$\Delta = 144\text{km}$		
Pg eZ		18	44 47.4
Sg eE		45	05.8
KSP	$\Delta = 194\text{km}$		
Pg eNEZ		18	44 55.1
(Sg) eNEZ		45	17.0
<u>JAN 8</u>			
GIG:	$\Phi = 50.361^\circ\text{N}, \lambda = 18.867^\circ\text{E}$		
	$H = 20:35:03.8, M = 2.6$		
RAC	$\Delta = 57\text{km}$		
Pg eZ		20	35 14.7
Sg eNE		35	22.2
OJC	$\Delta = 68\text{km}$		
Pg eZ		20	35 16.3
(Sg) eN		35	25.7
NIE	$\Delta = 147\text{km}$		
Pg eZ		20	35 29.6
Sg eN		35	48.4
KSP	$\Delta = 190\text{km}$		
Pg eNEZ		20	35 35.4
Sg eNEZ		35	59.4

JAN 9
GIG: $\Phi = 50.234^\circ\text{N}, \lambda = 19.037^\circ\text{E}$
 $H = 01:36:29.3, M = 2.2$

OJC $\Delta = 55\text{km}$
Pg eZ 01 36 39.4
Sg eN 36 46.6

NIE $\Delta = 130\text{km}$
Pg eZ 01 36 52.6
(Sg) eE 37 09.2

KSP $\Delta = 205\text{km}$
Pg eZ 01 37 03.5
Sg eNEZ 37 28.7

JAN 10
GIG: $\Phi = 50.256^\circ\text{N}, \lambda = 18.882^\circ\text{E}$
 $H = 03:15:58.7, M = 2.9$

RAC $\Delta = 53\text{km}$
Pg eZ 03 16 09.0
Sg eNE 16 16.4

OJC $\Delta = 65\text{km}$
Pg iZ 03 16 10.7 D
Sg eN 16 18.9

NIE $\Delta = 139\text{km}$
Pg eZ 03 16 22.7
Sg iN 16 40.7

KSP $\Delta = 195\text{km}$
Pn eNEZ 03 16 29.9
Pg eNEZ 16 31.7
Sg eNEZ 16 54.6

JAN 10
 $\Phi = 50.30^\circ\text{N}, \lambda = 19.04^\circ\text{Y}$
 $H = 16:31:14.8, M = 2.1$

OJC $\Delta = 55\text{km}$
Pg eZ 16 31 24.6
Sg eN 31 32.2

NIE $\Delta = 134\text{km}$
Pg eZ 16 31 37.9
Sg eE 31 55.6

KSP $\Delta = 204\text{km}$
Pg eE 16 31 49.0
Sg eNEZ 32 14.4

JAN 12
GIG: $\Phi = 50.237^\circ\text{N}, \lambda = 19.037^\circ\text{E}$
 $H = 16:28:19.1, M = 2.2$

OJC $\Delta = 55\text{km}$
Pg eZ 16 28 29.3
Sg iN 28 36.4

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NIE	$\Delta = 130\text{km}$			
	Pg eZ	16	28	42.3
	Sg eE		28	58.7
KSP	$\Delta = 205\text{km}$			
	Pg eE	16	28	53.5
	Sg eNEZ		29	18.3
<u>JAN 12</u>				
GIG: $\Phi = 50.235^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$				
H = 17:31:27.7, M = 2.3				
OJC	$\Delta = 55\text{km}$			
	Pg eZ	17	31	37.6
	Sg eNE		31	44.9
NIE	$\Delta = 130\text{km}$			
	Pg eZ	17	31	50.4
	Sg eN		32	07.3
KSP	$\Delta = 205\text{km}$			
	Pg eNEZ	17	32	02.0
	Sg eNEZ		32	26.5
<u>JAN 12</u>				
GIG: $\Phi = 50.234^\circ\text{N}$, $\lambda = 19.031^\circ\text{E}$				
H = 22:49:02.5, M = 2.3				
OJC	$\Delta = 55\text{km}$			
	Pg eZ	22	49	12.6
	Sg eE		49	19.9
NIE	$\Delta = 130\text{km}$			
	Pg eZ	22	49	25.4
	(Sg) eEN		49	42.7
KSP	$\Delta = 205\text{km}$			
	Pg eNEZ	22	49	37.0
	Sg eNEZ		50	01.5
<u>JAN 13</u>				
$\Phi = 50.30^\circ\text{N}$, $\lambda = 18.90^\circ\text{E}$				
H = 03:46:05.2, M = 2.3				
OJC	$\Delta = 65\text{km}$			
	Pg eZ	03	46	17.2
	Sg eN		46	25.4
NIE	$\Delta = 141\text{km}$			
	Pg eZ	03	46	30.3
	Sg eE		46	47.8
KSP	$\Delta = 194\text{km}$			
	Pg eNEZ	03	46	38.0
	Sg eNEZ		47	01.6
<u>JAN 13</u>				
GIG: $\Phi = 50.235^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$				
H = 15:47:57.7, M = 2.2				

OJC	$\Delta = 55\text{km}$			
	Pg eZ	15	48	08.0
	Sg eE		48	14.9
NIE	$\Delta = 130\text{km}$			
	Pg eZ	15	48	20.5
KSP	$\Delta = 205\text{km}$			
	Pg eE	15	48	32.3
	Sg eNEZ		48	56.8
<u>JAN 13</u>				
GIG: $\Phi = 50.245^\circ\text{N}$, $\lambda = 18.920^\circ\text{E}$				
H = 16:44:34.8, M = 2.2				
OJC	$\Delta = 63\text{km}$			
	Pg eZ	16	44	46.4
	Sg eE		44	54.1
NIE	$\Delta = 136\text{km}$			
	Pg eZ	16	44	59.3
	Sg eNE		45	16.5
KSP	$\Delta = 197\text{km}$			
	Pg eNEZ	16	45	08.1
	(Sn) eNEZ		45	28.7
	Sg eNEZ		45	31.8
<u>JAN 13</u>				
GIG: $\Phi = 49.975^\circ\text{N}$, $\lambda = 18.573^\circ\text{E}$				
H = 17:23:40.3, M = 2.4				
RAC	$\Delta = 30\text{km}$			
	Pg eZ	17	23	46.4
	Sg eNE		23	50.9
OJC	$\Delta = 91\text{km}$			
	Pg eZ	17	23	56.0
	(Sg) eE		24	07.2
NIE	$\Delta = 140\text{km}$			
	Pg eZ	17	24	04.7
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	17	24	12.2
	Sg eNEZ		24	35.2
<u>JAN 14</u>				
GIG: $\Phi = 50.234^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$				
H = 07:33:16.7, M = 2.7				
OJC	$\Delta = 55\text{km}$			
	Pg iZ	07	33	26.9
	Sg eN		33	34.2
NIE	$\Delta = 130\text{km}$			
	Pg eZ	07	33	39.8
	(Sg) eN		33	56.9

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KSP	$\Delta = 205\text{km}$			
Pn	eNEZ	07	33	49.1
Pg	eNEZ		33	51.4
Sn	eNEZ		34	13.3
Sg	eNEZ		34	16.2
<u>JAN 14</u>				
GIG:	$\Phi = 50.210^\circ\text{N}$, $\lambda = 19.083^\circ\text{E}$			
	$H = 15:01:43.7$, $M = 2.3$			
OJC	$\Delta = 51\text{km}$			
Pg	eZ	15	01	52.9
Sg	eN		01	59.8
NIE	$\Delta = 125\text{km}$			
Pg	eZ	15	02	06.5
KSP	$\Delta = 209\text{km}$			
Pg	eE	15	02	18.7
Sg	eNEZ		02	43.7
<u>JAN 15</u>				
GIG:	$\Phi = 50.256^\circ\text{N}$, $\lambda = 18.883^\circ\text{E}$			
	$H = 00:55:31.8$, $M = 2.3$			
OJC	$\Delta = 66\text{km}$			
Pg	eZ	00	55	44.1
Sg	eE		55	51.7
NIE	$\Delta = 139\text{km}$			
Pg	eZ	00	55	55.9
Sg	eE		56	14.0
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	00	56	04.6
Sg	eNEZ		56	27.7
<u>JAN 15</u>				
GIG:	$\Phi = 50.256^\circ\text{N}$, $\lambda = 18.921^\circ\text{E}$			
	$H = 11:13:59.1$, $M = 2.5$			
OJC	$\Delta = 62\text{km}$			
Pg	eZ	11	14	10.0
Sg	eE		14	18.0
NIE	$\Delta = 137\text{km}$			
Pg	iZ	11	14	24.0
Sg	iE		14	40.0
KSP	$\Delta = 197\text{km}$			
Pg	eNEZ	11	14	32.0
Sg	eNEZ		14	55.7
<u>JAN 15</u>				
GIG:	$\Phi = 50.268^\circ\text{N}$, $\lambda = 18.869^\circ\text{E}$			
	$H = 18:11:29.8$, $M = 2.5$			
RAC	$\Delta = 52\text{km}$			
Pg	eZ	18	11	39.8
Sg	eNE		11	46.1

OJC	$\Delta = 67\text{km}$			
Pg	eZ	18	11	42.3
Sg	eE		11	50.8
NIE	$\Delta = 140\text{km}$			
Pg	eZ	18	11	54.6
Sg	eN		12	12.4
KSP	$\Delta = 193\text{km}$			
Pn	eNEZ	18	12	00.8
Pg	eNEZ		12	02.8
Sg	eNEZ		12	25.1
<u>JAN 15</u>				
GIG:	$\Phi = 50.256^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$			
	$H = 19:56:02.0$, $M = 2.2$			
OJC	$\Delta = 66\text{km}$			
Pg	eZ	19	56	13.8
Sg	eE		56	22.2
NIE	$\Delta = 139\text{km}$			
Pg	eZ	19	56	26.5
(Sg)	eN		56	45.0
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	19	56	35.0
Sg	eNEZ		56	58.5
<u>JAN 15</u>				
GIG:	$\Phi = 50.235^\circ\text{N}$, $\lambda = 19.036^\circ\text{E}$			
	$H = 23:08:55.0$, $M = 2.2$			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	23	09	05.2
Sg	eN		09	12.3
NIE	$\Delta = 130\text{km}$			
Pg	eZ	23	09	18.4
Sg	eE		09	34.6
KSP	$\Delta = 205\text{km}$			
Pg	eNEZ	23	09	29.6
(Sg)	eNEZ		09	53.3
<u>JAN 16</u>				
GIG:	$\Phi = 50.070^\circ\text{N}$, $\lambda = 18.464^\circ\text{E}$			
	$H = 10:17:51.9$, $M = 2.3$			
RAC	$\Delta = 20\text{km}$			
Pg	eZ	10	17	55.5
Sg	eNE		17	58.9
OJC	$\Delta = 96\text{km}$			
Pg	eZ	10	18	08.3
Sg	eE		18	21.8
NIE	$\Delta = 152\text{km}$			
Pg	eZ	10	18	18.1
Sg	eN		18	37.6

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JAN 16

GIG: $\Phi = 50.257^{\circ}\text{N}$, $\lambda = 18.882^{\circ}\text{E}$
H = 17:49:31.5, M = 2.5

RAC	$\Delta = 52\text{km}$			
	(Pg) eZ	17	49	40.1
	Sg eNE		49	47.3
OJC	$\Delta = 66\text{km}$			
	Pg iZ	17	49	43.6 D
	Sg iN		49	51.9
NIE	$\Delta = 139\text{km}$			
	Pg eZ	17	49	55.7
	Sg eE		50	13.6
KSP	$\Delta = 194\text{km}$			
	(Pn) eNEZ	17	50	03.2
	Pg eNEZ		50	04.6
	Sg eNEZ		50	27.4

JAN 16

GIG: $\Phi = 50.217^{\circ}\text{N}$, $\lambda = 19.064^{\circ}\text{E}$
H = 20:57:10.9, M = 2.1

OJC	$\Delta = 52\text{km}$			
	Pg eZ	20	57	20.4
	Sg eN		57	27.6
NIE	$\Delta = 127\text{km}$			
	Pg eZ	20	57	33.6
	Sg eN		57	49.5
KSP	$\Delta = 208\text{km}$			
	Pn eNEZ	20	57	44.0
	Sg eNEZ		58	10.6

JAN 17

GIG: $\Phi = 50.237^{\circ}\text{N}$, $\lambda = 18.922^{\circ}\text{E}$
H = 17:02:46.7, M = 2.4

OJC	$\Delta = 62\text{km}$			
	Pg eZ	17	02	57.9
	Sg eE		03	06.6
NIE	$\Delta = 135\text{km}$			
	Pg eZ	17	03	10.7
	(Sg) eE		03	28.4
KSP	$\Delta = 198\text{km}$			
	Pn eZ	17	03	18.5
	Pg eNEZ		03	19.8
	(Sn) eNEZ		03	42.7

JAN 19

GIG: $\Phi = 50.268^{\circ}\text{N}$, $\lambda = 18.967^{\circ}\text{E}$
H = 09:41:08.5, M = 2.3

OJC	$\Delta = 60\text{km}$			
	Pg eZ	09	41	19.0
	(Sg) eN		41	28.2

NIE	$\Delta = 136\text{km}$			
	Pg eZ	09	41	32.5
	Sg eE		41	49.5

KSP	$\Delta = 199\text{km}$			
	Pg eNEZ	09	41	41.8
	Sg eNEZ		42	05.9

JAN 19

GIG: $\Phi = 50.205^{\circ}\text{N}$, $\lambda = 19.100^{\circ}\text{E}$
H = 16:44:19.5, M = 2.3

OJC	$\Delta = 49\text{km}$			
	Pg eZ	16	44	27.9
	Sg eN		44	34.8

NIE	$\Delta = 123\text{km}$			
	Pg eZ	16	44	41.1
	Sg eE		44	57.0

KSP	$\Delta = 211\text{km}$			
	Pg eNEZ	16	44	55.3
	Sn eNEZ		45	18.8

JAN 21

$\Phi = 50.38^{\circ}\text{N}$, $\lambda = 19.04^{\circ}\text{E}$
H = 00:43:56.3, M = 2.3

OJC	$\Delta = 56\text{km}$			
	Pg eZ	00	44	06.2
	Sg eN		44	14.0

NIE	$\Delta = 140\text{km}$			
	Pg eZ	00	44	20.9
	Sg eE		44	39.3

KSP	$\Delta = 201\text{km}$			
	Pg eNEZ	00	44	30.5
	Sn eNEZ		44	52.1

JAN 21

GIG: $\Phi = 50.357^{\circ}\text{N}$, $\lambda = 18.971^{\circ}\text{E}$
H = 11:23:23.4, M = 2.2

OJC	$\Delta = 61\text{km}$			
	Pg eZ	11	23	34.4
	Sg eN		23	42.5

NIE	$\Delta = 143\text{km}$			
	Pg eZ	11	23	49.0
	Sg eE		24	06.5

KSP	$\Delta = 197\text{km}$			
	Pg eNEZ	11	23	56.9
	Sg eNZ		24	20.2

JAN 22

GIG: $\Phi = 50.237^{\circ}\text{N}$, $\lambda = 18.838^{\circ}\text{E}$
H = 01:43:56.5, M = 2.2

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OJC	$\Delta = 69\text{km}$ Pg eZ (Sg) eN	01 44 09.4 44 16.9
NIE	$\Delta = 140\text{km}$ Pg eZ Sg eE	01 44 21.9 44 39.3
KSP	$\Delta = 192\text{km}$ Pg eNEZ Sg eNEZ	01 44 28.6 44 52.4
<u>JAN 22</u>		
GIG: $\Phi = 50.253^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$ $H = 06:00:00.2$, $M = 3.0$		
RAC	$\Delta = 53\text{km}$ Pg eZ (Sg) eNE	06 00 10.6 00 18.0
OJC	$\Delta = 65\text{km}$ Pg iZ (Sg) eN	06 00 12.1 00 19.6
NIE	$\Delta = 139\text{km}$ Pg eZ Sg eE	06 00 24.1 00 42.5
KSP	$\Delta = 195\text{km}$ Pn eNEZ Pg iNEZ Sg eNEZ	06 00 30.8 00 33.3 00 55.9
KWP	$\Delta = 282\text{km}$ Pn eZ Pg eZ Sg eNE	06 00 42.8 00 50.2 01 27.9
<u>JAN 23</u>		
GIG: $\Phi = 50.261^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$ $H = 05:08:23.8$, $M = 2.1$		
OJC	$\Delta = 66\text{km}$ Pg eZ Sg eE	05 08 35.2 08 43.6
NIE	$\Delta = 140\text{km}$ Pg eZ Sg eE	05 08 49.1 09 05.8
KSP	$\Delta = 194\text{km}$ Pg eNEZ Sg eNEZ	05 08 56.2 09 19.4
<u>JAN 23</u>		
$\Phi = 50.34^\circ\text{N}$, $\lambda = 18.85^\circ\text{E}$ $H = 18:13:22.2$, $M = 2.3$		
OJC	$\Delta = 69\text{km}$ Pg eZ Sg eE	18 13 34.4 13 43.6

NIE	$\Delta = 147\text{km}$ Pg eZ Sg eE	18 13 48.1 14 06.6
KSP	$\Delta = 189\text{km}$ Pg eNEZ (Sg) eNEZ	18 13 53.8 14 18.1
<u>JAN 23</u>		
$\Phi = 50.36^\circ\text{N}$, $\lambda = 18.99^\circ\text{E}$ $H = 18:31:56.4$, $M = 2.1$		
OJC	$\Delta = 60\text{km}$ Pg eZ Sg eE	18 32 07.3 32 14.9
NIE	$\Delta = 141\text{km}$ Pg eZ Sg eE	18 32 21.5 32 38.5
KSP	$\Delta = 198\text{km}$ Pg eE Sg eN	18 32 30.6 32 53.2
<u>JAN 23</u>		
$\Phi = 50.04^\circ\text{N}$, $\lambda = 18.58^\circ\text{E}$ $H = 22:18:16.1$, $M = 2.1$		
RAC	$\Delta = 28\text{km}$ Pg eZ Sg eN	22 18 22.5 18 27.2
OJC	$\Delta = 89\text{km}$ Pg eZ Sg eN	22 18 31.4 18 43.1
NIE	$\Delta = 143\text{km}$ Pg eZ Sg eE	22 18 40.6 18 59.1
KSP	$\Delta = 185\text{km}$ Pn eZ Sg eNEZ	22 18 44.8 19 09.8
<u>JAN 24</u>		
GIG: $\Phi = 50.049^\circ\text{N}$, $\lambda = 18.443^\circ\text{E}$ $H = 06:57:54.3$, $M = 2.4$		
RAC	$\Delta = 18\text{km}$ Pg eZ (Sg) eN	06 57 58.1 58 01.4
OJC	$\Delta = 98\text{km}$ Pg eZ (Sg) eE	06 58 11.3 58 23.4
NIE	$\Delta = 152\text{km}$ Pg eZ Sg iN	06 58 20.4 58 40.6

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KSP	$\Delta = 176\text{km}$		
Pg eE		06 58 24.8	
(Sg) eNEZ		58 44.6	
<u>JAN 26</u>			
GIG:	$\Phi = 50.268^\circ\text{N}$, $\lambda = 18.964^\circ\text{E}$		
	H = 06:26:39.5, M = 2.6		
OJC	$\Delta = 60\text{km}$		
Pg eZ		06 26 50.5	
(Sg) eE		26 59.0	
NIE	$\Delta = 135\text{km}$		
Pg eZ		06 27 03.3	
Sg eN		27 20.4	
KSP	$\Delta = 199\text{km}$		
Pn eNEZ		06 27 11.2	
Pg eNEZ		27 13.2	
Sg eNEZ		27 36.9	
<u>JAN 26</u>			
	$\Phi = 50.24^\circ\text{N}$, $\lambda = 19.01^\circ\text{E}$		
	H = 19:55:33.8, M = 2.2		
OJC	$\Delta = 56\text{km}$		
Pg eZ		19 55 44.0	
Sg eE		55 51.3	
NIE	$\Delta = 131\text{km}$		
Pg eZ		19 55 56.7	
Sg eN		56 13.7	
KSP	$\Delta = 204\text{km}$		
Pg eNEZ		19 56 08.4	
Sg eNEZ		56 33.0	
<u>JAN 26</u>			
	$\Phi = 50.22^\circ\text{N}$, $\lambda = 19.09^\circ\text{E}$		
	H = 22:07:30.9, M = 2.2		
OJC	$\Delta = 50\text{km}$		
Pg eZ		22 07 40.0	
Sg eN		07 46.6	
NIE	$\Delta = 126\text{km}$		
Pg eZ		22 07 52.8	
Sg eN		08 09.1	
KSP	$\Delta = 210\text{km}$		
Pg eNEZ		22 08 06.6	
Sg eNEZ		08 31.3	
<u>JAN 27</u>			
	$\Phi = 50.25^\circ\text{N}$, $\lambda = 19.04^\circ\text{E}$		
	H = 19:31:48.9, M = 2.2		
OJC	$\Delta = 54\text{km}$		
Pg eZ		19 31 58.7	
Sg iN		32 05.4	

NIE	$\Delta = 130\text{km}$		
Pg eZ		19 32 11.6	
Sg eE		32 28.4	
KSP	$\Delta = 206\text{km}$		
Pg eNEZ		19 32 23.9	
Sg eNEZ		32 48.5	
<u>JAN 27</u>			
GIG:	$\Phi = 50.235^\circ\text{N}$, $\lambda = 19.037^\circ\text{E}$		
	H = 21:28:45.1, M = 2.0		
OJC	$\Delta = 55\text{km}$		
Pg iZ		21 28 55.3	
Sg eN		29 02.2	
NIE	$\Delta = 130\text{km}$		
Pg eZ		21 29 08.3	
Sg eN		29 24.6	
KSP	$\Delta = 205\text{km}$		
Pg eNEZ		21 29 19.6	
Sg eNEZ		29 44.1	
<u>JAN 27</u>			
GIG:	$\Phi = 50.248^\circ\text{N}$, $\lambda = 18.884^\circ\text{E}$		
	H = 21:45:47.6, M = 2.5		
RAC	$\Delta = 53\text{km}$		
Pg eZ		21 45 58.1	
OJC	$\Delta = 65\text{km}$		
Pg iZ		21 45 59.4	
Sg iE		46 07.9	
NIE	$\Delta = 138\text{km}$		
Pg eZ		21 46 12.1	
Sg eE		46 29.4	
KSP	$\Delta = 195\text{km}$		
Pg eNEZ		21 46 20.9	
Sg eNEZ		46 43.9	
<u>JAN 28</u>			
GIG:	$\Phi = 50.235^\circ\text{N}$, $\lambda = 19.037^\circ\text{E}$		
	H = 06:02:41.1, M = 2.2		
OJC	$\Delta = 55\text{km}$		
Pg eZ		06 02 51.2	
Sg eE		02 58.5	
NIE	$\Delta = 129\text{km}$		
Pg eZ		06 03 04.2	
Sg eE		03 20.4	
KSP	$\Delta = 205\text{km}$		
Pg eNEZ		06 03 15.9	
Sg eNEZ		03 40.2	

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JAN 29

GIG: $\Phi = 50.352^{\circ}\text{N}$, $\lambda = 18.971^{\circ}\text{E}$
H = 15:08:13.3, M = 2.4

OJC $\Delta = 61\text{km}$
Pg eZ 15 08 24.2
Sg eN 08 32.3

NIE $\Delta = 142\text{km}$
Pg eZ 15 08 38.6
Sg eE 08 57.2

KSP $\Delta = 197\text{km}$
Pg eNEZ 15 08 46.8
Sg eNEZ 09 10.3

JAN 29

GIG: $\Phi = 50.062^{\circ}\text{N}$, $\lambda = 18.493^{\circ}\text{E}$
H = 17:49:48.4, M = 2.2

RAC $\Delta = 22\text{km}$
Pg eZ 17 49 53.6
Sg eNE 49 57.1

OJC $\Delta = 95\text{km}$
Pg eZ 17 50 05.5
Sg eN 50 17.1

NIE $\Delta = 149\text{km}$
Pg eZ 17 50 15.5
(Sg) eNE 50 34.5

KSP $\Delta = 178\text{km}$
Pn eZ 17 50 16.4
Sg eNEZ 50 39.8

JAN 30

GIG: $\Phi = 50.349^{\circ}\text{N}$, $\lambda = 18.964^{\circ}\text{E}$
H = 07:01:11.2, M = 2.2

OJC $\Delta = 61\text{km}$
Pg eZ 07 01 22.1
Sg iE 01 30.6

OJC $\Delta = 61\text{km}$
Pg eZ 07 01 22.1
Sg iE 01 30.6

NIE $\Delta = 142\text{km}$
Pg eZ 07 01 37.0
Sg iE 01 54.5

KSP $\Delta = 196\text{km}$
Pg eNEZ 07 01 43.9
Sg eNEZ 02 07.7

JAN 30

GIG: $\Phi = 50.099^{\circ}\text{N}$, $\lambda = 19.158^{\circ}\text{E}$
H = 08:01:54.7, M = 2.5

OJC $\Delta = 47\text{km}$
Pg eZ 08 02 02.7
Sg iEN 02 08.9

NIE $\Delta = 112\text{km}$
(Pg) eZ 08 02 13.3
(Sg) eE 02 29.4

KSP $\Delta = 220\text{km}$
Pg (eNEZ 08 02 33.1
Sn eNEZ 02 56.4

JAN 30

GIG: $\Phi = 50.353^{\circ}\text{N}$, $\lambda = 18.968^{\circ}\text{E}$
H = 18:32:17.0, M = 2.5

OJC $\Delta = 61\text{km}$
Pg eZ 18 32 27.6
Sg eE 32 35.7

NIE $\Delta = 142\text{km}$
Pg eZ 18 32 42.1
Sg eN 33 00.3

KSP $\Delta = 197\text{km}$
Pg eNEZ 18 32 49.7
Sg eNEZ 33 14.5

JAN 30

GIG: $\Phi = 50.252^{\circ}\text{N}$, $\lambda = 18.849^{\circ}\text{E}$
H = 23:00:08.9, M = 2.5

RAC $\Delta = 51\text{km}$
Pg eZ 23 00 18.7
Sg eN 00 25.6

OJC $\Delta = 67\text{km}$
Pg eZ 23 00 20.9
Sg eE 00 29.5

NIE $\Delta = 140\text{km}$
Pg eZ 23 00 33.1
Sg eE 00 51.3

KSP $\Delta = 193\text{km}$
Pg iNEZ 23 00 41.4
Sn eNEZ 01 02.3
Sg eNEZ 01 04.2

FEB 2

GIG: $\Phi = 50.206^{\circ}\text{N}$, $\lambda = 19.102^{\circ}\text{E}$
H = 18:17:48.3, M = 2.3

OJC $\Delta = 50\text{km}$
Pg iZ 18 17 57.3 D
Sg eN 18 04.0

NIE $\Delta = 124\text{km}$
Pg eZ 18 18 10.9

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KSP	$\Delta = 211\text{km}$			
Pg eNEZ		18	18	23.5
(Sg) eNEZ		18	48.1	
<u>FEB 3</u>				
GIG:	$\Phi = 50.266^\circ\text{N}, \lambda = 18.967^\circ\text{E}$			
	H = 19:09:59.8, M = 2.4			
OJC	$\Delta = 60\text{km}$			
Pg eZ		19	10	10.7
Sg eN		10	18.8	
NIE	$\Delta = 136\text{km}$			
Pg eZ		19	10	23.7
Sg eE		10	41.0	
KSP	$\Delta = 199\text{km}$			
Pg eNEZ		19	10	33.4
Sg eNEZ		10	57.1	
<u>FEB 3</u>				
	$\Phi = 50.38^\circ\text{N}, \lambda = 19.02^\circ\text{E}$			
	H = 19:58:29.2, M = 2.1			
OJC	$\Delta = 58\text{km}$			
Pg eZ		19	58	39.5
Sg eN		58	47.0	
NIE	$\Delta = 142\text{km}$			
Pg eZ		19	58	54.0
Sg eE		59	12.1	
KSP	$\Delta = 200\text{km}$			
Pg eE		19	59	03.3
Sn eNEZ		59	25.1	
<u>FEB 3</u>				
GIG:	$\Phi = 50.235^\circ\text{N}, \lambda = 19.037^\circ\text{E}$			
	H = 20:32:56.2, M = 2.4			
OJC	$\Delta = 55\text{km}$			
Pg iZ		20	33	06.2
Sg eN		33	13.8	
NIE	$\Delta = 129\text{km}$			
Pg eZ		20	33	18.7
(Sg) eN		33	36.2	
KSP	$\Delta = 205\text{km}$			
Pg eNEZ		20	33	30.8
Sg eNEZ		33	55.8	
<u>FEB 4</u>				
GIG:	$\Phi = 50.353^\circ\text{N}, \lambda = 18.971^\circ\text{E}$			
	H = 14:20:21.9, M = 2.3			
OJC	$\Delta = 60\text{km}$			
Pg eZ		14	20	32.6
Sg eN		20	40.4	

NIE	$\Delta = 142\text{km}$			
Pg eZ		14	20	46.9
(Sg) eE		21	05.5	
KSP	$\Delta = 197\text{km}$			
Pn eNEZ		14	20	53.4
Sg eNEZ		21	19.2	
<u>FEB 5</u>				
GIG:	$\Phi = 50.045^\circ\text{N}, \lambda = 18.470^\circ\text{E}$			
	H = 04:47:57.2, M = 2.3			
RAC	$\Delta = 20\text{km}$			
Pg eZ		04	48	01.9
Sg eNE		48	05.1	
OJC	$\Delta = 97\text{km}$			
Pg eZ		04	48	14.1
Sg eN		48	26.5	
NIE	$\Delta = 150\text{km}$			
Pg eZ		04	48	24.0
(Sg) eE		48	43.3	
KSP	$\Delta = 178\text{km}$			
Pg eNEZ		04	48	27.5
Sn eNEZ		48	47.2	
<u>FEB 5</u>				
	$\Phi = 50.10^\circ\text{N}, \lambda = 18.44^\circ\text{E}$			
	H = 19:51:08.9, M = 2.1			
RAC	$\Delta = 18\text{km}$			
Pg eZ		19	51	12.2
Sg eN		51	15.5	
OJC	$\Delta = 98\text{km}$			
Pg eZ		19	51	25.6
Sg eN		51	38.9	
NIE	$\Delta = 154\text{km}$			
Pg eZ		19	51	35.5
Sg eE		51	56.0	
<u>FEB 6</u>				
GIG:	$\Phi = 50.268^\circ\text{N}, \lambda = 18.855^\circ\text{E}$			
	H = 11:26:12.6, M = 2.4			
OJC	$\Delta = 67\text{km}$			
Pg eZ		11	26	25.2
Sg eE		26	33.2	
NIE	$\Delta = 142\text{km}$			
Pg eZ		11	26	38.0
KSP	$\Delta = 192\text{km}$			
Pg eNEZ		11	26	45.5
Sg eNEZ		27	07.6	

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FEB 6

GIG: $\Phi = 50.268^\circ\text{N}$, $\lambda = 18.853^\circ\text{E}$
H = 11:26:52.3, M = 2.4

OJC $\Delta = 68\text{km}$
Pg eZ 11 27 04.7
Sg eN 27 12.9

NIE $\Delta = 142\text{km}$
Pg eZ 11 27 18.0
Sg eE 27 35.6

KSP $\Delta = 192\text{km}$
Pg eNEZ 11 27 24.6
Sg eNEZ 27 47.7

FEB 9

GIG: $\Phi = 50.31^\circ\text{N}$, $\lambda = 18.96^\circ\text{E}$
H = 18:03:14.9, M = 2.2

OJC $\Delta = 60\text{km}$
Pg eZ 18 03 25.9
Sg eE 03 33.6

NIE $\Delta = 139\text{km}$
Pg eZ 18 03 39.5
Sg eE 03 56.9

KSP $\Delta = 198\text{km}$
Pg eNEZ 18 03 48.6
Sg eNEZ 04 12.0

FEB 10

GIG: $\Phi = 50.257^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$
H = 23:59:13.0, M = 2.6

RAC $\Delta = 53\text{km}$
(Pg) eZ 23 59 23.9

OJC $\Delta = 65\text{km}$
Pg iZE 23 59 24.6
Sg iE 59 32.9

NIE $\Delta = 138\text{km}$
Pg eZ 23 59 36.9
Sg eE 59 55.3

KSP $\Delta = 195\text{km}$
Pn eNEZ 23 59 44.3
Pg iNEZ 59 45.8
(Sn) eNEZ 24 00 07.9

FEB 11

GIG: $\Phi = 50.257^\circ\text{N}$, $\lambda = 18.878^\circ\text{E}$
H = 08:24:19.4, M = 2.6

OJC $\Delta = 66\text{km}$
Pg eZ 08 24 31.0
Sg iEN 24 40.2

NIE $\Delta = 140\text{km}$
Pg eZ 08 24 43.5
Sg eE 25 02.0

KSP $\Delta = 194\text{km}$
Pn eNEZ 08 24 50.4
Pg eNEZ 24 52.0
Sn eNEZ 25 12.8
Sg eNEZ 25 14.9

FEB 12

GIG: $\Phi = 50.359^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$
H = 16:33:36.1, M = 2.5

OJC $\Delta = 68\text{km}$
Pg eZ 16 33 48.7
Sg eN 33 57.6

NIE $\Delta = 148\text{km}$
Pg eZ 16 34 02.2
Sg eE 34 20.7

KSP $\Delta = 189\text{km}$
Pg eNEZ 16 34 07.9
Sn eNEZ 34 28.4

FEB 13

GIG: $\Phi = 50.241^\circ\text{N}$, $\lambda = 18.904^\circ\text{E}$
H = 19:22:02.9, M = 2.1

OJC $\Delta = 64\text{km}$
Pg eZ 19 22 14.7
Sg eE 22 22.9

NIE $\Delta = 137\text{km}$
Pg eZ 19 22 27.5
(Sg) eE 22 45.2

KSP $\Delta = 196\text{km}$
Pg eNEZ 19 22 35.9
Sg eNEZ 22 59.5

FEB 15

GIG: $\Phi = 50.268^\circ\text{N}$, $\lambda = 18.969^\circ\text{E}$
H = 17:46:21.8, M = 2.3

OJC $\Delta = 59\text{km}$
Pg eZ 17 46 32.6
Sg eN 46 40.7

NIE $\Delta = 136\text{km}$
Pg eZ 17 46 45.6
Sg eE 47 03.0

KSP $\Delta = 200\text{km}$
Pg eZ 17 46 55.5
Sg eN 47 19.3

FEB 17

GIG: $\Phi = 50.362^\circ\text{N}$, $\lambda = 18.863^\circ\text{E}$
H = 03:30:24.6, M = 2.4

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OJC	$\Delta = 68\text{km}$					KSP	$\Delta = 212\text{km}$				
	Pg eZ	03	30	37.5			Pn eNEZ	00	50	27.7	
	Sg eN		30	45.7			Pg eNEZ		50	29.4	
							Sg eNEZ		50	54.6	
NIE	$\Delta = 147\text{km}$					FEB 19					
	Pg eZ	03	30	50.9		GIG:	$\Phi = 50.056^\circ\text{N}, \lambda = 18.493^\circ\text{E}$				
	Sg eN		31	08.5			H = 16:03:35.5, M = 2.1				
KSP	$\Delta = 190\text{km}$					RAC	$\Delta = 22\text{km}$				
	Pn eNEZ	03	30	54.8			Pg eZ	16	03	40.4	
	Pg eNEZ		30	56.8			Sg eN		03	44.0	
	Sg eNEZ		31	19.5							
FEB 18						OJC	$\Delta = 95\text{km}$				
	$\Phi = 50.28^\circ\text{N}, \lambda = 18.95^\circ\text{E}$						Pg eZ	16	03	51.8	
	H = 00:39:21.4, M = 2.0						Sg eN		04	03.7	
OJC	$\Delta = 61\text{km}$					NIE	$\Delta = 149\text{km}$				
	Pg eZ	00	39	32.2			Pg eZ	16	04	02.5	
	Sg eE		39	40.9			Sg eE		04	21.0	
NIE	$\Delta = 137\text{km}$					KSP	$\Delta = 179\text{km}$				
	Pg eZ	00	39	45.5			Pg eZ	16	04	06.8	
	Sg eE		40	03.0			Sn eNEZ		04	25.6	
							Sg eNE		04	26.7	
KSP	$\Delta = 198\text{km}$					FEB 19					
	Pg eNEZ	00	39	54.8		GIG:	$\Phi = 50.252^\circ\text{N}, \lambda = 18.851^\circ\text{E}$				
	Sn eNEZ		40	16.8			H = 16:36:51.8, M = 2.5				
	Sg eNEZ		40	18.4							
FEB 18						OJC	$\Delta = 68\text{km}$				
GIG:	$\Phi = 50.353^\circ\text{N}, \lambda = 18.971^\circ\text{E}$						Pg eZ	16	37	04.3	
	H = 21:20:10.8, M = 2.4						Sg eE		37	12.7	
OJC	$\Delta = 61\text{km}$					NIE	$\Delta = 140\text{km}$				
	Pg eZ	21	20	21.7			Pg eZ	16	37	16.4	
	Sg eE		20	29.4			(Sg) eE		37	35.2	
NIE	$\Delta = 142\text{km}$					KSP	$\Delta = 192\text{km}$				
	Pg eZ	21	20	36.0			Pg eNEZ	16	37	24.7	
	Sg eE		20	53.5			Sn eNEZ		37	44.5	
							Sg eNEZ		37	47.2	
KSP	$\Delta = 197\text{km}$					FEB 20					
	Pg eE	21	20	44.6		GIG:	$\Phi = 50.361^\circ\text{N}, \lambda = 18.862^\circ\text{E}$				
	(Sn) eN		21	04.6			H = 21:45:50.1, M = 2.5				
	Sg eN		21	07.5							
FEB 19						OJC	$\Delta = 68\text{km}$				
	$\Phi = 50.25^\circ\text{N}, \lambda = 19.14^\circ\text{E}$						Pg iZ	21	46	02.1 D	
	H = 00:49:53.7, M = 2.3						Sg iN		46	10.6	
OJC	$\Delta = 47\text{km}$					NIE	$\Delta = 147\text{km}$				
	Pg iZ	00	50	01.9			Pg eZ	21	46	15.5	
	Sg eE		50	08.6			Sg eN		46	33.8	
NIE	$\Delta = 125\text{km}$					KSP	$\Delta = 190\text{km}$				
	Pg eZ	00	50	15.2			Pn eNEZ	21	46	20.3	
	Sg eE		50	32.0			(Pg) eZ		46	23.3	
							(Sg) eE		46	44.2	

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FEB 21

$\Phi = 50.09^{\circ}\text{N}$, $\lambda = 18.45^{\circ}\text{E}$
H = 01:36:42.6, M = 2.2

RAC $\Delta = 18\text{km}$
Pg eZ 01 36 46.1
Sg eN 36 49.2

OJC $\Delta = 97\text{km}$
Pg eZ 01 36 59.3
Sg eN 37 12.6

NIE $\Delta = 154\text{km}$
Pg eZ 01 37 09.5
Sg eNE 37 29.5

FEB 23

GIG: $\Phi = 50.346^{\circ}\text{N}$, $\lambda = 18.954^{\circ}\text{E}$
H = 15:56:39.6, M = 2.2

OJC $\Delta = 62\text{km}$
Pg iZ 15 56 51.1
Sg eE 56 59.2

NIE $\Delta = 143\text{km}$
Pg eZ 15 57 05.5
Sg eE 57 23.1

KSP $\Delta = 196\text{km}$
Pg eNEZ 15 57 12.1
Sg eNEZ 57 36.6

FEB 24

GIG: $\Phi = 50.361^{\circ}\text{N}$, $\lambda = 18.864^{\circ}\text{E}$
H = 18:36:38.8, M = 2.8

RAC $\Delta = 58\text{km}$
Pg eZ 18 36 50.0
(Sg) eN 36 58.0

OJC $\Delta = 68\text{km}$
Pg eZ 18 36 51.3
Sg eN 37 00.5

NIE $\Delta = 148\text{km}$
Pg eZ 18 37 04.5
Sg eN 37 22.8

KSP $\Delta = 190\text{km}$
Pn eNEZ 18 37 08.7
Pg eNEZ 37 10.6
Sg eNEZ 37 33.3

KWP $\Delta = 286\text{km}$
Pg eZ 18 37 27.7
S eNE 38 11.2

FEB 26

GIG: $\Phi = 50.215^{\circ}\text{N}$, $\lambda = 19.064^{\circ}\text{E}$
H = 00:25:46.6, M = 2.3

OJC $\Delta = 52\text{km}$
Pg eZ 00 25 55.8
Sg eN 26 03.0

NIE $\Delta = 126\text{km}$
Pg eZ 00 26 09.2

KSP $\Delta = 209\text{km}$
Pg eNEZ 00 26 22.1
Sg eNEZ 26 46.9

FEB 26

GIG: $\Phi = 50.353^{\circ}\text{N}$, $\lambda = 18.973^{\circ}\text{E}$
H = 12:48:12.1, M = 2.3

OJC $\Delta = 60\text{km}$
Pg eZ 12 48 22.5
Sg eN 48 30.6

NIE $\Delta = 142\text{km}$
Pg eZ 12 48 37.2
Sg eE 48 55.5

KSP $\Delta = 197\text{km}$
Pg eNEZ 12 48 46.2
(Sg) eNEZ 49 08.4

FEB 26

GIG: $\Phi = 50.268^{\circ}\text{N}$, $\lambda = 18.969^{\circ}\text{E}$
H = 17:10:34.5, M = 2.5

OJC $\Delta = 59\text{km}$
Pg eZ 17 10 45.3
Sg iN 10 53.0

RAC $\Delta = 60\text{km}$
(Pg) eZ 17 10 46.6
Sg eN 10 53.4

NIE $\Delta = 135\text{km}$
Pg eZ 17 10 58.3
Sg eE 11 15.7

KSP $\Delta = 200\text{km}$
Pg eNEZ 17 11 08.1
Sn eNEZ 11 29.5

FEB 26

$\Phi = 50.20^{\circ}\text{N}$, $\lambda = 19.30^{\circ}\text{E}$
H = 19:07:52.9, M = 2.3

OJC $\Delta = 35\text{km}$
Pg eZ 19 07 58.7
Sg iN 08 03.2

NIE $\Delta = 114\text{km}$
Pg eZ 19 08 12.5
Sg eNE 08 27.4

KSP $\Delta = 225\text{km}$
Pg eE 19 08 31.6

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KSP	Sg eN	19 08 57.5
<u>FEB 27</u>		
GIG: $\Phi = 50.047^{\circ}\text{N}$, $\lambda = 18.443^{\circ}\text{E}$		
H = 01:50:49.2, M = 2.6		
RAC	$\Delta = 18\text{km}$	
	Pg iZ	01 50 53.3 D
	(Sg) eNE	50 56.3
OJC	$\Delta = 98\text{km}$	
	Pg eZ	01 51 06.1
	(Sg) iNE	51 18.5
NIE	$\Delta = 152\text{km}$	
	Pg eZ	01 51 15.6
	Sg iE	51 35.4
KSP	$\Delta = 176\text{km}$	
	Pn eNEZ	01 51 17.1
	Sn eNEZ	51 38.5
<u>FEB 28</u>		
GIG: $\Phi = 50.101^{\circ}\text{N}$, $\lambda = 19.155^{\circ}\text{E}$		
H = 08:35:46.6, M = 2.2		
OJC	$\Delta = 48\text{km}$	
	Pg eZ	08 35 55.3
	Sg eNE	36 01.5
NIE	$\Delta = 113\text{km}$	
	Pg eZ	08 36 06.8
<u>FEB 29</u>		
GIG: $\Phi = 50.268^{\circ}\text{N}$, $\lambda = 18.855^{\circ}\text{E}$		
H = 06:34:40.4, M = 2.5		
RAC	$\Delta = 52\text{km}$	
	Pg eZ	06 34 50.5
	(Sg) eNE	34 57.8
OJC	$\Delta = 67\text{km}$	
	Pg eZ	06 34 52.8
	Sg eE	35 00.7
NIE	$\Delta = 141\text{km}$	
	Pg eZ	06 35 05.1
	Sg eNE	35 23.3
KSP	$\Delta = 192\text{km}$	
	Pn eNEZ	06 35 11.2
	Pg eNEZ	35 13.1
	Sg eNEZ	35 35.9
<u>MAR 2</u>		
$\Phi = 50.27^{\circ}\text{N}$, $\lambda = 18.71^{\circ}\text{E}$		
H = 01:03:00.8, M = 2.0		
OJC	$\Delta = 78\text{km}$	
	Pg eZ	01 03 14.8
	Sg eN	03 25.4

NIE $\Delta = 149\text{km}$
Pg eZ 01 03 26.5
Sg eE 03 46.1

KSP $\Delta = 183\text{km}$
Pg eNEZ 01 03 31.4
Sg eNEZ 03 54.2

MAR 2
GIG: $\Phi = 50.361^{\circ}\text{N}$, $\lambda = 18.862^{\circ}\text{E}$
H = 01:53:32.0, M = 2.5

OJC $\Delta = 68\text{km}$
Pg eZ 01 53 44.8
Sg eEN 53 53.2

NIE $\Delta = 147\text{km}$
Pg eZ 01 53 58.2
Sg eE 54 15.8

KSP $\Delta = 189\text{km}$
Pg eNEZ 01 54 03.9
Sg eNEZ 54 27.0

MAR 2
GIG: $\Phi = 50.257^{\circ}\text{N}$, $\lambda = 18.880^{\circ}\text{E}$
H = 17:38:45.8, M = 2.3

OJC $\Delta = 66\text{km}$
Pg eZ 17 38 57.4
Sg eE 39 06.4

NIE $\Delta = 139\text{km}$
Pg eZ 17 39 10.2

KSP $\Delta = 194\text{km}$
Pg eNEZ 17 39 18.4
Sn eNEZ 39 39.6

MAR 5
GIG: $\Phi = 50.095^{\circ}\text{N}$, $\lambda = 19.196^{\circ}\text{E}$
H = 16:26:35.2, M = 2.2

OJC $\Delta = 45\text{km}$
Pg eZ 16 26 42.9
Sg eN 26 49.0

NIE $\Delta = 111\text{km}$
Pg eZ 16 26 55.4

MAR 5
GIG: $\Phi = 50.236^{\circ}\text{N}$, $\lambda = 19.035^{\circ}\text{E}$
H = 17:42:47.7, M = 2.3

OJC $\Delta = 54\text{km}$
Pg eZ 17 42 57.0
Sg eE 43 04.3

NIE $\Delta = 130\text{km}$
Pg eZ 17 43 10.3

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NIE Sg eE 17 43 27.3

MAR 5
GIG: $\Phi = 50.058^{\circ}\text{N}$, $\lambda = 18.420^{\circ}\text{E}$
H = 21:32:42.3, M = 2.2

RAC $\Delta = 16\text{km}$
Pg iZ 21 32 46.4 D
Sg eN 32 49.1

OJC $\Delta = 100\text{km}$
Pg eZ 21 32 59.6
Sg eN 33 11.9

NIE $\Delta = 154\text{km}$
Pg eZ 21 33 09.4
Sg iN 33 28.8

KSP $\Delta = 174\text{km}$
Pn eNZ 21 33 10.5
Pg eNEZ 33 12.8
Sg eNEZ 33 32.2

MAR 6
GIG: $\Phi = 50.361^{\circ}\text{N}$, $\lambda = 18.862^{\circ}\text{E}$
H = 00:43:58.6, M = 2.5

RAC $\Delta = 58\text{km}$
Pg eZ 00 44 09.5
Sg eN 44 16.9

OJC $\Delta = 68\text{km}$
Pg eZ 00 44 11.4
Sg eN 44 19.9

NIE $\Delta = 148\text{km}$
Pg eZ 00 44 24.8
Sg eE 44 42.5

KSP $\Delta = 190\text{km}$
Pg eE 00 44 30.6
Sg eNEZ 44 54.2

MAR 6
GIG: $\Phi = 50.100^{\circ}\text{N}$, $\lambda = 19.153^{\circ}\text{E}$
H = 05:22:43.8, M = 2.3

OJC $\Delta = 47\text{km}$
Pg eZ 05 22 52.2
Sg iN 22 58.8

NIE $\Delta = 113\text{km}$
Pg eZ 05 23 03.9

MAR 6
GIG: $\Phi = 50.205^{\circ}\text{N}$, $\lambda = 19.129^{\circ}\text{E}$
H = 16:45:41.2, M = 2.1

OJC $\Delta = 48\text{km}$
Pg eZ 16 45 49.4
Sg eN 45 55.7

NIE $\Delta = 122\text{km}$
Pg eZ 16 46 03.1
Sg eZ 46 18.7

MAR 8
GIG: $\Phi = 50.064^{\circ}\text{N}$, $\lambda = 18.423^{\circ}\text{E}$
H = 15:36:23.6, M = 2.2

RAC $\Delta = 16\text{km}$
Pg iZ 15 36 27.3 C
Sg eNE 36 30.1

OJC $\Delta = 100\text{km}$
Pg eZ 15 36 40.7
Sg eE 36 53.5

NIE $\Delta = 154\text{km}$
Pg eZ 15 36 50.5

MAR 9
 $\Phi = 50.10^{\circ}\text{N}$, $\lambda = 18.46^{\circ}\text{E}$
H = 05:32:05.3, M = 1.9

RAC $\Delta = 19\text{km}$
Pg eZ 05 32 08.7
Sg eNE 32 11.9

OJC $\Delta = 97\text{km}$
Pg eZ 05 32 22.1
Sg eN 32 34.8

NIE $\Delta = 154\text{km}$
Pg eZ 05 32 32.0
Sg eE 32 52.1

MAR 9
GIG: $\Phi = 50.358^{\circ}\text{N}$, $\lambda = 18.861^{\circ}\text{E}$
H = 18:55:48.8, M = 2.4

OJC $\Delta = 69\text{km}$
Pg iZ 18 56 01.7
Sg iN 56 10.0

NIE $\Delta = 148\text{km}$
Pg eZ 18 56 15.1
Sg eE 56 33.7

KSP $\Delta = 189\text{km}$
Pg eNEZ 18 56 20.4
Sg eNEZ 56 43.3

MAR 10
GIG: $\Phi = 50.252^{\circ}\text{N}$, $\lambda = 18.849^{\circ}\text{E}$
H = 04:44:50.6, M = 2.8

RAC $\Delta = 51\text{km}$
Pg eZ 04 45 00.5
(Sg) eN 45 07.5

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OJC	$\Delta = 68\text{km}$		
	Pg eZ	04 45 03.1	
	Sg eE	45 11.5	
NIE	$\Delta = 140\text{km}$		
	Pg eZ	04 45 15.0	
	(Sg) eE	45 33.9	
KSP	$\Delta = 192\text{km}$		
	Pg iNEZ	04 45 23.3	
	Sn eNEZ	45 43.9	
	Sg eNEZ	45 46.1	
KWP	$\Delta = 284\text{km}$		
	Pg eZ	04 45 42.3	
	Sg eNE	46 21.6	
<u>MAR 12</u>			
$\Phi = 50.23^\circ\text{N}$, $\lambda = 19.12^\circ\text{E}$			
H = 01:51:12.7, M = 2.2			
OJC	$\Delta = 48\text{km}$		
	Pg eZ	01 51 21.5	
	Sg eN	51 27.9	
NIE	$\Delta = 125\text{km}$		
	Pg eZ	01 51 34.5	
	Sg eN	51 51.0	
KSP	$\Delta = 211\text{km}$		
	Pg eNEZ	01 51 48.6	
	Sg eNEZ	52 13.7	
<u>MAR 12</u>			
GIG: $\Phi = 50.241^\circ\text{N}$, $\lambda = 18.973^\circ\text{E}$			
H = 12:43:06.4, M = 2.6			
OJC	$\Delta = 59\text{km}$		
	Pg iZ	12 43 17.2	
	Sg iE	43 24.8	
NIE	$\Delta = 134\text{km}$		
	Pg eZ	12 43 29.5	
	(Sg) eE	43 47.7	
KSP	$\Delta = 201\text{km}$		
	Pg eNEZ	12 43 40.1	
	Sg eNEZ	44 04.2	
<u>MAR 12</u>			
GIG: $\Phi = 50.352^\circ\text{N}$, $\lambda = 18.969^\circ\text{E}$			
H = 18:35:39.0, M = 2.4			
OJC	$\Delta = 61\text{km}$		
	Pg eZ	18 35 49.6	
	Sg iN	35 57.9	
NIE	$\Delta = 142\text{km}$		
	Pg eZ	18 36 03.5	
	(Sg) eE	36 22.7	

KSP	$\Delta = 197\text{km}$		
	Pg eNEZ	18 36 13.1	
	(Sg) eNEZ	36 35.0	
<u>MAR 13</u>			
GIG: $\Phi = 50.256^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$			
H = 01:11:24.3, M = 2.8			
RAC	$\Delta = 52\text{km}$		
	Pg eZ	01 11 33.6	
	(Sg) eN	11 39.7	
OJC	$\Delta = 66\text{km}$		
	Pg eZ	01 11 36.3	
	Sg eN	11 44.3	
NIE	$\Delta = 139\text{km}$		
	Pg eE	01 11 48.7	
	(Sg) eN	12 07.4	
KSP	$\Delta = 194\text{km}$		
	Pn eNEZ	01 11 55.1	
	Pg iNEZ	11 57.3	
	Sg eNEZ	12 20.3	
KWP	$\Delta = 282\text{km}$		
	Pn eZ	01 12 05.5	
	Pg eZ	12 14.4	
	Sg eNE	12 45.6	
<u>MAR 13</u>			
$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.77^\circ\text{E}$			
H = 18:41:53.3, M = 2.2			
OJC	$\Delta = 74\text{km}$		
	Pg eZ	18 42 06.9	
	Sg eN	42 16.5	
NIE	$\Delta = 147\text{km}$		
	Pg eZ	18 42 19.5	
	Sg eE	42 37.5	
KSP	$\Delta = 186\text{km}$		
	Pg eE	18 42 24.9	
	Sg eN	42 46.9	
<u>MAR 14</u>			
GIG: $\Phi = 50.060^\circ\text{N}$, $\lambda = 18.425^\circ\text{E}$			
H = 15:19:36.6, M = 2.1			
RAC	$\Delta = 16\text{km}$		
	Pg eZ	15 19 40.0	
	Sg eN	19 43.1	
OJC	$\Delta = 100\text{km}$		
	Pg eZ	15 19 53.5	
	Sg eNE	20 07.3	
NIE	$\Delta = 154\text{km}$		
	Pg eZ	15 20 02.9	
	Sg eN	20 23.0	

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KSP	$\Delta = 174\text{km}$			
Pn	eNEZ	15	20	04.7
Pg	eNEZ		20	06.8
Sg	eNEZ		20	26.4
<u>MAR 14</u>				
	$\Phi = 50.29^\circ\text{N}, \lambda = 18.78^\circ\text{E}$			
	$H = 22:28:43.2, M = 2.1$			
OJC	$\Delta = 73\text{km}$			
Pg	eZ	22	28	56.9
Sg	eE		29	05.9
NIE	$\Delta = 146\text{km}$			
Pg	eZ	22	29	08.5
Sg	eN		29	27.9
KSP	$\Delta = 186\text{km}$			
Pg	eNEZ	22	29	14.3
(Sg)	eNEZ		29	38.2
<u>MAR 15</u>				
	$\Phi = 50.34^\circ\text{N}, \lambda = 18.98^\circ\text{E}$			
	$H = 12:07:53.9, M = 2.1$			
OJC	$\Delta = 60\text{km}$			
Pg	eZ	12	08	04.7
Sg	eE		08	12.6
NIE	$\Delta = 139\text{km}$			
Pg	eZ	12	08	18.5
Sg	eE		08	36.0
KSP	$\Delta = 198\text{km}$			
Pg	eNEZ	12	08	27.6
Sg	eNEZ		08	51.6
<u>MAR 15</u>				
	$\Phi = 50.29^\circ\text{N}, \lambda = 18.88^\circ\text{E}$			
	$H = 23:58:15.2, M = 2.1$			
OJC	$\Delta = 66\text{km}$			
Pg	eZ	23	58	27.3
Sg	eE		58	35.8
NIE	$\Delta = 141\text{km}$			
Pg	eZ	23	58	39.7
Sg	iE		58	58.0
KSP	$\Delta = 193\text{km}$			
Pg	eNEZ	23	58	48.1
Sg	eNEZ		59	11.4
<u>MAR 17</u>				
GIG:	$\Phi = 50.360^\circ\text{N}, \lambda = 18.861^\circ\text{E}$			
	$H = 01:45:32.6, M = 2.5$			
OJC	$\Delta = 69\text{km}$			
Pg	eZ	01	45	45.5
Sg	eN		45	53.6

NIE	$\Delta = 148\text{km}$			
Pg	eZ	01	45	59.0
Sg	eE		46	16.5
KSP	$\Delta = 189\text{km}$			
Pg	eNEZ	01	46	04.5
Sg	eNEZ		46	28.0
<u>MAR 17</u>				
	$\Phi = 50.33^\circ\text{N}, \lambda = 18.85^\circ\text{E}$			
	$H = 15:03:04.3, M = 2.1$			
OJC	$\Delta = 69\text{km}$			
Pg	iZ	15	03	17.2
Sg	eE		03	25.4
NIE	$\Delta = 145\text{km}$			
Pg	eZ	15	03	30.0
Sg	eE		03	48.2
KSP	$\Delta = 190\text{km}$			
Pn	iNEZ	15	03	34.4
Pg	eNEZ		03	36.3
<u>MAR 18</u>				
GIG:	$\Phi = 50.100^\circ\text{N}, \lambda = 19.154^\circ\text{E}$			
	$H = 22:18:44.0, M = 2.2$			
OJC	$\Delta = 48\text{km}$			
Pg	eZ	22	18	52.8
Sg	eN		18	59.0
<u>MAR 18</u>				
GIG:	$\Phi = 50.353^\circ\text{N}, \lambda = 18.972^\circ\text{E}$			
	$H = 23:36:21.0, M = 2.4$			
OJC	$\Delta = 61\text{km}$			
Pg	eZ	23	36	32.3
Sg	eN		36	40.2
NIE	$\Delta = 142\text{km}$			
Pg	eZ	23	36	46.0
Sg	eE		37	04.0
KSP	$\Delta = 197\text{km}$			
Pn	eNEZ	23	36	52.3
Pg	eNEZ		36	54.6
Sn	eNEZ		37	15.4
Sg	eNEZ		37	18.1
<u>MAR 19</u>				
GIG:	$\Phi = 50.267^\circ\text{N}, \lambda = 18.851^\circ\text{E}$			
	$H = 03:30:37.1, M = 2.1$			
OJC	$\Delta = 68\text{km}$			
Pg	eZ	03	30	50.1
Sg	iE		30	58.8
NIE	$\Delta = 142\text{km}$			
Pg	eZ	03	31	02.0

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NIE	Sg eN	03 31 20.1
KSP	$\Delta = 192\text{km}$	
	Pg eNEZ	03 31 09.0
	Sg eNEZ	31 32.3
MAR 20		
GIG: $\Phi = 50.252^\circ\text{N}$, $\lambda = 18.847^\circ\text{E}$		
H = 03:12:04.1, M = 2.6		
RAC	$\Delta = 50\text{km}$	
	Pg eZ	03 12 13.4
	Sg eNE	12 19.5
OJC	$\Delta = 68\text{km}$	
	Pg eZ	03 12 16.7
	Sg eE	12 25.1
NIE	$\Delta = 140\text{km}$	
	Pg eZ	03 12 28.6
	Sg eE	12 46.9
KSP	$\Delta = 192\text{km}$	
	Pg iNEZ	03 12 36.9
	Sg iNEZ	12 59.4
MAR 20		
GIG: $\Phi = 50.251^\circ\text{N}$, $\lambda = 18.850^\circ\text{E}$		
H = 03:12:29.4, M = 2.4		
OJC	$\Delta = 68\text{km}$	
	Pg eZ	03 12 42.3
	Sg eE	12 50.0
MAR 22		
$\Phi = 50.36^\circ\text{N}$, $\lambda = 18.96^\circ\text{E}$		
H = 10:26:10.3, M = 2.5		
OJC	$\Delta = 62\text{km}$	
	Pg iZ	10 26 21.5
	Sg iE	26 29.7
NIE	$\Delta = 144\text{km}$	
	Pg eZ	10 26 35.9
	Sg eE	26 53.4
KSP	$\Delta = 196\text{km}$	
	Pg eNEZ	10 26 43.5
	Sg eNEZ	27 07.1
MAR 22		
GIG: $\Phi = 50.254^\circ\text{N}$, $\lambda = 18.900^\circ\text{E}$		
H = 18:58:02.1, M = 2.6		
RAC	$\Delta = 54\text{km}$	
	Pg eZ	18 58 12.6
	Sg eNE	58 19.9
OJC	$\Delta = 64\text{km}$	
	Pg eZ	18 58 14.0
	Sg eN	58 22.3

NIE	$\Delta = 138\text{km}$	
	Pg eZ	18 58 26.4
	Sg eE	58 43.9
KSP	$\Delta = 196\text{km}$	
	Pg eNEZ	18 58 35.2
	Sg eNEZ	58 58.9
MAR 23		
GIG: $\Phi = 50.361^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$		
H = 06:11:26.9, M = 2.4		
OJC	$\Delta = 69\text{km}$	
	Pg eZ	06 11 39.9
	Sg eN	11 48.1
NIE	$\Delta = 148\text{km}$	
	Pg eZ	06 11 53.6
	Sg eE	12 11.0
MAR 23		
GIG: $\Phi = 50.358^\circ\text{N}$, $\lambda = 18.859^\circ\text{E}$		
H = 20:21:17.4, M = 2.4		
OJC	$\Delta = 69\text{km}$	
	Pg eZ	20 21 29.8
	Sg eN	21 38.7
NIE	$\Delta = 148\text{km}$	
	Pg eZ	20 21 43.9
	Sg eN	22 01.9
KSP	$\Delta = 189\text{km}$	
	Pg eNEZ	20 21 49.4
	Sg eNEZ	22 12.3
MAR 24		
GIG: $\Phi = 49.959^\circ\text{N}$, $\lambda = 18.563^\circ\text{E}$		
H = 09:21:10.4, M = 2.2		
RAC	$\Delta = 30\text{km}$	
	Pg eZ	09 21 16.1
	Sg eNE	21 20.1
OJC	$\Delta = 93\text{km}$	
	Pg eZ	09 21 26.4
	Sg eN	21 38.0
NIE	$\Delta = 140\text{km}$	
	Pg eZ	09 21 35.5
	Sg eE	21 53.0
KSP	$\Delta = 189\text{km}$	
	Pg eNEZ	09 21 41.2
	Sg eNEZ	22 04.3
MAR 24		
$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.95^\circ\text{E}$		
H = 14:23:14.0 M = 2.1		

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OJC	$\Delta = 61\text{km}$			
Pg eZ		14	23	25.2
Sg eE			23	33.4
NIE	$\Delta = 137\text{km}$			
Pg eZ		14	23	38.5
Sg eE			23	55.4
KSP	$\Delta = 198\text{km}$			
Pg eNEZ		14	23	47.8
Sg eN			23	11.3
MAR 24				
GIG:	$\Phi = 50.257^\circ\text{N}, \lambda = 18.878^\circ\text{E}$			
	$H = 18:45:40.5, M = 2.7$			
RAC	$\Delta = 53\text{km}$			
Pg eZ		18	45	50.6
Sg eNE			45	57.1
OJC	$\Delta = 66\text{km}$			
Pg iZ		18	45	52.4 D
Sg eN			46	00.1
NIE	$\Delta = 139\text{km}$			
Pg eZ		18	46	04.8
Sg eE			46	22.9
KSP	$\Delta = 194\text{km}$			
Pn eNEZ		18	46	11.7
Pg iNEZ			46	13.5
(Sn) eNEZ			46	33.4
Sg eNEZ			46	36.1
KWP	$\Delta = 282\text{km}$			
Pg eZ		18	46	31.0
Sg eNE			47	09.3
MAR 26				
GIG:	$\Phi = 50.210^\circ\text{N}, \lambda = 19.080^\circ\text{E}$			
	$H = 02:35:18.8, M = 2.4$			
OJC	$\Delta = 52\text{km}$			
Pg eZ		02	35	27.9
Sg eE			35	35.3
NIE	$\Delta = 126\text{km}$			
Pg eZ		02	35	41.0
Sg eN			35	57.3
KSP	$\Delta = 209\text{km}$			
Pg eNEZ		02	35	53.7
Sg eNEZ			36	18.8
MAR 26				
GIG:	$\Phi = 50.359^\circ\text{N}, \lambda = 18.862^\circ\text{E}$			
	$H = 05:33:25.0, M = 2.4$			
OJC	$\Delta = 69\text{km}$			
Pg eZ		05	33	38.2
Sg iN			33	46.6

NIE	$\Delta = 148\text{km}$			
Pg eZ		05	33	51.9
Sg eN			34	10.0
KSP	$\Delta = 189\text{km}$			
Pg eNEZ		05	33	56.8
Sg eNEZ			34	19.1
MAR 26				
	$\Phi = 50.31^\circ\text{N}, \lambda = 18.96^\circ\text{E}$			
	$H = 23:15:42.1, M = 2.0$			
OJC	$\Delta = 61\text{km}$			
Pg eZ		23	15	53.0
Sg eE			16	01.1
NIE	$\Delta = 139\text{km}$			
Pg eZ		23	16	06.5
Sg eN			16	24.0
KSP	$\Delta = 198\text{km}$			
Pg eNEZ		23	16	15.5
Sg eNEZ			16	39.5
MAR 29				
GIG:	$\Phi = 50.252^\circ\text{N}, \lambda = 18.847^\circ\text{E}$			
	$H = 06:10:41.5, M = 2.8$			
RAC	$\Delta = 51\text{km}$			
Pg eZ		06	10	51.4
(Sg) eNE			10	58.4
OJC	$\Delta = 68\text{km}$			
Pg eZ		06	10	53.8
Sg iE			11	02.4
NIE	$\Delta = 141\text{km}$			
Pg eZ		06	11	05.8
Sg eE			11	24.6
KSP	$\Delta = 192\text{km}$			
Pg iNEZ		06	11	14.2
Sg eNEZ			11	36.5
KWP	$\Delta = 284\text{km}$			
Pg eZ		06	11	30.4
Sn eNE			12	01.9
MAR 31				
GIG:	$\Phi = 50.254^\circ\text{N}, \lambda = 18.902^\circ\text{E}$			
	$H = 13:03:21.9, M = 2.5$			
RAC	$\Delta = 55\text{km}$			
Pg eZ		13	03	32.4
Sg eN			03	39.4
OJC	$\Delta = 64\text{km}$			
Pg iZ		13	03	33.4
Sg eN			03	41.2

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NIE	$\Delta = 138\text{km}$			
	Pg eZ	13	03	46.2
	Sg eE		04	03.8
KSP	$\Delta = 196\text{km}$			
	Pg eNEZ	13	03	54.8
	(Sn) eNEZ		04	17.3
<u>APR 1</u>				
GIG: $\Phi = 50.069^\circ\text{N}$, $\lambda = 18.457^\circ\text{E}$				
H = 14:40:18.4, M = 2.2				
RAC	$\Delta = 19\text{km}$			
	Pg eZ	14	40	22.5
	Sg eNE		40	25.8
OJC	$\Delta = 97\text{km}$			
	Pg eZ	14	40	35.2
	Sg eE		40	47.6
NIE	$\Delta = 152\text{km}$			
	Pg eZ	14	40	44.6
	Sg eN		41	04.5
<u>APR 2</u>				
GIG: $\Phi = 49.959^\circ\text{N}$, $\lambda = 18.562^\circ\text{E}$				
H = 07:35:45.6, M = 2.4				
RAC	$\Delta = 30\text{km}$			
	Pg eZ	07	35	52.0
	Sg eNE		35	56.5
OJC	$\Delta = 93\text{km}$			
	Pg eZ	07	36	01.7
	Sg eN		36	13.1
NIE	$\Delta = 140\text{km}$			
	Pg eZ	07	36	10.3
	(Sg) eE		36	29.0
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	07	36	17.0
<u>APR 2</u>				
GIG: $\Phi = 50.059^\circ\text{N}$, $\lambda = 18.421^\circ\text{E}$				
H = 12:07:52.3, M = 2.4				
RAC	$\Delta = 16\text{km}$			
	Pg eZ	12	07	56.0
	Sg eNE		07	59.1
OJC	$\Delta = 100\text{km}$			
	Pg eZ	12	08	09.1
	Sg eN		08	22.0
NIE	$\Delta = 154\text{km}$			
	Pg eZ	12	08	19.0
	Sg eN		08	39.1

KSP	$\Delta = 174\text{km}$			
	Pn eNEZ	12	08	20.6
	Sg eNEZ		08	42.6
<u>APR 2</u>				
GIG: $\Phi = 50.062^\circ\text{N}$, $\lambda = 18.424^\circ\text{E}$				
H = 14:11:31.6, M = 2.1				
RAC	$\Delta = 16\text{km}$			
	Pg eZ	14	11	35.2
	Sg eNE		11	38.3
OJC	$\Delta = 100\text{km}$			
	Pg eZ	14	11	48.4
	Sg eE		12	01.4
NIE	$\Delta = 154\text{km}$			
	Pg eZ	14	11	58.2
	(Sg) eE		12	19.0
<u>APR 3</u>				
GIG: $\Phi = 50.256^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$				
H = 07:20:18.0, M = 2.5				
RAC	$\Delta = 53\text{km}$			
	Pg eZ	07	20	28.2
	Sg eNE		20	35.3
OJC	$\Delta = 65\text{km}$			
	Pg eZ	07	20	29.9
	Sg eE		20	38.2
NIE	$\Delta = 139\text{km}$			
	Pg eZ	07	20	42.0
	(Sg) eE		21	00.9
KSP	$\Delta = 194\text{km}$			
	Pg iNEZ	07	20	51.0
	Sg eNEZ		21	13.7
<u>APR 4</u>				
GIG: $\Phi = 50.206^\circ\text{N}$, $\lambda = 19.139^\circ\text{E}$				
H = 11:31:42.7, M = 2.2				
OJC	$\Delta = 47\text{km}$			
	Pg iZ	11	31	50.8
	Sg eN		31	57.0
NIE	$\Delta = 122\text{km}$			
	Pg eZ	11	32	04.5
	Sg eZ		32	19.9
KSP	$\Delta = 214\text{km}$			
	Pn eNEZ	11	32	15.9
	Pg eZ		32	19.0
	Sn eNEZ		32	42.3
<u>APR 6</u>				
GIG: $\Phi = 50.358^\circ\text{N}$, $\lambda = 18.861^\circ\text{E}$				
H = 16:07:48.4, M = 2.6				

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OJC	$\Delta = 69\text{km}$		
Pg eZ		16 08 01.3	
Sg eN		08 09.8	
NIE	$\Delta = 148\text{km}$		
Pg eZ		16 08 15.0	
(Sg) eN		08 33.9	
KSP	$\Delta = 189\text{km}$		
Pg eNEZ		16 08 19.8	
Sg eNEZ		08 43.4	
<u>APR 7</u>			
GIG: $\Phi = 50.039^\circ\text{N}$, $\lambda = 18.459^\circ\text{E}$			
H = 14:30:42.6, M = 2.2			
RAC	$\Delta = 20\text{km}$		
Pg eZ		14 30 47.1	
Sg eN		30 50.5	
OJC	$\Delta = 98\text{km}$		
Pg eZ		14 30 59.9	
Sg eE		31 11.7	
NIE	$\Delta = 150\text{km}$		
Pg eZ		14 31 08.8	
Sg eE		31 28.1	
<u>APR 7</u>			
GIG: $\Phi = 50.102^\circ\text{N}$, $\lambda = 19.154^\circ\text{E}$			
H = 22:10:16.1, M = 2.5			
OJC	$\Delta = 48\text{km}$		
Pg eZ		22 10 24.9	
Sg iN		10 31.5	
NIE	$\Delta = 113\text{km}$		
Pg eZ		22 10 36.1	
(Sg) eE		10 51.2	
KSP	$\Delta = 218\text{km}$		
Pg eNEZ		22 10 52.5	
(Sn) eNEZ		11 15.8	
<u>APR 8</u>			
GIG: $\Phi = 50.259^\circ\text{N}$, $\lambda = 18.885^\circ\text{E}$			
H = 12:23:49.6, M = 2.6			
RAC	$\Delta = 54\text{km}$		
Pg eZ		12 24 00.0	
(Sg) eN		24 07.4	
OJC	$\Delta = 65\text{km}$		
Pg eZ		12 24 01.5	
Sg iN		24 09.7	
NIE	$\Delta = 139\text{km}$		
Pg eZ		12 24 13.7	
Sg eE		24 31.7	

KSP	$\Delta = 195\text{km}$		
Pg eNEZ		12 24 22.5	
Sn eEZ		24 43.5	
Sg eNEZ		24 45.7	
<u>APR 8</u>			
GIG: $\Phi = 50.062^\circ\text{N}$, $\lambda = 18.424^\circ\text{E}$			
H = 14:49:04.7, M = 2.3			
RAC	$\Delta = 17\text{km}$		
Pg eZ		14 49 08.2	
Sg eN		49 11.4	
OJC	$\Delta = 100\text{km}$		
Pg eZ		14 49 21.5	
Sg eN		49 35.4	
NIE	$\Delta = 154\text{km}$		
Pg eZ		14 49 31.1	
Sg eE		49 50.7	
KSP	$\Delta = 174\text{km}$		
Pg eNEZ		14 49 34.9	
Sg eNEZ		49 55.2	
<u>APR 9</u>			
GIG: $\Phi = 50.257^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$			
H = 03:34:07.6, M = 2.5			
RAC	$\Delta = 52\text{km}$		
Pg eZ		03 34 16.9	
Sg eNE		34 23.6	
OJC	$\Delta = 66\text{km}$		
Pg eZ		03 34 19.7	
Sg eE		34 28.1	
NIE	$\Delta = 139\text{km}$		
Pg eZ		03 34 31.7	
Sg eE		34 50.1	
KSP	$\Delta = 194\text{km}$		
Pg eNEZ		03 34 40.7	
Sg eNEZ		35 03.3	
<u>APR 13</u>			
GIG: $\Phi = 50.054^\circ\text{N}$, $\lambda = 18.443^\circ\text{E}$			
H = 20:26:47.3, M = 2.3			
RAC	$\Delta = 18\text{km}$		
Pg eZ		20 26 51.3	
Sg eNE		26 54.3	
OJC	$\Delta = 98\text{km}$		
Pg eZ		20 27 04.5	
Sg eN		27 16.7	
NIE	$\Delta = 152\text{km}$		
Pg eZ		20 27 13.7	
Sg eE		27 33.4	

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KSP	$\Delta = 176\text{km}$			
Pn	eNEZ	20	27	15.6
Sg	eNEZ	27	37.9	
<u>APR 14</u>				
GIG: $\Phi = 50.208^\circ\text{N}$, $\lambda = 19.100^\circ\text{E}$				
H = 00:44:29.8, M = 2.5				
OJC	$\Delta = 50\text{km}$			
Pg	eZ	00	44	39.0
Sg	eN	44	45.5	
RAC	$\Delta = 66\text{km}$			
Pg	eZ	00	44	41.4
Sg	eN	44	50.1	
NIE	$\Delta = 124\text{km}$			
Pg	eZ	00	44	52.5
KSP	$\Delta = 210\text{km}$			
Pg	eNEZ	00	45	05.1
Sg	eNEZ	45	30.2	
<u>APR 14</u>				
GIG: $\Phi = 50.044^\circ\text{N}$, $\lambda = 18.466^\circ\text{E}$				
H = 11:45:15.6, M = 2.4				
RAC	$\Delta = 20\text{km}$			
Pg	eZ	11	45	19.8
Sg	eNE	45	23.1	
OJC	$\Delta = 97\text{km}$			
Pg	eZ	11	45	32.3
Sg	eE	45	44.5	
NIE	$\Delta = 150\text{km}$			
Pg	eZ	11	45	41.4
Sg	eE	46	01.3	
KSP	$\Delta = 178\text{km}$			
Pg	eNEZ	11	45	45.9
Sg	eNEZ	46	07.7	
<u>APR 14</u>				
$\Phi = 50.07^\circ\text{N}$, $\lambda = 18.46^\circ\text{E}$				
H = 13:48:01.1, M = 2.2				
RAC	$\Delta = 19\text{km}$			
Pg	eZ	13	48	04.6
Sg	eN	48	07.7	
OJC	$\Delta = 97\text{km}$			
Pg	eZ	13	48	18.1
Sg	eN	48	31.1	
NIE	$\Delta = 152\text{km}$			
Pg	eZ	13	48	28.0
Sg	eN	48	46.6	

<u>APR 14</u>				
GIG: $\Phi = 50.254^\circ\text{N}$, $\lambda = 18.901^\circ\text{E}$				
H = 15:02:28.6, M = 2.4				
OJC	$\Delta = 64\text{km}$			
Pg	eZ	15	02	40.5
Sg	eN	02	48.7	
NIE	$\Delta = 138\text{km}$			
Pg	eZ	15	02	52.8
Sg	eE	03	10.5	
KSP	$\Delta = 196\text{km}$			
Pg	eNEZ	15	03	02.0
Sg	eNEZ	03	24.7	
<u>APR 14</u>				
GIG: $\Phi = 50.061^\circ\text{N}$, $\lambda = 18.425^\circ\text{E}$				
H = 16:31:07.3, M = 2.1				
RAC	$\Delta = 17\text{km}$			
Pg	eZ	16	31	10.9
Sg	eNE	31	14.1	
OJC	$\Delta = 99\text{km}$			
Pg	eZ	16	31	24.1
Sg	eN	31	36.9	
NIE	$\Delta = 153\text{km}$			
Pg	eZ	16	31	33.7
Sg	eN	31	53.0	
KSP	$\Delta = 175\text{km}$			
Pg	eNEZ	16	31	37.7
Sg	eNEZ	31	57.3	
<u>APR 14</u>				
$\Phi = 50.31^\circ\text{N}$, $\lambda = 18.91^\circ\text{E}$				
H = 20:20:30.6, M = 2.0				
OJC	$\Delta = 64\text{km}$			
Pg	eZ	20	20	42.0
Sg	eN	20	50.6	
NIE	$\Delta = 141\text{km}$			
Pg	eZ	20	20	55.0
Sg	eN	21	13.5	
KSP	$\Delta = 195\text{km}$			
Pg	eNEZ	20	21	04.1
Sn	eNEZ	21	24.2	
<u>APR 15</u>				
$\Phi = 50.26^\circ\text{N}$, $\lambda = 18.87^\circ\text{E}$				
H = 03:33:41.6, M = 2.1				
OJC	$\Delta = 66\text{km}$			
Pg	eZ	03	33	53.6
Sg	eE	34	02.0	

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NIE	$\Delta = 140\text{km}$			
Pg	eZ	03	34	06.1
Sg	eE		34	24.1
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	03	34	14.5
Sg	eNEZ		34	37.4
<u>APR 15</u>				
GIG: $\Phi = 50.365^\circ\text{N}$, $\lambda = 18.883^\circ\text{E}$				
H = 04:21:15.2, M = 2.6				
RAC	$\Delta = 58\text{km}$			
Pg	eZ	04	21	26.3
(Sg)	eN		21	34.5
OJC	$\Delta = 67\text{km}$			
Pg	eZ	04	21	27.9
Sg	iN		21	36.5
NIE	$\Delta = 147\text{km}$			
Pg	eZ	04	21	40.6
Sg	eE		21	59.2
KSP	$\Delta = 191\text{km}$			
Pg	eNEZ	04	21	47.3
Sg	eNEZ		22	10.6
<u>APR 15</u>				
GIG: $\Phi = 50.084^\circ\text{N}$, $\lambda = 18.433^\circ\text{E}$				
H = 15:54:02.5, M = 2.1				
RAC	$\Delta = 17\text{km}$			
Pg	eZ	15	54	06.2
Sg	eN		54	09.7
OJC	$\Delta = 98\text{km}$			
Pg	eZ	15	54	19.2
Sg	eN		54	32.4
NIE	$\Delta = 154\text{km}$			
Pg	eZ	15	54	30.0
Sg	eE		54	49.6
<u>APR 15</u>				
GIG: $\Phi = 50.106^\circ\text{N}$, $\lambda = 19.223^\circ\text{E}$				
H = 20:05:38.3, M = 2.6				
OJC	$\Delta = 43\text{km}$			
Pg	eZ	20	05	46.2
Sg	iN		05	51.9
NIE	$\Delta = 110\text{km}$			
Pg	eZ	20	05	57.3
Sg	eE		06	11.9
KSP	$\Delta = 223\text{km}$			
Pg	eNEZ	20	06	16.0
Sn	eNEZ		06	41.6

<u>APR 16</u>				
$\Phi = 50.08^\circ\text{N}$, $\lambda = 18.47^\circ\text{E}$				
H = 03:10:06.2, M = 2.0				
RAC	$\Delta = 20\text{km}$			
Pg	eN	03	10	10.9
Sg	eN		10	14.0
OJC	$\Delta = 96\text{km}$			
Pg	eZ	03	10	22.8
Sg	eE		10	34.5
NIE	$\Delta = 152\text{km}$			
Pg	eZ	03	10	33.9
Sg	eE		10	51.3
<u>APR 16</u>				
GIG: $\Phi = 50.256^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$				
H = 17:18:40.5, M = 2.4				
OJC	$\Delta = 65\text{km}$			
Pg	eZ	17	18	51.9
(Sg)	eN		19	01.8
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	17	19	12.9
Sn	eNEZ		19	34.9
<u>APR 16</u>				
GIG: $\Phi = 50.200^\circ\text{N}$, $\lambda = 19.139^\circ\text{E}$				
H = 21:14:17.7, M = 2.2				
OJC	$\Delta = 47\text{km}$			
Pg	eZ	21	14	26.5
Sg	eN		14	32.9
NIE	$\Delta = 122\text{km}$			
Pg	eZ	21	14	39.6
(Sg)	eE		14	55.5
KSP	$\Delta = 214\text{km}$			
Pg	eNEZ	21	14	53.6
Sg	eNEZ		15	18.6
<u>APR 17</u>				
GIG: $\Phi = 50.254^\circ\text{N}$, $\lambda = 18.900^\circ\text{E}$				
H = 00:48:07.4, M = 2.2				
RAC	$\Delta = 54\text{km}$			
Pg	eZ	00	48	17.8
Sg	eNE		48	25.0
OJC	$\Delta = 64\text{km}$			
Pg	eZ	00	48	19.3
Sg	iE		48	27.5
NIE	$\Delta = 138\text{km}$			
Pg	eZ	00	48	31.4
Sg	eE		48	48.7

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APR 19

GIG: $\Phi = 50.059^{\circ}\text{N}$, $\lambda = 18.419^{\circ}\text{E}$
H = 14:05:27.4, M = 2.3

RAC $\Delta = 16\text{km}$
Pg eZ 14 05 30.7
Sg eNE 05 34.3

OJC $\Delta = 100\text{km}$
Pg eZ 14 05 44.1
Sg eN 05 57.8

NIE $\Delta = 154\text{km}$
Pg eZ 14 05 54.2
Sg eN 06 13.7

APR 19

GIG: $\Phi = 50.253^{\circ}\text{N}$, $\lambda = 18.900^{\circ}\text{E}$
H = 20:13:02.0, M = 2.1

OJC $\Delta = 64\text{km}$
Pg eZ 20 13 14.4
Sg eE 13 22.1

NIE $\Delta = 138\text{km}$
Pg eZ 20 13 25.9
Sg eE 13 44.0

KSP $\Delta = 196\text{km}$
Pg eNEZ 20 13 34.9
Sg eNEZ 13 58.1

APR 20

GIG: $\Phi = 50.085^{\circ}\text{N}$, $\lambda = 18.436^{\circ}\text{E}$
H = 01:14:22.5, M = 1.9

RAC $\Delta = 17\text{km}$
Pg eN 01 14 25.8
Sg eN 14 29.0

OJC $\Delta = 99\text{km}$
Pg eZ 01 14 40.0
Sg eNE 14 52.4

NIE $\Delta = 154\text{km}$
Pg eZ 01 14 49.2
Sg eE 15 09.2

APR 20

GIG: $\Phi = 50.212^{\circ}\text{N}$, $\lambda = 19.063^{\circ}\text{E}$
H = 22:28:01.5, M = 2.0

OJC $\Delta = 52\text{km}$
Pg eZ 22 28 10.2
Sg eN 28 17.3

NIE $\Delta = 126\text{km}$
Pg eZ 22 28 23.0
Sg eN 28 40.0

KSP $\Delta = 208\text{km}$
Pn eNEZ 22 28 34.9
Sn eNEZ 28 58.8

APR 21

$\Phi = 50.20^{\circ}\text{N}$, $\lambda = 18.80^{\circ}\text{E}$
H = 12:38:11.6, M = 2.7

RAC $\Delta = 46\text{km}$
Pg eZ 12 38 19.9
Sg eNE 38 26.0

OJC $\Delta = 71\text{km}$
Pg eZ 12 38 24.5
Sg eN 38 33.8

NIE $\Delta = 139\text{km}$
Pg eZ 12 38 35.7
Sg eN 38 54.1

KSP $\Delta = 192\text{km}$
Pn eNEZ 12 38 42.1
Pg iNEZ 38 44.2
Sg eNEZ 39 06.6

APR 21

GIG: $\Phi = 50.104^{\circ}\text{N}$, $\lambda = 19.267^{\circ}\text{E}$
H = 16:29:41.0, M = 2.6

OJC $\Delta = 39\text{km}$
Pg eZ 16 29 47.9
Sg iN 29 53.7

NIE $\Delta = 107\text{km}$
Pg eZ 16 29 59.0
Sg eE 30 13.6

KSP $\Delta = 226\text{km}$
Pg eNEZ 16 30 19.9
Sn eNEZ 30 43.4

APR 22

GIG: $\Phi = 50.267^{\circ}\text{N}$, $\lambda = 18.863^{\circ}\text{E}$
H = 08:53:51.4, M = 2.5

OJC $\Delta = 67\text{km}$
Pg eZ 08 54 03.9
Sg eN 54 12.3

NIE $\Delta = 140\text{km}$
Pg eZ 08 54 15.9
Sg eN 54 33.7

KSP $\Delta = 193\text{km}$
Pg eNEZ 08 54 24.5
Sg eNEZ 54 46.8

APR 22

GIG: $\Phi = 50.262^{\circ}\text{N}$, $\lambda = 18.891^{\circ}\text{E}$
H = 11:57:43.0, M = 2.3

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OJC	$\Delta = 65\text{km}$			
	Pg eZ	11	57	55.0
	Sg eE		58	03.4
NIE	$\Delta = 139\text{km}$			
	Pg eZ	11	58	07.2
	Sg eE		58	25.3
KSP	$\Delta = 195\text{km}$			
	Pg eNEZ	11	58	15.8
	Sg eNEZ		58	39.2
<u>APR 23</u>				
GIG: $\Phi = 50.273^\circ\text{N}$, $\lambda = 18.826^\circ\text{E}$				
H = 02:24:07.0, M = 2.5				
RAC	$\Delta = 50\text{km}$			
	Pg eZ	02	24	15.6
	Sg eNE		24	22.4
OJC	$\Delta = 70\text{km}$			
	Pg eZ	02	24	20.3
	Sg eN		24	28.4
NIE	$\Delta = 143\text{km}$			
	Pg eZ	02	24	32.8
	Sg eN		24	50.5
KSP	$\Delta = 190\text{km}$			
	Pn eEZ	02	24	37.5
	Pg eNEZ		24	39.3
	Sg eNEZ		25	01.9
<u>APR 23</u>				
GIG: $\Phi = 50.103^\circ\text{N}$, $\lambda = 19.224^\circ\text{E}$				
H = 15:29:23.2, M = 2.0				
OJC	$\Delta = 43\text{km}$			
	Pg eZ	15	29	30.5
	Sg eN		29	36.2
NIE	$\Delta = 110\text{km}$			
	Pg eZ	15	29	43.0
	Sg eN		29	56.9
<u>APR 23</u>				
GIG: $\Phi = 50.345^\circ\text{N}$, $\lambda = 18.954^\circ\text{E}$				
H = 18:08:25.7, M = 2.3				
OJC	$\Delta = 62\text{km}$			
	Pg eZ	18	08	36.9
	Sg eE		08	45.1
NIE	$\Delta = 142\text{km}$			
	Pg eZ	18	08	51.1
	Sg eE		09	08.8
KSP	$\Delta = 196\text{km}$			
	Pg eNEZ	18	08	58.4
	Sg eNEZ		09	22.9

<u>APR 23</u>				
GIG: $\Phi = 50.363^\circ\text{N}$, $\lambda = 18.863^\circ\text{E}$				
H = 20:50:53.7, M = 2.6				
RAC	$\Delta = 57\text{km}$			
	Pg eZ	20	51	04.2
	Sg eNE		51	12.0
OJC	$\Delta = 68\text{km}$			
	Pg eZ	20	51	06.1
	Sg eN		51	15.6
NIE	$\Delta = 148\text{km}$			
	Pg eZ	20	51	19.2
	Sg eE		51	38.7
KSP	$\Delta = 190\text{km}$			
	Pn eNEZ	20	51	24.2
	Sg eNEZ		51	48.1
KWP	$\Delta = 286\text{km}$			
	Pg eZ	20	51	43.9
<u>APR 23</u>				
$\Phi = 50.25^\circ\text{N}$, $\lambda = 18.78^\circ\text{E}$				
H = 23:20:04.7, M = 2.1				
OJC	$\Delta = 73\text{km}$			
	Pg eZ	23	20	17.9
	Sg eN		20	27.6
NIE	$\Delta = 144\text{km}$			
	Pg eZ	23	20	30.0
	Sg eE		20	48.3
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	23	20	36.8
	Sg eNEZ		20	58.9
<u>APR 25</u>				
GIG: $\Phi = 50.363^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$				
H = 09:10:36.7, M = 2.7				
RAC	$\Delta = 58\text{km}$			
	Pg eZ	09	10	47.4
	Sg eNE		10	55.3
OJC	$\Delta = 68\text{km}$			
	Pg eZ	09	10	49.2
	Sg iE		10	57.8
NIE	$\Delta = 148\text{km}$			
	Pg eZ	09	11	02.5
	Sg eEN		11	21.7
KSP	$\Delta = 190\text{km}$			
	Pg eNEZ	09	11	08.8
	Sg eNEZ		11	31.5

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APR 26

GIG: $\Phi = 50.104^{\circ}\text{N}$, $\lambda = 19.224^{\circ}\text{E}$
H = 22:33:47.2, M = 2.6

OJC $\Delta = 43\text{km}$
Pg eZ 22 33 54.3
Sg iN 34 00.1

NIE $\Delta = 109\text{km}$
Pg eZ 22 34 05.4
Sg eE 34 20.0

KSP $\Delta = 224\text{km}$
Pn eNEZ 22 34 23.3
Pg eNEZ 34 26.1
Sn eE 34 50.3

KWP $\Delta = 254.8\text{km}$
Pg eZ 22 34 28.9

APR 27

GIG: $\Phi = 50.060^{\circ}\text{N}$, $\lambda = 18.419^{\circ}\text{E}$
H = 05:17:00.0, M = 2.1

RAC $\Delta = 16\text{km}$
Pg eZ 05 17 03.1
Sg eNE 17 06.4

OJC $\Delta = 100\text{km}$
Pg eZ 05 17 17.5
Sg eN 17 30.8

NIE $\Delta = 154\text{km}$
Pg eZ 05 17 27.3
(Sg) eNE 17 47.5

APR 27

GIG: $\Phi = 50.210^{\circ}\text{N}$, $\lambda = 19.139^{\circ}\text{E}$
H = 09:52:48.4, M = 2.4

OJC $\Delta = 47\text{km}$
Pg iZ 09 52 57.1 D
Sg iN 53 03.5

NIE $\Delta = 122\text{km}$
Pg eZ 09 53 10.2
(Sg) eN 53 26.4

KSP $\Delta = 213\text{km}$
Pg eNEZ 09 53 24.3
Sg eNEZ 53 49.8

APR 28

$\Phi = 50.27^{\circ}\text{N}$, $\lambda = 18.92^{\circ}\text{E}$
H = 02:00:23.3, M = 2.0

OJC $\Delta = 63\text{km}$
Pg eZ 02 00 34.7
Sg eE 00 42.9

NIE $\Delta = 137\text{km}$
Pg eZ 02 00 47.1
Sg eE 01 04.8

KSP $\Delta = 197\text{km}$
Pg eNEZ 02 00 57.0
Sg eNEZ 01 20.3

APR 29

GIG: $\Phi = 50.060^{\circ}\text{N}$, $\lambda = 18.421^{\circ}\text{E}$
H = 14:40:17.2, M = 2.4

RAC $\Delta = 16\text{km}$
Pg eZ 14 40 20.9
Sg eNE 40 23.6

OJC $\Delta = 100\text{km}$
Pg eZ 14 40 34.2
Sg eN 40 47.6

NIE $\Delta = 154\text{km}$
Pg eZ 14 40 44.2
(Sg) iE 41 04.5

KSP $\Delta = 174\text{km}$
Pg eNEZ 14 40 46.6
Sg eNEZ 41 07.6

APR 29

GIG: $\Phi = 50.256^{\circ}\text{N}$, $\lambda = 18.877^{\circ}\text{E}$
H = 21:23:25.7, M = 2.2

OJC $\Delta = 66\text{km}$
Pg eZ 21 23 37.6
Sg eE 23 46.2

NIE $\Delta = 139\text{km}$
Pg eZ 21 23 50.1
Sg eE 24 08.0

KSP $\Delta = 194\text{km}$
Pg eNEZ 21 23 59.1
Sg eNEZ 24 22.2

MAY 1

GIG: $\Phi = 50.206^{\circ}\text{N}$, $\lambda = 19.100^{\circ}\text{E}$
H = 09:10:46.8, M = 2.5

OJC $\Delta = 50\text{km}$
Pg eZ 09 10 56.4
Sg iN 11 03.0

NIE $\Delta = 124\text{km}$
Pg eZ 09 11 09.2
Sg eN 11 24.4

KSP $\Delta = 211\text{km}$
Pn eZ 09 11 20.4
Pg eEZ 11 23.1
Sg eNEZ 11 47.2

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MAY 3

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.958^{\circ}\text{E}$
H = 23:40:28.3, M = 2.3

RAC $\Delta = 58\text{km}$
Pg eZ 23 40 39.3
Sg eNE 40 46.8

OJC $\Delta = 60\text{km}$
Pg eZ 23 40 39.5
Sg eE 40 47.3

NIE $\Delta = 136\text{km}$
Pg eZ 23 40 51.9
Sg eN 41 09.0

KSP $\Delta = 199\text{km}$
Pg iNEZ 23 41 01.9
Sg eNEZ 41 25.9

MAY 5

GIG: $\Phi = 50.257^{\circ}\text{N}$, $\lambda = 18.875^{\circ}\text{E}$
H = 00:33:09.1, M = 2.4

RAC $\Delta = 53\text{km}$
Pg eZ 00 33 19.4
(Sg) eNE 33 26.6

OJC $\Delta = 66\text{km}$
Pg iZ 00 33 21.0 D
Sg iE 33 30.1

NIE $\Delta = 140\text{km}$
Pg eZ 00 33 33.2
Sg eE 33 51.2

KSP $\Delta = 194\text{km}$
Pg eNEZ 00 33 42.1
(Sg) eNEZ 34 04.4

MAY 5

GIG: $\Phi = 50.038^{\circ}\text{N}$, $\lambda = 18.463^{\circ}\text{E}$
H = 06:14:55.9, M = 2.1

RAC $\Delta = 20\text{km}$
Pg eZ 06 15 00.4
Sg eNE 15 03.7

OJC $\Delta = 98\text{km}$
Pg eZ 06 15 13.3
Sg eE 15 25.2

NIE $\Delta = 150\text{km}$
Pg eZ 06 15 22.6
Sg eE 15 40.6

MAY 5

GIG: $\Phi = 50.104^{\circ}\text{N}$, $\lambda = 19.229^{\circ}\text{E}$
H = 08:11:11.9, M = 2.5

OJC $\Delta = 42\text{km}$
Pg eZ 08 11 19.1
Sg iN 11 24.9

NIE $\Delta = 108\text{km}$
Pg eZ 08 11 30.5
Sg eE 11 44.8

KSP $\Delta = 224\text{km}$
Pg eZ 08 11 50.7
Sn eNEZ 12 14.7

MAY 5

GIG: $\Phi = 50.068^{\circ}\text{N}$, $\lambda = 18.419^{\circ}\text{E}$
H = 09:12:54.7, M = 2.4

RAC $\Delta = 16\text{km}$
Pg eZ 09 12 58.5
Sg eNE 13 01.5

OJC $\Delta = 100\text{km}$
Pg eZ 09 13 11.7
Sg eN 13 25.3

NIE $\Delta = 154\text{km}$
Pg eZ 09 13 21.0
Sg eN 13 40.4

KSP $\Delta = 174\text{km}$
Pg eNEZ 09 13 23.8
Sg eNEZ 13 45.8

MAY 6

GIG: $\Phi = 50.060^{\circ}\text{N}$, $\lambda = 18.421^{\circ}\text{E}$
H = 16:38:29.4, M = 2.7

RAC $\Delta = 16\text{km}$
Pg iZ 16 38 33.2 D
Sg eNE 38 35.9

OJC $\Delta = 100\text{km}$
Pg eZ 16 38 46.5
Sg iE 38 59.6

NIE $\Delta = 154\text{km}$
Pg eZ 16 38 55.9
Sg eN 39 15.1

KSP $\Delta = 174\text{km}$
Pn eNEZ 16 38 57.3
Sn eNEZ 39 18.7

MAY 7

GIG: $\Phi = 50.207^{\circ}\text{N}$, $\lambda = 19.099^{\circ}\text{E}$
H = 02:04:09.4, M = 2.2

OJC $\Delta = 50\text{km}$
Pg eZ 02 04 18.2
Sg eN 04 24.7

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NIE	$\Delta = 123\text{km}$		
Pg eZ		02 04 31.2	
Sg eZ		04 46.4	
KSP	$\Delta = 211\text{km}$		
Pg eNEZ		02 04 45.5	
Sn eNEZ		05 08.4	
<u>MAY 7</u>			
	$\Phi = 50.08^\circ\text{N}, \lambda = 18.43^\circ\text{E}$		
	$H = 15:25:08.3, M = 2.0$		
RAC	$\Delta = 16\text{km}$		
Pg eZ		15 25 11.8	
Sg eN		25 14.9	
OJC	$\Delta = 99\text{km}$		
Pg eZ		15 25 25.5	
Sg eN		25 37.5	
NIE	$\Delta = 154\text{km}$		
Pg eZ		15 25 35.0	
Sg eE		25 55.5	
<u>MAY 7</u>			
	$\Phi = 50.28^\circ\text{N}, \lambda = 18.89^\circ\text{E}$		
	$H = 23:46:02.6, M = 2.0$		
OJC	$\Delta = 65\text{km}$		
Pg eZ		23 46 14.7	
Sg eN		46 22.6	
NIE	$\Delta = 140\text{km}$		
Pg eZ		23 46 27.3	
Sg eE		46 44.9	
KSP	$\Delta = 194\text{km}$		
Pg eNEZ		23 46 35.5	
Sg eNEZ		46 58.9	
<u>MAY 8</u>			
GIG:	$\Phi = 50.260^\circ\text{N}, \lambda = 18.958^\circ\text{E}$		
	$H = 23:58:38.7, M = 2.3$		
RAC	$\Delta = 58\text{km}$		
Pg eZ		23 58 49.1	
Sg eNE		58 56.5	
OJC	$\Delta = 60\text{km}$		
Pg eZ		23 58 50.0	
Sg eN		58 57.8	
NIE	$\Delta = 135\text{km}$		
Pg eZ		23 59 02.5	
Sg eEN		59 19.4	
<u>MAY 10</u>			
GIG:	$\Phi = 50.104^\circ\text{N}, \lambda = 19.227^\circ\text{E}$		
	$H = 08:41:30.6, M = 2.5$		

OJC	$\Delta = 42\text{km}$		
Pg iZ		08 41 37.8	
Sg iN		41 43.5	
NIE	$\Delta = 109\text{km}$		
Pg eZ		08 41 49.0	
Sg eE		42 03.4	
KSP	$\Delta = 224\text{km}$		
Pg eNEZ		08 42 09.6	
Sn eNEZ		42 33.3	
<u>MAY 10</u>			
GIG:	$\Phi = 50.252^\circ\text{N}, \lambda = 18.902^\circ\text{E}$		
	$H = 21:25:36.1, M = 2.3$		
OJC	$\Delta = 64\text{km}$		
Pg eZ		21 25 48.0	
Sg eN		25 56.0	
NIE	$\Delta = 137\text{km}$		
Pg eZ		21 26 00.6	
Sg eE		26 17.9	
KSP	$\Delta = 196\text{km}$		
Pg eNEZ		21 26 09.7	
Sn eNEZ		21 26 30.3	
Sg eNEZ		26 33.0	
<u>MAY 11</u>			
GIG:	$\Phi = 50.258^\circ\text{N}, \lambda = 18.905^\circ\text{E}$		
	$H = 00:53:08.4, M = 2.4$		
OJC	$\Delta = 64\text{km}$		
Pg eZ		00 53 20.3	
Sg eE		53 28.6	
NIE	$\Delta = 137\text{km}$		
Pg eZ		00 53 32.3	
Sg eE		53 50.3	
KSP	$\Delta = 196\text{km}$		
Pn eNEZ		00 53 39.9	
Pg eNEZ		53 41.6	
Sn eNEZ		54 02.9	
Sg eNEZ		54 05.1	
<u>MAY 11</u>			
	$\Phi = 50.25^\circ\text{N}, \lambda = 18.71^\circ\text{E}$		
	$H = 01:24:56.3, M = 2.0$		
OJC	$\Delta = 78\text{km}$		
Pg eZ		01 25 11.0	
Sg eE		25 20.5	
NIE	$\Delta = 148\text{km}$		
Pg eZ		01 25 21.9	
Sg eE		25 41.5	

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KSP	$\Delta = 183\text{km}$			
Pg	eNEZ	01	25	27.0
Sg	eNEZ		25	49.5
<u>MAY 11</u>				
GIG:	$\Phi = 50.254^\circ\text{N}$, $\lambda = 18.878^\circ\text{E}$			
	H = 15:45:03.3, M = 2.5			
OJC	$\Delta = 66\text{km}$			
Pg	eZ	15	45	15.6
Sg	eE		45	24.0
NIE	$\Delta = 139\text{km}$			
Pg	eZ	15	45	28.2
Sg	eE		45	45.8
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	15	45	36.3
Sg	eNEZ		45	59.1
<u>MAY 12</u>				
GIG:	$\Phi = 50.060^\circ\text{N}$, $\lambda = 18.419^\circ\text{E}$			
	H = 05:00:58.2, M = 2.2			
RAC	$\Delta = 16\text{km}$			
Pg	eZ	05	01	01.9
Sg	eNE		01	04.6
OJC	$\Delta = 100\text{km}$			
Pg	eZ	05	01	15.1
Sg	eE		01	28.7
NIE	$\Delta = 154\text{km}$			
Pg	eZ	05	01	24.6
Sg	eN		01	44.1
KSP	$\Delta = 174\text{km}$			
Pn	eNEZ	05	01	25.4
Sn	eNEZ		01	47.0
<u>MAY 12</u>				
GIG:	$\Phi = 50.273^\circ\text{N}$, $\lambda = 18.822^\circ\text{E}$			
	H = 10:51:28.0, M = 2.5			
OJC	$\Delta = 70\text{km}$			
Pg	eZ	10	51	41.4
Sg	eE		51	49.8
NIE	$\Delta = 143\text{km}$			
Pg	eZ	10	51	53.2
Sg	eZ		52	11.8
KSP	$\Delta = 189\text{km}$			
Pn	eNEZ	10	51	57.3
Pg	eNEZ		52	00.7
Sg	eNEZ		52	23.3
<u>MAY 12</u>				
GIG:	$\Phi = 50.207^\circ\text{N}$, $\lambda = 19.101^\circ\text{E}$			
	H = 13:35:01.6, M = 2.3			

OJC	$\Delta = 49\text{km}$			
Pg	eZ	13	35	10.3
Sg	iN		35	16.8
NIE	$\Delta = 123\text{km}$			
Pg	eZ	13	35	23.2
Sg	eN		35	38.4
KSP	$\Delta = 212\text{km}$			
Pg	eNEZ	13	35	38.2
(Sg)	eNEZ		36	01.8
<u>MAY 12</u>				
GIG:	$\Phi = 50.242^\circ\text{N}$, $\lambda = 18.971^\circ\text{E}$			
	H = 16:18:49.5, M = 2.5			
OJC	$\Delta = 59\text{km}$			
Pg	eZ	16	19	00.4
Sg	eE		19	08.2
NIE	$\Delta = 134\text{km}$			
Pg	eZ	16	19	13.6
(Sg)	eE		19	30.7
KSP	$\Delta = 201\text{km}$			
Pn	eNEZ	16	19	21.3
Pg	eNEZ		19	23.5
Sg	eNEZ		19	47.3
<u>MAY 14</u>				
	$\Phi = 50.22^\circ\text{N}$, $\lambda = 18.83^\circ\text{E}$			
	H = 00:06:10.3, M = 2.7			
RAC	$\Delta = 48\text{km}$			
Pg	eZ	00	06	19.4
Sg	eNE		06	25.9
OJC	$\Delta = 69\text{km}$			
Pg	eZ	00	06	23.3
Sg	iE		06	32.3
NIE	$\Delta = 139\text{km}$			
Pg	eZ	00	06	34.3
Sg	eE		06	52.0
KSP	$\Delta = 193\text{km}$			
Pn	eNEZ	00	06	40.8
Pg	eNEZ		06	43.0
Sg	eNEZ		07	05.7
<u>MAY 14</u>				
GIG:	$\Phi = 50.051^\circ\text{N}$, $\lambda = 18.444^\circ\text{E}$			
	H = 02:57:33.6, M = 2.1			
RAC	$\Delta = 18\text{km}$			
Pg	eZ	02	57	37.8
Sg	eNE		57	40.7

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OJC	$\Delta = 99\text{km}$		
Pg eZ		02 57 50.9	
Sg eN		58 03.5	
NIE	$\Delta = 152\text{km}$		
Pg eZ		02 57 59.8	
Sg eE		58 19.6	
KSP	$\Delta = 176\text{km}$		
Pg eNEZ		02 58 02.9	
Sg eNEZ		58 24.7	
<u>MAY 14</u>			
GIG: $\Phi = 50.207^\circ\text{N}$, $\lambda = 19.101^\circ\text{E}$			
H = 13:41:33.2, M = 2.2			
OJC	$\Delta = 49\text{km}$		
Pg eZ		13 41 42.5	
Sg iN		41 49.0	
NIE	$\Delta = 123\text{km}$		
Pg eZ		13 41 55.4	
Sg eN		42 10.6	
KSP	$\Delta = 211\text{km}$		
Pg eNEZ		13 42 09.6	
Sg eNEZ		42 34.0	
<u>MAY 15</u>			
$\Phi = 50.07^\circ\text{N}$, $\lambda = 18.47^\circ\text{E}$			
H = 00:26:31.6, M = 2.0			
RAC	$\Delta = 20\text{km}$		
Pg eZ		00 26 35.3	
Sg eNE		26 38.3	
OJC	$\Delta = 96\text{km}$		
Pg eZ		00 26 48.7	
Sg eN		27 01.2	
NIE	$\Delta = 151\text{km}$		
Pg eZ		00 26 57.8	
Sg eN		27 17.5	
<u>MAY 17</u>			
GIG: $\Phi = 50.207^\circ\text{N}$, $\lambda = 19.099^\circ\text{E}$			
H = 16:20:13.0, M = 2.6			
OJC	$\Delta = 50\text{km}$		
Pg eZ		16 20 22.0	
Sg iN		20 28.5	
NIE	$\Delta = 124\text{km}$		
Pg eZ		16 20 34.9	
Sg eN		20 50.1	
KSP	$\Delta = 211\text{km}$		
Pn eZ		16 20 47.0	
Pg eEZ		20 49.4	
(Sg) eNEZ		21 13.3	

<u>MAY 18</u>			
GIG: $\Phi = 50.102^\circ\text{N}$, $\lambda = 19.227^\circ\text{E}$			
H = 07:29:36.2, M = 2.5			
OJC	$\Delta = 43\text{km}$		
Pg eZ		07 29 43.6	
Sg iNE		29 49.4	
NIE	$\Delta = 110\text{km}$		
Pg eZ		07 29 54.9	
KSP	$\Delta = 223\text{km}$		
Pn eZ		07 30 12.3	
Sg eNE		30 40.1	
<u>MAY 18</u>			
GIG: $\Phi = 50.359^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$			
H = 07:32:52.9, M = 2.5			
OJC	$\Delta = 69\text{km}$		
Pg eZ		07 33 05.3	
Sg eN		33 14.0	
NIE	$\Delta = 148\text{km}$		
Pg eZ		07 33 19.1	
Sg eE		33 38.1	
KSP	$\Delta = 189\text{km}$		
Pg eNEZ		07 33 24.5	
Sg eNEZ		33 48.2	
<u>MAY 18</u>			
GIG: $\Phi = 50.084^\circ\text{N}$, $\lambda = 18.434^\circ\text{E}$			
H = 14:13:58.5, M = 2.1			
RAC	$\Delta = 17\text{km}$		
Pg eZ		14 14 01.5	
Sg eNE		14 04.3	
OJC	$\Delta = 98\text{km}$		
Pg eZ		14 14 14.8	
Sg eN		14 29.3	
NIE	$\Delta = 154\text{km}$		
Pg eZ		14 14 25.5	
Sg eNE		14 45.0	
<u>MAY 18</u>			
$\Phi = 50.21^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$			
H = 23:17:15.9, M = 2.3			
OJC	$\Delta = 68\text{km}$		
Pg eZ		23 17 28.7	
Sg eN		17 36.7	
NIE	$\Delta = 136\text{km}$		
Pg eZ		23 17 39.5	

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KSP	$\Delta = 195\text{km}$			
Pg	eNEZ	23	17	49.4
Sg	eNEZ	18	11.7	
<u>MAY 19</u>				
GIG:	$\Phi = 50.255^\circ\text{N}$, $\lambda = 18.878^\circ\text{E}$			
	H = 06:24:17.4, M = 2.5			
OJC	$\Delta = 66\text{km}$			
Pg	eZ	06	24	29.6
Sg	eE	24	37.6	
NIE	$\Delta = 139\text{km}$			
Pg	eZ	06	24	42.2
Sg	eE	24	59.7	
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	06	24	50.6
Sn	eNEZ	25	10.8	
Sg	eNEZ	25	13.5	
<u>MAY 19</u>				
GIG:	$\Phi = 50.362^\circ\text{N}$, $\lambda = 18.863^\circ\text{E}$			
	H = 21:57:50.4, M = 2.3			
OJC	$\Delta = 68\text{km}$			
Pg	eZ	21	58	03.2
Sg	eN	58	11.7	
NIE	$\Delta = 147\text{km}$			
Pg	eZ	21	58	16.1
Sg	eN	58	34.8	
KSP	$\Delta = 190\text{km}$			
Pg	eNEZ	21	58	23.1
Sg	eNEZ	58	45.4	
<u>MAY 20</u>				
GIG:	$\Phi = 50.104^\circ\text{N}$, $\lambda = 19.228^\circ\text{E}$			
	H = 16:41:54.9, M = 2.4			
OJC	$\Delta = 42\text{km}$			
Pg	eZ	16	42	02.2
Sg	eN	42	07.9	
NIE	$\Delta = 110\text{km}$			
Pg	eZ	16	42	13.4
Sg	eN	42	28.4	
KSP	$\Delta = 224\text{km}$			
Pg	eNEZ	16	42	32.1
Sn	eNEZ	42	57.6	
<u>MAY 21</u>				
GIG:	$\Phi = 50.255^\circ\text{N}$, $\lambda = 18.880^\circ\text{E}$			
	H = 03:52:43.8, M = 2.1			
OJC	$\Delta = 65\text{km}$			
Pg	eZ	03	52	55.7
Sg	eE	53	03.7	

NIE	$\Delta = 138\text{km}$			
Pg	eZ	03	53	07.7
Sg	eE	53	25.3	
KSP	$\Delta = 195\text{km}$			
Pg	eNEZ	03	53	17.5
(Sg)	eNEZ	53	41.2	
<u>MAY 21</u>				
	$\Phi = 50.09^\circ\text{N}$, $\lambda = 18.48^\circ\text{E}$			
	H = 23:00:21.5, M = 1.9			
RAC	$\Delta = 20\text{km}$			
Pg	eZ	23	00	25.1
Sg	eNE	00	28.3	
OJC	$\Delta = 96\text{km}$			
Pg	eZ	23	00	38.0
Sg	eN	00	50.9	
NIE	$\Delta = 152\text{km}$			
Pg	eZ	23	00	48.2
Sg	eE	01	07.6	
<u>MAY 22</u>				
GIG:	$\Phi = 50.083^\circ\text{N}$, $\lambda = 18.433^\circ\text{E}$			
	H = 00:23:32.4, M = 2.0			
RAC	$\Delta = 17\text{km}$			
Pg	eZ	00	23	36.6
Sg	eNE	23	39.4	
OJC	$\Delta = 98\text{km}$			
Pg	eZ	00	23	50.0
Sg	eN	24	01.7	
NIE	$\Delta = 154\text{km}$			
Pg	eZ	00	23	59.1
Sg	eE	24	19.2	
<u>MAY 22</u>				
	$\Phi = 50.07^\circ\text{N}$, $\lambda = 18.49^\circ\text{E}$			
	H = 04:15:46.0, M = 1.9			
RAC	$\Delta = 22\text{km}$			
Pg	eZ	04	15	50.2
Sg	eNE	15	53.2	
OJC	$\Delta = 94\text{km}$			
Pg	eZ	04	16	02.1
Sg	eE	16	15.2	
NIE	$\Delta = 150\text{km}$			
Pg	eZ	04	16	11.9
Sg	eE	16	31.2	
<u>MAY 22</u>				
GIG:	$\Phi = 50.254^\circ\text{N}$, $\lambda = 18.880^\circ\text{E}$			
	H = 05:26:21.6, M = 2.5			

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OJC	$\Delta = 66\text{km}$			
	Pg eZ	05	26	33.6
	Sg eE		26	41.8
NIE	$\Delta = 138\text{km}$			
	Pg eZ	05	26	45.7
	Sg eE		27	03.7
KSP	$\Delta = 195\text{km}$			
	Pn eNEZ	05	26	53.4
	Pg eNEZ		26	54.8
	Sg eNEZ		27	17.5

MAY 22

GIG: $\Phi = 50.038^\circ\text{N}$, $\lambda = 18.463^\circ\text{E}$
H = 11:20:07.5, M = 2.1

RAC	$\Delta = 20\text{km}$			
	Pg eZ	11	20	12.0
	Sg eNE		20	15.3

OJC	$\Delta = 97\text{km}$			
	Pg eZ	11	20	24.4
	Sg eE		20	36.5

NIE	$\Delta = 150\text{km}$			
	Pg eZ	11	20	34.3
	Sg eE		20	52.5

MAY 23

GIG: $\Phi = 50.261^\circ\text{N}$, $\lambda = 18.958^\circ\text{E}$
H = 07:36:37.3, M = 2.7

RAC	$\Delta = 58\text{km}$			
	Pg eZ	07	36	48.0
	Sg eE		36	55.8

OJC	$\Delta = 60\text{km}$			
	Pg iZ	07	36	48.5
	Sg iE		36	56.2

NIE	$\Delta = 136\text{km}$			
	Pg eZ	07	37	00.7
	Sg eE		37	18.2

KSP	$\Delta = 199\text{km}$			
	Pg iNEZ	07	37	10.8
	Sg eNEZ		37	34.8

KWP	$\Delta = 277\text{km}$			
	Pn eZ	07	37	17.6
	Pg eZ		37	27.2
	Sg eNE		37	57.6

MAY 23

GIG: $\Phi = 50.241^\circ\text{N}$, $\lambda = 18.905^\circ\text{E}$
H = 09:29:25.2, M = 2.3

OJC	$\Delta = 64\text{km}$			
	Pg iZ	09	29	37.4
	Sg iN		29	44.9

NIE	$\Delta = 137\text{km}$			
	Pg eZ	09	29	49.5
	Sg eN		30	06.5

KSP	$\Delta = 196\text{km}$			
	Pg eNEZ	09	29	58.4
	(Sg) eNEZ		30	21.0

MAY 23

GIG: $\Phi = 50.239^\circ\text{N}$, $\lambda = 18.922^\circ\text{E}$
H = 16:31:54.8, M = 2.4

OJC	$\Delta = 63\text{km}$			
	Pg eZ	16	32	05.5
	Sg eE		32	13.9

RAC	$\Delta = 55\text{km}$			
	Pg eZ	16	32	05.6
	(Sg) eNE		32	14.0

NIE	$\Delta = 136\text{km}$			
	Pg eZ	16	32	18.0
	Sg eN		32	36.3

KSP	$\Delta = 198\text{km}$			
	Pg eNEZ	16	32	27.7
	Sg eNEZ		32	51.3

MAY 24

GIG: $\Phi = 50.360^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$
H = 18:53:25.2, M = 2.4

OJC	$\Delta = 69\text{km}$			
	Pg eZ	18	53	37.7
	Sg eN		53	46.4

NIE	$\Delta = 148\text{km}$			
	Pg eZ	18	53	52.1
	Sg eE		54	09.3

KSP	$\Delta = 189\text{km}$			
	Pg eNEZ	18	53	56.6
	(Sg) eNEZ		54	19.0

MAY 25

GIG: $\Phi = 50.10^\circ\text{N}$, $\lambda = 18.47^\circ\text{E}$
H = 02:58:23.7, M = 2.0

RAC	$\Delta = 20\text{km}$			
	Pg eZ	02	58	27.1
	Sg eNE		58	30.3

OJC	$\Delta = 96\text{km}$			
	Pg eZ	02	58	39.9
	Sg eE		58	52.0

NIE	$\Delta = 152\text{km}$			
	Pg eZ	02	58	50.5
	Sg eE		59	10.2

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KSP	$\Delta = 176\text{km}$			
	Pg eNEZ	02	58	53.5
	Sg eNEZ		59	14.5
<u>MAY 25</u>				
GIG:	$\Phi = 50.104^\circ\text{N}$, $\lambda = 19.226^\circ\text{E}$			
	H = 11:01:45.3, M = 2.6			
OJC	$\Delta = 43\text{km}$			
	Pg eZ	11	01	52.4
	Sg eN		01	58.2
NIE	$\Delta = 109\text{km}$			
	Pg eZ	11	02	03.5
	Sg eN		02	18.7
KSP	$\Delta = 224\text{km}$			
	Pn eNEZ	11	02	21.6
	Pg eZ		02	24.1
	Sn eNEZ		02	48.0
<u>MAY 26</u>				
GIG:	$\Phi = 50.268^\circ\text{N}$, $\lambda = 18.849^\circ\text{E}$			
	H = 00:49:36.5, M = 2.3			
RAC	$\Delta = 52\text{km}$			
	Pg eZ	00	49	46.6
	(Sg) eNE		49	53.7
OJC	$\Delta = 67\text{km}$			
	Pg eZ	00	49	49.0
	Sg eN		49	57.4
NIE	$\Delta = 141\text{km}$			
	Pg eZ	00	50	00.9
	Sg eE		50	19.1
KSP	$\Delta = 192\text{km}$			
	Pg eNEZ	00	50	09.3
	Sg eNEZ		50	31.6
<u>MAY 26</u>				
	$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.93^\circ\text{E}$			
	H = 04:54:01.3, M = 2.1			
OJC	$\Delta = 62\text{km}$			
	Pg eZ	04	54	12.9
	Sg eE		54	20.4
NIE	$\Delta = 138\text{km}$			
	Pg eZ	04	54	26.0
	Sg e(E		54	42.6
KSP	$\Delta = 197\text{km}$			
	Pg eE	04	54	34.8
	Sg eNEZ		54	58.2
<u>MAY 26</u>				
GIG:	$\Phi = 50.084^\circ\text{N}$, $\lambda = 18.432^\circ\text{E}$			
	H = 22:04:53.2, M = 2.1			

RAC	$\Delta = 17\text{km}$			
	Pg eZ	22	04	57.2
	Sg eNE		05	00.0
OJC	$\Delta = 98\text{km}$			
	Pg eZ	22	05	10.3
	Sg eN		05	22.5
NIE	$\Delta = 154\text{km}$			
	Pg eZ	22	05	19.9
	Sg eN		05	39.6
KSP	$\Delta = 173\text{km}$			
	Pg eNEZ	22	05	23.1
	Sg eNEZ		05	42.9
<u>MAY 27</u>				
GIG:	$\Phi = 50.254^\circ\text{N}$, $\lambda = 18.881^\circ\text{E}$			
	H = 02:08:48.9, M = 2.4			
RAC	$\Delta = 53\text{km}$			
	Pg eZ	02	08	59.4
	Sg eNE		09	06.2
OJC	$\Delta = 65\text{km}$			
	Pg eZ	02	09	00.9
	Sg eE		09	09.8
NIE	$\Delta = 139\text{km}$			
	Pg eZ	02	09	12.9
	Sg eE		09	30.9
KSP	$\Delta = 194\text{km}$			
	Pg eNEZ	02	09	21.8
	Sg eNEZ		09	44.7
<u>MAY 27</u>				
	$\Phi = 50.21^\circ\text{N}$, $\lambda = 18.91^\circ\text{E}$			
	H = 04:08:53.2, M = 2.0			
OJC	$\Delta = 63\text{km}$			
	Pg eZ	04	09	03.7
	Sg eNE		09	13.3
NIE	$\Delta = 135\text{km}$			
	Pg eZ	04	09	15.8
	Sg eN		09	34.0
KSP	$\Delta = 198\text{km}$			
	Pg eNEZ	04	09	27.0
	Sn eNEZ		09	49.1
<u>MAY 27</u>				
GIG:	$\Phi = 50.359^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$			
	H = 12:12:25.9, M = 2.4			
OJC	$\Delta = 69\text{km}$			
	Pg eZ	12	12	38.7
	Sg eN		12	47.5

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NIE	$\Delta = 148\text{km}$			
Pg eZ		12	12	51.8
Sg eN		13	10.1	
<u>MAY 27</u>				
GIG:	$\Phi = 50.240^\circ\text{N}$, $\lambda = 18.837^\circ\text{E}$			
	H = 13:24:29.5, M = 2.7			
RAC	$\Delta = 49\text{km}$			
Pg eZ		13	24	38.7
Sg eNE		24	45.1	
OJC	$\Delta = 69\text{km}$			
Pg eZ		13	24	42.4
Sg eE		24	51.4	
NIE	$\Delta = 140\text{km}$			
Pg eZ		13	24	53.4
Sg eE		25	11.2	
KSP	$\Delta = 192\text{km}$			
Pn eNZ		13	24	59.3
Pg eNEZ		25	01.6	
Sg eNEZ		25	24.9	
<u>MAY 27</u>				
GIG:	$\Phi = 50.226^\circ\text{N}$, $\lambda = 19.033^\circ\text{E}$			
	H = 13:31:47.0, M = 2.4			
OJC	$\Delta = 55\text{km}$			
Pg eZ		13	31	57.4
Sg eE		32	04.5	
NIE	$\Delta = 129\text{km}$			
Pg eZ		13	32	09.6
Sg eN		32	26.3	
KSP	$\Delta = 206\text{km}$			
Pg eNEZ		13	32	21.8
Sg eNEZ		32	46.5	
<u>MAY 28</u>				
GIG:	$\Phi = 50.070^\circ\text{N}$, $\lambda = 18.457^\circ\text{E}$			
	H = 00:17:35.0, M = 2.7			
RAC	$\Delta = 19\text{km}$			
Pg iZ		00	17	39.4 D
Sg eNE		17	42.5	
OJC	$\Delta = 97\text{km}$			
Pg eZ		00	17	51.8
Sg eN		18	04.7	
NIE	$\Delta = 152\text{km}$			
Pg eZ		00	18	01.0
Sg iN		18	21.1	
KSP	$\Delta = 176\text{km}$			
Pn eNEZ		00	18	03.5
Pg eNEZ		18	05.4	
Sg eNEZ		18	25.0	

KWP	$\Delta = 308\text{km}$			
Pn eZ		00	18	23.6
Pg eZ		18	32.1	
Sn eNE		18	57.4	
Sg eNE		19	10.7	

MAY 28
GIG: **$\Phi = 49.959^\circ\text{N}$, $\lambda = 18.562^\circ\text{E}$**
H = 05:31:18.0, M = 2.6

RAC	$\Delta = 30\text{km}$			
Pg eZ		05	31	23.7
Sg eNE		31	28.0	
OJC	$\Delta = 93\text{km}$			
Pg eZ		05	31	33.9
Sg eE		31	46.8	
NIE	$\Delta = 140\text{km}$			
Pg eZ		05	31	41.8
Sg eE		32	00.7	
KSP	$\Delta = 189\text{km}$			
Pg eNEZ		05	31	49.4
Sg eNEZ		32	12.2	

MAY 28
GIG: **$\Phi = 50.208^\circ\text{N}$, $\lambda = 19.100^\circ\text{E}$**
H = 21:55:30.7, M = 2.2

OJC	$\Delta = 50\text{km}$			
Pg eZ		21	55	39.5
Sg eN		55	46.0	
NIE	$\Delta = 124\text{km}$			
Pg eE		21	55	52.3
(Sg) eN		56	09.0	
KSP	$\Delta = 211\text{km}$			
Pg eE		21	56	07.0
(Sg) eNEZ		56	30.7	

MAY 29
GIG: **$\Phi = 50.081^\circ\text{N}$, $\lambda = 18.432^\circ\text{E}$**
H = 05:24:44.5, M = 2.0

RAC	$\Delta = 17\text{km}$			
Pg eZ		05	24	47.5
Sg eNE		24	50.3	
OJC	$\Delta = 99\text{km}$			
Pg eZ		05	25	01.4
Sg eN		25	14.5	
NIE	$\Delta = 154\text{km}$			
Pg eZ		05	25	10.5
Sg eE		25	31.2	

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MAY 30

GIG: $\Phi = 50.207^{\circ}\text{N}$, $\lambda = 19.101^{\circ}\text{E}$
H = 13:59:37.8, M = 2.3

OJC $\Delta = 50\text{km}$
Pg eZ 13 59 46.8
Sg iN 59 53.2

NIE $\Delta = 124\text{km}$
Pg eZ 13 59 59.5
(Sg) eN 14 00 16.3

KSP $\Delta = 211\text{km}$
Pg eZ 14 00 13.4
Sn eN 00 35.9

MAY 31

GIG: $\Phi = 50.239^{\circ}\text{N}$, $\lambda = 18.922^{\circ}\text{E}$
H = 00:24:31.7, M = 2.2

RAC $\Delta = 55\text{km}$
Pg eZ 00 24 42.1
Sg eNE 24 49.2

OJC $\Delta = 63\text{km}$
Pg eZ 00 24 43.4
Sg eE 24 51.6

NIE $\Delta = 136\text{km}$
Pg eZ 00 24 55.7
Sg eE 25 13.0

KSP $\Delta = 197\text{km}$
Pg eNEZ 00 25 04.7
Sg eNEZ 25 28.7

MAY 31

$\Phi = 50.18^{\circ}\text{N}$, $\lambda = 18.81^{\circ}\text{E}$
H = 13:19:17.2, M = 2.4

OJC $\Delta = 71\text{km}$
Pg eZ 13 19 30.0
Sg iN 19 39.6

NIE $\Delta = 138\text{km}$
Pg eZ 13 19 41.4
Sg iE 19 59.1

KSP $\Delta = 192\text{km}$
Pg eNEZ 13 19 49.9
Sg eNEZ 20 12.8

MAY 31

GIG: $\Phi = 50.255^{\circ}\text{N}$, $\lambda = 18.880^{\circ}\text{E}$
H = 20:56:46.7, M = 2.5

RAC $\Delta = 52\text{km}$
Pg eZ 20 56 57.5
Sg eNE 57 04.5

OJC $\Delta = 66\text{km}$
Pg eZ 20 56 59.0
Sg eE 57 07.5

NIE $\Delta = 138\text{km}$
Pg eZ 20 57 11.0
Sg eE 57 28.5

KSP $\Delta = 195\text{km}$
Pg eNEZ 20 57 20.1
Sg eNEZ 57 42.5

JUN 1

$\Phi = 50.35^{\circ}\text{N}$, $\lambda = 18.88^{\circ}\text{E}$
H = 01:58:30.6, M = 2.3

OJC $\Delta = 67\text{km}$
Pg eZ 01 58 43.0
Sg eE 58 51.4

NIE $\Delta = 147\text{km}$
Pg eZ 01 58 56.4
Sg eN 59 15.2

KSP $\Delta = 191\text{km}$
Pg eNEZ 01 59 02.9
Sg eNEZ 59 25.8

JUN 1

GIG: $\Phi = 50.104^{\circ}\text{N}$, $\lambda = 19.229^{\circ}\text{E}$
H = 09:53:26.2, M = 2.3

OJC $\Delta = 42\text{km}$
Pg eZ 09 53 33.5
Sg eN 53 39.3

NIE $\Delta = 109\text{km}$
Pg eZ 09 53 44.4
(Sg) eE 53 59.9

KSP $\Delta = 224\text{km}$
Pn eE 09 54 01.4
Pg eE 54 05.2
Sn eN 54 29.0
Sg eNEZ 54 30.1

JUN 1

GIG: $\Phi = 50.362^{\circ}\text{N}$, $\lambda = 18.863^{\circ}\text{E}$
H = 14:09:28.6, M = 2.4

OJC $\Delta = 68\text{km}$
Pg eZ 14 09 41.5
Sg eN 09 50.0

NIE $\Delta = 147\text{km}$
Pg eZ 14 09 54.2
Sg eN 10 12.6

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JUN 2

GIG: $\Phi = 50.245^\circ\text{N}$, $\lambda = 18.920^\circ\text{E}$
H = 03:49:43.6, M = 2.5

RAC	$\Delta = 55\text{km}$			
	Pg eZ	03	49	54.4
	Sg eNE		50	01.6
OJC	$\Delta = 62\text{km}$			
	Pg iZ	03	49	55.4 D
	Sg iE		50	03.6
NIE	$\Delta = 136\text{km}$			
	Pg eZ	03	50	07.4
	Sg eE		50	25.0
KSP	$\Delta = 197\text{km}$			
	Pg eNEZ	03	50	17.2
	Sg eNEZ		50	40.3

JUN 2

GIG: $\Phi = 49.957^\circ\text{N}$, $\lambda = 18.562^\circ\text{E}$
H = 18:31:46.8, M = 2.0

RAC	$\Delta = 30\text{km}$			
	Pg eZ	18	31	52.9
	Sg eNE		31	58.3
OJC	$\Delta = 93\text{km}$			
	Pg eZ	18	32	02.6
	(Sg) eN		32	14.0
NIE	$\Delta = 140\text{km}$			
	Pg eZ	18	32	12.2
	(Sg) eE		32	30.0

JUN 3

GIG: $\Phi = 50.060^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$
H = 14:48:36.2, M = 2.4

RAC	$\Delta = 18\text{km}$			
	Pg iZ	14	48	40.4 D
	Sg eNE		48	43.6
OJC	$\Delta = 98\text{km}$			
	Pg eZ	14	48	53.3
	Sg eN		49	05.5
NIE	$\Delta = 152\text{km}$			
	Pg eZ	14	49	02.9
	Sg eN		49	21.8
KSP	$\Delta = 176\text{km}$			
	Pn eNEZ	14	49	04.4
	Sg eNEZ		49	26.4

JUN 3

GIG: $\Phi = 50.255^\circ\text{N}$, $\lambda = 18.878^\circ\text{E}$
H = 15:20:32.0, M = 2.3

OJC	$\Delta = 66\text{km}$			
	Pg eZ	15	20	44.1
	Sg eE		20	52.8

NIE	$\Delta = 138\text{km}$			
	Pg eZ	15	20	56.1
	Sg eE		21	14.1

KSP	$\Delta = 194\text{km}$			
	Pn eNEZ	15	21	03.3
	Pg eNEZ		21	05.2
	Sg eNEZ		21	27.9

JUN 4

GIG: $\Phi = 50.261^\circ\text{N}$, $\lambda = 18.958^\circ\text{E}$
H = 01:31:02.5, M = 2.0

OJC	$\Delta = 60\text{km}$			
	Pg eZ	01	31	13.7
	Sg eN		31	21.7

NIE	$\Delta = 135\text{km}$			
	Pg eZ	01	31	26.2
	Sg eE		31	43.5

KSP	$\Delta = 199\text{km}$			
	Pn eEZ	01	31	33.8
	Pg eNEZ		31	36.5
	Sg eNEZ		32	00.4

JUN 4

GIG: $\Phi = 50.085^\circ\text{N}$, $\lambda = 18.434^\circ\text{E}$
H = 02:38:38.5, M = 2.0

RAC	$\Delta = 17\text{km}$			
	Pg eZ	02	38	42.7
	Sg eNE		38	45.6

OJC	$\Delta = 98\text{km}$			
	Pg eZ	02	38	55.7
	Sg eE		39	07.7

NIE	$\Delta = 154\text{km}$			
	Pg eZ	02	39	05.1
	Sg eE		39	25.2

JUN 5

GIG: $\Phi = 50.03^\circ\text{N}$, $\lambda = 18.46^\circ\text{E}$
H = 12:23:24.3, M = 2.2

RAC	$\Delta = 20\text{km}$			
	Pg eZ	12	23	28.4
	Sg eNE		23	32.2

OJC	$\Delta = 98\text{km}$			
	Pg eZ	12	23	40.4
	Sg eE		23	54.4

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NIE	$\Delta = 150\text{km}$			
Pg	eZ	12	23	49.5
Sg	eE		24	09.8
KSP	$\Delta = 178\text{km}$			
Pn	eNEZ	12	23	52.8
Sn	eNEZ		24	13.7
<u>JUN 7</u>				
GIG: $\Phi = 50.038^\circ\text{N}$, $\lambda = 18.462^\circ\text{E}$				
H = 12:24:46.1, M = 2.2				
RAC	$\Delta = 20\text{km}$			
Pg	eZ	12	24	50.3
Sg	eNE		24	53.5
OJC	$\Delta = 98\text{km}$			
Pg	eZ	12	25	03.0
Sg	eE		25	15.2
NIE	$\Delta = 150\text{km}$			
Pg	eZ	12	25	11.5
Sg	eE		25	31.9
KSP	$\Delta = 178\text{km}$			
Pn	eNEZ	12	25	14.3
Sn	eNEZ		25	35.8
<u>JUN 7</u>				
GIG: $\Phi = 50.208^\circ\text{N}$, $\lambda = 19.100^\circ\text{E}$				
H = 16:17:45.6, M = 2.6				
OJC	$\Delta = 50\text{km}$			
Pg	eZ	16	17	53.9
Sg	eN		18	00.3
NIE	$\Delta = 124\text{km}$			
Pg	eZ	16	18	06.6
Sg	eN		18	23.4
KSP	$\Delta = 211\text{km}$			
Pn	eNEZ	16	18	20.0
Pg	eNEZ		18	21.7
Sn	eNEZ		18	44.7
<u>JUN 7</u>				
GIG: $\Phi = 50.255^\circ\text{N}$, $\lambda = 18.880^\circ\text{E}$				
H = 23:48:05.1, M = 2.5				
OJC	$\Delta = 66\text{km}$			
Pg	eZ	23	48	17.3
Sg	eE		48	25.6
NIE	$\Delta = 139\text{km}$			
Pg	eZ	23	48	29.2
Sg	eE		48	47.3
KSP	$\Delta = 194\text{km}$			
Pg	eNEZ	23	48	38.4
Sg	eNEZ		49	01.2

<u>JUN 8</u>				
GIG: $\Phi = 50.362^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$				
H = 07:26:58.5, M = 2.4				
OJC	$\Delta = 68\text{km}$			
Pg	eZ		07	27 10.9
Sg	eN		27	19.2
NIE	$\Delta = 148\text{km}$			
Pg	eZ		07	27 25.0
Sg	eE		27	43.3
<u>JUN 8</u>				
$\Phi = 50.17^\circ\text{N}$, $\lambda = 18.76^\circ\text{E}$				
H = 09:38:37.7, M = 2.6				
OJC	$\Delta = 74\text{km}$			
Pg	eZ		09	38 51.4
Sg	eE		39	00.4
NIE	$\Delta = 140\text{km}$			
Pg	eZ		09	39 02.0
Sg	eE		39	20.4
KSP	$\Delta = 190\text{km}$			
Pg	eNEZ		09	39 09.7
Sg	eNEZ		39	32.8
<u>JUN 8</u>				
GIG: $\Phi = 50.102^\circ\text{N}$, $\lambda = 19.229^\circ\text{E}$				
H = 14:10:02.6, M = 2.4				
OJC	$\Delta = 42\text{km}$			
Pg	iZ		14	10 09.6
Sg	iN		10	15.3
NIE	$\Delta = 109\text{km}$			
Pg	eZ		14	10 20.8
Sg	eE		10	35.7
KSP	$\Delta = 224\text{km}$			
Pg	eNEZ		14	10 41.4
(Sn)	eNEZ		11	04.8
<u>JUN 8</u>				
$\Phi = 50.27^\circ\text{N}$, $\lambda = 18.92^\circ\text{E}$				
H = 16:00:48.3, M = 2.2				
OJC	$\Delta = 63\text{km}$			
Pg	eZ		16	00 59.8
Sg	eN		01	08.0
NIE	$\Delta = 138\text{km}$			
Pg	eZ		16	01 12.5
Sg	eE		01	30.0
KSP	$\Delta = 196\text{km}$			
Pg	eNEZ		16	01 21.8
Sg	eNEZ		01	44.9

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JUN 8

$\Phi = 49.97^{\circ}\text{N}$, $\lambda = 18.52^{\circ}\text{E}$
H = 19:41:58.1, M = 2.1

RAC $\Delta = 26\text{km}$
Pg eZ 19 42 03.8
Sg eNE 42 08.9

OJC $\Delta = 95\text{km}$
Pg eZ 19 42 14.9
Sg eE 42 27.4

NIE $\Delta = 143\text{km}$
Pg eZ 19 42 22.0
Sg eE 42 41.0

KSP $\Delta = 186\text{km}$
Pg eNEZ 19 42 28.9
(Sg) eNEZ 42 52.8

JUN 9

$\Phi = 50.10^{\circ}\text{N}$, $\lambda = 18.48^{\circ}\text{E}$
H = 02:13:37.4, M = 2.0

RAC $\Delta = 21\text{km}$
Pg eZ 02 13 41.7
Sg eNE 13 44.9

OJC $\Delta = 94\text{km}$
Pg eZ 02 13 54.3
Sg eE 14 06.2

NIE $\Delta = 152\text{km}$
Pg eZ 02 14 03.5
Sg eE 14 23.3

KSP $\Delta = 176\text{km}$
Pg eE 02 14 07.2
Sg eNEZ 14 27.9

JUN 10

$\Phi = 50.06^{\circ}\text{N}$, $\lambda = 18.47^{\circ}\text{E}$
H = 01:28:13.3, M = 2.0

RAC $\Delta = 20\text{km}$
Pg eZ 01 28 17.3
Sg eNE 28 20.2

OJC $\Delta = 96\text{km}$
Pg eZ 01 28 30.4
Sg eN 28 43.2

NIE $\Delta = 150\text{km}$
Pg iZ 01 28 39.5 D
Sg eN 28 58.9

KSP $\Delta = 178\text{km}$
Pn eNEZ 01 28 41.1
Sn eNEZ 29 02.7

JUN 10

GIG: $\Phi = 50.256^{\circ}\text{N}$, $\lambda = 18.879^{\circ}\text{E}$
H = 04:54:30.6, M = 2.1

OJC $\Delta = 66\text{km}$
Pg eZ 04 54 42.9
Sg eEZ 54 51.5

NIE $\Delta = 139\text{km}$
Pg eZ 04 54 54.8
Sg eE 55 12.8

KSP $\Delta = 194\text{km}$
Pg eNEZ 04 55 04.0
Sg eNEZ 55 26.7

JUN 11

$\Phi = 49.92^{\circ}\text{N}$, $\lambda = 18.52^{\circ}\text{E}$
H = 03:14:59.9, M = 2.0

OJC $\Delta = 97\text{km}$
Pg eZ 03 15 16.5
Sg eE 15 29.9

NIE $\Delta = 141\text{km}$
Pg eZ 03 15 23.3
Sg eE 15 42.2

KSP $\Delta = 189\text{km}$
Pn eNEZ 03 15 30.5
Sg eNEZ 15 54.0

JUN 13

$\Phi = 49.93^{\circ}\text{N}$, $\lambda = 18.51^{\circ}\text{E}$
H = 08:05:59.9, M = 2.2

OJC $\Delta = 98\text{km}$
Pg eZ 08 06 16.7
Sg eN 06 29.7

NIE $\Delta = 142\text{km}$
Pg eZ 08 06 23.6
Sg eN 06 43.0

KSP $\Delta = 188\text{km}$
Pg eNEZ 08 06 31.8
Sg eNEZ 06 54.1

JUN 13

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.960^{\circ}\text{E}$
H = 19:09:22.1, M = 2.6

OJC $\Delta = 60\text{km}$
Pg eZ 19 09 32.7
Sg eN 09 40.2

NIE $\Delta = 136\text{km}$
Pg eZ 19 09 46.9
Sg eN 10 03.7

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KSP	$\Delta = 199\text{km}$		
Pg	iNEZ	19	09 55.1
Sg	eNEZ	10	18.9
<u>JUN 15</u>			
GIG:	$\Phi = 50.252^\circ\text{N}$, $\lambda = 18.911^\circ\text{E}$		
	H = 01:30:31.0, M = 2.2		
OJC	$\Delta = 64\text{km}$		
Pg	eZ	01	30 42.8
Sg	eE	30	51.0
NIE	$\Delta = 137\text{km}$		
Pg	eZ	01	30 55.0
Sg	eE	31	12.8
KSP	$\Delta = 196\text{km}$		
Pg	eNEZ	01	31 04.2
Sg	eNEZ	31	27.9
<u>JUN 15</u>			
GIG:	$\Phi = 50.245^\circ\text{N}$, $\lambda = 18.907^\circ\text{E}$		
	H = 02:47:08.9, M = 2.5		
OJC	$\Delta = 64\text{km}$		
Pg	eZ	02	47 20.7
Sg	eE	47	28.6
NIE	$\Delta = 136\text{km}$		
Pg	eZ	02	47 32.6
Sg	eE	47	50.3
KSP	$\Delta = 197\text{km}$		
Pg	eNEZ	02	47 42.6
Sg	eNEZ	48	05.7
<u>JUN 15</u>			
	$\Phi = 50.10^\circ\text{N}$, $\lambda = 18.47^\circ\text{E}$		
	H = 15:04:45.4, M = 2.2		
RAC	$\Delta = 20\text{km}$		
Pg	eZ	15	04 49.0
Sg	eNE	04	52.4
OJC	$\Delta = 96\text{km}$		
Pg	eZ	15	05 02.0
Sg	eN	05	14.9
NIE	$\Delta = 153\text{km}$		
Pg	eZ	15	05 12.0
Sg	eNE	05	31.6
<u>JUN 15</u>			
	$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$		
	H = 18:20:45.8, M = 2.5		
OJC	$\Delta = 68\text{km}$		
Pg	eZ	18	20 58.8
Sg	eE	21	06.8

NIE	$\Delta = 142\text{km}$		
(Pg)	eZ	18	21 13.5
Sg	iE	21	28.1
KSP	$\Delta = 192\text{km}$		
Pg	eNEZ	18	21 18.4
Sg	eNEZ	21	40.8
<u>JUN 16</u>			
GIG:	$\Phi = 50.255^\circ\text{N}$, $\lambda = 18.880^\circ\text{E}$		
	H = 03:18:10.8, M = 2.2		
OJC	$\Delta = 66\text{km}$		
Pg	eZ	03	18 22.7
Sg	eN	18	31.6
NIE	$\Delta = 139\text{km}$		
Pg	eZ	03	18 34.8
Sg	eE	18	53.3
KSP	$\Delta = 194\text{km}$		
Pg	eNEZ	03	18 43.5
Sg	eNEZ	19	06.6
<u>JUN 16</u>			
GIG:	$\Phi = 50.255^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$		
	H = 21:18:31.7, M = 2.0		
OJC	$\Delta = 65\text{km}$		
Pg	eZ	21	18 43.6
Sg	eE	18	51.8
NIE	$\Delta = 138\text{km}$		
Pg	eZ	21	18 55.5
Sg	eE	19	13.4
KSP	$\Delta = 195\text{km}$		
Pg	eNEZ	21	19 05.5
Sg	eNEZ	19	28.4
<u>JUN 17</u>			
GIG:	$\Phi = 50.102^\circ\text{N}$, $\lambda = 19.222^\circ\text{E}$		
	H = 15:16:31.4, M = 2.3		
OJC	$\Delta = 44\text{km}$		
Pg	iZ	15	16 39.8
Sg	iN	16	45.6
NIE	$\Delta = 110\text{km}$		
Pg	eZ	15	16 50.9
(Sg)	eE	17	05.9
KSP	$\Delta = 223\text{km}$		
Pg	eE	15	17 08.6
Sg	eNEZ	17	36.3
<u>JUN 18</u>			
GIG:	$\Phi = 50.253^\circ\text{N}$, $\lambda = 18.910^\circ\text{E}$		
	H = 16:25:38.7, M = 2.5		

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RAC	$\Delta = 54\text{km}$			
	Pg eZ	16	25	49.3
	(Sg) eNE		25	54.9
OJC	$\Delta = 63\text{km}$			
	Pg eZ	16	25	50.5
	Sg eN		25	58.0
NIE	$\Delta = 137\text{km}$			
	Pg eZ	16	26	02.4
	Sg eE		26	19.6
KSP	$\Delta = 197\text{km}$			
	Pn eNEZ	16	26	09.7
	Pg eNEZ		26	12.1
	Sg eNEZ		26	35.0
<u>JUN 18</u>				
$\Phi = 50.27^\circ\text{N}$, $\lambda = 18.81^\circ\text{E}$				
H = 19:44:35.3, M = 2.3				
OJC	$\Delta = 70\text{km}$			
	Pg iZ	19	44	47.7
	Sg iE		44	57.3
NIE	$\Delta = 143\text{km}$			
	Pg eZ	19	45	00.0
	Sg eE		45	18.5
KSP	$\Delta = 190\text{km}$			
	Pg eNEZ	19	45	07.4
	Sg eNEZ		45	30.7
<u>JUN 18</u>				
GIG: $\Phi = 50.359^\circ\text{N}$, $\lambda = 18.863^\circ\text{E}$				
H = 22:47:11.8, M = 2.4				
RAC	$\Delta = 57\text{km}$			
	Pg eZ	22	47	22.9
	Sg eNE		47	30.3
OJC	$\Delta = 68\text{km}$			
	Pg eZ	22	47	24.6
	Sg eN		47	33.2
NIE	$\Delta = 147\text{km}$			
	Pg eZ	22	47	36.8
	Sg eE		47	55.5
KSP	$\Delta = 190\text{km}$			
	Pg eNEZ	22	47	43.7
	Sn eNEZ		48	04.9
	(Sg) eNEZ		48	07.7
<u>JUN 22</u>				
GIG: $\Phi = 50.103^\circ\text{N}$, $\lambda = 19.229^\circ\text{E}$				
H = 08:22:55.2, M = 2.4				
OJC	$\Delta = 42\text{km}$			
	Pg eZ	08	23	02.3
	Sg eE		23	08.1

NIE	$\Delta = 109\text{km}$			
	Pg eZ	08	23	13.7
	Sg eE		23	28.6
KSP	$\Delta = 224\text{km}$			
	Pg eEZ	08	23	33.9
	Sn eNEZ		23	57.9
<u>JUN 22</u>				
GIG: $\Phi = 50.050^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$				
H = 19:04:02.8, M = 2.0				
RAC	$\Delta = 18\text{km}$			
	Pg eZ	19	04	06.3
	Sg eNE		04	09.4
OJC	$\Delta = 98\text{km}$			
	Pg eZ	19	04	19.3
	Sg eN		04	32.3
NIE	$\Delta = 152\text{km}$			
	Pg eZ	19	04	29.6
	Sg eE		04	49.0
<u>JUN 23</u>				
$\Phi = 50.22^\circ\text{N}$, $\lambda = 18.84^\circ\text{E}$				
H = 00:41:19.2, M = 2.0				
OJC	$\Delta = 68\text{km}$			
	Pg eZ	00	41	32.2
	Sg eE		41	40.5
NIE	$\Delta = 138\text{km}$			
	Pg eZ	00	41	43.8
	Sg eN		42	01.4
KSP	$\Delta = 193\text{km}$			
	Pg eZ	00	41	52.0
	Sg eN		42	14.7
<u>JUN 23</u>				
GIG: $\Phi = 50.208^\circ\text{N}$, $\lambda = 19.098^\circ\text{E}$				
H = 15:37:09.1, M = 2.5				
OJC	$\Delta = 50\text{km}$			
	Pg eZ	15	37	17.7
	Sg iN		37	24.3
RAC	$\Delta = 66\text{km}$			
	Pg eZ	15	37	20.7
	Sg eNE		37	29.7
NIE	$\Delta = 124\text{km}$			
	Pg eZ	15	37	30.4
	Sg eN		37	47.2
KSP	$\Delta = 210\text{km}$			
	Pn eZ	15	37	42.5
	Pg eNEZ		37	45.6
	Sn eN		38	08.6

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JUN 23

GIG: $\Phi = 50.252^{\circ}\text{N}$, $\lambda = 18.908^{\circ}\text{E}$
H = 17:36:42.5, M = 2.7

RAC	$\Delta = 55\text{km}$			
	Pg eZ	17	36	53.1
	Sg eNE		37	00.3
OJC	$\Delta = 63\text{km}$			
	Pg iZ	17	36	54.3 D
	Sg iE		37	02.5
NIE	$\Delta = 137\text{km}$			
	Pg eZ	17	37	06.1
	Sg eE		37	23.2
KSP	$\Delta = 197\text{km}$			
	Pg eNEZ	17	37	15.7
	Sg eNEZ		37	39.1

JUN 23

$\Phi = 50.38^{\circ}\text{N}$, $\lambda = 18.82^{\circ}\text{E}$
H = 18:03:00.0, M = 2.4

OJC	$\Delta = 72\text{km}$			
	Pg eZ	18	03	13.5
	Sg eN		03	22.0
NIE	$\Delta = 152\text{km}$			
	Pg eZ	18	03	27.5
	Sg eE		03	45.1
KSP	$\Delta = 186\text{km}$			
	Pg eNEZ	18	03	32.0
	Sg eNEZ		03	53.4

JUN 23

$\Phi = 50.16^{\circ}\text{N}$, $\lambda = 18.99^{\circ}\text{E}$
H = 22:13:17.0, M = 2.4

RAC	$\Delta = 58\text{km}$			
	Pg eZ	22	13	27.2
	Sg eNE		13	34.6
OJC	$\Delta = 58\text{km}$			
	Pg iZ	22	13	27.3 D
	Sg iN		13	34.5
NIE	$\Delta = 126\text{km}$			
	Pg eZ	22	13	39.4
	(Sg) eN		13	55.8
KSP	$\Delta = 206\text{km}$			
	Pg eNEZ	22	13	52.4
	Sg eNEZ		14	17.1

JUN 25

$\Phi = 50.22^{\circ}\text{N}$, $\lambda = 18.83^{\circ}\text{E}$
H = 04:40:31.1, M = 2.2

OJC	$\Delta = 69\text{km}$			
	Pg eZ	04	40	43.9
	Sg eN		40	52.2

NIE	$\Delta = 138\text{km}$			
	Pg iZ	04	40	55.5
	Sg eN		41	12.9

KSP	$\Delta = 193\text{km}$			
	Pg eNEZ	04	41	03.9
	Sg eNEZ		41	27.0

JUN 25

GIG: $\Phi = 50.064^{\circ}\text{N}$, $\lambda = 18.424^{\circ}\text{E}$
H = 07:32:33.5, M = 2.6

RAC	$\Delta = 17\text{km}$			
	Pg iZ	07	32	37.4 D
	Sg eNE		32	40.2

OJC	$\Delta = 100\text{km}$			
	Pg eZ	07	32	50.5
	Sg eE		33	03.4

NIE	$\Delta = 154\text{km}$			
	Pg eZ	07	32	59.6
	Sg eE		33	19.4

KSP	$\Delta = 174\text{km}$			
	Pn eNEZ	07	33	01.5
	Sg eNEZ		33	24.1

JUN 25

GIG: $\Phi = 50.245^{\circ}\text{N}$, $\lambda = 18.907^{\circ}\text{E}$
H = 23:16:34.3, M = 2.4

RAC	$\Delta = 54\text{km}$			
	Pg eZ	23	16	44.3
	Sg eNE		16	51.3

OJC	$\Delta = 64\text{km}$			
	Pg eZ	23	16	46.0
	Sg eE		16	54.3

NIE	$\Delta = 137\text{km}$			
	Pg eZ	23	16	58.4
	Sg eE		17	15.5

KSP	$\Delta = 196\text{km}$			
	Pg eNEZ	23	17	07.7
	Sg eNEZ		17	31.1

JUN 26

GIG: $\Phi = 49.960^{\circ}\text{N}$, $\lambda = 18.562^{\circ}\text{E}$
H = 08:15:13.0, M = 2.5

OJC	$\Delta = 93\text{km}$			
	Pg eZ	08	15	29.1
	Sg eN		15	40.7

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NIE	$\Delta = 140\text{km}$ Pg eZ 08 15 37.3 Sg eE 15 55.8	NIE	$\Delta = 152\text{km}$ Pg eZ 21 09 06.7 Sg eE 09 25.9
KSP	$\Delta = 188\text{km}$ Pg eNEZ 08 15 44.5	<u>JUN 30</u>	
<u>JUN 26</u>	$\Phi = 50.21^\circ\text{N}, \lambda = 18.88^\circ\text{E}$ $H = 13:24:34.9, M = 2.1$	GIG:	$\Phi = 50.270^\circ\text{N}, \lambda = 18.859^\circ\text{E}$ $H = 03:38:58.2, M = 2.0$
OJC	$\Delta = 66\text{km}$ Pg eZ 13 24 47.3 Sg eE 24 55.3	OJC	$\Delta = 67\text{km}$ Pg eZ 03 39 10.6 Sg eE 39 18.8
NIE	$\Delta = 136\text{km}$ Pg eZ 13 24 58.5 Sg eE 25 16.4	NIE	$\Delta = 140\text{km}$ Pg eZ 03 39 22.5 Sg eE 39 40.4
KSP	$\Delta = 196\text{km}$ Pg eNEZ 13 25 07.8 Sg eNEZ 25 31.3	KSP	$\Delta = 193\text{km}$ Pg eZ 03 39 31.3 (Sg) eE 39 55.1
<u>JUN 27</u>	$\Phi = 50.37^\circ\text{N}, \lambda = 18.91^\circ\text{E}$ $H = 11:47:58.3, M = 2.3$	<u>JUN 30</u>	
OJC	$\Delta = 65\text{km}$ Pg eZ 11 48 09.9 Sg eNE 48 18.7	GIG:	$\Phi = 50.345^\circ\text{N}, \lambda = 18.980^\circ\text{E}$ $H = 17:13:42.8, M = 2.5$
NIE	$\Delta = 145\text{km}$ Pg eZ 11 48 23.5 Sg eE 48 42.5	OJC	$\Delta = 60\text{km}$ Pg eZ 17 13 53.8 Sg iN 14 01.7
KSP	$\Delta = 193\text{km}$ Pg eNEZ 11 48 31.2 Sg eNEZ 48 54.0	NIE	$\Delta = 140\text{km}$ Pg eZ 17 14 07.5 Sg eN 14 24.5
<u>JUN 28</u>		KSP	$\Delta = 198\text{km}$ Pg eNEZ 17 14 16.5 Sg eNEZ 14 40.3
GIG:	$\Phi = 50.104^\circ\text{N}, \lambda = 19.227^\circ\text{E}$ $H = 09:07:40.7, M = 2.0$	<u>JUL 1</u>	
OJC	$\Delta = 44\text{km}$ Pg eZ 09 07 48.5 Sg eNE 07 54.5	GIG:	$\Phi = 50.257^\circ\text{N}, \lambda = 18.904^\circ\text{E}$ $H = 11:57:27.3, M = 2.7$
<u>JUN 29</u>		OJC	$\Delta = 64\text{km}$ Pg iZ 11 57 39.4 Sg iE 57 47.7
GIG:	$\Phi = 50.072^\circ\text{N}, \lambda = 18.461^\circ\text{E}$ $H = 21:08:40.6, M = 2.2$	NIE	$\Delta = 137\text{km}$ Pg eZ 11 57 51.1 Sg eE 58 08.0
RAC	$\Delta = 19\text{km}$ Pg eZ 21 08 45.1 Sg eNE 08 48.2	KSP	$\Delta = 196\text{km}$ Pg eEZ 11 58 00.7 Sg eNEZ 58 24.7
OJC	$\Delta = 97\text{km}$ Pg eZ 21 08 57.7 Sg eN 09 09.7	<u>JUL 1</u>	
		GIG:	$\Phi = 50.257^\circ\text{N}, \lambda = 18.904^\circ\text{E}$ $H = 17:02:35.7, M = 2.5$
		OJC	$\Delta = 64\text{km}$ Pg iZ 17 02 47.6 Sg iE 02 55.7

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NIE	$\Delta = 137\text{km}$		
Pg eZ		17 03 00.1	
Sg eE		03 16.8	
KSP	$\Delta = 196\text{km}$		
Pg eNEZ		17 03 09.1	
Sg eNEZ		03 32.4	
<u>JUL 1</u>			
GIG: $\Phi = 50.038^\circ\text{N}$, $\lambda = 18.463^\circ\text{E}$			
H = 20:59:34.6, M = 2.1			
RAC	$\Delta = 20\text{km}$		
Pg eZ		20 59 39.4	
Sg eNE		59 42.8	
OJC	$\Delta = 97\text{km}$		
Pg eZ		20 59 52.0	
Sg eN		21 00 04.3	
NIE	$\Delta = 150\text{km}$		
Pg eZ		21 00 01.7	
Sg eE		00 20.4	
KSP	$\Delta = 178\text{km}$		
Pg eNEZ		21 00 05.0	
(Sg) eNEZ		00 25.1	
<u>JUL 2</u>			
GIG: $\Phi = 50.061^\circ\text{N}$, $\lambda = 18.421^\circ\text{E}$			
H = 08:22:28.1, M = 2.0			
RAC	$\Delta = 16\text{km}$		
Pg eZ		08 22 31.4	
Sg eNE		22 34.3	
OJC	$\Delta = 100\text{km}$		
Pg eZ		08 22 44.9	
Sg eE		22 58.1	
NIE	$\Delta = 154\text{km}$		
Pg eZ		08 22 54.8	
Sg eE		23 15.0	
<u>JUL 2</u>			
GIG: $\Phi = 50.345^\circ\text{N}$, $\lambda = 18.978^\circ\text{E}$			
H = 12:52:07.4, M = 2.3			
OJC	$\Delta = 60\text{km}$		
Pg eZ		12 52 18.7	
Sg iN		52 26.6	
NIE	$\Delta = 140\text{km}$		
Pg eZ		12 52 31.7	
Sg eN		52 48.9	
KSP	$\Delta = 198\text{km}$		
Pg eNEZ		12 52 40.8	
(Sg) eNEZ		53 05.8	

<u>JUL 2</u>			
GIG: $\Phi = 50.258^\circ\text{N}$, $\lambda = 18.906^\circ\text{E}$			
H = 17:53:44.3, M = 2.4			
OJC	$\Delta = 64\text{km}$		
Pg eZ		17 53 55.5	
Sg eN		54 03.9	
NIE	$\Delta = 138\text{km}$		
Pg eZ		17 54 09.0	
Sg eE		54 25.6	
KSP	$\Delta = 196\text{km}$		
Pg eNEZ		17 54 17.6	
Sg eNEZ		54 41.0	
<u>JUL 3</u>			
GIG: $\Phi = 50.053^\circ\text{N}$, $\lambda = 18.446^\circ\text{E}$			
H = 07:33:43.3, M = 2.5			
RAC	$\Delta = 18\text{km}$		
Pg eZ		07 33 47.7	
Sg eNE		33 50.7	
OJC	$\Delta = 98\text{km}$		
Pg eZ		07 34 00.2	
Sg eN		34 12.6	
NIE	$\Delta = 152\text{km}$		
Pg eZ		07 34 10.5	
Sg eE		34 29.0	
KSP	$\Delta = 176\text{km}$		
Pn eZ		07 34 11.7	
Pg eNEZ		34 12.4	
Sg eNEZ		34 33.9	
<u>JUL 4</u>			
GIG: $\Phi = 50.228^\circ\text{N}$, $\lambda = 19.120^\circ\text{E}$			
H = 11:11:33.9, M = 2.4			
OJC	$\Delta = 49\text{km}$		
Pg eZ		11 11 42.9	
Sg eE		11 49.6	
NIE	$\Delta = 124\text{km}$		
Pg eZ		11 11 55.9	
Sg eE		12 11.4	
KSP	$\Delta = 211\text{km}$		
Pg eNEZ		11 12 09.6	
Sg eNEZ		12 34.5	
<u>JUL 5</u>			
$\Phi = 50.30^\circ\text{N}$, $\lambda = 18.95^\circ\text{E}$			
H = 19:37:40.0, M = 2.0			
OJC	$\Delta = 61\text{km}$		
Pg eZ		19 37 51.3	
Sg eE		37 59.1	

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NIE	$\Delta = 139\text{km}$		
Pg eZ	19	38	05.2
Sg eE		38	21.2
KSP	$\Delta = 197\text{km}$		
Pg eNEZ	19	38	13.3
Sg eNEZ		38	37.0
<u>JUL 7</u>			
GIG:	$\Phi = 50.268^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$		
	$H = 08:34:36.4$, $M = 2.9$		
RAC	$\Delta = 53\text{km}$		
Pg eZ	08	34	46.7
Sg eNE		34	53.5
OJC	$\Delta = 66\text{km}$		
Pg iZ	08	34	49.1 D
Sg iE		34	57.5
NIE	$\Delta = 141\text{km}$		
Pg eZ	08	35	00.6
Sg eN		35	18.7
KSP	$\Delta = 193\text{km}$		
Pn eNEZ	08	35	06.3
Pg eNEZ		35	09.6
Sg eNEZ		35	32.4
KWP	$\Delta = 284\text{km}$		
Pn eZ	08	35	21.6
Pg eZ		35	27.7
S eNE		35	58.5
<u>JUL 8</u>			
GIG:	$\Phi = 50.050^\circ\text{N}$, $\lambda = 18.448^\circ\text{E}$		
	$H = 11:52:11.7$, $M = 2.1$		
RAC	$\Delta = 18\text{km}$		
Pg eZ	11	52	15.7
Sg eNE		52	18.9
OJC	$\Delta = 98\text{km}$		
Pg eZ	11	52	28.4
Sg eN		52	41.6
NIE	$\Delta = 152\text{km}$		
Pg eZ	11	52	38.5
Sg eN		52	58.0
<u>JUL 9</u>			
	$\Phi = 50.29^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$		
	$H = 02:33:54.9$, $M = 2.4$		
OJC	$\Delta = 67\text{km}$		
Pg eZ	02	34	07.2
Sg eN		34	15.9
NIE	$\Delta = 142\text{km}$		
Pg eZ	02	34	20.1
Sg eE		34	37.9

KSP	$\Delta = 192\text{km}$		
Pg eNEZ	02	34	27.8
Sn eNEZ		34	47.9
<u>JUL 9</u>			
	$\Phi = 50.18^\circ\text{N}$, $\lambda = 18.81^\circ\text{E}$		
	$H = 03:26:00.4$, $M = 2.7$		
RAC	$\Delta = 46\text{km}$		
Pg eZ	03	26	09.0
(Sg) eNE		26	15.7
OJC	$\Delta = 70\text{km}$		
Pg eZ	03	26	13.8
Sg eE		26	22.8
NIE	$\Delta = 138\text{km}$		
Pg eZ	03	26	24.2
Sg eE		26	42.0
KSP	$\Delta = 193\text{km}$		
Pn eEZ	03	26	31.2
Pg eNEZ		26	33.2
Sg eNEZ		26	55.8
KWP	$\Delta = 286\text{km}$		
Pg eZ	03	26	48.3
Sg eNE		27	23.3
<u>JUL 10</u>			
	$\Phi = 50.20^\circ\text{N}$, $\lambda = 18.89^\circ\text{E}$		
	$H = 03:33:32.9$, $M = 2.2$		
OJC	$\Delta = 64\text{km}$		
Pg iZ	03	33	44.8 C
Sg eE		33	53.0
NIE	$\Delta = 135\text{km}$		
Pg eZ	03	33	56.5
Sg eE		34	13.8
KSP	$\Delta = 197\text{km}$		
Pg eNEZ	03	34	06.4
Sg eNEZ		34	30.0
<u>JUL 10</u>			
GIG:	$\Phi = 50.201^\circ\text{N}$, $\lambda = 19.135^\circ\text{E}$		
	$H = 14:27:18.3$, $M = 2.5$		
OJC	$\Delta = 48\text{km}$		
Pg eZ	14	27	26.6
Sg eN		27	33.3
NIE	$\Delta = 122\text{km}$		
Pg eZ	14	27	39.7
Sg eN		27	54.6
<u>JUL 11</u>			
GIG:	$\Phi = 50.345^\circ\text{N}$, $\lambda = 18.978^\circ\text{E}$		
	$H = 03:24:41.9$, $M = 2.4$		

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OJC	$\Delta = 60\text{km}$			
	Pg eZ	03	24	53.1
	Sg eN		25	01.0
RAC	$\Delta = 63\text{km}$			
	Pg eZ	03	24	53.7
	Sg eNE		25	02.0
NIE	$\Delta = 140\text{km}$			
	Pg eZ	03	25	06.0
	(Sg) eE		25	23.2
KSP	$\Delta = 198\text{km}$			
	Pg eNEZ	03	25	16.2
	Sn eNEZ		25	37.3
	Sg eNEZ		25	39.5
<u>JUL 11</u>				
GIG: $\Phi = 50.266^\circ\text{N}$, $\lambda = 18.789^\circ\text{E}$				
H = 03:47:13.3, M = 2.3				
RAC	$\Delta = 47\text{km}$			
	Pg eZ	03	47	22.6
	(Sg) eNE		47	29.1
OJC	$\Delta = 72\text{km}$			
	Pg eZ	03	47	26.8
	Sg eNE		47	35.8
NIE	$\Delta = 144\text{km}$			
	Pg eZ	03	47	38.2
	Sg eN		47	56.9
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	03	47	45.7
	Sn eNEZ		48	05.2
	Sg eNEZ		48	07.8
<u>JUL 12</u>				
GIG: $\Phi = 50.273^\circ\text{N}$, $\lambda = 18.829^\circ\text{E}$				
H = 15:01:03.8, M = 2.5				
OJC	$\Delta = 69\text{km}$			
	Pg eZ	15	01	16.3
	Sg iN		01	25.7
NIE	$\Delta = 142\text{km}$			
	Pg eZ	15	01	27.7
	Sg eE		01	47.0
KSP	$\Delta = 191\text{km}$			
	Pg eNEZ	15	01	36.2
	Sg eNEZ		01	58.8
<u>JUL 12</u>				
GIG: $\Phi = 50.362^\circ\text{N}$, $\lambda = 18.933^\circ\text{E}$				
H = 16:46:45.1, M = 2.4				
OJC	$\Delta = 64\text{km}$			
	Pg eZ	16	46	57.3
	Sg eN		47	05.6

NIE	$\Delta = 145\text{km}$			
	Pg eZ	16	47	10.4
	Sg eN		47	29.4
KSP	$\Delta = 194\text{km}$			
	Pg eNEZ	16	47	17.3
	Sg eNEZ		47	41.7
<u>JUL 12</u>				
GIG: $\Phi = 50.083^\circ\text{N}$, $\lambda = 18.432^\circ\text{E}$				
H = 18:18:38.8, M = 2.0				
RAC	$\Delta = 17\text{km}$			
	Pg eZ	18	18	42.8
	(Sg) eNE		18	45.7
OJC	$\Delta = 98\text{km}$			
	Pg eZ	18	18	56.5
	Sg eN		19	08.5
NIE	$\Delta = 154\text{km}$			
	Pg eZ	18	19	05.4
	Sg eN		19	24.8
<u>JUL 13</u>				
GIG: $\Phi = 50.210^\circ\text{N}$, $\lambda = 19.062^\circ\text{E}$				
H = 10:30:54.0, M = 2.5				
OJC	$\Delta = 52\text{km}$			
	Pg eZ	10	31	04.2
	Sg eE		31	10.4
NIE	$\Delta = 125\text{km}$			
	Pg eZ	10	31	15.9
	Sg eN		31	31.9
KSP	$\Delta = 209\text{km}$			
	Pg eNEZ	10	31	29.9
	Sg eNEZ		31	54.0
<u>JUL 15</u>				
GIG: $\Phi = 50.243^\circ\text{N}$, $\lambda = 18.767^\circ\text{E}$				
H = 05:20:04.6, M = 2.6				
RAC	$\Delta = 44\text{km}$			
	Pg eZ	05	20	14.7
	Sg eE		20	21.8
OJC	$\Delta = 74\text{km}$			
	Pg eZ	05	20	18.2
	Sg eE		20	27.5
NIE	$\Delta = 144\text{km}$			
	Pg eZ	05	20	29.2
	Sg eE		20	47.7
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	05	20	36.5
	Sg eNEZ		20	59.4

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JUL 15

$\Phi = 50.32^{\circ}\text{N}$, $\lambda = 18.94^{\circ}\text{E}$
H = 08:02:53.3, M = 2.4

OJC $\Delta = 62\text{km}$
Pg eZ 08 03 04.2
Sg eN 03 12.6

NIE $\Delta = 140\text{km}$
Pg eZ 08 03 18.6
Sg eE 03 35.5

JUL 16

GIG: $\Phi = 50.252^{\circ}\text{N}$, $\lambda = 18.911^{\circ}\text{E}$
H = 01:12:06.0, M = 2.2

OJC $\Delta = 63\text{km}$
Pg iZ 01 12 18.1
Sg iE 12 26.2

NIE $\Delta = 136\text{km}$
Pg eZ 01 12 29.8
Sg eN 12 46.8

KSP $\Delta = 197\text{km}$
Pg eNEZ 01 12 39.7
Sg eNEZ 13 03.3

JUL 16

GIG: $\Phi = 50.268^{\circ}\text{N}$, $\lambda = 18.860^{\circ}\text{E}$
H = 02:46:08.4, M = 2.5

OJC $\Delta = 67\text{km}$
Pg eZ 02 46 21.0
Sg eN 46 29.6

NIE $\Delta = 140\text{km}$
Pg eZ 02 46 32.5
Sg eE 46 50.3

KSP $\Delta = 193\text{km}$
Pn eZ 02 46 39.6
Pg iNEZ 46 41.6
Sg eNEZ 47 04.4

JUL 17

$\Phi = 50.28^{\circ}\text{N}$, $\lambda = 18.73^{\circ}\text{E}$
H = 02:27:21.5, M = 2.1

RAC $\Delta = 44\text{km}$
Pg eZ 02 27 29.9
Sg eN 27 35.8

OJC $\Delta = 76\text{km}$
Pg eZ 02 27 35.9
Sg eN 27 45.5

NIE $\Delta = 148\text{km}$
Pg eZ 02 27 47.5
Sg eE 28 05.8

KSP $\Delta = 184\text{km}$
Pg eNEZ 02 27 52.6
Sg eNEZ 28 14.1

JUL 19

GIG: $\Phi = 50.364^{\circ}\text{N}$, $\lambda = 18.935^{\circ}\text{E}$
H = 08:15:19.8, M = 2.5

OJC $\Delta = 64\text{km}$
Pg eZ 08 15 32.1
(Sg) eE 15 40.5

NIE $\Delta = 144\text{km}$
Pg eZ 08 15 45.7
Sg eN 16 03.5

KSP $\Delta = 194\text{km}$
Pg eNEZ 08 15 52.1
(Sg) eNEZ 16 16.9

JUL 19

GIG: $\Phi = 50.237^{\circ}\text{N}$, $\lambda = 18.893^{\circ}\text{E}$
H = 17:59:49.2, M = 2.8

RAC $\Delta = 53\text{km}$
Pg eZ 17 59 59.3
Sg eNE 18 00 06.4

OJC $\Delta = 64\text{km}$
Pg iZ 18 00 00.8
Sg iE 00 09.0

KSP $\Delta = 196\text{km}$
Pg eNEZ 18 00 22.0
Sn eNEZ 00 43.0
Sg eNEZ 00 45.5

JUL 20

$\Phi = 50.26^{\circ}\text{N}$, $\lambda = 18.82^{\circ}\text{E}$
H = 02:16:44.0, M = 2.6

OJC $\Delta = 70\text{km}$
Pg eZ 02 16 57.1
Sg eE 17 05.5

KSP $\Delta = 190\text{km}$
Pn eZ 02 17 14.4
Pg eNEZ 17 16.4
Sg eN 17 39.0

KWP $\Delta = 287\text{km}$
Pg eZ 02 17 31.5
Sn eNE 18 03.2

JUL 20

GIG: $\Phi = 50.228^{\circ}\text{N}$, $\lambda = 19.032^{\circ}\text{E}$
H = 08:33:33.6, M = 2.5

OJC $\Delta = 54\text{km}$
Pg iZ 08 33 43.2
Sg iN 33 50.6

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KSP	$\Delta = 206\text{km}$			
Pg	eNEZ	08	34	09.0
Sg	eNEZ	34	33.6	
<u>JUL 21</u>				
GIG:	$\Phi = 50.228^\circ\text{N}$, $\lambda = 19.032^\circ\text{E}$			
	H = 17:07:49.1, M = 2.5			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	17	07	59.1
Sg	eNE	08	06.8	
RAC	$\Delta = 62\text{km}$			
Pg	eZ	17	08	00.6
Sg	eNE	08	09.0	
NIE	$\Delta = 129\text{km}$			
Pg	eZ	17	08	11.4
Sg	eE	08	28.5	
KSP	$\Delta = 205\text{km}$			
Pn	eNEZ	17	08	21.6
Pg	eNEZ	08	23.5	
Sg	eNEZ	08	47.9	
<u>JUL 21</u>				
	$\Phi = 50.20^\circ\text{N}$, $\lambda = 18.96^\circ\text{E}$			
	H = 19:57:50.2, M = 2.0			
OJC	$\Delta = 60\text{km}$			
Pg	eZ	19	58	00.8
Sg	eE	58	09.1	
NIE	$\Delta = 131\text{km}$			
Pg	eZ	19	58	12.9
Sg	eE	58	30.0	
KSP	$\Delta = 202\text{km}$			
Pg	eNEZ	19	58	24.5
Sn	eNEZ	58	46.2	
<u>JUL 22</u>				
GIG:	$\Phi = 50.227^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$			
	H = 13:43:24.2, M = 2.4			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	13	43	34.6
Sg	eN	43	41.6	
NIE	$\Delta = 128\text{km}$			
Pg	eZ	13	43	46.4
Sg	eN	44	02.8	
KSP	$\Delta = 206\text{km}$			
Pg	eNEZ	13	43	58.9
Sg	eNEZ	44	23.2	
<u>JUL 22</u>				
GIG:	$\Phi = 50.363^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$			
	H = 21:52:09.8, M = 2.4			

OJC	$\Delta = 69\text{km}$			
Pg	eZ	21	52	23.1
Sg	eN	52	32.0	
NIE	$\Delta = 148\text{km}$			
Pg	eZ	21	52	35.5
(Sg)	eE	52	53.4	
KSP	$\Delta = 189\text{km}$			
Pg	eNEZ	21	52	41.2
(Sg)	eNEZ	53	03.3	
<u>JUL 23</u>				
GIG:	$\Phi = 50.227^\circ\text{N}$, $\lambda = 19.033^\circ\text{E}$			
	H = 10:05:17.0, M = 2.1			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	10	05	27.0
Sg	eNE	05	34.4	
NIE	$\Delta = 129\text{km}$			
Pg	eZ	10	05	39.6
(Sg)	eE	05	57.2	
KSP	$\Delta = 205\text{km}$			
Pg	eNEZ	10	05	51.2
Sg	eNEZ	06	15.8	
<u>JUL 23</u>				
GIG:	$\Phi = 50.060^\circ\text{N}$, $\lambda = 18.424^\circ\text{E}$			
	H = 18:32:04.4, M = 2.5			
RAC	$\Delta = 17\text{km}$			
Pg	iZ	18	32	08.3 C
Sg	iNE	32	11.2	
OJC	$\Delta = 100\text{km}$			
Pg	eZ	18	32	21.5
Sg	eN	32	34.6	
NIE	$\Delta = 153\text{km}$			
Pg	iZ	18	32	30.4
Sg	eN	32	50.4	
KSP	$\Delta = 175\text{km}$			
Pn	eNEZ	18	32	32.6
Sg	eNEZ	32	54.4	
<u>JUL 23</u>				
GIG:	$\Phi = 50.229^\circ\text{N}$, $\lambda = 19.031^\circ\text{E}$			
	H = 20:14:07.3, M = 2.7			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	20	14	17.4
Sg	eN	14	24.6	
RAC	$\Delta = 62\text{km}$			
Pg	eZ	20	14	18.9
Sg	eNE	14	27.2	

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NIE	$\Delta = 128\text{km}$			
Pg	eZ	20	14	28.8
Sg	eN		14	45.5
KSP	$\Delta = 206\text{km}$			
Pn	eNEZ	20	14	39.9
Pg	iNEZ		14	42.0
Sg	eNEZ		15	06.4
KWP	$\Delta = 271\text{km}$			
Pn	eZ	20	14	48.6
Pg	eZ		14	56.6
GKP	$\Delta = 360\text{km}$			
P	eZ	20	15	15.9
<u>JUL 23</u>				
	$\Phi = 50.08^\circ\text{N}, \lambda = 18.48^\circ\text{E}$			
	H = 20:48:48.8, M = 2.0			
RAC	$\Delta = 21\text{km}$			
Pg	iZ	20	48	52.3 D
Sg	eNE		48	56.2
OJC	$\Delta = 95\text{km}$			
Pg	eZ	20	49	05.2
Sg	eE		49	18.6
KSP	$\Delta = 177\text{km}$			
Pg	eNEZ	20	49	19.2
Sg	eNEZ		49	39.3
<u>JUL 23</u>				
	$\Phi = 50.20^\circ\text{N}, \lambda = 18.90^\circ\text{E}$			
	H = 23:45:46.5, M = 2.2			
OJC	$\Delta = 64\text{km}$			
Pg	eZ	23	45	58.2
Sg	eE		46	06.2
NIE	$\Delta = 134\text{km}$			
Pg	eZ	23	46	09.7
Sg	eE		46	27.5
KSP	$\Delta = 198\text{km}$			
Pg	eNEZ	23	46	20.2
Sg	eNEZ		46	43.3
<u>JUL 27</u>				
GIG:	$\Phi = 50.229^\circ\text{N}, \lambda = 19.031^\circ\text{E}$			
	H = 00:16:19.5, M = 2.2			
OJC	$\Delta = 54\text{km}$			
Pg	iZ	00	16	29.9
Sg	eN		16	36.7
RAC	$\Delta = 63\text{km}$			
Pg	eZ	00	16	31.7
(Sg)	eNE		16	40.3

NIE	$\Delta = 129\text{km}$			
Pg	eZ	00	16	41.7
Sg	eN		16	58.1
KSP	$\Delta = 206\text{km}$			
Pg	eNEZ	00	16	54.5
Sg	eNEZ		17	18.9
<u>JUL 28</u>				
GIG:	$\Phi = 50.229^\circ\text{N}, \lambda = 19.031^\circ\text{E}$			
	H = 07:11:56.4, M = 2.2			
OJC	$\Delta = 55\text{km}$			
Pg	eZ	07	12	06.7
Sg	eE		12	14.0
NIE	$\Delta = 129\text{km}$			
Pg	eZ	07	12	18.7
Sg	eN		12	35.5
KSP	$\Delta = 205\text{km}$			
Pg	eNEZ	07	12	31.1
Sg	eNEZ		12	55.9
<u>JUL 28</u>				
	$\Phi = 50.18^\circ\text{N}, \lambda = 18.84^\circ\text{E}$			
	H = 14:18:47.1, M = 2.5			
RAC	$\Delta = 47\text{km}$			
Pg	eZ	14	18	58.0
Sg	eE		19	05.3
OJC	$\Delta = 69\text{km}$			
Pg	eZ	14	19	00.2
Sg	eE		19	08.2
NIE	$\Delta = 135\text{km}$			
Pg	eZ	14	19	10.8
Sg	eN		19	27.9
KSP	$\Delta = 195\text{km}$			
Pn	eEZ	14	19	17.8
Pg	eNEZ		19	19.8
Sg	eNEZ		19	43.7
<u>JUL 28</u>				
GIG:	$\Phi = 50.202^\circ\text{N}, \lambda = 19.137^\circ\text{E}$			
	H = 20:13:37.8, M = 2.5			
OJC	$\Delta = 48\text{km}$			
Pg	eZ	20	13	47.1
Sg	eN		13	53.1
RAC	$\Delta = 68\text{km}$			
Pg	eZ	20	13	49.9
(Sg)	eNE		13	58.2
NIE	$\Delta = 122\text{km}$			
Pg	eZ	20	13	59.8
(Sg)	eE		14	15.5

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KSP	$\Delta = 213\text{km}$				
Pn	eNEZ	20	14	11.6	
Pg	eNEZ		14	13.9	
Sg	eNEZ		14	39.5	
JUL 29					
GIG: $\Phi = 50.244^\circ\text{N}$, $\lambda = 18.983^\circ\text{E}$					
H = 01:44:34.5, M = 2.4					
OJC	$\Delta = 58\text{km}$				
Pg	eZ	01	44	45.2	
Sg	eE		44	52.8	
RAC	$\Delta = 60\text{km}$				
Pg	eZ	01	44	45.7	
Sg	eN		44	53.3	
KSP	$\Delta = 202\text{km}$				
Pg	eEZ	01	45	09.1	
Sn	eNEZ		45	30.2	
Sg	eNEZ		45	32.8	
JUL 29					
$\Phi = 50.09^\circ\text{N}$, $\lambda = 18.48^\circ\text{E}$					
H = 03:35:52.6, M = 2.1					
RAC	$\Delta = 21\text{km}$				
Pg	iZ	03	35	56.5	D
Sg	eNE		35	59.6	
OJC	$\Delta = 95\text{km}$				
Pg	eZ	03	36	09.2	
Sg	eN		36	22.0	
NIE	$\Delta = 152\text{km}$				
Pg	eZ	03	36	19.4	
Sg	eE		36	38.5	
KSP	$\Delta = 176\text{km}$				
Pn	eNEZ	03	36	20.5	
Sg	eNEZ		36	43.4	
JUL 29					
GIG: $\Phi = 50.053^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$					
H = 23:47:45.4, M = 2.3					
RAC	$\Delta = 18\text{km}$				
Pg	eZ	23	47	49.7	
Sg	eNE		47	52.9	
OJC	$\Delta = 98\text{km}$				
Pg	eZ	23	48	02.4	
Sg	eN		48	14.7	
KSP	$\Delta = 176\text{km}$				
Pg	eNEZ	23	48	14.6	
Sg	eNEZ		48	36.8	
JUL 30					
$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$					
H = 19:11:17.7, M = 2.6					

OJC	$\Delta = 67\text{km}$				
Pg	eZ	19	11	30.1	
Sg	eN		11	38.5	
KSP	$\Delta = 192\text{km}$				
Pg	eNEZ	19	11	50.5	
Sg	eNEZ		12	13.1	
AUG 2					
GIG: $\Phi = 50.054^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$					
H = 22:35:56.2, M = 2.3					
RAC	$\Delta = 18\text{km}$				
Pg	eZ	22	36	00.2	
Sg	eNE		36	03.6	
OJC	$\Delta = 98\text{km}$				
Pg	eZ	22	36	12.8	
Sg	eN		36	25.3	
NIE	$\Delta = 152\text{km}$				
Pg	eZ	22	36	22.9	
(Sg)	eE		36	41.0	
KSP	$\Delta = 176\text{km}$				
Pn	eZ	22	36	24.1	
Sg	eN		36	46.5	
AUG 3					
GIG: $\Phi = 50.049^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$					
H = 10:49:48.8, M = 2.1					
RAC	$\Delta = 18\text{km}$				
Pg	eZ	10	49	52.4	
Sg	eNE		49	55.6	
OJC	$\Delta = 98\text{km}$				
Pg	eZ	10	50	05.5	
(Sg)	eN		50	17.5	
NIE	$\Delta = 152\text{km}$				
Pg	eZ	10	50	15.5	
Sg	eE		50	35.0	
AUG 3					
GIG: $\Phi = 50.247^\circ\text{N}$, $\lambda = 18.980^\circ\text{E}$					
H = 21:41:24.5, M = 2.4					
RAC	$\Delta = 58\text{km}$				
Pg	eZ	21	41	35.5	
Sg	eN		41	42.8	
OJC	$\Delta = 58\text{km}$				
Pg	eZ	21	41	35.5	
Sg	eN		41	43.3	
NIE	$\Delta = 132\text{km}$				
Pg	eZ	21	41	47.4	
Sg	eE		42	04.5	

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KSP $\Delta = 202\text{km}$
Pg eZ 21 41 58.9
Sg eNEZ 42 22.8

AUG 4

**GIG: $\Phi = 50.203^\circ\text{N}$, $\lambda = 19.136^\circ\text{E}$
 $H = 03:32:55.6$, $M = 2.6$**

OJC $\Delta = 48\text{km}$
Pg eZ 03 33 04.8
Sg iN 33 11.1

RAC $\Delta = 68\text{km}$
Pg eZ 03 33 08.4
Sg eNE 33 17.3

NIE $\Delta = 122\text{km}$
Pg eZ 03 33 16.8
Sg eN 33 32.4

KSP $\Delta = 213\text{km}$
Pn eNEZ 03 33 28.9
Pg eNEZ 33 31.5
(Sg) eNEZ 33 56.1

KWP $\Delta = 263\text{km}$
P eZ 03 33 40.5
Sg eNE 34 13.7

AUG 4

**$\Phi = 50.32^\circ\text{N}$, $\lambda = 18.88^\circ\text{E}$
 $H = 19:00:08.2$, $M = 2.5$**

OJC $\Delta = 66\text{km}$
Pg eZ 19 00 20.3
Sg eE 00 28.7

NIE $\Delta = 144\text{km}$
Pg eZ 19 00 33.3
Sg eN 00 52.2

KSP $\Delta = 192\text{km}$
Pg eNEZ 19 00 40.1
(Sg) eNEZ 01 04.7

AUG 5

**GIG: $\Phi = 50.216^\circ\text{N}$, $\lambda = 19.082^\circ\text{E}$
 $H = 00:56:35.1$, $M = 2.6$**

OJC $\Delta = 51\text{km}$
Pg eZ 00 56 44.8
Sg eN 56 51.4

RAC $\Delta = 65\text{km}$
Pg eZ 00 56 47.7
(Sg) eNE 56 56.4

NIE $\Delta = 125\text{km}$
Pg eZ 00 56 56.6
Sg eE 57 12.3

KSP $\Delta = 210\text{km}$
Pg eNEZ 00 57 10.7
Sg eNEZ 57 35.7

KWP $\Delta = 267\text{km}$
Pg eZ 00 57 24.0
S eNE 58 00.4

GKP $\Delta = 362\text{km}$
Pn eZ 00 57 28.4

AUG 6

**GIG: $\Phi = 50.252^\circ\text{N}$, $\lambda = 18.911^\circ\text{E}$
 $H = 05:17:58.9$, $M = 2.1$**

OJC $\Delta = 64\text{km}$
Pg eZ 05 18 10.9
Sg eE 18 19.3

NIE $\Delta = 137\text{km}$
Pg eZ 05 18 22.7
Sg eN 18 39.4

KSP $\Delta = 197\text{km}$
Pg eZ 05 18 32.0
Sg eN 18 55.9

AUG 10

**GIG: $\Phi = 50.232^\circ\text{N}$, $\lambda = 19.078^\circ\text{E}$
 $H = 00:14:06.5$, $M = 2.2$**

OJC $\Delta = 52\text{km}$
Pg eZ 00 14 16.4
(Sg) eNE 14 23.5

NIE $\Delta = 127\text{km}$
Pg eZ 00 14 28.4
Sg eN 14 44.6

KSP $\Delta = 208\text{km}$
Pg eNEZ 00 14 41.4
Sg eNEZ 15 06.3

AUG 10

**$\Phi = 50.23^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$
 $H = 02:31:18.9$, $M = 2.1$**

OJC $\Delta = 66\text{km}$
Pg eZ 02 31 31.1
Sg eE 31 39.6

NIE $\Delta = 138\text{km}$
Pg eZ 02 31 42.6
(Sg) eE 32 01.6

KSP $\Delta = 194\text{km}$
Pg eNEZ 02 31 51.9
Sg eNEZ 32 15.1

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AUG 10

GIG: $\Phi = 50.259^\circ\text{N}$, $\lambda = 18.884^\circ\text{E}$
H = 09:46:14.9, M = 3.1

RAC	$\Delta = 54\text{km}$		
Pg eZ		09 46 25.0	
Sg eNE		46 32.2	
OJC	$\Delta = 65\text{km}$		
Pg iZ		09 46 26.8	C
Sg iN		46 35.1	
NIE	$\Delta = 139\text{km}$		
Pg eZ		09 46 38.1	
Sg eN		46 56.9	
KSP	$\Delta = 195\text{km}$		
Pn eEZ		09 46 46.1	
Pg iNEZ		46 47.8	
Sg eNEZ		47 10.7	
KWP	$\Delta = 282\text{km}$		
Pn eZ		09 47 02.4	
Pg eZ		47 05.2	
Sn eNE		47 30.8	
Sg eNE		47 42.6	
GKP	$\Delta = 353\text{km}$		
Pg eZ		09 47 11.7	
Sg eNE		47 59.2	

AUG 12

$\Phi = 50.20^\circ\text{N}$, $\lambda = 18.85^\circ\text{E}$
H = 02:14:45.9, M = 2.1

OJC	$\Delta = 68\text{km}$		
Pg eZ		02 14 58.5	
Sg eN		15 06.8	
NIE	$\Delta = 136\text{km}$		
Pg eZ		02 15 09.7	
Sg eE		15 27.5	
KSP	$\Delta = 195\text{km}$		
Pg eNEZ		02 15 19.0	
Sg eNEZ		15 42.3	

AUG 12

$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.87^\circ\text{E}$
H = 05:25:01.3, M = 2.5

OJC	$\Delta = 67\text{km}$		
Pg iZ		05 25 12.9	
Sg iN		25 22.6	
NIE	$\Delta = 141\text{km}$		
Pg eZ		05 25 25.8	
Sg eE		25 44.0	

KSP	$\Delta = 193\text{km}$		
Pg eNEZ		05 25 34.0	
Sg eNEZ		25 57.5	

AUG 12

GIG: $\Phi = 49.957^\circ\text{N}$, $\lambda = 18.561^\circ\text{E}$
H = 06:00:43.0, M = 2.7

RAC	$\Delta = 30\text{km}$		
Pg eZ		06 00 49.4	
Sg eE		00 54.3	
OJC	$\Delta = 93\text{km}$		
Pg eZ		06 00 58.9	
Sg eN		01 10.4	
NIE	$\Delta = 140\text{km}$		
Pg eZ		06 01 06.6	
Sg iE		01 25.4	
KSP	$\Delta = 189\text{km}$		
Pn eNEZ		06 01 13.2	
Pg eNEZ		01 15.9	
Sg eNEZ		01 37.8	

AUG 15

GIG: $\Phi = 50.204^\circ\text{N}$, $\lambda = 19.142^\circ\text{E}$
H = 21:59:02.0, M = 2.6

OJC	$\Delta = 47\text{km}$		
Pg eZ		21 59 10.9	
Sg eN		59 17.2	
RAC	$\Delta = 69\text{km}$		
Pg eZ		21 59 14.9	
Sg eE		59 24.3	
NIE	$\Delta = 122\text{km}$		
Pg eZ		21 59 22.5	
Sg eN		59 38.4	
KSP	$\Delta = 214\text{km}$		
Pn eEZ		21 59 35.1	
Pg eNEZ		59 37.7	
(Sg) eNEZ		22 00 02.6	

AUG 16

GIG: $\Phi = 50.055^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$
H = 09:23:36.9, M = 2.5

RAC	$\Delta = 18\text{km}$		
Pg eZ		09 23 41.5	
Sg eNE		23 44.5	
OJC	$\Delta = 98\text{km}$		
Pg eZ		09 23 54.3	
Sg eN		24 06.4	
NIE	$\Delta = 152\text{km}$		
Pg eZ		09 24 02.7	
Sg eE		24 23.1	

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KSP	$\Delta = 176\text{km}$ Pn eNEZ 09 24 05.6 Sg eNEZ 24 27.3
AUG 18	
GIG: $\Phi = 50.234^\circ\text{N}$, $\lambda = 19.075^\circ\text{E}$ $H = 09:45:32.6$, $M = 2.4$	
OJC	$\Delta = 52\text{km}$ Pg eZ 09 45 42.3 Sg eE 45 49.2
NIE	$\Delta = 127\text{km}$ Pg eZ 09 45 54.9 Sg eE 46 11.0
KSP	$\Delta = 208\text{km}$ Pg eNEZ 09 46 07.3 Sg eNEZ 46 33.0
AUG 19	
GIG: $\Phi = 50.200^\circ\text{N}$, $\lambda = 19.133^\circ\text{E}$ $H = 10:59:26.1$, $M = 2.5$	
OJC	$\Delta = 47\text{km}$ Pg eZ 10 59 34.9 Sg iN 59 41.3
NIE	$\Delta = 121\text{km}$ Pg eZ 10 59 46.8 Sg eN 11 00 02.4
KSP	$\Delta = 214\text{km}$ Pn eEZ 11 00 00.5 Pg eNEZ 00 03.0 (Sn) eNEZ 00 24.2 (Sg) eNEZ 00 27.2
AUG 20	
GIG: $\Phi = 50.060^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$ $H = 22:15:56.8$, $M = 2.5$	
RAC	$\Delta = 19\text{km}$ Pg iZ 22 16 01.2 C Sg eNE 16 04.3
OJC	$\Delta = 98\text{km}$ Pg eZ 22 16 13.7 Sg eN 16 27.0
NIE	$\Delta = 152\text{km}$ Pg eZ 22 16 22.1 Sg eE 16 42.0
KSP	$\Delta = 176\text{km}$ Pn eE 22 16 25.4 Pg eNEZ 16 27.1 Sn eNEZ 16 46.9 (Sg) eNEZ 16 48.8

AUG 21	
$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.92^\circ\text{E}$ $H = 18:45:29.1$, $M = 2.4$	
OJC	$\Delta = 64\text{km}$ Pg eZ 18 45 40.8 Sg eE 45 48.6
NIE	$\Delta = 139\text{km}$ Pg eZ 18 45 53.9 Sg eN 46 10.5
KSP	$\Delta = 196\text{km}$ Pg eNEZ 18 46 02.8 (Sg) eNEZ 46 24.7
AUG 22	
GIG: $\Phi = 50.241^\circ\text{N}$, $\lambda = 18.922^\circ\text{E}$ $H = 09:51:12.0$, $M = 2.1$	
OJC	$\Delta = 63\text{km}$ Pg eZ 09 51 24.0 (Sg) eE 51 32.3
NIE	$\Delta = 135\text{km}$ Pg eZ 09 51 35.3 Sg eE 51 53.0
KSP	$\Delta = 198\text{km}$ Pg eNEZ 09 51 46.1 Sg eNEZ 52 09.7
AUG 24	
GIG: $\Phi = 49.957^\circ\text{N}$, $\lambda = 18.564^\circ\text{E}$ $H = 07:25:41.6$, $M = 2.0$	
RAC	$\Delta = 30\text{km}$ Pg eZ 07 25 47.7 Sg eNE 25 51.9
OJC	$\Delta = 93\text{km}$ Pg eZ 07 25 57.4 Sg eE 26 09.7
NIE	$\Delta = 140\text{km}$ Pg eZ 07 26 07.0 (Sg) eE 26 24.7
AUG 24	
GIG: $\Phi = 50.062^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$ $H = 23:17:39.3$, $M = 2.4$	
RAC	$\Delta = 18\text{km}$ Pg iZ 23 17 43.7 D Sg eN 17 46.7
OJC	$\Delta = 98\text{km}$ Pg eZ 23 17 56.3 Sg eN 18 08.7

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NIE	$\Delta = 152\text{km}$			
Pg eZ		23	18	04.9
Sg eN			18	25.4
KSP	$\Delta = 176\text{km}$			
Pn eNEZ		23	18	07.9
Sg eNEZ			18	29.4
<u>AUG 25</u>				
GIG: $\Phi = 50.271^\circ\text{N}$, $\lambda = 18.860^\circ\text{E}$				
H = 04:53:04.7, M = 2.5				
OJC	$\Delta = 67\text{km}$			
Pg eZ		04	53	17.4
Sg eN			53	25.5
NIE	$\Delta = 141\text{km}$			
Pg eZ		04	53	28.2
Sg eE			53	46.5
KSP	$\Delta = 193\text{km}$			
Pg eNEZ		04	53	37.6
Sg eNEZ			54	00.5
<u>AUG 25</u>				
GIG: $\Phi = 50.063^\circ\text{N}$, $\lambda = 18.424^\circ\text{E}$				
H = 20:56:09.4, M = 2.7				
RAC	$\Delta = 17\text{km}$			
Pg iZ		20	56	13.5 C
Sg eN			56	16.2
OJC	$\Delta = 100\text{km}$			
Pg eZ		20	56	26.5
Sg eE			56	39.5
NIE	$\Delta = 154\text{km}$			
Pg iZ		20	56	35.1
Sg iN			56	55.2
KSP	$\Delta = 175\text{km}$			
Pn eNEZ		20	56	37.6
Sg eNEZ			56	59.9
KWP	$\Delta = 310\text{km}$			
Pg eZ		20	57	02.9
<u>AUG 26</u>				
$\Phi = 50.20^\circ\text{N}$, $\lambda = 18.90^\circ\text{E}$				
H = 15:39:14.4, M = 2.1				
OJC	$\Delta = 65\text{km}$			
Pg eZ		15	39	26.6
Sg eE			39	34.3
NIE	$\Delta = 134\text{km}$			
Pg eZ		15	39	37.9
Sg eE			39	55.0
KSP	$\Delta = 198\text{km}$			
Pg eNEZ		15	39	47.6

KSP	Sg eNEZ	15	40	11.2
<u>AUG 26</u>				
GIG: $\Phi = 50.203^\circ\text{N}$, $\lambda = 19.136^\circ\text{E}$				
H = 22:54:57.9, M = 2.5				
OJC	$\Delta = 47\text{km}$			
Pg eZ		22	55	07.3
(Sg) iN			55	13.7
RAC	$\Delta = 69\text{km}$			
Pg eZ		22	55	11.2
Sg eN			55	19.8
NIE	$\Delta = 122\text{km}$			
Pg eZ		22	55	18.8
Sg eN			55	34.8
KSP	$\Delta = 213\text{km}$			
Pn eEZ		22	55	31.0
Pg eNEZ			55	33.6
Sg eNEZ			55	59.3
KWP	$\Delta = 263\text{km}$			
Pg eZ		22	55	46.5
GKP	$\Delta = 365\text{km}$			
Pg eZ		22	55	52.4
<u>AUG 27</u>				
GIG: $\Phi = 50.257^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$				
H = 07:23:25.3, M = 2.7				
RAC	$\Delta = 53\text{km}$			
Pg eZ		07	23	35.7
(Sg) eN			23	42.7
OJC	$\Delta = 65\text{km}$			
Pg eZ		07	23	37.2
Sg iEN			23	45.3
NIE	$\Delta = 138\text{km}$			
Pg eZ		07	23	48.3
Sg iE			24	06.2
KSP	$\Delta = 195\text{km}$			
Pg eNEZ		07	23	57.9
(Sg) eNEZ			24	20.6
<u>AUG 28</u>				
GIG: $\Phi = 50.049^\circ\text{N}$, $\lambda = 18.448^\circ\text{E}$				
H = 09:55:05.1, M = 2.3				
RAC	$\Delta = 19\text{km}$			
Pg iZ		09	55	09.5 D
Sg eNE			55	12.6
OJC	$\Delta = 98\text{km}$			
Pg eZ		09	55	22.1
Sg eE			55	34.5

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NIE	$\Delta = 152\text{km}$			
Pg	eZ	09	55	31.3
Sg	eE		55	50.2
KSP	$\Delta = 176\text{km}$			
Pn	eEZ	09	55	32.9
Pg	eNEZ		55	35.2
Sg	eNEZ		55	56.1
<u>AUG 29</u>				
GIG:	$\Phi = 50.081^\circ\text{N}$, $\lambda = 18.433^\circ\text{E}$			
	H = 01:14:29.2, M = 2.6			
RAC	$\Delta = 17\text{km}$			
Pg	iZ	01	14	33.6 D
Sg	eNE		14	36.5
OJC	$\Delta = 99\text{km}$			
Pg	eZ	01	14	46.4
Sg	eN		14	59.5
NIE	$\Delta = 154\text{km}$			
Pg	eZ	01	14	54.9
Sg	eN		15	15.2
KSP	$\Delta = 174\text{km}$			
Pn	eNEZ	01	14	57.6
Sg	eNEZ		15	19.6
<u>AUG 30</u>				
GIG:	$\Phi = 50.061^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$			
	H = 00:41:55.6, M = 2.4			
RAC	$\Delta = 18\text{km}$			
Pg	iZ	00	42	00.1 D
Sg	eNE		42	03.1
OJC	$\Delta = 98\text{km}$			
Pg	eZ	00	42	12.7
Sg	eN		42	25.6
NIE	$\Delta = 152\text{km}$			
Pg	eZ	00	42	21.1
Sg	eE		42	41.6
KSP	$\Delta = 176\text{km}$			
Pg	eEZ	00	42	24.9
Sg	eNEZ		42	46.4
<u>SEP 2</u>				
GIG:	$\Phi = 50.201^\circ\text{N}$, $\lambda = 19.133^\circ\text{E}$			
	H = 11:26:02.1, M = 2.5			
OJC	$\Delta = 48\text{km}$			
Pg	eZ	11	26	10.8
Sg	eN		26	17.2
NIE	$\Delta = 122\text{km}$			
Pg	eZ	11	26	22.8
Sg	eE		26	39.5

KSP	$\Delta = 213\text{km}$			
Pg	eNEZ	11	26	37.7
(Sg)	eNEZ		27	02.5
<u>SEP 3</u>				
	$\Phi = 50.02^\circ\text{N}$, $\lambda = 18.44^\circ\text{E}$			
	H = 01:03:25.8, M = 1.9			
RAC	$\Delta = 19\text{km}$			
Pg	eZ	01	03	30.2
Sg	eNE		03	33.5
OJC	$\Delta = 99\text{km}$			
Pg	eZ	01	03	43.1
Sg	eN		03	55.8
NIE	$\Delta = 150\text{km}$			
Pg	eZ	01	03	51.1
Sg	eN		04	10.8
<u>SEP 3</u>				
GIG:	$\Phi = 50.252^\circ\text{N}$, $\lambda = 18.915^\circ\text{E}$			
	H = 20:21:15.7, M = 2.6			
RAC	$\Delta = 55\text{km}$			
Pg	eZ	20	21	26.1
Sg	eN		21	33.5
OJC	$\Delta = 63\text{km}$			
Pg	eZ	20	21	27.6
Sg	iE		21	35.8
NIE	$\Delta = 136\text{km}$			
Pg	eZ	20	21	39.0
Sg	eZ		21	56.2
KSP	$\Delta = 197\text{km}$			
Pn	eZ	20	21	47.6
Pg	eNEZ		21	49.4
Sg	eNEZ		22	12.4
<u>SEP 3</u>				
GIG:	$\Phi = 50.242^\circ\text{N}$, $\lambda = 18.971^\circ\text{E}$			
	H = 22:17:22.4, M = 2.2			
OJC	$\Delta = 59\text{km}$			
Pg	eZ	22	17	33.1
Sg	iE		17	41.0
NIE	$\Delta = 133\text{km}$			
Pg	eZ	22	17	44.5
(Sg)	eE		18	01.4
KSP	$\Delta = 201\text{km}$			
Pg	eNEZ	22	17	56.0
Sg	eNEZ		18	21.3
<u>SEP 3</u>				
GIG:	$\Phi = 50.218^\circ\text{N}$, $\lambda = 18.734^\circ\text{E}$			
	H = 23:22:52.1, M = 2.1			

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OJC	$\Delta = 76\text{km}$			
Pg	eZ	23	23	06.3
Sg	eN		23	15.9
NIE	$\Delta = 144\text{km}$			
Pg	eZ	23	23	16.3
Sg	eE		23	35.3
KSP	$\Delta = 186\text{km}$			
Pg	eNEZ	23	23	23.9
Sg	eNEZ		23	45.5
<u>SEP 6</u>				
GIG: $\Phi = 50.352^\circ\text{N}$, $\lambda = 18.882^\circ\text{E}$				
H = 08:41:54.0, M = 2.3				
OJC	$\Delta = 67\text{km}$			
Pg	eZ	08	42	06.8
Sg	eN		42	14.3
NIE	$\Delta = 146\text{km}$			
Pg	eZ	08	42	20.0
Sg	eE		42	38.4
KSP	$\Delta = 191\text{km}$			
Pn	eNEZ	08	42	24.6
Sn	eNEZ		42	47.3
<u>SEP 6</u>				
$\Phi = 50.27^\circ\text{N}$, $\lambda = 19.00^\circ\text{E}$				
H = 15:28:29.6, M = 2.4				
OJC	$\Delta = 57\text{km}$			
Pg	eZ	15	28	39.5
Sg	eE		28	48.0
NIE	$\Delta = 134\text{km}$			
Pg	eZ	15	28	52.6
Sg	eE		29	10.0
KSP	$\Delta = 202\text{km}$			
Pg	eNEZ	15	29	04.4
Sn	eNEZ		29	25.3
<u>SEP 6</u>				
GIG: $\Phi = 50.051^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$				
H = 19:30:28.2, M = 2.2				
RAC	$\Delta = 18\text{km}$			
Pg	eZ	19	30	32.1
Sg	eNE		30	35.3
OJC	$\Delta = 98\text{km}$			
Pg	eZ	19	30	45.3
Sg	eN		30	58.4
NIE	$\Delta = 152\text{km}$			
Pg	eZ	19	30	55.4
Sg	eE		31	14.5

KSP	$\Delta = 176\text{km}$			
Pn	eNEZ	19	30	56.0
Sn	eNEZ		31	18.2
<u>SEP 8</u>				
GIG: $\Phi = 50.055^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$				
H = 06:08:05.0, M = 2.6				
RAC	$\Delta = 18\text{km}$			
Pg	eZ	06	08	09.0
Sg	eNE		08	12.7
OJC	$\Delta = 98\text{km}$			
Pg	eZ	06	08	22.0
Sg	eNE		08	34.6
NIE	$\Delta = 152\text{km}$			
Pg	eZ	06	08	30.6
Sg	eN		08	50.0
KSP	$\Delta = 176\text{km}$			
Pn	eZ	06	08	33.9
Sg	eNEZ		08	55.2
KWP	$\Delta = 309\text{km}$			
Pn	eZ	06	09	00.0
Sg	eNE		10	34.8
<u>SEP 8</u>				
$\Phi = 50.09^\circ\text{N}$, $\lambda = 18.46^\circ\text{E}$				
H = 16:02:47.1, M = 2.1				
RAC	$\Delta = 19\text{km}$			
Pg	eZ	16	02	51.1
Sg	eNE		02	54.8
OJC	$\Delta = 97\text{km}$			
Pg	eZ	16	03	03.8
Sg	eN		03	16.3
NIE	$\Delta = 154\text{km}$			
Pg	eZ	16	03	13.6
Sg	eE		03	33.5
<u>SEP 8</u>				
GIG: $\Phi = 50.238^\circ\text{N}$, $\lambda = 18.922^\circ\text{E}$				
H = 21:35:44.5, M = 2.6				
OJC	$\Delta = 63\text{km}$			
Pg	eZ	21	35	56.4
Sg	eE		36	04.5
NIE	$\Delta = 135\text{km}$			
Pg	eZ	21	36	08.0
Sg	eE		36	25.3
KSP	$\Delta = 198\text{km}$			
Pg	eNEZ	21	36	18.3
Sg	eNEZ		36	41.5

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SEP 9

GIG: $\Phi = 50.056^{\circ}\text{N}$, $\lambda = 18.446^{\circ}\text{E}$
H = 01:33:26.6, M = 3.1

RAC $\Delta = 18\text{km}$
Pg iZ 01 33 31.0 D
Sg eNE 33 34.3

OJC $\Delta = 98\text{km}$
Pg iZ 01 33 43.4 D
Sg iE 33 56.6

NIE $\Delta = 152\text{km}$
Pg iZ 01 33 52.0
Sg iN 34 11.9

KSP $\Delta = 176\text{km}$
Pn eNEZ 01 33 54.9
Pg iNEZ 33 57.2
Sn eNEZ 34 16.3

SEP 9

GIG: $\Phi = 50.062^{\circ}\text{N}$, $\lambda = 18.421^{\circ}\text{E}$
H = 13:04:53.0, M = 2.2

RAC $\Delta = 16\text{km}$
Pg eZ 13 04 57.0
Sg eNE 05 00.1

OJC $\Delta = 100\text{km}$
Pg eZ 13 05 10.6
Sg eN 05 23.7

NIE $\Delta = 154\text{km}$
Pg eZ 13 05 18.8
Sg eN 05 38.7

KSP $\Delta = 174\text{km}$
Pn eNEZ 13 05 20.5
Sg eNEZ 05 43.2

SEP 9

GIG: $\Phi = 50.255^{\circ}\text{N}$, $\lambda = 18.893^{\circ}\text{E}$
H = 18:30:13.9, M = 2.9

RAC $\Delta = 53\text{km}$
Pg eZ 18 30 24.3
Sg eNE 30 31.2

OJC $\Delta = 65\text{km}$
Pg eZ 18 30 26.3
Sg iE 30 34.4

NIE $\Delta = 138\text{km}$
Pg eZ 18 30 37.1
Sg eE 30 54.7

KSP $\Delta = 195\text{km}$
(Pn) eNEZ 18 30 43.8
Pg iNEZ 30 47.2
Sn eNEZ 31 08.9

KWP $\Delta = 281\text{km}$
P eZ 18 31 02.6

SEP 9

GIG: $\Phi = 50.23^{\circ}\text{N}$, $\lambda = 18.88^{\circ}\text{E}$
H = 18:37:50.7, M = 2.7

RAC $\Delta = 52\text{km}$
Pg eZ 18 38 01.2
Sg eNE 38 07.7

OJC $\Delta = 65\text{km}$
Pg iZ 18 38 02.9 D
Sg iN 38 10.5

NIE $\Delta = 136\text{km}$
Pg eZ 18 38 13.7
Sg eE 38 32.2

KSP $\Delta = 196\text{km}$
Pn eZ 18 38 21.8
Pg iNEZ 38 23.9
Sg eNEZ 38 46.8

SEP 10

GIG: $\Phi = 50.264^{\circ}\text{N}$, $\lambda = 18.780^{\circ}\text{E}$
H = 16:16:02.8, M = 2.2

OJC $\Delta = 73\text{km}$
Pg eZ 16 16 16.3
Sg eN 16 25.1

NIE $\Delta = 145\text{km}$
Pg eZ 16 16 28.1
Sg eE 16 47.1

KSP $\Delta = 187\text{km}$
Pg eNEZ 16 16 34.2
Sg eNEZ 16 57.3

SEP 11

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.907^{\circ}\text{E}$
H = 01:02:23.8, M = 2.5

OJC $\Delta = 64\text{km}$
Pg eZ 01 02 35.9
Sg eE 02 44.2

NIE $\Delta = 137\text{km}$
Pg eZ 01 02 46.9
Sg eE 03 04.6

KSP $\Delta = 196\text{km}$
Pg eNEZ 01 02 57.4
Sg eNEZ 03 21.1

SEP 11

GIG: $\Phi = 50.20^{\circ}\text{N}$, $\lambda = 18.89^{\circ}\text{E}$
H = 03:07:57.3, M = 2.2

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OJC	$\Delta = 65\text{km}$			
	Pg eZ	03	08	09.2
	Sg eE		08	17.5
NIE	$\Delta = 135\text{km}$			
	Pg eZ	03	08	20.5
	Sg eE		08	37.7
KSP	$\Delta = 197\text{km}$			
	Pg eNEZ	03	08	30.8
	Sg eNEZ		08	54.2
<u>SEP 13</u>				
GIG: $\Phi = 50.201^\circ\text{N}$, $\lambda = 19.133^\circ\text{E}$				
H = 08:02:58.7, M = 2.4				
OJC	$\Delta = 47\text{km}$			
	Pg eZ	08	03	07.1
	Sg eN		03	13.4
NIE	$\Delta = 122\text{km}$			
	Pg eZ	08	03	20.2
	Sg eN		03	36.0
KSP	$\Delta = 213\text{km}$			
	Pg eNEZ	08	03	35.0
	Sg eNEZ		03	59.5
<u>SEP 14</u>				
GIG: $\Phi = 50.051^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$				
H = 14:34:26.5, M = 2.3				
RAC	$\Delta = 19\text{km}$			
	Pg eZ	14	34	30.2
	Sg eNE		34	33.5
OJC	$\Delta = 98\text{km}$			
	Pg eZ	14	34	43.0
	Sg eN		34	56.1
NIE	$\Delta = 151\text{km}$			
	Pg eZ	14	34	51.8
	(Sg) eE		35	10.9
KSP	$\Delta = 177\text{km}$			
	Pn eNEZ	14	34	54.2
	(Sg) eNEZ		35	18.7
<u>SEP 17</u>				
GIG: $\Phi = 50.049^\circ\text{N}$, $\lambda = 18.450^\circ\text{E}$				
H = 22:18:36.6, M = 2.4				
RAC	$\Delta = 19\text{km}$			
	Pg eZ	22	18	41.4
	Sg eNE		18	44.8
OJC	$\Delta = 98\text{km}$			
	Pg eZ	22	18	54.0
	Sg eN		19	06.4

NIE	$\Delta = 151\text{km}$			
	Pg eZ	22	19	01.8
	Sg eN		19	22.7
KSP	$\Delta = 177\text{km}$			
	Pg eNEZ	22	19	06.2
	(Sg) eNEZ		19	28.5
<u>SEP 18</u>				
GIG: $\Phi = 50.366^\circ\text{N}$, $\lambda = 18.879^\circ\text{E}$				
H = 20:36:01.1, M = 2.4				
OJC	$\Delta = 67\text{km}$			
	Pg eZ	20	36	13.9
	Sg eN		36	22.5
NIE	$\Delta = 147\text{km}$			
	Pg eZ	20	36	25.5
	(Sg) eE		36	44.5
KSP	$\Delta = 191\text{km}$			
	Pg eNEZ	20	36	34.2
	(Sg) eNEZ		36	57.2
<u>SEP 20</u>				
GIG: $\Phi = 50.255^\circ\text{N}$, $\lambda = 18.915^\circ\text{E}$				
H = 17:24:36.2, M = 2.9				
RAC	$\Delta = 55\text{km}$			
	Pg eZ	17	24	47.1
	Sg eNE		24	54.7
OJC	$\Delta = 63\text{km}$			
	Pg iZ	17	24	48.0 D
	Sg iE		24	56.2
NIE	$\Delta = 136\text{km}$			
	Pg eZ	17	24	59.0
	Sg eN		25	16.7
KSP	$\Delta = 197\text{km}$			
	(Pn) eNEZ	17	25	08.8
	Pg iNEZ		25	09.9
	Sg eNEZ		25	33.0
KWP	$\Delta = 280\text{km}$			
	Pg eZ	17	25	26.2
<u>SEP 20</u>				
GIG: $\Phi = 50.255^\circ\text{N}$, $\lambda = 18.916^\circ\text{E}$				
H = 17:26:39.0, M = 2.8				
RAC	$\Delta = 55\text{km}$			
	Pg eZ	17	26	50.4
	Sg eNE		26	57.7
OJC	$\Delta = 63\text{km}$			
	Pg iZ	17	26	50.8 D
	Sg iE		26	59.1

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NIE	$\Delta = 136\text{km}$			
Pg eZ		17	27	02.1
Sg eE			27	19.5
KSP	$\Delta = 197\text{km}$			
Pg eNEZ		17	27	12.7
Sg eNEZ			27	35.9
KWP	$\Delta = 280\text{km}$			
Pg eZ		17	27	29.0
<u>SEP 21</u>				
GIG: $\Phi = 50.038^\circ\text{N}$, $\lambda = 18.467^\circ\text{E}$				
H = 17:44:08.9, M = 2.2				
RAC	$\Delta = 20\text{km}$			
Pg eZ		17	44	13.1
Sg eNE			44	16.2
OJC	$\Delta = 97\text{km}$			
Pg eZ		17	44	25.6
Sg eN			44	39.5
KSP	$\Delta = 178\text{km}$			
Pn eNEZ		17	44	37.5
Sn eNEZ			44	58.5
<u>SEP 21</u>				
GIG: $\Phi = 50.202^\circ\text{N}$, $\lambda = 19.133^\circ\text{E}$				
H = 22:56:04.1, M = 2.8				
OJC	$\Delta = 48\text{km}$			
Pg eZ		22	56	13.1
Sg iN			56	19.5
NIE	$\Delta = 121\text{km}$			
Pg eZ		22	56	24.5
Sg eE			56	40.3
KSP	$\Delta = 214\text{km}$			
Pg eNEZ		22	56	41.0
Sg eNEZ			57	05.0
<u>SEP 22</u>				
GIG: $\Phi = 50.229^\circ\text{N}$, $\lambda = 19.032^\circ\text{E}$				
H = 01:42:56.9, M = 2.3				
OJC	$\Delta = 55\text{km}$			
Pg eZ		01	43	06.9
(Sg) eN			43	15.1
NIE	$\Delta = 129\text{km}$			
Pg eZ		01	43	18.9
Sg eN			43	35.7
KSP	$\Delta = 205\text{km}$			
Pn eNEZ		01	43	29.0
Pg eNEZ			43	31.8
Sg eNEZ			43	56.4

<u>SEP 23</u>				
GIG: $\Phi = 50.050^\circ\text{N}$, $\lambda = 18.450^\circ\text{E}$				
H = 09:40:01.0, M = 2.2				
RAC	$\Delta = 19\text{km}$			
Pg eZ		09	40	04.7
Sg eNE			40	08.0
OJC	$\Delta = 98\text{km}$			
Pg eZ		09	40	17.8
Sg eN			40	30.8
NIE	$\Delta = 152\text{km}$			
Pg eZ		09	40	28.0
Sg eE			40	47.0
<u>SEP 24</u>				
GIG: $\Phi = 50.252^\circ\text{N}$, $\lambda = 18.911^\circ\text{E}$				
H = 06:42:28.3, M = 2.1				
OJC	$\Delta = 64\text{km}$			
Pg eZ		06	42	40.0
Sg eE			42	48.3
NIE	$\Delta = 138\text{km}$			
Pg eZ		06	42	53.2
Sg eE			43	10.5
KSP	$\Delta = 196\text{km}$			
Pg eE		06	43	00.8
Sg eNEZ			43	24.9
<u>SEP 24</u>				
GIG: $\Phi = 50.230^\circ\text{N}$, $\lambda = 19.032^\circ\text{E}$				
H = 21:00:13.5, M = 2.2				
OJC	$\Delta = 55\text{km}$			
Pg iZ		21	00	23.6
Sg iN			00	31.0
NIE	$\Delta = 129\text{km}$			
Pg eZ		21	00	35.4
Sg eE			00	52.4
KSP	$\Delta = 205\text{km}$			
Pg eNEZ		21	00	47.9
Sg eNEZ			01	12.9
<u>SEP 25</u>				
$\Phi = 50.10^\circ\text{N}$, $\lambda = 18.45^\circ\text{E}$				
H = 16:17:01.7, M = 2.1				
RAC	$\Delta = 18\text{km}$			
Pg eZ		16	17	05.7
Sg eNE			17	09.3
OJC	$\Delta = 97\text{km}$			
Pg eZ		16	17	18.6
Sg eN			17	31.0

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NIE	$\Delta = 154\text{km}$			
Pg eZ		16	17	28.7
Sg eE			17	48.0
SEP 27				
GIG:	$\Phi = 50.056^\circ\text{N}$, $\lambda = 18.447^\circ\text{E}$			
	H = 14:40:54.8, M = 2.4			
RAC	$\Delta = 19\text{km}$			
Pg eZ		14	40	58.9
Sg eNE			41	02.2
OJC	$\Delta = 98\text{km}$			
Pg eZ		14	41	11.7
Sg eN			41	24.1
NIE	$\Delta = 152\text{km}$			
Pg eZ		14	41	21.0
(Sg) eE			41	39.5
KSP	$\Delta = 176\text{km}$			
Pg eNEZ		14	41	25.7
Sg eNEZ			41	45.3
SEP 27				
GIG:	$\Phi = 50.040^\circ\text{N}$, $\lambda = 18.459^\circ\text{E}$			
	H = 20:39:43.5, M = 2.1			
RAC	$\Delta = 20\text{km}$			
Pg eZ		20	39	47.7
Sg eNE			39	50.9
OJC	$\Delta = 98\text{km}$			
Pg eZ		20	40	00.2
(Sg) eE			40	14.3
NIE	$\Delta = 151\text{km}$			
Pg eZ		20	40	09.4
Sg eN			40	29.5
KSP	$\Delta = 178\text{km}$			
Pn eNEZ		20	40	12.0
Sn eNEZ			40	33.5
SEP 28				
GIG:	$\Phi = 50.201^\circ\text{N}$, $\lambda = 19.131^\circ\text{E}$			
	H = 20:16:35.6, M = 2.5			
OJC	$\Delta = 47\text{km}$			
Pg eZ		20	16	44.1
Sg iN			16	50.5
NIE	$\Delta = 122\text{km}$			
Pg eZ		20	16	56.9
Sg eN			17	12.9
KSP	$\Delta = 213\text{km}$			
Pg eNEZ		20	17	12.2
Sg eNEZ			17	36.8

SEP 30				
GIG:	$\Phi = 50.049^\circ\text{N}$, $\lambda = 18.450^\circ\text{E}$			
	H = 14:48:17.3, M = 2.2			
RAC	$\Delta = 19\text{km}$			
Pg eZ		14	48	21.1
Sg eNE			48	24.1
OJC	$\Delta = 98\text{km}$			
Pg eZ		14	48	33.9
Sg iN			48	47.1
NIE	$\Delta = 151\text{km}$			
Pg eZ		14	48	43.4
Sg eE			49	03.3
KSP	$\Delta = 177\text{km}$			
Pn eNEZ		14	48	45.2
Sg eNEZ			49	08.8
OCT 1				
GIG:	$\Phi = 50.201^\circ\text{N}$, $\lambda = 19.131^\circ\text{E}$			
	H = 01:06:03.2, M = 2.3			
OJC	$\Delta = 47\text{km}$			
Pg eZ		01	06	11.2
Sg eE			06	17.7
NIE	$\Delta = 121\text{km}$			
Pg eZ		01	06	24.3
Sg eN			06	39.9
KSP	$\Delta = 214\text{km}$			
Pg eNEZ		01	06	39.6
Sg eNEZ			07	05.6
OCT 1				
GIG:	$\Phi = 50.218^\circ\text{N}$, $\lambda = 18.733^\circ\text{E}$			
	H = 01:34:04.2, M = 2.5			
OJC	$\Delta = 76\text{km}$			
Pg eZ		01	34	17.8
Sg eN			34	27.6
NIE	$\Delta = 144\text{km}$			
Pg eZ		01	34	29.4
Sg eE			34	48.3
KSP	$\Delta = 186\text{km}$			
Pn eNEZ		01	34	33.9
Pg eNEZ			34	35.7
Sn eNEZ			34	56.1
OCT 1				
GIG:	$\Phi = 50.230^\circ\text{N}$, $\lambda = 19.032^\circ\text{E}$			
	H = 16:00:42.8, M = 2.2			
OJC	$\Delta = 54\text{km}$			
Pg eZ		16	00	52.7
Sg eE			00	59.7

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NIE	$\Delta = 129\text{km}$		
Pg eZ		16 01 05.6	
Sg eN		01 21.7	
KSP	$\Delta = 206\text{km}$		
Pn eNEZ		16 01 15.9	
(Sg) eNEZ		01 41.4	
<u>OCT 2</u>			
GIG: $\Phi = 50.060^\circ\text{N}$, $\lambda = 18.448^\circ\text{E}$			
H = 02:13:22.7, M = 2.0			
RAC	$\Delta = 18\text{km}$		
Pg eZ		02 13 27.0	
Sg eNE		13 30.3	
OJC	$\Delta = 98\text{km}$		
Pg eZ		02 13 39.8	
Sg eN		13 51.6	
NIE	$\Delta = 152\text{km}$		
Pg eZ		02 13 49.4	
Sg eN		14 07.9	
<u>OCT 2</u>			
$\Phi = 50.22^\circ\text{N}$, $\lambda = 18.89^\circ\text{E}$			
H = 03:05:08.5, M = 1.9			
OJC	$\Delta = 65\text{km}$		
Pg eZ		03 05 21.1	
Sg eN		05 28.2	
NIE	$\Delta = 136\text{km}$		
Pg eZ		03 05 33.0	
Sg eE		05 49.4	
KSP	$\Delta = 196\text{km}$		
Pg eNEZ		03 05 41.4	
Sg eNEZ		06 05.5	
<u>OCT 2</u>			
GIG: $\Phi = 50.240^\circ\text{N}$, $\lambda = 18.923^\circ\text{E}$			
H = 11:14:08.4, M = 2.3			
OJC	$\Delta = 62\text{km}$		
Pg eZ		11 14 19.1	
Sg iE		14 27.8	
NIE	$\Delta = 136\text{km}$		
Pg eZ		11 14 32.5	
Sg eE		14 49.8	
KSP	$\Delta = 198\text{km}$		
Pg eNEZ		11 14 42.6	
Sg eNEZ		15 04.8	
<u>OCT 5</u>			
$\Phi = 50.29^\circ\text{N}$, $\lambda = 18.91^\circ\text{E}$			
H = 11:59:57.1, M = 2.3			

OJC	$\Delta = 64\text{km}$		
Pg eZ		12 00 08.7	
Sg eE		00 17.2	
NIE	$\Delta = 140\text{km}$		
Pg eZ		12 00 22.0	
Sg eE		00 39.5	
KSP	$\Delta = 195\text{km}$		
Pg eNEZ		12 00 29.7	
(Sg) eNEZ		00 54.7	
<u>OCT 7</u>			
GIG: $\Phi = 50.237^\circ\text{N}$, $\lambda = 18.922^\circ\text{E}$			
H = 19:46:51.4, M = 2.1			
OJC	$\Delta = 63\text{km}$		
Pg eZ		19 47 03.2	
Sg eE		47 10.6	
NIE	$\Delta = 135\text{km}$		
Pg eZ		19 47 15.2	
Sg eE		47 32.4	
KSP	$\Delta = 198\text{km}$		
Pn eNEZ		19 47 22.7	
(Sg) eNEZ		47 47.5	
<u>OCT 8</u>			
GIG: $\Phi = 50.260^\circ\text{N}$, $\lambda = 18.894^\circ\text{E}$			
H = 12:19:29.1, M = 2.2			
OJC	$\Delta = 65\text{km}$		
Pg eZ		12 19 40.7	
Sg eE		19 49.7	
NIE	$\Delta = 138\text{km}$		
Pg eZ		12 19 53.2	
Sg eE		20 11.3	
KSP	$\Delta = 195\text{km}$		
Pg eNEZ		12 20 01.7	
Sg eNEZ		20 25.7	
<u>OCT 8</u>			
GIG: $\Phi = 50.202^\circ\text{N}$, $\lambda = 19.130^\circ\text{E}$			
H = 14:36:38.1, M = 2.3			
OJC	$\Delta = 48\text{km}$		
Pg eZ		14 36 46.8	
Sg eE		36 53.2	
NIE	$\Delta = 122\text{km}$		
Pg eZ		14 37 00.3	
Sg eN		37 15.4	
KSP	$\Delta = 213\text{km}$		
Pg eNEZ		14 37 14.6	
Sg eNEZ		37 39.2	

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OCT 8

GIG: $\Phi = 50.239^{\circ}\text{N}$, $\lambda = 18.918^{\circ}\text{E}$
H = 19:54:36.2, M = 2.5

OJC $\Delta = 63\text{km}$
Pg eZ 19 54 47.8
Sg eE 54 55.9

NIE $\Delta = 136\text{km}$
Pg eZ 19 55 00.0
Sg eE 55 17.3

KSP $\Delta = 197\text{km}$
Pg eEZ 19 55 09.7
Sg eNEZ 55 33.2

OCT 9

GIG: $\Phi = 50.257^{\circ}\text{N}$, $\lambda = 18.878^{\circ}\text{E}$
H = 01:35:25.1, M = 2.7

RAC $\Delta = 52\text{km}$
Pg eZ 01 35 35.3
Sg eNE 35 42.3

OJC $\Delta = 66\text{km}$
Pg eZ 01 35 37.0
Sg iE 35 45.4

NIE $\Delta = 139\text{km}$
Pg eZ 01 35 49.2
Sg eE 36 06.8

KSP $\Delta = 194\text{km}$
Pn eNEZ 01 35 56.8
Pg eNEZ 35 58.1
Sn eNEZ 36 19.3
Sg eNEZ 36 21.0

KWP $\Delta = 282\text{km}$
Pn eZ 01 36 10.7
Sn eNE 36 44.7
Sg eNE 36 57.2

OCT 9

GIG: $\Phi = 50.264^{\circ}\text{N}$, $\lambda = 18.855^{\circ}\text{E}$
H = 03:53:55.8, M = 2.5

RAC $\Delta = 51\text{km}$
Pg eZ 03 54 05.9
Sg eNE 54 13.2

OJC $\Delta = 67\text{km}$
Pg eZ 03 54 08.0
Sg eN 54 16.9

NIE $\Delta = 140\text{km}$
Pg eZ 03 54 20.2
Sg eE 54 38.3

KSP $\Delta = 193\text{km}$
Pn eZ 03 54 26.6

KSP Pg eNEZ 03 54 28.8
Sg eNEZ 54 51.2

OCT 10

GIG: $\Phi = 50.343^{\circ}\text{N}$, $\lambda = 18.980^{\circ}\text{E}$
H = 15:04:12.9, M = 2.5

OJC $\Delta = 60\text{km}$
Pg eZ 15 04 23.9
Sg eN 04 31.8

NIE $\Delta = 140\text{km}$
Pg eZ 15 04 37.5
Sg eN 04 54.7

KSP $\Delta = 198\text{km}$
Pn eNEZ 15 04 44.8
Pg eNEZ 04 46.3
Sg eNEZ 05 10.3

OCT 12

GIG: $\Phi = 50.052^{\circ}\text{N}$, $\lambda = 18.448^{\circ}\text{E}$
H = 04:54:14.1, M = 2.5

RAC $\Delta = 19\text{km}$
Pg eZ 04 54 18.3
Sg eNE 54 21.7

OJC $\Delta = 98\text{km}$
Pg eZ 04 54 31.0
Sg eE 54 43.2

NIE $\Delta = 151\text{km}$
Pg eZ 04 54 40.5
Sg eE 55 00.3

KSP $\Delta = 177\text{km}$
Pn eNEZ 04 54 42.4
Sg eNEZ 55 05.0

OCT 12

GIG: $\Phi = 50.201^{\circ}\text{N}$, $\lambda = 19.131^{\circ}\text{E}$
H = 15:08:53.3, M = 2.2

OJC $\Delta = 47\text{km}$
Pg eZ 15 09 01.3
Sg eE 09 07.7

NIE $\Delta = 122\text{km}$
Pg eZ 15 09 14.6
Sg eN 09 29.7

KSP $\Delta = 214\text{km}$
Pg eNEZ 15 09 28.9
Sn eNEZ 09 53.1

OCT 14

GIG: $\Phi = 50.273^{\circ}\text{N}$, $\lambda = 18.827^{\circ}\text{E}$
H = 09:34:12.8, M = 2.1

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OJC	$\Delta = 70\text{km}$		
	Pg eZ	09	34 25.7
	Sg eE		34 35.1
NIE	$\Delta = 143\text{km}$		
	Pg eZ	09	34 38.0
	Sg eE		34 55.6
KSP	$\Delta = 190\text{km}$		
	Pg eNEZ	09	34 45.1
	Sg eNEZ		35 07.5
<u>OCT 17</u>			
	$\Phi = 50.34^\circ\text{N}, \lambda = 18.89^\circ\text{E}$		
	$H = 10:44:08.6, M = 2.2$		
OJC	$\Delta = 66\text{km}$		
	Pg eZ	10	44 20.6
	Sg eN		44 29.1
NIE	$\Delta = 145\text{km}$		
	Pg eZ	10	44 33.9
	Sg eE		44 52.8
KSP	$\Delta = 192\text{km}$		
	Pg eNEZ	10	44 41.0
	Sg eNEZ		45 04.4
<u>OCT 18</u>			
	GIG: $\Phi = 50.262^\circ\text{N}, \lambda = 18.862^\circ\text{E}$		
	$H = 21:36:15.6, M = 2.0$		
OJC	$\Delta = 67\text{km}$		
	Pg eZ	21	36 28.3
	Sg eN		36 36.3
NIE	$\Delta = 140\text{km}$		
	Pg eZ	21	36 40.6
	Sg eN		36 58.3
KSP	$\Delta = 193\text{km}$		
	Pg eNEZ	21	36 48.2
	Sg eNEZ		37 10.9
<u>OCT 18</u>			
	$\Phi = 50.19^\circ\text{N}, \lambda = 19.30^\circ\text{E}$		
	$H = 22:36:55.2, M = 2.0$		
OJC	$\Delta = 36\text{km}$		
	Pg eZ	22	37 01.6
	Sg eN		37 06.3
NIE	$\Delta = 112\text{km}$		
	Pg eZ	22	37 14.1
	Sg eE		37 29.2
KSP	$\Delta = 226\text{km}$		
	Pg eNEZ	22	37 34.1
	Sn eNEZ		37 57.5

<u>OCT 19</u>			
	GIG: $\Phi = 50.055^\circ\text{N}, \lambda = 18.445^\circ\text{E}$		
	$H = 13:52:55.9, M = 2.3$		
RAC	$\Delta = 18\text{km}$		
	Pg eZ	13	53 00.1
	Sg eNE		53 03.1
OJC	$\Delta = 98\text{km}$		
	Pg eZ	13	53 12.9
	(Sg) eN		53 24.6
NIE	$\Delta = 152\text{km}$		
	Pg eZ	13	53 22.5
	Sg eE		53 42.1
KSP	$\Delta = 176\text{km}$		
	Pg eNEZ	13	53 25.3
	Sg eNEZ		53 47.1
<u>OCT 20</u>			
	GIG: $\Phi = 50.261^\circ\text{N}, \lambda = 18.889^\circ\text{E}$		
	$H = 19:11:17.4, M = 2.2$		
OJC	$\Delta = 65\text{km}$		
	Pg eZ	19	11 29.5
	Sg eN		11 37.4
NIE	$\Delta = 138\text{km}$		
	Pg eZ	19	11 41.6
	Sg eE		11 59.3
KSP	$\Delta = 195\text{km}$		
	Pg eNEZ	19	11 49.9
	Sg eNEZ		12 14.4
<u>OCT 20</u>			
	GIG: $\Phi = 50.050^\circ\text{N}, \lambda = 18.449^\circ\text{E}$		
	$H = 21:56:55.6, M = 2.3$		
RAC	$\Delta = 19\text{km}$		
	Pg iZ	21	56 59.7 D
	Sg eNE		57 02.9
OJC	$\Delta = 98\text{km}$		
	Pg eZ	21	57 12.6
	Sg eN		57 25.7
NIE	$\Delta = 151\text{km}$		
	Pg eZ	21	57 21.4
	Sg eN		57 40.7
KSP	$\Delta = 177\text{km}$		
	Pn eNEZ	21	57 24.0
	Sg eNEZ		57 46.4
<u>OCT 22</u>			
	$\Phi = 50.23^\circ\text{N}, \lambda = 18.90^\circ\text{E}$		
	$H = 21:11:46.1, M = 2.0$		

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OJC	$\Delta = 64\text{km}$			
	Pg eZ	21	11	58.1
	Sg eN		12	05.7
NIE	$\Delta = 137\text{km}$			
	Pg eZ	21	12	10.2
	Sg eE		12	27.4
KSP	$\Delta = 196\text{km}$			
	Pg eNEZ	21	12	19.2
	Sg eNEZ		12	43.0
<u>OCT 26</u>				
GIG: $\Phi = 50.263^\circ\text{N}$, $\lambda = 18.779^\circ\text{E}$				
H = 10:04:11.0, M = 2.2				
OJC	$\Delta = 73\text{km}$			
	Pg eZ	10	04	24.9
	Sg eN		04	33.3
NIE	$\Delta = 144\text{km}$			
	Pg eZ	10	04	36.0
	Sg eE		04	54.3
KSP	$\Delta = 188\text{km}$			
	Pg eNEZ	10	04	43.2
	Sn eNEZ		05	03.7
<u>OCT 26</u>				
GIG: $\Phi = 50.273^\circ\text{N}$, $\lambda = 18.827^\circ\text{E}$				
H = 15:52:18.1, M = 2.3				
OJC	$\Delta = 69\text{km}$			
	Pg eZ	15	52	31.0
	Sg eN		52	39.2
NIE	$\Delta = 143\text{km}$			
	Pg eZ	15	52	42.9
	Sg eE		53	01.5
KSP	$\Delta = 190\text{km}$			
	Pg eNEZ	15	52	50.0
	Sg eNEZ		53	13.8
<u>OCT 26</u>				
GIG: $\Phi = 50.223^\circ\text{N}$, $\lambda = 19.023^\circ\text{E}$				
H = 21:20:59.4, M = 2.4				
OJC	$\Delta = 55\text{km}$			
	Pg eZ	21	21	08.7
	Sg eN		21	15.7
NIE	$\Delta = 129\text{km}$			
	Pg eZ	21	21	21.0 D
	Sg eE		21	38.3
KSP	$\Delta = 206\text{km}$			
	Pn eNEZ	21	21	31.8
	Sn eNEZ		21	56.8

<u>OCT 27</u>				
GIG: $\Phi = 50.224^\circ\text{N}$, $\lambda = 19.015^\circ\text{E}$				
H = 17:34:32.2, M = 2.2				
OJC	$\Delta = 55\text{km}$			
	Pg eZ	17	34	41.9
	Sg eN		34	49.1
NIE	$\Delta = 129\text{km}$			
	Pg eZ	17	34	54.9
	Sg eN		35	11.8
KSP	$\Delta = 205\text{km}$			
	Pn eNEZ	17	35	05.1
	(Sg) eNEZ		35	30.4
<u>OCT 27</u>				
$\Phi = 50.18^\circ\text{N}$, $\lambda = 19.25^\circ\text{E}$				
H = 21:25:19.6, M = 2.1				
OJC	$\Delta = 40\text{km}$			
	Pg eZ	21	25	27.0
	Sg iN		25	31.7
NIE	$\Delta = 114\text{km}$			
	Pg eZ	21	25	39.5
	Sg eE		25	54.6
KSP	$\Delta = 222\text{km}$			
	Pg eNEZ	21	25	57.9
	(Sg) eNEZ		26	22.6
<u>OCT 29</u>				
GIG: $\Phi = 50.265^\circ\text{N}$, $\lambda = 18.854^\circ\text{E}$				
H = 00:23:25.4, M = 2.4				
OJC	$\Delta = 68\text{km}$			
	Pg eZ	00	23	37.4
	Sg eNE		23	46.6
NIE	$\Delta = 141\text{km}$			
	Pg eZ	00	23	49.8
	Sg eE		24	07.8
KSP	$\Delta = 192\text{km}$			
	Pg eNEZ	00	23	57.9
	Sg eNEZ		24	21.5
<u>OCT 29</u>				
$\Phi = 50.20^\circ\text{N}$, $\lambda = 19.31^\circ\text{E}$				
H = 12:50:29.2, M = 2.2				
OJC	$\Delta = 34\text{km}$			
	Pg eZ	12	50	34.9
	Sg eN		50	39.6
NIE	$\Delta = 113\text{km}$			
	Pg eZ	12	50	49.0
	Sg eN		51	03.7

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KSP	$\Delta = 226\text{km}$		
Pg eNEZ	12	51	07.8
Sn eNEZ	51	31.9	
OCT 29			
GIG:	$\Phi = 50.065^\circ\text{N}$, $\lambda = 18.444^\circ\text{E}$		
	H = 17:18:18.3, M = 2.5		
RAC	$\Delta = 18\text{km}$		
Pg eZ	17	18	22.7
Sg eNE	18	26.1	
OJC	$\Delta = 98\text{km}$		
Pg eZ	17	18	34.8
(Sg) eN	18	47.0	
NIE	$\Delta = 152\text{km}$		
Pg eZ	17	18	44.6
Sg eE	19	03.4	
KSP	$\Delta = 176\text{km}$		
Pn eNEZ	17	18	46.5
Sg eNEZ	19	08.8	
OCT 30			
GIG:	$\Phi = 50.171^\circ\text{N}$, $\lambda = 19.298^\circ\text{E}$		
	H = 02:33:50.4, M = 2.1		
OJC	$\Delta = 37\text{km}$		
Pg eZ	02	33	57.1
Sg eN	34	01.7	
NIE	$\Delta = 111\text{km}$		
Pg eZ	02	34	09.6
(Sg) eE	34	24.7	
KSP	$\Delta = 225\text{km}$		
Pg eNEZ	02	34	28.5
Sg eNEZ	34	56.0	
OCT 30			
GIG:	$\Phi = 50.262^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$		
	H = 04:41:02.9, M = 2.1		
OJC	$\Delta = 67\text{km}$		
Pg eZ	04	41	15.5
Sg eE	41	23.5	
NIE	$\Delta = 140\text{km}$		
Pg eZ	04	41	27.4
Sg eE	41	45.1	
KSP	$\Delta = 193\text{km}$		
Pg eNEZ	04	41	35.5
(Sg) eNEZ	41	57.7	
OCT 30			
GIG:	$\Phi = 50.215^\circ\text{N}$, $\lambda = 19.066^\circ\text{E}$		
	H = 05:55:35.3, M = 2.2		

OJC	$\Delta = 52\text{km}$		
Pg eZ	05	55	44.6
Sg eE	55	51.3	
NIE	$\Delta = 127\text{km}$		
Pg eZ	05	55	58.1
Sg eN	56	13.6	
KSP	$\Delta = 208\text{km}$		
Pg eNEZ	05	56	10.1
Sg eNEZ	56	35.9	
OCT 31			
GIG:	$\Phi = 50.240^\circ\text{N}$, $\lambda = 18.915^\circ\text{E}$		
	H = 04:27:31.7, M = 2.4		
OJC	$\Delta = 63\text{km}$		
Pg eZ	04	27	43.4
Sg eE	27	51.6	
NIE	$\Delta = 136\text{km}$		
Pg eZ	04	27	55.9
Sg eN	28	12.6	
KSP	$\Delta = 197\text{km}$		
Pn eNE	04	28	02.7
Pg eNEZ	28	05.2	
Sg eNEZ	28	28.7	
OCT 31			
GIG:	$\Phi = 50.171^\circ\text{N}$, $\lambda = 19.298^\circ\text{E}$		
	H = 10:14:13.4, M = 2.1		
OJC	$\Delta = 36\text{km}$		
Pg eZ	10	14	19.6
Sg eN	14	24.3	
NIE	$\Delta = 111\text{km}$		
Pg eZ	10	14	32.1
Sg eE	14	47.3	
KSP	$\Delta = 226\text{km}$		
Pg eNEZ	10	14	52.6
(Sg) eNEZ	15	17.1	
NOV 2			
GIG:	$\Phi = 50.241^\circ\text{N}$, $\lambda = 18.924^\circ\text{E}$		
	H = 19:11:04.7, M = 2.7		
RAC	$\Delta = 54\text{km}$		
Pg eZ	19	11	15.3
Sg eNE	11	22.9	
OJC	$\Delta = 63\text{km}$		
Pg eZ	19	11	16.2
Sg iE	11	24.5	
NIE	$\Delta = 135\text{km}$		
Pg eZ	19	11	28.3
Sg eE	11	45.7	

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KSP	$\Delta = 198\text{km}$			
Pg	eNEZ	19	11	38.3
Sg	eNEZ	12	01.6	
KWP	$\Delta = 279\text{km}$			
Pn	eZ	19	11	47.7
Pg	eZ	11	55.1	
NOV 2				
GIG: $\Phi = 50.232^\circ\text{N}$, $\lambda = 19.036^\circ\text{E}$				
H = 21:32:04.8, M = 2.3				
OJC	$\Delta = 54\text{km}$			
Pg	eZ	21	32	14.3
Sg	eN	32	21.9	
NIE	$\Delta = 129\text{km}$			
Pg	eZ	21	32	27.4
Sg	eN	32	43.9	
KSP	$\Delta = 206\text{km}$			
Pg	eNEZ	21	32	39.5
Sg	eNEZ	33	05.0	
NOV 2				
GIG: $\Phi = 50.050^\circ\text{N}$, $\lambda = 18.451^\circ\text{E}$				
H = 23:11:16.5, M = 2.2				
RAC	$\Delta = 19\text{km}$			
Pg	iZ	23	11	20.8 D
Sg	eNE	11	24.1	
OJC	$\Delta = 98\text{km}$			
Pg	eZ	23	11	33.7
Sg	eN	11	46.8	
NIE	$\Delta = 152\text{km}$			
Pg	eZ	23	11	42.9
Sg	eE	12	01.9	
KSP	$\Delta = 176\text{km}$			
Pn	eNEZ	23	11	44.3
Sg	eNEZ	12	07.4	
NOV 2				
GIG: $\Phi = 50.172^\circ\text{N}$, $\lambda = 19.297^\circ\text{E}$				
H = 23:15:25.1, M = 2.1				
OJC	$\Delta = 36\text{km}$			
Pg	eZ	23	15	31.4
Sg	iN	15	36.1	
NIE	$\Delta = 111\text{km}$			
Pg	eZ	23	15	43.9
Sg	eE	15	59.1	
KSP	$\Delta = 225\text{km}$			
Pn	eEZ	23	16	01.4
Pg	eNEZ	16	03.9	
Sn	eNEZ	16	28.1	

NOV 3				
$\Phi = 50.28^\circ\text{N}$, $\lambda = 18.86^\circ\text{E}$				
H = 04:00:38.9, M = 2.1				
OJC	$\Delta = 67\text{km}$			
Pg	eZ	04	00	51.4
Sg	eE	00	59.8	
NIE	$\Delta = 142\text{km}$			
Pg	eZ	04	01	03.8
Sg	eE	01	21.8	
KSP	$\Delta = 192\text{km}$			
Pg	eNEZ	04	01	12.0
Sg	eNEZ	01	34.0	
NOV 3				
GIG: $\Phi = 50.224^\circ\text{N}$, $\lambda = 19.022^\circ\text{E}$				
H = 23:04:26.7, M = 2.3				
OJC	$\Delta = 56\text{km}$			
Pg	eZ	23	04	37.1
Sg	eN	04	44.2	
NIE	$\Delta = 130\text{km}$			
Pg	eZ	23	04	49.6
(Sg)	eE	05	06.8	
KSP	$\Delta = 204\text{km}$			
Pg	eNEZ	23	05	01.0
Sg	eNEZ	05	25.4	
NOV 4				
GIG: $\Phi = 50.171^\circ\text{N}$, $\lambda = 19.298^\circ\text{E}$				
H = 15:46:43.3, M = 2.8				
OJC	$\Delta = 36\text{km}$			
Pg	eZ	15	46	50.0
Sg	eE	46	55.3	
RAC	$\Delta = 79\text{km}$			
Pg	eZ	15	46	57.4
Sg	eNE	47	08.3	
NIE	$\Delta = 112\text{km}$			
Pg	eZ	15	47	02.6
KSP	$\Delta = 225\text{km}$			
Pn	eNEZ	15	47	18.8
Pg	eNEZ	47	22.0	
Sg	eNEZ	47	48.2	
KWP	$\Delta = 251\text{km}$			
Pg	eZ	15	47	26.7
NOV 4				
GIG: $\Phi = 50.224^\circ\text{N}$, $\lambda = 19.015^\circ\text{E}$				
H = 17:02:47.5, M = 2.3				
OJC	$\Delta = 56\text{km}$			
Pg	eZ	17	02	57.5

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OJC	Sg eN	17 03 04.7
NIE	$\Delta = 130\text{km}$ Pg eZ Sg eE	17 03 11.1 03 27.3
KSP	$\Delta = 204\text{km}$ Pg eNEZ (Sg) eNEZ	17 03 21.5 03 45.6
NOV 5		
GIG: $\Phi = 50.065^\circ\text{N}$, $\lambda = 18.424^\circ\text{E}$ $H = 09:44:47.8$, $M = 2.5$		
RAC	$\Delta = 17\text{km}$ Pg iZ Sg iN	09 44 51.4 C 44 54.5
OJC	$\Delta = 99\text{km}$ Pg eZ Sg eN	09 45 04.5 45 17.2
NIE	$\Delta = 154\text{km}$ Pg eZ Sg eN	09 45 14.3 45 34.8
KSP	$\Delta = 174\text{km}$ Pn eNEZ Sn eNEZ	09 45 16.1 45 37.1
NOV 6		
GIG: $\Phi = 50.231^\circ\text{N}$, $\lambda = 19.038^\circ\text{E}$ $H = 15:35:23.2$, $M = 2.2$		
OJC	$\Delta = 54\text{km}$ Pg eZ Sg eN	15 35 33.2 35 40.4
NIE	$\Delta = 129\text{km}$ Pg eZ Sg eN	15 35 46.2 36 02.5
KSP	$\Delta = 206\text{km}$ Pg eNEZ Sg eNEZ	15 35 57.8 36 22.3
NOV 6		
GIG: $\Phi = 50.217^\circ\text{N}$, $\lambda = 19.064^\circ\text{E}$ $H = 22:20:21.0$, $M = 2.2$		
OJC	$\Delta = 52\text{km}$ Pg eZ Sg eN	22 20 30.3 20 37.5
NIE	$\Delta = 127\text{km}$ Pg eZ Sg eN	22 20 43.7 20 59.4
KSP	$\Delta = 208\text{km}$ Pn eNEZ (Sg) eNEZ	22 20 54.3 21 20.3

NOV 8		
GIG: $\Phi = 50.068^\circ\text{N}$, $\lambda = 18.459^\circ\text{E}$ $H = 15:48:40.8$, $M = 2.5$		
RAC	$\Delta = 19\text{km}$ Pg iZ Sg iN	15 48 45.1 D 48 48.4
NIE	$\Delta = 152\text{km}$ Pg eZ Sg eN	15 49 07.6 49 26.0
KSP	$\Delta = 176\text{km}$ Pg eNEZ Sg eNEZ	15 49 11.5 49 30.8
NOV 10		
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$ $H = 13:12:10.3$, $M = 2.5$		
OJC	$\Delta = 67\text{km}$ Pg eZ Sg eE	13 12 23.0 12 31.0
KSP	$\Delta = 192\text{km}$ Pg eNEZ Sg eNEZ	13 12 42.5 13 05.9
NOV 10		
GIG: $\Phi = 50.171^\circ\text{N}$, $\lambda = 19.296^\circ\text{E}$ $H = 15:35:58.2$, $M = 2.4$		
OJC	$\Delta = 36\text{km}$ Pg eZ Sg eN	15 36 04.6 36 09.0
KSP	$\Delta = 226\text{km}$ Pg eZ Sg eNEZ	15 36 37.1 37 03.0
NOV 10		
GIG: $\Phi = 50.171^\circ\text{N}$, $\lambda = 19.298^\circ\text{E}$ $H = 22:34:44.4$, $M = 2.3$		
OJC	$\Delta = 36\text{km}$ Pg eZ Sg eN	22 34 50.3 34 55.0
NIE	$\Delta = 110\text{km}$ Pg eZ Sg eN	22 35 02.8 35 18.2
KSP	$\Delta = 226\text{km}$ Pg eZ Sn eNEZ	22 35 23.3 35 47.8
NOV 10		
GIG: $\Phi = 50.071^\circ\text{N}$, $\lambda = 18.458^\circ\text{E}$ $H = 23:29:35.9$, $M = 2.8$		

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RAC	$\Delta = 19\text{km}$				
	Pg iZ	23	29	40.3	D
	Sg eNE		29	43.7	
OJC	$\Delta = 97\text{km}$				
	Pg eZ	23	29	52.6	
	Sg eE		30	04.6	
NIE	$\Delta = 152\text{km}$				
	Pg eZ	23	30	02.3	
	Sg eE		30	21.6	
KSP	$\Delta = 176\text{km}$				
	Pn eNEZ	23	30	04.0	
	Sg eNEZ		30	26.3	
NOV 11					
GIG: $\Phi = 50.066^\circ\text{N}$, $\lambda = 18.459^\circ\text{E}$					
H = 18:59:14.9, M = 2.7					
RAC	$\Delta = 19\text{km}$				
	Pg eZ	18	59	19.4	
	Sg eNE		59	22.9	
OJC	$\Delta = 97\text{km}$				
	Pg eZ	18	59	31.6	
	Sg eN		59	43.9	
NIE	$\Delta = 152\text{km}$				
	Pg eZ	18	59	41.2	
	Sg eE	19	00	00.3	
KSP	$\Delta = 176\text{km}$				
	Pn eNEZ	18	59	43.5	
	Sg eNEZ	19	00	05.7	
NOV 13					
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$					
H = 01:57:39.2, M = 2.5					
RAC	$\Delta = 52\text{km}$				
	Pg eZ	01	57	49.0	
	Sg eNE		57	55.8	
OJC	$\Delta = 67\text{km}$				
	Pg eZ	01	57	51.1	
	Sg eE		57	58.9	
NIE	$\Delta = 140\text{km}$				
	Pg eZ	01	58	03.1	
	Sg eE		58	21.0	
KSP	$\Delta = 193\text{km}$				
	Pn eNEZ	01	58	10.1	
	Pg eNEZ		58	11.4	
	Sn eNEZ		58	33.5	
NOV 15					
GIG: $\Phi = 50.171^\circ\text{N}$, $\lambda = 19.298^\circ\text{E}$					
H = 14:13:00.3, M = 2.4					

OJC	$\Delta = 36\text{km}$				
	Pg eZ	14	13	05.8	
	Sg eN		13	10.5	
NIE	$\Delta = 112\text{km}$				
	Pg eZ	14	13	19.6	
	(Sg) eE		13	34.9	
KSP	$\Delta = 226\text{km}$				
	Pg eNEZ	14	13	38.5	
	Sn eNEZ		14	03.1	
NOV 15					
GIG: $\Phi = 50.223^\circ\text{N}$, $\lambda = 19.023^\circ\text{E}$					
H = 22:38:26.1, M = 2.4					
OJC	$\Delta = 56\text{km}$				
	Pg eZ	22	38	36.5	
	Sg eEN		38	44.0	
RAC	$\Delta = 61\text{km}$				
	Pg eZ	22	38	36.7	
	(Sg) eNE		38	44.2	
NIE	$\Delta = 129\text{km}$				
	Pg eZ	22	38	49.3	
KSP	$\Delta = 205\text{km}$				
	Pn eNEZ	22	38	58.1	
	Pg eNEZ		39	00.6	
	Sg eNEZ		39	25.1	
NOV 16					
GIG: $\Phi = 50.231^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$					
H = 04:59:27.8, M = 2.3					
OJC	$\Delta = 55\text{km}$				
	Pg eZ	04	59	37.6	
	Sg eN		59	45.2	
NIE	$\Delta = 130\text{km}$				
	Pg eZ	04	59	50.7	
	Sg eE		05	00	07.3
KSP	$\Delta = 205\text{km}$				
	Pg eNEZ	05	00	02.1	
	Sg eNEZ		00	26.6	
NOV 16					
GIG: $\Phi = 50.266^\circ\text{N}$, $\lambda = 18.781^\circ\text{E}$					
H = 07:22:59.5, M = 2.3					
OJC	$\Delta = 73\text{km}$				
	Pg eZ	07	23	13.6	
	Sg eN		23	22.0	
NIE	$\Delta = 145\text{km}$				
	Pg eZ	07	23	25.5	
	Sg eE		23	42.7	

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KSP	$\Delta = 187\text{km}$ Pg eNEZ 07 23 31.0 (Sg) eNEZ 23 52.6
<u>NOV 16</u>	
	$\Phi = 50.19^\circ\text{N}$, $\lambda = 19.31^\circ\text{E}$ $H = 17:10:21.8$, $M = 2.3$
OJC	$\Delta = 34\text{km}$ Pg eZ 17 10 27.3 Sg eN 10 32.1
NIE	$\Delta = 113\text{km}$ Pg eZ 17 10 41.3 Sg eE 10 56.4
KSP	$\Delta = 226\text{km}$ Pn eNEZ 17 10 58.0 Pg eNEZ 11 00.4 Sn eNEZ 11 24.1 Sg eNEZ 11 26.8
<u>NOV 17</u>	
GIG:	$\Phi = 50.061^\circ\text{N}$, $\lambda = 18.449^\circ\text{E}$ $H = 03:36:50.6$, $M = 2.3$
RAC	$\Delta = 18\text{km}$ Pg eZ 03 36 54.6 Sg eNE 36 57.9
OJC	$\Delta = 98\text{km}$ Pg eZ 03 37 07.5 Sg eN 37 20.1
NIE	$\Delta = 152\text{km}$ Pg eZ 03 37 17.1 Sg eN 37 36.6
KSP	$\Delta = 176\text{km}$ Pn eNEZ 03 37 18.3 Sn eNEZ 37 40.2
<u>NOV 18</u>	
GIG:	$\Phi = 50.262^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$ $H = 16:19:09.9$, $M = 2.3$
OJC	$\Delta = 67\text{km}$ Pg eZ 16 19 21.8 Sg eE 19 30.3
NIE	$\Delta = 141\text{km}$ Pg eZ 16 19 34.5 Sg eE 19 52.7
KSP	$\Delta = 193\text{km}$ Pg iNEZ 16 19 42.1 Sg eNEZ 20 05.9
<u>NOV 18</u>	
GIG:	$\Phi = 50.232^\circ\text{N}$, $\lambda = 19.038^\circ\text{E}$ $H = 19:55:22.1$, $M = 2.2$

OJC	$\Delta = 54\text{km}$ Pg eZ 19 55 32.0 Sg eN 55 39.3
NIE	$\Delta = 130\text{km}$ Pg eZ 19 55 45.2 (Sg) eE 56 02.0
KSP	$\Delta = 205\text{km}$ Pg eNEZ 19 55 56.7 Sg eNEZ 56 21.3
<u>NOV 18</u>	
	$\Phi = 50.31^\circ\text{N}$, $\lambda = 18.88^\circ\text{E}$ $H = 21:30:42.7$, $M = 2.4$
OJC	$\Delta = 66\text{km}$ Pg eZ 21 30 54.9 Sg eN 31 03.4
NIE	$\Delta = 143\text{km}$ Pg eZ 21 31 08.1 Sg eE 31 25.7
<u>NOV 19</u>	
GIG:	$\Phi = 50.170^\circ\text{N}$, $\lambda = 19.300^\circ\text{E}$ $H = 05:25:15.6$, $M = 2.6$
OJC	$\Delta = 36\text{km}$ Pg iZ 05 25 22.4 Sg iE 25 27.4
NIE	$\Delta = 111\text{km}$ Pg eZ 05 25 35.0 (Sg) eE 25 50.1
KSP	$\Delta = 225\text{km}$ Pg eNEZ 05 25 53.1 Sn eNEZ 26 18.6
<u>NOV 20</u>	
	$\Phi = 50.30^\circ\text{N}$, $\lambda = 18.89^\circ\text{E}$ $H = 03:37:06.1$, $M = 2.5$
OJC	$\Delta = 66\text{km}$ Pg eZ 03 37 17.9 Sg eE 37 26.5
NIE	$\Delta = 142\text{km}$ Pg eZ 03 37 31.1 Sg eE 37 49.0
KSP	$\Delta = 193\text{km}$ Pn eNZ 03 37 37.2 Pg iNEZ 37 38.7 Sg eNEZ 38 01.3
<u>NOV 20</u>	
GIG:	$\Phi = 50.067^\circ\text{N}$, $\lambda = 18.464^\circ\text{E}$ $H = 09:50:15.7$, $M = 2.7$

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RAC	$\Delta = 19\text{km}$ Pg iZ Sg iN	09 50 20.1 D 50 23.6		KSP	$\Delta = 226\text{km}$ Pg eNEZ Sn eNEZ	14 40 01.9 40 26.8
OJC	$\Delta = 97\text{km}$ Pg eZ Sg eN	09 50 32.3 50 44.6		NOV 23 GIG:	$\Phi = 50.222^\circ\text{N}, \lambda = 19.024^\circ\text{E}$ $H = 14:55:27.1, M = 2.4$	
NIE	$\Delta = 152\text{km}$ Pg eZ Sg eE	09 50 42.2 51 01.0		OJC	$\Delta = 56\text{km}$ Pg eZ Sg eN	14 55 37.6 55 44.8
KSP	$\Delta = 176\text{km}$ Pn eNEZ Sg eNEZ	09 50 44.0 51 06.0		NIE	$\Delta = 130\text{km}$ Pg eZ	14 55 50.4
NOV 20 GIG:	$\Phi = 50.223^\circ\text{N}, \lambda = 19.019^\circ\text{E}$ $H = 11:08:45.8, M = 2.5$			KSP	$\Delta = 205\text{km}$ Pg eNEZ Sg eNEZ	14 56 01.3 56 25.9
OJC	$\Delta = 56\text{km}$ Pg eZ Sg eE	11 08 55.7 09 03.2		NOV 24 GIG:	$\Phi = 50.262^\circ\text{N}, \lambda = 18.862^\circ\text{E}$ $H = 03:29:35.7, M = 2.5$	
NIE	$\Delta = 130\text{km}$ Pg eZ Sg eN	11 09 09.5 09 24.5		OJC	$\Delta = 67\text{km}$ Pg eZ Sg eN	03 29 47.9 29 56.5
KSP	$\Delta = 204\text{km}$ Pg eNEZ (Sg) eNEZ	11 09 19.9 09 43.8		KSP	$\Delta = 193\text{km}$ Pg eNEZ Sg eNEZ	03 30 08.5 30 31.7
NOV 22 GIG:	$\Phi = 50.232^\circ\text{N}, \lambda = 19.033^\circ\text{E}$ $H = 19:36:05.1, M = 2.0$			NOV 24 GIG:	$\Phi = 50.057^\circ\text{N}, \lambda = 18.448^\circ\text{E}$ $H = 18:10:54.9, M = 2.6$	
OJC	$\Delta = 55\text{km}$ Pg eZ Sg eN	19 36 15.4 36 22.5		RAC	$\Delta = 18\text{km}$ Pg eZ Sg eNE	18 10 58.6 11 01.9
NIE	$\Delta = 130\text{km}$ Pg eZ Sg eN	19 36 28.6 36 44.6		OJC	$\Delta = 98\text{km}$ Pg eZ (Sg) eN	18 11 11.3 11 23.3
KSP	$\Delta = 205\text{km}$ Pg eNEZ Sg eNEZ	19 36 39.6 37 04.0		NIE	$\Delta = 152\text{km}$ Pg eZ Sg eN	18 11 21.1 11 40.7
NOV 23 GIG:	$\Phi = 50.169^\circ\text{N}, \lambda = 19.300^\circ\text{E}$ $H = 14:39:22.6, M = 2.3$			KSP	$\Delta = 176\text{km}$ Pn eNEZ Pg eNEZ Sg eNEZ	18 11 22.7 11 25.7 11 44.9
OJC	$\Delta = 36\text{km}$ Pg eZ Sg eN	14 39 29.0 39 33.7		NOV 24	$\Phi = 50.07^\circ\text{N}, \lambda = 18.46^\circ\text{E}$ $H = 19:13:50.4, M = 2.4$	
NIE	$\Delta = 110\text{km}$ Pg eZ (Sg) eE	14 39 41.5 39 56.6		RAC	$\Delta = 19\text{km}$ Pg eZ Sg eNE	19 13 54.7 13 58.0

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OJC	$\Delta = 97\text{km}$		
Pg eZ		19	14 07.4
Sg eN		14	19.2
NIE	$\Delta = 152\text{km}$		
Pg eZ		19	14 16.8
Sg eE		14	35.5
<u>NOV 24</u>			
	$\Phi = 50.20^\circ\text{N}, \lambda = 19.28^\circ\text{E}$		
	$H = 20:49:36.6, M = 2.3$		
OJC	$\Delta = 37\text{km}$		
Pg eZ		20	49 43.3
Sg eN		49	48.0
NIE	$\Delta = 115\text{km}$		
Pg eZ		20	49 56.4
Sg eN		50	11.8
KSP	$\Delta = 223\text{km}$		
Pg eEZ		20	50 14.8
Sg eNEZ		50	40.8
<u>NOV 26</u>			
GIG:	$\Phi = 50.169^\circ\text{N}, \lambda = 19.302^\circ\text{E}$		
	$H = 05:27:29.1, M = 2.4$		
OJC	$\Delta = 36\text{km}$		
Pg eZ		05	27 35.1
Sg iN		27	40.0
NIE	$\Delta = 111\text{km}$		
Pg eZ		05	27 47.9
Sg eE		28	03.0
KSP	$\Delta = 226\text{km}$		
Pg eNEZ		05	28 08.3
(Sg) eNEZ		28	33.3
<u>NOV 26</u>			
GIG:	$\Phi = 50.259^\circ\text{N}, \lambda = 18.824^\circ\text{E}$		
	$H = 16:21:15.2, M = 2.6$		
OJC	$\Delta = 69\text{km}$		
Pg eZ		16	21 27.5
(Sg) eE		21	35.7
NIE	$\Delta = 142\text{km}$		
Pg eZ		16	21 40.0
Sg eE		21	58.4
KSP	$\Delta = 191\text{km}$		
Pg eNEZ		16	21 48.1
Sg eNEZ		22	10.4
<u>NOV 27</u>			
GIG:	$\Phi = 50.248^\circ\text{N}, \lambda = 18.707^\circ\text{E}$		
	$H = 12:14:26.5, M = 2.4$		

OJC	$\Delta = 78\text{km}$		
Pg eZ		12	14 41.0
(Sg) eN		14	51.8
NIE	$\Delta = 149\text{km}$		
Pg eZ		12	14 53.0
Sg eE		15	12.0
KSP	$\Delta = 182\text{km}$		
Pg eNEZ		12	14 56.8
Sg eNEZ		15	19.5
<u>NOV 29</u>			
GIG:	$\Phi = 50.232^\circ\text{N}, \lambda = 19.038^\circ\text{E}$		
	$H = 22:59:42.1, M = 2.1$		
OJC	$\Delta = 55\text{km}$		
Pg iZ		22	59 52.5
Sg iN		59	59.5
NIE	$\Delta = 129\text{km}$		
Pg eZ		23	00 05.2
Sg eE		00	20.8
KSP	$\Delta = 206\text{km}$		
Pg eNEZ		23	00 17.1
Sg eNEZ		01	41.3
<u>NOV 30</u>			
GIG:	$\Phi = 50.238^\circ\text{N}, \lambda = 18.920^\circ\text{E}$		
	$H = 01:12:34.4, M = 2.3$		
OJC	$\Delta = 63\text{km}$		
Pg eZ		01	12 46.5
Sg eN		12	53.7
NIE	$\Delta = 135\text{km}$		
Pg eZ		01	12 57.8
Sg eE		13	15.8
KSP	$\Delta = 198\text{km}$		
Pg eNEZ		01	13 07.2
Sn eNEZ		13	29.9
<u>NOV 30</u>			
GIG:	$\Phi = 50.261^\circ\text{N}, \lambda = 18.864^\circ\text{E}$		
	$H = 10:07:52.2, M = 2.4$		
OJC	$\Delta = 67\text{km}$		
Pg eZ		10	08 04.8
Sg eN		08	13.6
NIE	$\Delta = 140\text{km}$		
Pg eZ		10	08 15.5
(Sg) eN		08	33.0
KSP	$\Delta = 193\text{km}$		
Pg eNEZ		10	08 25.2
Sg eNEZ		08	48.1

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NOV 30

GIG: $\Phi = 50.262^{\circ}\text{N}$, $\lambda = 18.864^{\circ}\text{E}$
H = 16:12:50.5, M = 2.4

OJC $\Delta = 67\text{km}$
Pg eZ 16 13 02.6
Sg eN 13 11.0

NIE $\Delta = 141\text{km}$
Pg eZ 16 13 15.0
Sg eE 13 33.2

KSP $\Delta = 193\text{km}$
Pg eNEZ 16 13 23.1
Sg eNEZ 13 46.2

NOV 30

$\Phi = 50.26^{\circ}\text{N}$, $\lambda = 18.78^{\circ}\text{E}$
H = 18:15:53.7, M = 2.2

OJC $\Delta = 72\text{km}$
Pg eZ 18 16 07.2
Sg eE 16 16.0

NIE $\Delta = 145\text{km}$
Pg eZ 18 16 19.2
Sg eE 16 37.5

KSP $\Delta = 188\text{km}$
Pg eNEZ 18 16 25.8
Sg eNEZ 16 47.7

NOV 30

GIG: $\Phi = 50.066^{\circ}\text{N}$, $\lambda = 18.464^{\circ}\text{E}$
H = 21:12:52.4, M = 2.5

RAC $\Delta = 20\text{km}$
Pg eZ 21 12 56.8
Sg iN 13 00.3

OJC $\Delta = 97\text{km}$
Pg eZ 21 13 09.3
Sg eN 13 21.3

NIE $\Delta = 151\text{km}$
Pg eZ 21 13 18.5
Sg eN 13 37.6

KSP $\Delta = 177\text{km}$
Pn eNEZ 21 13 21.3
Sg eNEZ 13 42.7

DEC 2

GIG: $\Phi = 50.169^{\circ}\text{N}$, $\lambda = 19.300^{\circ}\text{E}$
H = 05:32:47.0, M = 2.3

OJC $\Delta = 37\text{km}$
Pg eZ 05 32 54.1
Sg eN 32 58.9

NIE $\Delta = 111\text{km}$
Pg eZ 05 33 06.8
(Sg) eE 33 21.7

KSP $\Delta = 225\text{km}$
Pg eNEZ 05 33 24.8
Sg eN 33 51.6

DEC 3

$\Phi = 50.30^{\circ}\text{N}$, $\lambda = 18.87^{\circ}\text{E}$
H = 00:16:45.0, M = 2.2

OJC $\Delta = 67\text{km}$
Pg eZ 00 16 57.1
Sg eE 17 05.7

NIE $\Delta = 142\text{km}$
Pg eZ 00 17 10.4
Sg eE 17 27.5

KSP $\Delta = 192\text{km}$
Pg eNEZ 00 17 17.7
Sg eNEZ 17 40.6

DEC 3

$\Phi = 50.29^{\circ}\text{N}$, $\lambda = 18.86^{\circ}\text{E}$
H = 15:43:49.6, M = 2.0

OJC $\Delta = 68\text{km}$
Pg eZ 15 44 02.2
Sg eN 44 10.5

NIE $\Delta = 142\text{km}$
Pg eZ 15 44 14.1
Sg eE 44 33.0

KSP $\Delta = 192\text{km}$
Pg eNEZ 15 44 21.9
Sg eNEZ 44 45.5

DEC 4

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.863^{\circ}\text{E}$
H = 22:41:38.1, M = 2.4

RAC $\Delta = 51\text{km}$
Pg eZ 22 41 48.4
Sg eNE 41 55.4

OJC $\Delta = 67\text{km}$
Pg eZ 22 41 50.5
Sg eE 41 59.0

NIE $\Delta = 140\text{km}$
Pg eZ 22 42 02.8
Sg eN 42 19.9

KSP $\Delta = 193\text{km}$
Pg eNEZ 22 42 11.1
Sg eNEZ 42 33.6

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DEC 6

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.864^{\circ}\text{E}$
H = 10:22:41.0, M = 2.3

OJC $\Delta = 67\text{km}$
Pg eZ 10 22 53.9
Sg eE 23 01.6

NIE $\Delta = 140\text{km}$
Pg eZ 10 23 05.5
Sg eE 23 23.5

KSP $\Delta = 193\text{km}$
Pg eNEZ 10 23 13.2
Sg eNEZ 23 36.4

DEC 6

GIG: $\Phi = 50.169^{\circ}\text{N}$, $\lambda = 19.300^{\circ}\text{E}$
H = 21:57:40.9, M = 2.5

OJC $\Delta = 37\text{km}$
Pg eZ 21 57 47.9
Sg eN 57 52.7

NIE $\Delta = 111\text{km}$
Pg eZ 21 58 00.5
(Sg) eE 58 15.6

KSP $\Delta = 225\text{km}$
Pn eNEZ 21 58 16.4
Pg eNEZ 58 19.2
Sn eNEZ 58 44.9

DEC 7

GIG: $\Phi = 50.067^{\circ}\text{N}$, $\lambda = 18.460^{\circ}\text{E}$
H = 11:24:07.2, M = 2.7

RAC $\Delta = 19\text{km}$
Pg eZ 11 24 11.4
Sg iN 24 14.9

OJC $\Delta = 97\text{km}$
Pg eZ 11 24 23.8
Sg eN 24 36.0

NIE $\Delta = 152\text{km}$
Pg eZ 11 24 33.7
Sg eN 24 53.3

KSP $\Delta = 176\text{km}$
Pn eNEZ 11 24 35.4
Sg eNEZ 24 57.5

DEC 7

GIG: $\Phi = 50.17^{\circ}\text{N}$, $\lambda = 19.30^{\circ}\text{E}$
H = 20:17:52.7, M = 2.2

OJC $\Delta = 36\text{km}$
Pg eZ 20 17 58.4
Sg eN 18 03.2

NIE $\Delta = 110\text{km}$
Pg eZ 20 18 11.0
Sg eE 18 26.2

KSP $\Delta = 226\text{km}$
Pn eNEZ 20 18 29.6
Pg eNEZ 18 32.0
Sn eNEZ 18 57.0

DEC 8

GIG: $\Phi = 50.20^{\circ}\text{N}$, $\lambda = 18.74^{\circ}\text{E}$
H = 10:50:02.9, M = 2.4

OJC $\Delta = 75\text{km}$
Pg eZ 10 50 16.9
Sg eN 50 26.0

NIE $\Delta = 143\text{km}$
Pg eZ 10 50 28.5
Sg eE 50 45.5

KSP $\Delta = 187\text{km}$
Pg eNEZ 10 50 34.9
Sg eNEZ 50 57.0

DEC 8

GIG: $\Phi = 50.262^{\circ}\text{N}$, $\lambda = 18.864^{\circ}\text{E}$
H = 18:57:00.4, M = 2.2

OJC $\Delta = 67\text{km}$
Pg eZ 18 57 13.1
Sg eE 57 20.7

NIE $\Delta = 141\text{km}$
Pg eZ 18 57 25.1
Sg eE 57 43.5

KSP $\Delta = 193\text{km}$
Pg eNEZ 18 57 32.5
Sg eNEZ 57 55.8

DEC 8

GIG: $\Phi = 50.057^{\circ}\text{N}$, $\lambda = 18.447^{\circ}\text{E}$
H = 20:28:30.8, M = 2.4

RAC $\Delta = 18\text{km}$
Pg eZ 20 28 35.1
Sg eNE 28 38.3

OJC $\Delta = 98\text{km}$
Pg eZ 20 28 47.9
Sg eN 29 00.0

NIE $\Delta = 152\text{km}$
Pg eZ 20 28 57.4
Sg eN 29 15.9

KSP $\Delta = 176\text{km}$
Pn eEZ 20 28 58.1
Pg eNEZ 29 00.6
Sg eNEZ 29 21.5

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DEC 9

GIG: $\Phi = 50.273^{\circ}\text{N}$, $\lambda = 18.829^{\circ}\text{E}$
H = 04:48:50.0, M = 2.3

OJC $\Delta = 70\text{km}$
Pg eZ 04 49 02.4
Sg eN 49 11.8

NIE $\Delta = 144\text{km}$
Pg eZ 04 49 14.8
Sg eE 49 33.8

KSP $\Delta = 190\text{km}$
Pg eNEZ 04 49 21.8
Sg eNEZ 49 44.4

DEC 9

GIG: $\Phi = 50.262^{\circ}\text{N}$, $\lambda = 18.862^{\circ}\text{E}$
H = 15:39:27.0, M = 2.5

OJC $\Delta = 67\text{km}$
Pg eZ 15 39 39.3
Sg eN 39 47.7

NIE $\Delta = 141\text{km}$
Pg eZ 15 39 52.3
Sg eN 40 09.3

KSP $\Delta = 193\text{km}$
Pg eNEZ 15 39 59.5
Sg eNEZ 40 22.5

DEC 9

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.864^{\circ}\text{E}$
H = 22:04:47.2, M = 2.2

OJC $\Delta = 67\text{km}$
Pg eZ 22 04 58.9
Sg eN 05 07.3

NIE $\Delta = 140\text{km}$
Pg eZ 22 05 11.9
(Sg) eN 05 30.5

KSP $\Delta = 193\text{km}$
Pg eNEZ 22 05 19.7
Sg eNEZ 05 42.7

DEC 9

GIG: $\Phi = 50.102^{\circ}\text{N}$, $\lambda = 19.182^{\circ}\text{E}$
H = 22:11:50.9, M = 2.3

OJC $\Delta = 45\text{km}$
Pg eZ 22 11 59.1
Sg eE 12 05.2

NIE $\Delta = 112\text{km}$
Pg eZ 22 12 10.5
Sg eN 12 25.1

KSP $\Delta = 221\text{km}$
Pg eNEZ 22 12 29.2
Sg eNEZ 12 53.9

DEC 10

GIG: $\Phi = 50.066^{\circ}\text{N}$, $\lambda = 18.463^{\circ}\text{E}$
H = 03:03:03.6, M = 2.3

RAC $\Delta = 19\text{km}$
Pg eZ 03 03 08.0
Sg eNE 03 11.5

OJC $\Delta = 97\text{km}$
Pg eZ 03 03 20.5
Sg eN 03 32.7

NIE $\Delta = 152\text{km}$
Pg eZ 03 03 30.0
Sg eN 03 49.7

KSP $\Delta = 176\text{km}$
Pn eNEZ 03 03 30.8
Sn eNEZ 03 52.8

DEC 10

$\Phi = 50.17^{\circ}\text{N}$, $\lambda = 19.31^{\circ}\text{E}$
H = 04:09:30.4, M = 2.2

OJC $\Delta = 34\text{km}$
Pg eZ 04 09 36.0
Sg eN 09 40.9

NIE $\Delta = 110\text{km}$
Pg eZ 04 09 48.7
Sg eN 10 04.0

KSP $\Delta = 227\text{km}$
Pn eEZ 04 10 07.4
Pg eNEZ 10 09.7
Sn eNEZ 10 34.8

DEC 10

GIG: $\Phi = 50.224^{\circ}\text{N}$, $\lambda = 19.015^{\circ}\text{E}$
H = 13:11:47.7, M = 2.6

OJC $\Delta = 56\text{km}$
Pg eZ 13 11 57.9
Sg eN 12 05.2

NIE $\Delta = 130\text{km}$
Pg eZ 13 12 11.1
(Sg) eE 12 27.9

KSP $\Delta = 204\text{km}$
Pg eEZ 13 12 21.9
Sg eNEZ 12 46.4

DEC 10

GIG: $\Phi = 50.261^{\circ}\text{N}$, $\lambda = 18.863^{\circ}\text{E}$
H = 19:55:26.9, M = 2.2

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OJC	$\Delta = 67\text{km}$		
Pg	eZ	19	55 39.3
Sg	eE		55 47.7
NIE	$\Delta = 140\text{km}$		
Pg	eZ	19	55 51.4
Sg	eNE		56 09.4
KSP	$\Delta = 193\text{km}$		
Pg	eNEZ	19	55 59.7
Sg	eNEZ		56 23.0
<u>DEC 11</u>			
GIG: $\Phi = 50.232^\circ\text{N}$, $\lambda = 19.039^\circ\text{E}$			
H = 01:41:15.5, M = 2.2			
OJC	$\Delta = 54\text{km}$		
Pg	eZ	01	41 24.9
Sg	eN		41 32.7
NIE	$\Delta = 129\text{km}$		
Pg	eZ	01	41 38.0
(Sg)	eE		41 55.5
KSP	$\Delta = 206\text{km}$		
Pn	eNEZ	01	41 47.5
Sn	eNEZ		42 12.3
<u>DEC 11</u>			
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.855^\circ\text{E}$			
H = 02:14:39.8, M = 2.3			
OJC	$\Delta = 68\text{km}$		
Pg	eZ	02	14 52.6
Sg	eNE		15 00.7
NIE	$\Delta = 140\text{km}$		
Pg	eZ	02	15 04.3
Sg	eE		15 22.2
KSP	$\Delta = 192\text{km}$		
Pg	eNEZ	02	15 11.8
(Sn)	eNEZ		15 34.1
<u>DEC 11</u>			
GIG: $\Phi = 50.266^\circ\text{N}$, $\lambda = 18.778^\circ\text{E}$			
H = 22:15:10.9, M = 2.5			
RAC	$\Delta = 47\text{km}$		
Pg	eZ	22	15 20.4
Sg	eNE		15 26.6
OJC	$\Delta = 73\text{km}$		
Pg	eZ	22	15 24.3
Sg	eE		15 33.3
NIE	$\Delta = 146\text{km}$		
Pg	eZ	22	15 36.4
Sg	eE		15 54.8

KSP	$\Delta = 187\text{km}$		
Pn	eE	22	15 40.3
Pg	eNEZ		15 42.8
Sg	eNEZ		16 04.8
<u>DEC 12</u>			
GIG: $\Phi = 50.164^\circ\text{N}$, $\lambda = 19.309^\circ\text{E}$			
H = 11:17:22.4, M = 2.1			
OJC	$\Delta = 35\text{km}$		
Pg	eZ	11	17 28.4
Sg	eN		17 33.2
NIE	$\Delta = 110\text{km}$		
Pg	eZ	11	17 40.8
Sg	eE		17 56.0
KSP	$\Delta = 227\text{km}$		
Pn	eEZ	11	17 58.9
Pg	eNEZ		18 01.6
Sn	eNEZ		18 26.1
<u>DEC 13</u>			
GIG: $\Phi = 50.068^\circ\text{N}$, $\lambda = 18.463^\circ\text{E}$			
H = 14:20:02.1, M = 2.5			
RAC	$\Delta = 19\text{km}$		
Pg	eZ	14	20 06.7
Sg	eNE		20 10.1
OJC	$\Delta = 97\text{km}$		
Pg	eZ	14	20 19.1
Sg	eE		20 30.7
NIE	$\Delta = 152\text{km}$		
Pg	eZ	14	20 29.1
Sg	eE		20 48.0
KSP	$\Delta = 176\text{km}$		
Pn	eNEZ	14	20 30.7
Sg	eNEZ		20 52.7
<u>DEC 14</u>			
GIG: $\Phi = 50.233^\circ\text{N}$, $\lambda = 19.039^\circ\text{E}$			
H = 17:46:26.0, M = 2.3			
OJC	$\Delta = 54\text{km}$		
Pg	eZ	17	46 35.3
Sg	eN		46 42.6
NIE	$\Delta = 129\text{km}$		
Pg	eZ	17	46 49.0
Sg	eN		47 04.6
KSP	$\Delta = 206\text{km}$		
Pn	eNEZ	17	46 59.2
(Sg)	eNEZ		47 24.5
<u>DEC 14</u>			
GIG: $\Phi = 50.261^\circ\text{N}$, $\lambda = 18.864^\circ\text{E}$			
H = 22:28:00.5, M = 2.6			

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RAC	$\Delta = 51\text{km}$					KSP	$\Delta = 206\text{km}$				
	Pg eZ	22	28	10.4			Pg eNEZ	03	56	44.3	
	Sg eNE		28	16.1			Sn eNEZ		57	07.8	
DEC 14											
	$\Phi = 50.26^\circ\text{N}, \lambda = 19.02^\circ\text{E}$										
	H = 23:30:58.3, M = 2.2										
OJC	$\Delta = 56\text{km}$										
	Pg eZ	23	31	08.5							
	Sg eN		31	15.6							
NIE	$\Delta = 132\text{km}$										
	Pg eZ	23	31	21.8							
	Sg eN		31	38.2							
KSP	$\Delta = 203\text{km}$										
	Pg eNEZ	23	31	32.7							
	Sg eNEZ		31	57.3							
DEC 15											
	GIG: $\Phi = 50.165^\circ\text{N}, \lambda = 19.310^\circ\text{E}$										
	H = 02:38:53.3, M = 2.5										
OJC	$\Delta = 36\text{km}$										
	Pg eZ	02	38	59.7							
	Sg eN		39	04.6							
NIE	$\Delta = 110\text{km}$										
	Pg eZ	02	39	12.2							
	(Sg) eE		39	27.4							
KSP	$\Delta = 226\text{km}$										
	Pg eNEZ	02	39	31.3							
	Sn eNEZ		39	56.7							
DEC 15											
	GIG: $\Phi = 50.233^\circ\text{N}, \lambda = 19.039^\circ\text{E}$										
	H = 03:56:10.0, M = 2.2										
OJC	$\Delta = 54\text{km}$										
	Pg eZ	03	56	19.9							
	Sg eN		56	26.9							
NIE	$\Delta = 129\text{km}$										
	Pg eZ	03	56	32.5							
	Sg eN		56	49.1							
DEC 15											
	GIG: $\Phi = 50.104^\circ\text{N}, \lambda = 19.182^\circ\text{E}$										
	H = 08:51:59.6, M = 2.1										
OJC	$\Delta = 46\text{km}$										
	Pg eZ	08	52	08.3							
	Sg eN		52	13.2							
NIE	$\Delta = 112\text{km}$										
	Pg eZ	08	52	19.0							
	(Sg) eE		52	34.5							
KSP	$\Delta = 220\text{km}$										
	Pg eNEZ	08	52	36.3							
	Sn eNEZ		53	01.0							
DEC 15											
	GIG: $\Phi = 50.165^\circ\text{N}, \lambda = 19.309^\circ\text{E}$										
	H = 17:26:24.9, M = 2.6										
OJC	$\Delta = 35\text{km}$										
	Pg iZ	17	26	30.5							
	Sg iN		26	35.3							
NIE	$\Delta = 110\text{km}$										
	Pg eZ	17	26	43.4							
	Sg eE		26	58.5							
KSP	$\Delta = 227\text{km}$										
	Pn eNEZ	17	27	01.7							
	Pg eNEZ		27	04.2							
	Sn eNEZ		27	28.8							
DEC 16											
	GIG: $\Phi = 50.234^\circ\text{N}, \lambda = 19.071^\circ\text{E}$										
	H = 12:55:52.5, M = 2.6										
OJC	$\Delta = 52\text{km}$										
	Pg eZ	12	56	01.8							
	Sg eNE		56	09.0							
NIE	$\Delta = 128\text{km}$										
	Pg eZ	12	56	15.6							
KSP	$\Delta = 207\text{km}$										
	Pn eNZ	12	56	24.7							
	Pg eNEZ		56	27.1							
	Sg eNEZ		56	52.0							
DEC 16											
	GIG: $\Phi = 50.178^\circ\text{N}, \lambda = 19.300^\circ\text{E}$										
	H = 18:01:39.6, M = 2.4										
OJC	$\Delta = 36\text{km}$										
	Pg eZ	18	01	46.1							
	Sg iN		01	51.0							

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NIE	$\Delta = 111\text{km}$		
Pg eZ	18 01 58.6		
Sg eE	02 13.7		
KSP	$\Delta = 226\text{km}$		
Pg eNEZ	18 02 18.7		
Sn eNEZ	02 43.7		
DEC 17			
GIG: $\Phi = 50.075^\circ\text{N}$, $\lambda = 19.128^\circ\text{E}$			
H = 11:58:18.7, M = 2.2			
OJC	$\Delta = 50\text{km}$		
Pg eZ	11 58 27.5		
Sg eN	58 34.1		
NIE	$\Delta = 112\text{km}$		
Pg eZ	11 58 38.0		
KSP	$\Delta = 218\text{km}$		
Pg eNEZ	11 58 56.7		
Sn eNEZ	59 20.5		
DEC 18			
GIG: $\Phi = 50.062^\circ\text{N}$, $\lambda = 18.450^\circ\text{E}$			
H = 02:42:50.0, M = 2.2			
RAC	$\Delta = 18\text{km}$		
Pg iZ	02 42 54.1 D		
Sg iN	42 57.3		
OJC	$\Delta = 98\text{km}$		
Pg eZ	02 43 06.9		
Sg eN	43 19.0		
NIE	$\Delta = 152\text{km}$		
Pg eZ	02 43 16.5		
Sg eN	43 36.0		
KSP	$\Delta = 176\text{km}$		
Pn eEZ	02 43 18.4		
Sn eNEZ	43 39.1		
DEC 18			
GIG: $\Phi = 50.170^\circ\text{N}$, $\lambda = 19.300^\circ\text{E}$			
H = 10:46:27.1, M = 2.3			
OJC	$\Delta = 36\text{km}$		
Pg eZ	10 46 32.6		
Sg eN	46 37.9		
NIE	$\Delta = 111\text{km}$		
Pg eZ	10 46 46.3		
(Sg) eN	47 01.4		
KSP	$\Delta = 226\text{km}$		
Pn eEZ	10 47 03.7		
Pg eNEZ	47 06.1		
Sn eNEZ	47 30.6		

DEC 18			
GIG: $\Phi = 50.231^\circ\text{N}$, $\lambda = 19.035^\circ\text{E}$			
H = 21:21:21.2, M = 2.1			
OJC	$\Delta = 54\text{km}$		
Pg eZ	21 21 30.8		
Sg eN	21 38.2		
NIE	$\Delta = 129\text{km}$		
Pg eZ	21 21 44.5		
Sg eE	22 00.5		
KSP	$\Delta = 206\text{km}$		
Pg eNEZ	21 21 55.8		
(Sg) eNEZ	22 19.6		
DEC 19			
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$			
H = 02:16:45.4, M = 2.1			
OJC	$\Delta = 67\text{km}$		
Pg eZ	02 16 58.2		
Sg eNE	17 05.9		
NIE	$\Delta = 140\text{km}$		
Pg eZ	02 17 09.8		
Sg eEN	17 27.7		
KSP	$\Delta = 193\text{km}$		
Pg eNEZ	02 17 18.0		
Sg eNEZ	17 41.1		
DEC 19			
GIG: $\Phi = 50.352^\circ\text{N}$, $\lambda = 18.867^\circ\text{E}$			
H = 10:46:20.2, M = 2.3			
OJC	$\Delta = 68\text{km}$		
Pg eZ	10 46 33.3		
Sg eN	46 41.7		
NIE	$\Delta = 147\text{km}$		
Pg eZ	10 46 45.9		
Sg eNE	47 03.7		
KSP	$\Delta = 190\text{km}$		
Pn eNEZ	10 46 50.4		
Sg eNEZ	47 14.7		
DEC 21			
GIG: $\Phi = 50.232^\circ\text{N}$, $\lambda = 19.038^\circ\text{E}$			
H = 00:09:03.0, M = 2.2			
OJC	$\Delta = 54\text{km}$		
Pg eZ	00 09 12.4		
Sg eN	09 19.7		
NIE	$\Delta = 130\text{km}$		
Pg eZ	00 09 26.5		
Sg eN	09 41.8		

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KSP	$\Delta = 205\text{km}$		
Pg eNEZ		00 09 37.2	
Sg eNEZ		10 02.0	
<u>DEC 21</u>			
	$\Phi = 50.27^\circ\text{N}, \lambda = 19.02^\circ\text{E}$		
	$H = 08:12:22.0, M = 2.2$		
OJC	$\Delta = 56\text{km}$		
Pg eZ		08 12 32.0	
Sg eN		12 39.5	
NIE	$\Delta = 132\text{km}$		
Pg eZ		08 12 44.9	
(Sg) eE		13 02.8	
KSP	$\Delta = 203\text{km}$		
Pg eNEZ		08 12 56.1	
Sg eNEZ		13 21.5	
<u>DEC 21</u>			
GIG:	$\Phi = 50.076^\circ\text{N}, \lambda = 19.129^\circ\text{E}$		
	$H = 17:25:31.1, M = 2.2$		
OJC	$\Delta = 50\text{km}$		
Pg eZ		17 25 39.9	
Sg eN		25 46.5	
NIE	$\Delta = 113\text{km}$		
Pg e(Z)		17 25 51.1	
(Sg) eE		26 06.1	
KSP	$\Delta = 218\text{km}$		
Pg eNEZ		17 26 08.6	
Sg eNEZ		26 33.9	
<u>DEC 22</u>			
GIG:	$\Phi = 50.273^\circ\text{N}, \lambda = 18.827^\circ\text{E}$		
	$H = 01:43:07.3, M = 2.2$		
OJC	$\Delta = 70\text{km}$		
Pg eZ		01 43 20.7	
Sg eE		43 28.9	
NIE	$\Delta = 144\text{km}$		
Pg eZ		01 43 33.1	
(Sg) eE		43 51.5	
KSP	$\Delta = 190\text{km}$		
Pg eNEZ		01 43 38.9	
Sg eNEZ		44 01.6	
<u>DEC 22</u>			
GIG:	$\Phi = 50.171^\circ\text{N}, \lambda = 19.300^\circ\text{E}$		
	$H = 04:38:02.9, M = 2.4$		
OJC	$\Delta = 37\text{km}$		
Pg eZ		04 38 09.9	
Sg eE		38 14.6	

NIE	$\Delta = 111\text{km}$		
Pg eZ		04 38 22.4	
(Sg) eE		38 37.4	
KSP	$\Delta = 225\text{km}$		
Pg eNEZ		04 38 41.0	
(Sn) eNEZ		04 39 04.3	
<u>DEC 22</u>			
	$\Phi = 50.07^\circ\text{N}, \lambda = 18.46^\circ\text{E}$		
	$H = 08:09:01.0, M = 2.3$		
RAC	$\Delta = 19\text{km}$		
Pg eZ		08 09 05.1	
Sg eNE		09 08.5	
OJC	$\Delta = 98\text{km}$		
Pg eZ		08 09 18.0	
Sg eE		09 30.0	
NIE	$\Delta = 152\text{km}$		
Pg eZ		08 09 27.1	
Sg eN		09 46.8	
<u>DEC 22</u>			
GIG:	$\Phi = 50.232^\circ\text{N}, \lambda = 19.040^\circ\text{E}$		
	$H = 14:16:47.2, M = 2.2$		
OJC	$\Delta = 55\text{km}$		
Pg eZ		14 16 57.6	
Sg eN		17 04.5	
NIE	$\Delta = 130\text{km}$		
Pg eZ		14 17 10.7	
(Sg) eE		17 27.3	
KSP	$\Delta = 205\text{km}$		
Pg eNEZ		14 17 21.4	
(Sg) eNEZ		17 45.8	
<u>DEC 23</u>			
GIG:	$\Phi = 50.234^\circ\text{N}, \lambda = 19.034^\circ\text{E}$		
	$H = 00:59:29.2, M = 2.3$		
OJC	$\Delta = 55\text{km}$		
Pg eZ		00 59 39.1	
Sg eN		59 46.9	
NIE	$\Delta = 130\text{km}$		
Pg eZ		00 59 52.1	
Sg eN		01 00 08.8	
KSP	$\Delta = 205\text{km}$		
Pg eNEZ		01 00 03.7	
Sg eNEZ		00 27.8	
<u>DEC 23</u>			
GIG:	$\Phi = 50.266^\circ\text{N}, \lambda = 18.778^\circ\text{E}$		
	$H = 07:09:05.6, M = 2.2$		

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OJC	$\Delta = 74\text{km}$		
Pg eZ		07 09 19.0	
Sg eN		09 28.9	
NIE	$\Delta = 146\text{km}$		
Pg eZ		07 09 31.0	
Sg eE		09 49.9	
KSP	$\Delta = 187\text{km}$		
Pg eNEZ		07 09 36.7	
Sg eNEZ		09 59.1	

DEC 23

GIG: $\Phi = 50.170^\circ\text{N}$, $\lambda = 19.300^\circ\text{E}$
H = 15:49:31.8, M = 2.4

OJC	$\Delta = 36\text{km}$		
Pg eZ		15 49 38.3	
Sg eN		49 43.0	
NIE	$\Delta = 111\text{km}$		
Pg eZ		15 49 50.8	
(Sg) eE		50 05.9	
KSP	$\Delta = 226\text{km}$		
Pg eNEZ		15 50 11.1	
Sg eNEZ		50 36.2	

DEC 24

GIG: $\Phi = 50.227^\circ\text{N}$, $\lambda = 18.875^\circ\text{E}$
H = 05:20:30.2, M = 2.3

OJC	$\Delta = 66\text{km}$		
Pg eZ		05 20 42.1	
Sg eE		20 50.8	
NIE	$\Delta = 138\text{km}$		
Pg eZ		05 20 55.2	
Sg eE		21 12.2	
KSP	$\Delta = 195\text{km}$		
Pg eNEZ		05 21 02.9	
Sg eNEZ		21 26.0	

DEC 24

$\Phi = 50.26^\circ\text{N}$, $\lambda = 18.84^\circ\text{E}$
H = 12:47:17.4, M = 2.5

OJC	$\Delta = 68\text{km}$		
Pg eZ		12 47 30.1	
Sg eE		47 38.3	
NIE	$\Delta = 141\text{km}$		
Pg eZ		12 47 42.5	
Sg eE		47 59.9	
KSP	$\Delta = 192\text{km}$		
Pg eNEZ		12 47 50.2	
Sg eNEZ		48 12.9	

DEC 25

$\Phi = 49.93^\circ\text{N}$, $\lambda = 18.50^\circ\text{E}$
H = 19:02:05.8, M = 2.2

RAC	$\Delta = 28\text{km}$		
Pg eZ		19 02 12.2	
Sg eNE		02 16.1	
OJC	$\Delta = 98\text{km}$		
Pg eZ		19 02 23.2	
KSP	$\Delta = 187\text{km}$		
Pg eNEZ		19 02 37.0	
Sg eNEZ		03 00.3	

DEC 28

GIG: $\Phi = 50.166^\circ\text{N}$, $\lambda = 19.309^\circ\text{E}$
H = 02:15:27.1, M = 2.4

OJC	$\Delta = 36\text{km}$		
Pg eZ		02 15 33.1	
Sg eN		15 37.7	
RAC	$\Delta = 80\text{km}$		
(Pg) eZ		02 15 40.6	
(Sg) eE		15 51.1	
NIE	$\Delta = 110\text{km}$		
Pg eZ		02 15 45.7	
Sg eE		16 00.8	
KSP	$\Delta = 226\text{km}$		
Pg eNEZ		02 16 06.3	
Sn eNEZ		16 31.2	

DEC 28

GIG: $\Phi = 50.066^\circ\text{N}$, $\lambda = 18.463^\circ\text{E}$
H = 10:27:35.8, M = 2.6

RAC	$\Delta = 19\text{km}$		
Pg iZ		10 27 40.1 D	
Sg eNE		27 43.4	
OJC	$\Delta = 97\text{km}$		
Pg eZ		10 27 52.7	
Sg eN		28 04.7	
NIE	$\Delta = 152\text{km}$		
Pg eZ		10 28 02.0	
Sg eN		28 21.8	
KSP	$\Delta = 176\text{km}$		
Pn eNEZ		10 28 04.1	
Sg eNEZ		28 26.0	

DEC 28

GIG: $\Phi = 50.103^\circ\text{N}$, $\lambda = 19.181^\circ\text{E}$
H = 13:01:30.6, M = 2.4

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OJC	$\Delta = 46\text{km}$		
Pg eZ		13 01 38.3	
Sg eN		01 44.6	
NIE	$\Delta = 111\text{km}$		
Pg eZ		13 01 49.7	
Sg eE		02 04.2	
KSP	$\Delta = 221\text{km}$		
Pg eNEZ		13 02 08.3	
Sn eNEZ		02 32.5	
<u>DEC 28</u>			
	$\Phi = 50.29^\circ\text{N}, \lambda = 18.86^\circ\text{E}$		
	H = 20:36:40.8, M = 2.0		
OJC	$\Delta = 67\text{km}$		
Pg eZ		20 36 53.2	
Sg eNE		37 01.6	
NIE	$\Delta = 142\text{km}$		
Pg eZ		20 37 06.1	
Sg eE		37 23.6	
KSP	$\Delta = 192\text{km}$		
Pg eNEZ		20 37 13.4	
Sg eNEZ		37 36.3	
<u>DEC 28</u>			
GIG:	$\Phi = 50.164^\circ\text{N}, \lambda = 19.309^\circ\text{E}$		
	H = 23:42:14.9, M = 2.6		
OJC	$\Delta = 35\text{km}$		
Pg eZ		23 42 21.5	
Sg eN		42 26.2	
RAC	$\Delta = 80\text{km}$		
Pg eZ		23 42 30.0	
Sg eNE		42 40.8	
NIE	$\Delta = 111\text{km}$		
Pg eZ		23 42 33.9	
(Sg) eE		42 49.2	
KSP	$\Delta = 226\text{km}$		
Pn eNEZ		23 42 50.6	
Pg eNEZ		42 52.9	
(Sn) eNEZ		43 16.7	
<u>DEC 29</u>			
GIG:	$\Phi = 50.234^\circ\text{N}, \lambda = 19.073^\circ\text{E}$		
	H = 03:07:01.4, M = 2.2		
OJC	$\Delta = 52\text{km}$		
Pg eZ		03 07 10.8	
Sg eN		07 17.8	
NIE	$\Delta = 127\text{km}$		
Pg eZ		03 07 23.8	
Sg eE		07 40.1	

KSP	$\Delta = 208\text{km}$		
Pg eNEZ		03 07 36.4	
Sg eNEZ		08 01.8	
<u>DEC 29</u>			
GIG:	$\Phi = 50.262^\circ\text{N}, \lambda = 18.863^\circ\text{E}$		
	H = 11:39:48.3, M = 2.3		
OJC	$\Delta = 67\text{km}$		
Pg eZ		11 40 00.8	
Sg eEN		40 09.2	
NIE	$\Delta = 140\text{km}$		
Pg eZ		11 40 12.9	
Sg eE		40 31.1	
KSP	$\Delta = 193\text{km}$		
Pg eNEZ		11 40 21.1	
Sg eNEZ		40 43.8	
<u>DEC 29</u>			
	$\Phi = 50.26^\circ\text{N}, \lambda = 19.02^\circ\text{E}$		
	H = 13:20:17.8, M = 2.2		
OJC	$\Delta = 56\text{km}$		
Pg eZ		13 20 27.9	
Sg eE		20 35.2	
NIE	$\Delta = 132\text{km}$		
Pg eZ		13 20 41.1	
Sg eE		20 57.5	
KSP	$\Delta = 204\text{km}$		
Pg eNEZ		13 20 52.4	
Sg eNEZ		21 16.5	
<u>DEC 29</u>			
GIG:	$\Phi = 50.075^\circ\text{N}, \lambda = 19.126^\circ\text{E}$		
	H = 14:17:43.6, M = 2.1		
OJC	$\Delta = 51\text{km}$		
Pg eZ		14 17 52.8	
Sg eNE		17 59.4	
NIE	$\Delta = 113\text{km}$		
Pg eZ		14 18 03.0	
(Sg) eE		18 18.8	
KSP	$\Delta = 218\text{km}$		
Pg iNEZ		14 18 20.0	
Sg eNEZ		18 47.0	
<u>DEC 29</u>			
GIG:	$\Phi = 50.233^\circ\text{N}, \lambda = 19.037^\circ\text{E}$		
	H = 14:35:44.2, M = 2.2		
OJC	$\Delta = 54\text{km}$		
Pg eZ		14 35 53.9	
Sg eEN		36 01.4	

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NIE	$\Delta = 129\text{km}$		
Pg eZ		14	36 06.9
Sg eE			36 23.5
KSP	$\Delta = 206\text{km}$		
Pn eNEZ		14	36 17.1
(Sn) eNEZ			36 40.3
<u>DEC 29</u>			
$\Phi = 50.18^\circ\text{N}$, $\lambda = 19.31^\circ\text{E}$			
$H = 22:27:24.4$, $M = 2.3$			
OJC	$\Delta = 34\text{km}$		
Pg eZ		22	27 30.2
Sg eN			27 34.9
NIE	$\Delta = 111\text{km}$		
Pg eZ		22	27 42.9
Sg eEN			27 58.3
KSP	$\Delta = 227\text{km}$		
Pg eNEZ		22	28 03.4
Sn eNEZ			28 27.8
<u>DEC 30</u>			
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$			
$H = 10:29:27.2$, $M = 2.2$			
OJC	$\Delta = 67\text{km}$		
Pg eZ		10	29 39.5
Sg eE			29 48.0
NIE	$\Delta = 141\text{km}$		
Pg eZ		10	29 51.8
Sg eE			30 10.0
KSP	$\Delta = 193\text{km}$		
Pg eNEZ		10	29 59.8
Sg eNEZ			30 23.0
<u>DEC 30</u>			
GIG: $\Phi = 50.233^\circ\text{N}$, $\lambda = 19.039^\circ\text{E}$			
$H = 11:09:07.3$, $M = 2.3$			
OJC	$\Delta = 54\text{km}$		
Pg eZ		11	09 17.5
Sg eN			09 24.8
NIE	$\Delta = 128\text{km}$		
Pg eZ		11	09 29.5
(Sg) eN			09 47.0
KSP	$\Delta = 206\text{km}$		
Pg eNEZ		11	09 42.6
Sg eNEZ			10 06.8
<u>DEC 31</u>			
GIG: $\Phi = 50.262^\circ\text{N}$, $\lambda = 18.862^\circ\text{E}$			
$H = 02:50:22.6$, $M = 2.7$			
RAC	$\Delta = 51\text{km}$		

RAC	Pg eZ	02	50 32.9
	Sg eNE		50 39.9
OJC	$\Delta = 67\text{km}$		
	Pg eZ	02	50 35.0
	Sg eE		50 43.5
NIE	$\Delta = 140\text{km}$		
	Pg eZ	02	50 47.2
	Sg eN		51 04.9
KSP	$\Delta = 193\text{km}$		
	Pg eNEZ	02	50 55.5
	Sg eNEZ		51 18.3
<u>DEC 31</u>			
GIG: $\Phi = 50.239^\circ\text{N}$, $\lambda = 18.884^\circ\text{E}$			
$H = 03:29:58.8$, $M = 2.8$			
RAC	$\Delta = 52\text{km}$		
	Pg eZ	03	30 09.2
	Sg eN		30 16.5
OJC	$\Delta = 65\text{km}$		
	Pg eZ	03	30 11.0
	Sg eE		30 19.4
NIE	$\Delta = 138\text{km}$		
	Pg eZ	03	30 23.1
	Sg eN		30 40.6
KSP	$\Delta = 195\text{km}$		
	Pn eNEZ	03	30 29.7
	Pg iNEZ		30 31.9
	Sg eNEZ		30 54.9
<u>DEC 31</u>			
GIG: $\Phi = 50.066^\circ\text{N}$, $\lambda = 18.425^\circ\text{E}$			
$H = 04:02:52.4$, $M = 3.2$			
RAC	$\Delta = 17\text{km}$		
	Pg iZ	04	02 56.1 D
	Sg iN		02 59.3
OJC	$\Delta = 99\text{km}$		
	Pg eZ	04	03 09.2
	Sg eEZ		03 22.5
NIE	$\Delta = 154\text{km}$		
	Pg eZ	04	03 18.1
	Sg eN		03 39.1
KSP	$\Delta = 174\text{km}$		
	Pn eNEZ	04	03 20.2
	Pg eNEZ		03 22.1
	Sn eNEZ		03 40.1
	Sg eNEZ		03 42.3
KWP	$\Delta = 310\text{km}$		
	P eZ	04	03 44.9

Upper Silesian Coal Basin 2004

DEC 31

GIG: $\Phi = 50.07^{\circ}\text{N}$, $\lambda = 18.46^{\circ}\text{E}$
H = 11:30 31.4, M = 2.4

RAC $\Delta = 20\text{km}$
Pg iZ 11 30 35.8 D
Sg iN 30 39.2

OJC $\Delta = 97\text{km}$
Pg eZ 11 30 48.4
Sg eN 31 00.2

NIE $\Delta = 151\text{km}$
Pg eZ 11 30 57.4
Sg eN 31 16.6

Lubin Copper Basin 2004

JAN 2

$\phi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 16:32:44, M = 2.7

KSP $\Delta = 75\text{km}$
 Pg iNEZ 16 32 56.0
 Sg eNEZ 33 05.7

OJC $\Delta = 298\text{km}$
 Pn eZ 16 33 25.4
 Pg eZ 33 34.5
 Sg eN 34 10.9

NIE $\Delta = 380\text{km}$
 P eZ 16 33 48.8
 S eN 34 34.5

JAN 4

$\phi = 51.510^{\circ}\text{N}$, $\lambda = 15.992^{\circ}\text{E}$
H = 20:16:22.7, M = 2.5

KSP $\Delta = 77.4\text{km}$
 Pg eNEZ 20 16 35.4
 Sg eNEZ 16 45.1

JAN 6

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.162^{\circ}\text{E}$
H = 04:46:04.2, M = 2.6

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 04 46 15.4
 Sg eNEZ 46 23.6

JAN 7

$\phi = 51.49^{\circ}\text{N}$, $\lambda = 16.00^{\circ}\text{E}$
H = 04:33:21, M = 2.5

KSP $\Delta = 75\text{km}$
 Pg eNEZ 04 33 33.4
 Sg eNEZ 33 41.1

JAN 7

$\phi = 51.563^{\circ}\text{N}$, $\lambda = 16.009^{\circ}\text{E}$
H = 06:11:10.4, M = 3.0

KSP $\Delta = 82.8\text{km}$
 Pg eNEZ 06 11 24.0
 Sg eNEZ 11 34.0

OJC $\Delta = 306.4\text{km}$
 Pn eZ 06 11 51.7
 Pg iZ 12 01.1
 Sn eE 12 25.2
 Sg iN 12 36.7

JAN 8

$\phi = 51.510^{\circ}\text{N}$, $\lambda = 16.085^{\circ}\text{E}$
H = 12:40:42.9, M = 2.7

KSP $\Delta = 75.9\text{km}$
 Pg eNEZ 12 40 55.3
 Sg eNEZ 41 04.2

OJC $\Delta = 299.0\text{km}$
 Pg eZ 12 41 32.9
 Sg eN 42 09.0

JAN 10

$\phi = 51.455^{\circ}\text{N}$, $\lambda = 16.073^{\circ}\text{E}$
H = 10:45:23.0, M = 2.6

KSP $\Delta = 70.0\text{km}$
 Pg eNEZ 10 45 34.5
 Sg eNEZ 45 43.3

JAN 14

$\phi = 51.531^{\circ}\text{N}$, $\lambda = 16.136^{\circ}\text{E}$
H = 05:34:17.3, M = 2.7

KSP $\Delta = 77.6\text{km}$
 Pg eNEZ 05 34 30.0
 Sg eNEZ 34 39.5

OJC $\Delta = 296.9\text{km}$
 Pg eZ 05 35 08.7
 Sg eN 35 43.2

JAN 14

$\phi = 51.456^{\circ}\text{N}$, $\lambda = 16.076^{\circ}\text{E}$
H = 17:15:40.7, M = 2.7

KSP $\Delta = 70.1\text{km}$
 Pg eNEZ 17 15 52.2
 Sg eNEZ 16 00.7

JAN 16

$\phi = 51.514^{\circ}\text{N}$, $\lambda = 16.066^{\circ}\text{E}$
H = 06:13:22.8, M = 2.7

KSP $\Delta = 76.6\text{km}$
 Pg eNEZ 06 13 35.3
 Sg eNEZ 13 44.3

OJC $\Delta = 300.4\text{km}$
 Pg eZ 06 14 12.5
 Sg eN 14 47.9

JAN 16

$\phi = 51.465^{\circ}\text{N}$, $\lambda = 16.109^{\circ}\text{E}$
H = 19:57:45.9, M = 2.5

KSP $\Delta = 70.6\text{km}$
 Pg eNZ 19 57 57.5
 Sg eNEZ 58 05.3

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JAN 19

$\phi = 51.449^{\circ}\text{N}$, $\lambda = 16.083^{\circ}\text{E}$
H = 08:41:29.1, M = 3.0

KSP $\Delta = 69.2\text{km}$
P_g iNEZ 08 41 40.4
S_g eNEZ 41 48.7

OJC $\Delta = 296.0\text{km}$
P_n eZ 08 42 17.6
P_g eZ 42 19.6
S_g eN 42 56.0

JAN 19

$\phi = 51.545^{\circ}\text{N}$, $\lambda = 16.014^{\circ}\text{E}$
H = 16:42:20.9, M = 2.6

KSP $\Delta = 80.7\text{km}$
P_g eNEZ 16 42 34.1
S_g eNEZ 42 44.0

JAN 20

$\phi = 51.455^{\circ}\text{N}$, $\lambda = 16.074^{\circ}\text{E}$
H = 06:39:10.9, M = 2.6

KSP $\Delta = 70.0\text{km}$
P_g eNEZ 06 39 22.4
S_g eNEZ 39 30.9

JAN 20

$\phi = 51.455^{\circ}\text{N}$, $\lambda = 16.075^{\circ}\text{E}$
H = 06:39:57.1, M = 2.7

KSP $\Delta = 70.0\text{km}$
P_g eNEZ 06 40 08.6
S_g eNEZ 40 17.0

JAN 20

$\phi = 51.555^{\circ}\text{N}$, $\lambda = 16.095^{\circ}\text{E}$
H = 14:35:51.4, M = 3.5

KSP $\Delta = 80.7\text{km}$
P_g iNEZ 14 36 04.6
S_g iNEZ 36 14.5

RAC $\Delta = 221.2\text{km}$
P eZ 14 36 24.2
S eNE 36 53.3

OJC $\Delta = 300.7\text{km}$
P_n eZ 14 36 32.8
P_g eZ 36 41.9
S_n eE 37 05.2
S_g eE 37 16.7

NIE $\Delta = 383.1\text{km}$
P eZ 14 36 57.3
S eN 37 40.2

KWP $\Delta = 515.9\text{km}$
P_n eZ 14 37 00.4
eZ 37 19.4
S eNE 38 23.3

JAN 22

$\phi = 51.532^{\circ}\text{N}$, $\lambda = 16.137^{\circ}\text{E}$
H = 03:55:58.5, M = 3.0

KSP $\Delta = 77.7\text{km}$
P_g eNEZ 03 56 11.2
S_g eNEZ 56 20.7

RAC $\Delta = 217.3\text{km}$
P eZ 03 56 36.0
S eN 57 00.2

OJC $\Delta = 296.9\text{km}$
P_g eZ 03 56 47.5
S_g eN 57 22.5

NIE $\Delta = 379.2\text{km}$
P eZ 03 57 02.7
S eN 57 46.6

JAN 22

$\phi = 51.482^{\circ}\text{N}$, $\lambda = 16.104^{\circ}\text{E}$
H = 23:12:27.6, M = 2.7

KSP $\Delta = 72.5\text{km}$
P_g eNEZ 23 12 39.5
S_g eNEZ 12 48.4

RAC $\Delta = 214.9\text{km}$
P eZ 23 13 51.6
S eN 13 54.9

JAN 23

$\phi = 51.451^{\circ}\text{N}$, $\lambda = 16.171^{\circ}\text{E}$
H = 22:58:56.3, M = 2.3

KSP $\Delta = 68.4\text{km}$
P_g iNEZ 22 59 07.5
S_g iNEZ 59 15.5

JAN 24

$\phi = 51.502^{\circ}\text{N}$, $\lambda = 16.096^{\circ}\text{E}$
H = 05:05:29.7, M = 2.6

KSP $\Delta = 74.8\text{km}$
P_g eNEZ 05 05 42.0
S_g eNEZ 05 51.0

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OJC $\Delta = 297.9\text{km}$
Pg eZ 05 06 20.0
Sg eN 06 55.9

JAN 24

**$\phi = 51.448^\circ\text{N}$, $\lambda = 16.158^\circ\text{E}$
H = 11:06:10.3, M = 2.8**

KSP $\Delta = 68.2\text{km}$
Pg iNEZ 11 06 21.5
Sg iNEZ 06 29.9

OJC $\Delta = 291.3\text{km}$
Pg eZ 11 07 00.1
Sg eN 07 35.1

JAN 24

**$\phi = 51.462^\circ\text{N}$, $\lambda = 16.111^\circ\text{E}$
H = 12:29:23.7, M = 3.2**

KSP $\Delta = 70.2\text{km}$
Pg eNEZ 12 29 35.2
Sg iNEZ 29 43.8

RAC $\Delta = 212.9\text{km}$
P eZ 12 29 59.2
S eN 30 24.7

OJC $\Delta = 294.9\text{km}$
Pg eZ 12 30 13.9
Sg eN 30 48.6

NIE $\Delta = 376.0\text{km}$
P eZ 12 30 26.5
S eN 31 10.0

JAN 24

**$\phi = 51.476^\circ\text{N}$, $\lambda = 16.113^\circ\text{E}$
H = 20:38:03.3, M = 2.7**

KSP $\Delta = 71.7\text{km}$
Pg eNEZ 20 38 15.1
Sg eNEZ 38 23.7

OJC $\Delta = 295.5\text{km}$
Pg eZ 20 38 54.7
Sg eE 39 28.9

JAN 25

**$\phi = 51.48^\circ\text{N}$, $\lambda = 16.10^\circ\text{E}$
H = 04:47:08, M = 3.6**

KSP $\Delta = 72\text{km}$
Pg iNEZ 04 47 20.3
Sg iNEZ 47 28.9

RAC $\Delta = 215\text{km}$
Pn eZ 04 47 40.4
Sn eN 48 03.9

OJC $\Delta = 296\text{km}$
Pn eZ 04 47 49.3
Pg iZ 47 58.2
Sn eN 48 19.1
Sg iN 48 34.1

NIE $\Delta = 378\text{km}$
Pn Z 04 48 01.4
iZ 48 11.2
S eE 48 55.8

KWP $\Delta = 512\text{km}$
Pn eZ 04 48 17.2

SUW $\Delta = 556\text{km}$
Pn eZ 04 48 22.9
Pg eZ 48 48.0
Sn eNE 49 20.1

JAN 25

**$\phi = 51.481^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
H = 05:10:34.4, M = 3.7**

KSP $\Delta = 72.5\text{km}$
Pg iNEZ 05 10 46.3
Sg eNEZ 10 54.8

RAC $\Delta = 215.1\text{km}$
Pn eZ 05 11 06.3
eZ 11 10.1
Sn eN 11 29.9
eE 11 35.3

OJC $\Delta = 296.8\text{km}$
Pn eZ 05 11 15.2
Pg iZ 11 24.2
Sn eN 11 46.7
Sg iN 11 59.0

NIE $\Delta = 378.1\text{km}$
Pn eZ 05 11 27.5
iZ 11 37.3
S iEN 12 23.5

KWP $\Delta = 512.7\text{km}$
Pn eZ 05 11 43.5
eZ 11 58.4

SUW $\Delta = 556.3\text{km}$
Pn eZ 05 11 49.1
Pg eZ 12 14.1
Sn eNE 12 46.0
Sg eNE 13 16.8

JAN 26

**$\phi = 51.456^\circ\text{N}$, $\lambda = 16.075^\circ\text{E}$
H = 07:58:29.6, M = 2.6**

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KSP $\Delta = 70.1\text{km}$
Pg eNEZ 07 58 41.1
Sg eNEZ 58 49.5

JAN 26

$\phi = 51.506^\circ\text{N}$, $\lambda = 16.035^\circ\text{E}$
 $H = 12:35:15.9$, $M = 2.6$

KSP $\Delta = 76.2\text{km}$
Pg eNEZ 12 35 28.4
Sg eNEZ 35 37.6

JAN 26

$\phi = 51.519^\circ\text{N}$, $\lambda = 16.117^\circ\text{E}$
 $H = 16:34:59.1$, $M = 3.2$

KSP $\Delta = 76.4\text{km}$
Pg iNEZ 16 35 11.6
Sg iNEZ 35 20.8

RAC $\Delta = 217.2\text{km}$
P eZ 16 35 36.6
S eNE 36 00.3

OJC $\Delta = 297.5\text{km}$
Pn eZ 16 35 40.8
Pg eZ 35 49.4
Sn eN 36 12.4
Sg eN 36 24.0

NIE $\Delta = 379.5\text{km}$
P eZ 16 36 04.2
S eE 36 47.0

JAN 27

$\phi = 51.451^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 02:35:18.6$, $M = 2.7$

KSP $\Delta = 69.4\text{km}$
Pg eNEZ 02 35 30.0
Sg iNEZ 35 38.3

OJC $\Delta = 295.8\text{km}$
Pg eZ 02 36 08.1
Sg eN 36 43.7

JAN 27

$\phi = 51.519^\circ\text{N}$, $\lambda = 16.066^\circ\text{E}$
 $H = 11:11:18.6$, $M = 3.5$

KSP $\Delta = 77.1\text{km}$
Pg iNEZ 11 11 31.2
Sg iNEZ 11 40.3

RAC $\Delta = 219.7\text{km}$
P eZ 11 11 55.3
S eNE 12 21.1

OJC $\Delta = 300.6\text{km}$
Pn eZ 11 12 00.0

Pg iZ 12 09.9
Sn eZ 12 31.8
Sg eN 12 44.1

NIE $\Delta = 382.3\text{km}$
P eZ 11 12 22.3
S eE 13 07.1

KWP $\Delta = 516.3\text{km}$
P eZ 11 12 43.1
S eNE 13 38.2

JAN 28

$\phi = 51.448^\circ\text{N}$, $\lambda = 16.162^\circ\text{E}$
 $H = 13:26:10.5$, $M = 2.8$

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 13 26 21.7
Sg eNEZ 26 30.0

OJC $\Delta = 291.1\text{km}$
Pg eZ 13 27 00.6
Sg eE 27 34.6

FEB 1

$\phi = 51.462^\circ\text{N}$, $\lambda = 16.135^\circ\text{E}$
 $H = 03:36:20.7$, $M = 2.7$

KSP $\Delta = 70.0\text{km}$
Pg eNEZ 03 36 32.2
Sg eNEZ 36 40.4

FEB 1

$\phi = 51.484^\circ\text{N}$, $\lambda = 16.095^\circ\text{E}$
 $H = 03:39:24.0$, $M = 2.7$

KSP $\Delta = 72.8\text{km}$
Pg eNEZ 03 39 36.0
Sg eNEZ 39 44.5

FEB 2

$\phi = 51.519^\circ\text{N}$, $\lambda = 16.058^\circ\text{E}$
 $H = 17:14:17.7$, $M = 3.2$

KSP $\Delta = 77.2\text{km}$
Pg iNEZ 17 14 30.4
Sg iNEZ 14 39.7

RAC $\Delta = 220.1\text{km}$
P eZ 17 14 54.7
S eN 15 19.6

OJC $\Delta = 301.1\text{km}$
Pg eZ 17 15 07.8
Sg eN 15 43.5

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NIE	$\Delta = 382.8\text{km}$			
	P eZ	17	15	23.2
	S eNE	16	06.9	

FEB 3

$$\varphi = 51.564^{\circ}\text{N}, \lambda = 16.007^{\circ}\text{E}$$

$$H = 09:57:04.7, M = 2.7$$

KSP $\Delta = 82.9\text{km}$
 Pg eNZ 09 57 18.3
 Sq eNEZ 57 28.0

OJC $\Delta = 306.6\text{km}$

Pg eZ	09	57	57.0
Sq eN	58	31.9	

FEB 3

$$\varphi = 51.563^{\circ}\text{N}, \lambda = 16.009^{\circ}\text{E}$$

$$H = 17:13:10.8, M = 2.8$$

KSP $\Delta = 82.8\text{km}$

Pg eNEZ	17	13	24.4
Sq eNEZ	13	34.3	

FEB 5

$\varphi = 51.449^{\circ}\text{N}$, $\lambda = 16.163^{\circ}\text{E}$
 $H = 04:02:34.5$, $M = 2.5$

KSP	$\Delta = 68.2\text{km}$		
	Pg eNEZ	04	02 45.7
	Sq eNEZ	02	53.9

FEB 5

$$\varphi = 51.551^{\circ}\text{N}, \lambda = 16.050^{\circ}\text{E}$$

$$H = 13:50:03.1, M = 2.5$$

KSP	$\Delta = 80.8\text{km}$			
	Pg eNEZ	13	50	16.3
	Sq eNEZ	50	26.0	

FEB 6

$$\varphi = 51.560^{\circ}\text{N}, \lambda = 16.007^{\circ}\text{E}$$

$$H = 02:17:27.2, M = 2.8$$

KSP $\Delta = 82.5\text{km}$
Pg eNEZ 02 17 40.7
Sq iNEZ 17 50.6

OJC $\Delta = 306.4\text{km}$
 Pg eZ 02 18 19.8
 Sq eN 18 54.7

FEB 6

$\varphi = 51.54^{\circ}\text{N}$, $\lambda = 16.01^{\circ}\text{E}$
 $H = 03:58:46$, $M = 2.7$

KSP $\Delta = 80\text{km}$

Pg	eNEZ	03	58	59.6
Sq	eNEZ		59	09.2

OJC $\Delta = 305\text{km}$

Pg eZ	03 59 38.8
Sq eN	04 00 14.5

FEB 6

$$\varphi = 51.521^{\circ}\text{N}, \lambda = 16.112^{\circ}\text{E}$$

$$H = 14:22:47.0, M = 3.1$$

KSP $\Delta = 76.7\text{km}$

Pg iNEZ	14	22	59.6
Sq iNEZ	23	09.1	

OJC	$\Delta = 297.9\text{km}$			
	Pn eZ	14	23	28.0
	Pg eZ		23	37.2
	Sq eE		24	12.8

NIE $\Delta = 379.9\text{km}$

P eZ	14	23	50.5
S eE	24	37.0	

FEB 7

$\varphi = 51.470^{\circ}\text{N}$, $\lambda = 16.110^{\circ}\text{E}$
 $H = 05:35:00.9$, $M = 2.6$

KSP $\Delta = 71.1\text{km}$
Pg eN 05 35 12.6
Sq eNEZ 35 20.8

FEB 7

$$\varphi = 51.46^{\circ}\text{N}, \lambda = 16.11^{\circ}\text{E}$$

$$H = 16:46:05, M = 2.7$$

KSP	$\Delta = 70\text{km}$	
Pg	eNEZ	16 46 16.1
Sq	eNEZ	46 24.5

FEB 9

$\varphi = 51.456^{\circ}\text{N}$, $\lambda = 16.074^{\circ}\text{E}$
 $H = 16:38:29.4$, $M = 2.7$

KSP	$\Delta = 70.1\text{km}$			
	Pg eNEZ	16	38	40.9
	Sq eNEZ		38	49.5

FEB 10

$$\varphi = 51.516^{\circ}\text{N}, \lambda = 16.119^{\circ}\text{E}$$

$$H = 01:14:35.8, M = 3.7$$

KSP $\Delta = 76.1\text{km}$
Pg iNEZ 01 14 48.3
Sq iNEZ 14 57.4

RAC	$\Delta = 216.9\text{km}$			
	Pn eZ	01	15	08.0
	Pg eZ		15	11.7
	Sn eE		15	31.6

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	Sg eN	15 36.7
OJC	$\Delta = 297.2\text{km}$	
	Pn eZ	01 15 18.3
	Pg iZ	15 26.3
	Sg iE	16 00.7
NIE	$\Delta = 379.1\text{km}$	
	P eZ	01 15 41.4
	S eE	16 24.7
KWP	$\Delta = 512.7\text{km}$	
	Pn eZ	01 15 59.4
	Sg eNE	17 18.2
SUW	$\Delta = 552.9\text{km}$	
	Pn eZ	01 16 10.7
	Sn eNE	17 15.3
	Sg eNE	17 38.5

FEB 10

$\phi = 51.564^\circ\text{N}, \lambda = 16.007^\circ\text{E}$
H = 11:52:58.5, M = 2.6

KSP	$\Delta = 82.9\text{km}$	
	Pg eNEZ	11 53 12.1
	Sg eNEZ	53 21.3

FEB 10

$\phi = 51.448^\circ\text{N}, \lambda = 16.161^\circ\text{E}$
H = 13:10:49.9, M = 2.7

KSP	$\Delta = 68.1\text{km}$	
	Pg eNEZ	13 11 01.1
	Sg eNEZ	11 09.3

FEB 10

$\phi = 51.552^\circ\text{N}, \lambda = 16.053^\circ\text{E}$
H = 18:36:20.1, M = 2.6

KSP	$\Delta = 80.9\text{km}$	
	Pg eNEZ	18 36 33.4
	Sg eNEZ	36 42.9

FEB 11

$\phi = 51.54^\circ\text{N}, \lambda = 16.12^\circ\text{E}$
H = 04:34:20, M = 2.6

KSP	$\Delta = 79\text{km}$	
	Pg eNEZ	04 34 32.7
	Sg eNEZ	34 40.9

OJC	$\Delta = 298\text{km}$	
	Pg eZ	04 35 09.8
	Sg eN	35 44.9

FEB 12

$\phi = 51.555^\circ\text{N}, \lambda = 16.096^\circ\text{E}$

H = 05:12:02.1, M = 2.9

KSP	$\Delta = 80.6\text{km}$	
	Pg eNEZ	05 12 15.3
	Sg eNEZ	12 24.9

RAC	$\Delta = 221.2\text{km}$	
	P eZ	05 12 41.1
	S eN	13 05.8

OJC	$\Delta = 300.6\text{km}$	
	Pg eZ	05 12 52.6
	Sg eN	13 27.5

NIE	$\Delta = 383.0\text{km}$	
	(P) eZ	05 13 08.1
	(S) eN	13 52.3

FEB 13

$\phi = 51.461^\circ\text{N}, \lambda = 16.132^\circ\text{E}$
H = 02:35:59.9, M = 3.3

KSP	$\Delta = 69.9\text{km}$	
	Pg iNEZ	02 36 11.4
	Sg iNEZ	36 19.4

RAC	$\Delta = 211.8\text{km}$	
	Pn eZ	02 36 31.4
	Pg eZ	36 35.2
	Sn eE	36 54.7
	Sg eN	37 00.6

OJC	$\Delta = 293.6\text{km}$	
	Pn eZ	02 36 40.6
	Pg eZ	36 50.0
	Sg eN	37 25.5

NIE	$\Delta = 374.8\text{km}$	
	P eZ	02 37 02.7
	S eN	37 46.0

KWP	$\Delta = 509.6\text{km}$	
	Pn eZ	02 37 22.4
	Sn eNE	38 17.1

FEB 13

$\phi = 51.496^\circ\text{N}, \lambda = 16.101^\circ\text{E}$
H = 11:54:43.0, M = 2.8

KSP	$\Delta = 74.1\text{km}$	
	Pg eNEZ	11 54 55.2
	Sg eNEZ	55 04.0

OJC	$\Delta = 297.3\text{km}$	
	Pg eZ	11 55 33.2
	Sg eN	56 08.1

FEB 13

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$\phi = 51.54^{\circ}\text{N}$, $\lambda = 16.05^{\circ}\text{E}$
H = 16:55:47, M = 2.7

KSP $\Delta = 80\text{km}$
 Pg eNEZ 16 56 00.4
 Sg eNEZ 56 09.9

FEB 14

$\phi = 51.51^{\circ}\text{N}$, $\lambda = 16.06^{\circ}\text{E}$
H = 16:32:59, M = 2.7

KSP $\Delta = 76\text{km}$
 Pg eNEZ 16 33 11.6
 Sg eNEZ 33 20.6

FEB 14

$\phi = 51.513^{\circ}\text{N}$, $\lambda = 16.129^{\circ}\text{E}$
H = 16:45:46.4, M = 3.2

KSP $\Delta = 75.6\text{km}$
 Pg iNEZ 16 45 58.8
 Sg eNEZ 46 07.7

RAC $\Delta = 216.2\text{km}$
 P eZ 16 46 22.1
 S eN 46 47.7

OJC $\Delta = 296.4\text{km}$
 Pn eZ 16 46 28.8
 Pg iZ 46 36.9
 Sg eNE 47 11.2

NIE $\Delta = 378.4\text{km}$
 P eZ 16 46 52.7
 S eE 47 35.3

KWP $\Delta = 511.9\text{km}$
 P eZ 16 47 10.0

FEB 15

$\phi = 51.48^{\circ}\text{N}$, $\lambda = 16.10^{\circ}\text{E}$
H = 04:39:57, M = 3.9

KSP $\Delta = 72\text{km}$
 Pg iNEZ 04 40 08.6
 Sg iNEZ 40 17.9

RAC $\Delta = 215\text{km}$
 Pn eZ 04 40 28.5
 Sn eNE 40 52.5

OJC $\Delta = 296\text{km}$
 Pn eZ 04 40 37.7
 Pg iZ 40 46.9
 Sn eEN 41 08.2
 Sg iN 41 21.7

NIE $\Delta = 378\text{km}$
 Pn eZ 04 40 50.6

eZ 41 03.0
 S iN 41 46.6

KWP $\Delta = 512\text{km}$
 Pn eZ 04 41 06.2
 P eZ 41 20.2
 S eNE 42 27.6

SUW $\Delta = 556\text{km}$
 Pn eZ 04 41 11.0
 Pg eZ 41 29.6
 Sn eNE 42 08.3
 Sg eNE 42 38.9

FEB 17

$\phi = 51.456^{\circ}\text{N}$, $\lambda = 16.074^{\circ}\text{E}$
H = 01:51:40.5, M = 2.6

KSP $\Delta = 70.1\text{km}$
 Pg eNEZ 01 51 52.0
 Sg eNEZ 52 00.5

FEB 18

$\phi = 51.47^{\circ}\text{N}$, $\lambda = 16.11^{\circ}\text{E}$
H = 16:36:28, M = 3.4

KSP $\Delta = 71\text{km}$
 Pg iNEZ 16 36 39.7
 Sg iNEZ 36 48.5

RAC $\Delta = 214\text{km}$
 P eZ 16 37 03.1
 S eN 37 27.8

OJC $\Delta = 295\text{km}$
 Pn eZ 16 37 09.0
 Pg eZ 37 18.6
 Sg eE 37 53.6

FEB 19

$\phi = 51.564^{\circ}\text{N}$, $\lambda = 16.007^{\circ}\text{E}$
H = 03:31:00.0, M = 2.8

KSP $\Delta = 82.9\text{km}$
 Pg eNEZ 03 31 13.6
 Sg eNEZ 31 23.5

OJC $\Delta = 306.6\text{km}$
 Pn eZ 03 31 41.6
 Pg iZ 31 51.4
 Sn eN 32 18.1
 Sg iN 32 27.5

FEB 20

$\phi = 51.504^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 04:43:25.8, M = 2.6

KSP $\Delta = 75.1\text{km}$
 Pg eNEZ 04 43 38.1

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Sg eNEZ 43 46.9

FEB 20

$\phi = 51.476^{\circ}\text{N}$, $\lambda = 16.111^{\circ}\text{E}$
H = 17:30:34.6, M = 2.8

KSP $\Delta = 71.8\text{km}$
 Pg eNEZ 17 30 46.4
 Sg eNEZ 30 54.9

OJC $\Delta = 295.6\text{km}$
 Pg eZ 17 31 25.0
 Sg eN 32 00.1

FEB 20

$\phi = 51.502^{\circ}\text{N}$, $\lambda = 16.097^{\circ}\text{E}$
H = 17:32:21.9, M = 2.7

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 17 32 34.2
 Sg eNEZ 32 43.1

OJC $\Delta = 297.8\text{km}$
 Pg eZ 17 33 12.1
 Sg eN 33 47.6

FEB 23

$\phi = 51.563^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
H = 17:22:54.9, M = 2.8

KSP $\Delta = 82.8\text{km}$
 Pg eNEZ 17 23 08.5
 Sg iNEZ 23 18.4

OJC $\Delta = 306.5\text{km}$
 Pg eZ 17 23 46.2
 Sg eN 24 21.8

FEB 24

$\phi = 51.531^{\circ}\text{N}$, $\lambda = 16.136^{\circ}\text{E}$
H = 05:29:04.7, M = 2.9

KSP $\Delta = 77.6\text{km}$
 Pg eNEZ 05 29 17.4
 Sg eNEZ 29 26.8

NIE $\Delta = 379.2\text{km}$
 P eZ 05 30 10.6
 S eE 30 53.2

FEB 24

$\phi = 51.505^{\circ}\text{N}$, $\lambda = 16.035^{\circ}\text{E}$
H = 06:08:12.2, M = 3.0

KSP $\Delta = 76.0\text{km}$
 Pg iNEZ 06 08 24.7
 Sg eNEZ 08 33.7

OJC $\Delta = 301.8\text{km}$

Pg iZ 06 09 02.5
 Sg iN 09 38.5

FEB 24

$\phi = 51.513^{\circ}\text{N}$, $\lambda = 16.063^{\circ}\text{E}$
H = 12:25:18.4, M = 2.7

KSP $\Delta = 76.5\text{km}$
 Pg eNEZ 12 25 30.9
 Sg eNEZ 25 39.9

FEB 25

$\phi = 51.502^{\circ}\text{N}$, $\lambda = 16.085^{\circ}\text{E}$
H = 16:45:25.1, M = 2.8

KSP $\Delta = 75.0\text{km}$
 Pg iNEZ 16 45 37.4
 Sg eNEZ 45 46.5

OJC $\Delta = 298.6\text{km}$
 Pg eZ 16 46 16.1
 Sg eE 46 51.1

FEB 25

$\phi = 51.542^{\circ}\text{N}$, $\lambda = 16.130^{\circ}\text{E}$
H = 21:55:57.0, M = 3.0

KSP $\Delta = 78.8\text{km}$
 Pg iNEZ 21 56 09.9
 Sg eNEZ 56 19.2

RAC $\Delta = 218.5\text{km}$
 P eZ 21 56 32.2
 S eNE 56 59.3

OJC $\Delta = 297.9\text{km}$
 Pg eZ 21 56 47.8
 Sg eE 57 22.9

NIE $\Delta = 380.3\text{km}$
 P eZ 21 57 02.4
 S eN 57 45.0

FEB 26

$\phi = 51.495^{\circ}\text{N}$, $\lambda = 16.105^{\circ}\text{E}$
H = 08:06:15.0, M = 2.6

KSP $\Delta = 73.9\text{km}$
 Pg eNEZ 08 06 27.1
 Sg eNEZ 06 35.7

FEB 28

$\phi = 51.506^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 20:37:50.7, M = 2.7

KSP $\Delta = 75.3\text{km}$
 Pg eNEZ 20 38 03.0
 Sg eNEZ 38 11.9

OJC $\Delta = 298.5\text{km}$

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Pg eZ 20 38 41.2
Sg eN 39 15.9

FEB 29

$\phi = 51.445^\circ\text{N}$, $\lambda = 16.117^\circ\text{E}$
 $H = 15:14:16.8$, $M = 2.8$

KSP $\Delta = 68.3\text{km}$
Pg eNEZ 15 14 28.0
Sg eNEZ 14 35.6

OJC $\Delta = 293.7\text{km}$
Pg eZ 15 15 06.7
Sg eN 15 41.0

NIE $\Delta = 374.6\text{km}$
P eZ 15 15 20.7
S eN 16 03.4

FEB 29

$\phi = 51.456^\circ\text{N}$, $\lambda = 16.072^\circ\text{E}$
 $H = 16:26:25.3$, $M = 2.5$

KSP $\Delta = 70.1\text{km}$
Pg eNEZ 16 26 36.8
Sg eNEZ 26 44.4

MAR 1

$\phi = 51.467^\circ\text{N}$, $\lambda = 16.138^\circ\text{E}$
 $H = 13:22:15.3$, $M = 2.7$

KSP $\Delta = 70.5\text{km}$
Pg eNEZ 13 22 26.8
Sg eNEZ 22 29.6

OJC $\Delta = 293.5\text{km}$
Pg eZ 13 23 05.5
Sg eNE 23 40.0

MAR 1

$\phi = 51.539^\circ\text{N}$, $\lambda = 16.055^\circ\text{E}$
 $H = 16:09:25.7$, $M = 2.7$

KSP $\Delta = 79.4\text{km}$
Pg eNEZ 16 09 38.7
Sg eNEZ 09 48.1

MAR 1

$\phi = 51.455^\circ\text{N}$, $\lambda = 16.074^\circ\text{E}$
 $H = 16:56:05.7$, $M = 3.1$

KSP $\Delta = 70.0\text{km}$
Pg iNEZ 16 56 17.2
Sg eNEZ 56 25.7

RAC $\Delta = 214.2\text{km}$
P eZ 16 56 40.9
S eN 57 06.4

OJC $\Delta = 296.9\text{km}$
Pn eZ 16 56 46.9
Pg eZ 56 56.4
Sn eN 57 18.9
Sg eN 57 31.5

NIE $\Delta = 377.7\text{km}$
P eZ 16 57 08.3
S eE 57 53.2

MAR 1

$\phi = 51.457^\circ\text{N}$, $\lambda = 16.072^\circ\text{E}$
 $H = 22:47:27.5$, $M = 2.7$

KSP $\Delta = 70.2\text{km}$
Pg iNEZ 22 47 39.0
Sg iNEZ 47 47.6

OJC $\Delta = 297.1\text{km}$
Pg eZ 22 48 17.1
Sg eN 48 52.5

MAR 1

$\phi = 51.492^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 23:08:22.5$, $M = 2.5$

KSP $\Delta = 73.7\text{km}$
Pg eNEZ 23 08 34.6
Sg eNEZ 08 43.5

MAR 2

$\phi = 51.541^\circ\text{N}$, $\lambda = 16.016^\circ\text{E}$
 $H = 05:02:06.9$, $M = 2.8$

KSP $\Delta = 80.3\text{km}$
Pg eNEZ 05 02 20.1
Sg iNEZ 02 29.8

MAR 2

$\phi = 51.476^\circ\text{N}$, $\lambda = 16.113^\circ\text{E}$
 $H = 19:51:12.9$, $M = 2.7$

KSP $\Delta = 71.7\text{km}$
Pg eNEZ 19 51 24.7
Sg eNEZ 51 33.1

OJC $\Delta = 295.5\text{km}$
Pg eZ 19 52 03.4
Sg eN 52 37.5

MAR 3

$\phi = 51.504^\circ\text{N}$, $\lambda = 16.089^\circ\text{E}$
 $H = 05:05:08.2$, $M = 3.4$

KSP $\Delta = 75.1\text{km}$
Pg iNEZ 05 05 20.5
Sg eNEZ 05 29.5

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RAC	$\Delta = 217.4\text{km}$			
	Pn eZ	05	05	40.4
	eZ		05	44.1
	Sn eE		06	04.0
	eNE		06	09.3
OJC	$\Delta = 298.4\text{km}$			
	Pn eZ	05	05	49.2
	Pg iZ		05	57.8
	Sn eE		06	21.5
	Sg iE		06	33.7
NIE	$\Delta = 380.0\text{km}$			
	Pn eZ	05	06	01.7
	eZ		06	11.3
	S eN		06	56.3
KWP	$\Delta = 514.2\text{km}$			
	P eZ	05	06	31.8
	S eNE		07	37.5
<u>MAR 3</u>				
	$\phi = 51.451^\circ\text{N}, \lambda = 16.172^\circ\text{E}$			
	$H = 20:48:29.1, M = 2.6$			
OJC	$\Delta = 290.6\text{km}$			
	Pg eZ	20	49	15.2
	Sg eN		49	48.8
<u>MAR 5</u>				
	$\phi = 51.512^\circ\text{N}, \lambda = 16.063^\circ\text{E}$			
	$H = 17:04:26.3, M = 3.6$			
KSP	$\Delta = 76.4\text{km}$			
	Pg iNEZ	17	04	38.8
	Sg iNEZ		04	48.5
RAC	$\Delta = 219.3\text{km}$			
	P eZ	17	05	02.7
	S eNE		05	30.0
OJC	$\Delta = 300.4\text{km}$			
	Pn eZ	17	05	07.8
	Pg iZ		05	17.6
	Sn eE		05	41.3
	Sg iN		05	52.4
NIE	$\Delta = 382.0\text{km}$			
	P eZ	17	05	33.8
	S eE		06	16.3
KWP	$\Delta = 516.2\text{km}$			
	(Pn) eZ	17	05	37.8
	eZ		05	50.6
	S eNE		06	59.7
SUW	$\Delta = 556.4\text{km}$			
	Pg eZ	17	05	58.3

	Sn eNE		06	41.0
	Sg eNE		07	12.0
<u>MAR 5</u>				
	$\phi = 51.476^\circ\text{N}, \lambda = 16.112^\circ\text{E}$			
	$H = 19:06:34.0, M = 2.6$			
KSP	$\Delta = 71.8\text{km}$			
	Pg eNEZ	19	06	45.8
	Sg eNE		06	54.3
<u>MAR 6</u>				
	$\phi = 51.487^\circ\text{N}, \lambda = 16.099^\circ\text{E}$			
	$H = 20:47:18.6, M = 2.8$			
KSP	$\Delta = 73.1\text{km}$			
	Pg iNEZ	20	47	30.6
	Sg eNEZ		47	39.2
OJC	$\Delta = 296.9\text{km}$			
	Pg eZ	20	48	07.6
	Sn eN		48	31.5
	Sg eN		48	43.3
NIE	$\Delta = 378.4\text{km}$			
	P eZ	20	48	23.7
	S eN		49	08.8
<u>MAR 6</u>				
	$\phi = 51.54^\circ\text{N}, \lambda = 16.05^\circ\text{E}$			
	$H = 23:59:40, M = 2.6$			
KSP	$\Delta = 80\text{km}$			
	Pg eNEZ	23	59	53.3
	Sg eNEZ		00	00 02.6
OJC	$\Delta = 303\text{km}$			
	Pg eZ	00	00	30.7
	Sg eN		01	06.6
<u>MAR 7</u>				
	$\phi = 51.48^\circ\text{N}, \lambda = 16.10^\circ\text{E}$			
	$H = 04:36:06, M = 3.5$			
KSP	$\Delta = 72\text{km}$			
	Pg iNEZ	04	36	17.9
	Sg iNEZ		36	26.6
RAC	$\Delta = 215\text{km}$			
	Pn eZ	04	36	37.9
	eZ		36	41.1
	Sn eN		37	01.6
	eNE		37	07.5
OJC	$\Delta = 296\text{km}$			
	Pn eZ	04	36	46.8
	Pg iZ		36	55.8

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	Sn eN	37	16.9
	Sg iN	37	31.2
NIE	$\Delta = 378\text{km}$		
	Pn eZ	04	36 59.0
	eZ	37	08.9
	S eE	37	53.4
KWP	$\Delta = 512\text{km}$		
	Pn eZ	04	37 14.8
	eZ	37	29.6
	(Sn) eNE	38	14.9
SUW	$\Delta = 556\text{km}$		
	Pn eZ	04	37 20.5
	Pg eZ	37	44.9
	Sg eNE	38	48.6
<u>MAR 8</u>			
	$\phi = 51.563^{\circ}\text{N}, \lambda = 16.008^{\circ}\text{E}$		
	$H = 07:28:06.4, M = 2.9$		
KSP	$\Delta = 82.8\text{km}$		
	Pg iNEZ	07	28 20.0
	Sg iNEZ	28	30.0
OJC	$\Delta = 306.5\text{km}$		
	Pg eZ	07	28 58.9
	Sg eE	29	34.3
<u>MAR 8</u>			
	$\phi = 51.475^{\circ}\text{N}, \lambda = 16.114^{\circ}\text{E}$		
	$H = 17:07:58.7, M = 2.7$		
KSP	$\Delta = 71.6\text{km}$		
	Pg eNEZ	17	08 10.4
	Sg eNEZ	08	18.7
<u>MAR 10</u>			
	$\phi = 51.496^{\circ}\text{N}, \lambda = 16.102^{\circ}\text{E}$		
	$H = 23:08:49.3, M = 2.8$		
KSP	$\Delta = 74.1\text{km}$		
	Pg iNEZ	23	09 01.4
	Sg eNEZ	09	10.4
OJC	$\Delta = 297.2\text{km}$		
	Pg eZ	23	09 39.5
	Sg eN	10	14.0
<u>MAR 11</u>			
	$\phi = 51.523^{\circ}\text{N}, \lambda = 16.111^{\circ}\text{E}$		
	$H = 01:00:52.8, M = 2.7$		
KSP	$\Delta = 76.9\text{km}$		
	Pg eNEZ	01	01 05.4
	Sg eNEZ	01	14.0

<u>MAR 11</u>			
	$\phi = 51.448^{\circ}\text{N}, \lambda = 16.162^{\circ}\text{E}$		
	$H = 07:12:55.6, M = 2.6$		
KSP	$\Delta = 68.1\text{km}$		
	Pg eNEZ	07	13 06.8
	Sg eNEZ	13	14.6
<u>MAR 11</u>			
	$\phi = 51.449^{\circ}\text{N}, \lambda = 16.084^{\circ}\text{E}$		
	$H = 11:20:31.5, M = 2.6$		
KSP	$\Delta = 69.2\text{km}$		
	Pg eNEZ	11	20 42.9
	Sg eNEZ	20	51.2
<u>MAR 11</u>			
	$\phi = 51.514^{\circ}\text{N}, \lambda = 16.084^{\circ}\text{E}$		
	$H = 21:32:52.4, M = 2.8$		
KSP	$\Delta = 76.3\text{km}$		
	Pg iNEZ	21	33 04.9
	Sg eNEZ	33	13.8
OJC	$\Delta = 299.3\text{km}$		
	Pg eZ	21	33 42.7
	Sg eN	34	17.7
NIE	$\Delta = 381.0\text{km}$		
	P eZ	21	33 56.5
	S eN	34	42.2
<u>MAR 12</u>			
	$\phi = 51.503^{\circ}\text{N}, \lambda = 16.089^{\circ}\text{E}$		
	$H = 06:07:26.3, M = 3.1$		
KSP	$\Delta = 75.0\text{km}$		
	Pg eNEZ	06	07 38.6
	Sg eNEZ	07	47.7
RAC	$\Delta = 217.3\text{km}$		
	P eZ	06	08 03.3
	S eN	08	28.5
OJC	$\Delta = 298.4\text{km}$		
	Pg eZ	06	08 15.9
	Sg eE	08	52.0
NIE	$\Delta = 380.0\text{km}$		
	P eZ	06	08 29.7
	S eN	09	14.6
KWP	$\Delta = 514.1\text{km}$		
	P eZ	06	08 50.6
<u>MAR 13</u>			
	$\phi = 51.519^{\circ}\text{N}, \lambda = 16.014^{\circ}\text{E}$		
	$H = 07:04:59.6, M = 2.7$		
KSP	$\Delta = 77.9\text{km}$		

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Pg eNEZ 07 05 12.1
Sg eNEZ 05 21.2

MAR 13

**$\varphi = 51.501^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
 $H = 12:14:24.3$, $M = 2.8$**

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 12 14 36.6
Sg eNEZ 14 45.5

OJC $\Delta = 298.4\text{km}$
Pg eZ 12 15 15.2
Sg eE 15 50.6

NIE $\Delta = 380.0\text{km}$
P eZ 12 15 28.1
S eE 16 14.2

MAR 13

**$\varphi = 51.46^\circ\text{N}$, $\lambda = 16.11^\circ\text{E}$
 $H = 16:32:40$, $M = 2.9$**

KSP $\Delta = 70\text{km}$
Pg eNEZ 16 32 51.6
Sg eNEZ 33 00.0

OJC $\Delta = 295\text{km}$
Pg eZ 16 33 31.2
Sg eN 34 04.7

NIE $\Delta = 376\text{km}$
P eZ 16 33 43.0
S eN 34 29.6

MAR 14

**$\varphi = 51.490^\circ\text{N}$, $\lambda = 16.103^\circ\text{E}$
 $H = 21:28:57.5$, $M = 2.7$**

KSP $\Delta = 73.4\text{km}$
Pg iNEZ 21 29 09.5
Sg eNEZ 29 17.7

OJC $\Delta = 296.8\text{km}$
Pg eZ 21 29 48.0
Sg eN 30 22.8

MAR 15

**$\varphi = 51.513^\circ\text{N}$, $\lambda = 16.064^\circ\text{E}$
 $H = 16:32:48.1$, $M = 3.4$**

KSP $\Delta = 76.5\text{km}$
Pg iNEZ 16 33 00.6
Sg iNEZ 33 09.5

RAC $\Delta = 219.3\text{km}$
P eZ 16 33 23.5
S eNE 33 51.1

OJC $\Delta = 300.4\text{km}$
Pn eZ 16 33 30.5
Pg eZ 33 38.1
Sg eN 34 13.2

NIE $\Delta = 382.0\text{km}$
Pn eZ 16 33 41.7
iZ 33 51.7
S eE 34 36.2

KWP $\Delta = 516.2\text{km}$
Pn eZ 16 33 56.6
eZ 34 17.4
S eNE 35 21.4

MAR 16

**$\varphi = 51.506^\circ\text{N}$, $\lambda = 16.035^\circ\text{E}$
 $H = 21:10:02.9$, $M = 2.7$**

KSP $\Delta = 76.2\text{km}$
Pg eNEZ 21 10 15.4
Sg eNEZ 10 24.5

MAR 16

**$\varphi = 51.532^\circ\text{N}$, $\lambda = 16.137^\circ\text{E}$
 $H = 22:16:51.6$, $M = 2.6$**

KSP $\Delta = 77.7\text{km}$
Pg eNEZ 22 17 04.3
Sg eNEZ 17 13.7

MAR 16

**$\varphi = 51.532^\circ\text{N}$, $\lambda = 16.138^\circ\text{E}$
 $H = 22:17:32.5$, $M = 3.1$**

KSP $\Delta = 77.7\text{km}$
Pg iNEZ 22 17 45.2
Sg eNEZ 17 54.3

RAC $\Delta = 217.3\text{km}$
P eZ 22 18 07.8
S eN 18 32.7

OJC $\Delta = 296.9\text{km}$
Pn eZ 22 18 12.8
Pg eZ 18 22.2
Sg eN 18 58.0

NIE $\Delta = 379.2\text{km}$
P eZ 22 18 35.3
S eN 19 20.2

MAR 17

**$\varphi = 51.451^\circ\text{N}$, $\lambda = 16.085^\circ\text{E}$
 $H = 10:02:40.9$, $M = 3.0$**

KSP $\Delta = 69.4\text{km}$
Pg eNEZ 10 02 52.3

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	Sg eNEZ	03 00.8
RAC	$\Delta = 213.4\text{km}$	
	P eZ	10 03 16.6
	S eN	03 41.6
OJC	$\Delta = 296.0\text{km}$	
	Pn eZ	10 03 21.7
	Pg iZ	03 31.9
	Sn eN	03 51.3
	Sg iN	04 08.2
NIE	$\Delta = 376.8\text{km}$	
	P eZ	10 03 43.4
	S eN	04 28.7

MAR 18

$\phi = 51.451^\circ\text{N}$, $\lambda = 16.084^\circ\text{E}$
H = 17:33:29.0, M = 2.5

KSP	$\Delta = 69.4\text{km}$	
	Pg eNEZ	17 33 40.4
	Sg eNEZ	33 48.7

MAR 19

$\phi = 51.450^\circ\text{N}$, $\lambda = 16.164^\circ\text{E}$
H = 16:57:31.0, M = 2.7

KSP	$\Delta = 68.3\text{km}$	
	Pg eNEZ	16 57 42.2
	Sg eNEZ	57 50.0

MAR 20

$\phi = 51.503^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
H = 02:42:38.8, M = 2.5

KSP	$\Delta = 75.0\text{km}$	
	Pg eNEZ	02 42 51.1
	Sg eNEZ	43 00.0

MAR 21

$\phi = 51.552^\circ\text{N}$, $\lambda = 16.051^\circ\text{E}$
H = 03:17:17.1, M = 2.6

KSP	$\Delta = 80.9\text{km}$	
	Pg eNEZ	03 17 30.4
	Sg eNEZ	17 40.1

MAR 22

$\phi = 51.47^\circ\text{N}$, $\lambda = 16.11^\circ\text{E}$
H = 16:40:45, M = 2.6

KSP	$\Delta = 71\text{km}$	
	Pg eNEZ	16 40 57.0
	Sg eNEZ	41 05.4

MAR 24

$\phi = 51.50^\circ\text{N}$, $\lambda = 16.09^\circ\text{E}$

H = 19:44:49, M = 2.8

KSP	$\Delta = 75\text{km}$	
	Pg eNEZ	19 45 01.4
	Sg eNEZ	45 10.4

OJC	$\Delta = 298\text{km}$	
	Pn eZ	19 45 32.6
	Pg iZ	45 40.0
	Sn eN	46 02.2
	Sg iN	46 15.2

NIE	$\Delta = 380\text{km}$	
	P eZ	19 45 53.0
	S eE	46 38.5

MAR 26

$\phi = 51.538^\circ\text{N}$, $\lambda = 16.055^\circ\text{E}$
H = 04:40:19.6, M = 2.7

KSP	$\Delta = 79.3\text{km}$	
	Pg eNEZ	04 40 32.6
	Sg eNEZ	40 42.0

MAR 26

$\phi = 51.54^\circ\text{N}$, $\lambda = 16.12^\circ\text{E}$
H = 04:44:16, M = 2.9

KSP	$\Delta = 79\text{km}$	
	Pg iNEZ	04 44 29.1
	Sg eNEZ	44 38.3

OJC	$\Delta = 298\text{km}$	
	Pn eZ	04 44 58.1
	Pg iZ	45 06.9
	Sn eE	45 29.8
	Sg iEN	45 41.0

NIE	$\Delta = 381\text{km}$	
	(Pg) eZ	04 45 22.1
	S eE	46 05.6

MAR 27

$\phi = 51.521^\circ\text{N}$, $\lambda = 16.112^\circ\text{E}$
H = 11:58:58.0, M = 2.7

KSP	$\Delta = 76.7\text{km}$	
	Pg eNEZ	11 59 10.6
	Sg eNEZ	59 13.3

OJC	$\Delta = 297.9\text{km}$	
	Pg eZ	11 59 48.8
	(Sg) eE	12 00 23.3

KWP	$\Delta = 513.4\text{km}$	
	(Pn) eZ	12 01 08.8
	eNE	01 15.2

MAR 28

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$\phi = 51.450^{\circ}\text{N}$, $\lambda = 16.084^{\circ}\text{E}$
H = 16:05:49.2, M = 2.8

KSP $\Delta = 69.3\text{km}$
 Pg iNEZ 16 06 00.6
 Sg eNEZ 06 09.0

OJC $\Delta = 296.0\text{km}$
 (Pg) eZ 16 06 39.8
 (Sg) eN 07 16.3

NIE $\Delta = 376.8\text{km}$
 P eZ 16 06 56.8
 S eE 07 39.0

MAR 30

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
H = 13:41:09.5, M = 2.7

KSP $\Delta = 79.4\text{km}$
 Pg eNEZ 13 41 22.5
 Sg eNEZ 41 32.3

MAR 30

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
H = 16:22:41.9, M = 2.8

KSP $\Delta = 79.4\text{km}$
 Pg eNEZ 16 22 54.9
 Sg eNEZ 23 03.7

MAR 30

$\phi = 51.556^{\circ}\text{N}$, $\lambda = 16.097^{\circ}\text{E}$
H = 20:49:54.2, M = 2.7

KSP $\Delta = 80.7\text{km}$
 Pg eNEZ 20 50 07.4
 Sg eNEZ 50 17.0

MAR 31

$\phi = 51.521^{\circ}\text{N}$, $\lambda = 16.112^{\circ}\text{E}$
H = 10:11:06.9, M = 2.6

KSP $\Delta = 76.7\text{km}$
 Pg eNEZ 10 11 19.5
 Sg eNEZ 11 28.5

OJC $\Delta = 297.9\text{km}$
 Pg eZ 10 11 57.8
 Sg eN 12 33.7

MAR 31

$\phi = 51.496^{\circ}\text{N}$, $\lambda = 16.102^{\circ}\text{E}$
H = 13:42:07.1, M = 2.8

KSP $\Delta = 74.1\text{km}$
 Pg eNEZ 13 42 19.2

Sg eNEZ 42 27.9

APR 1

$\phi = 51.555^{\circ}\text{N}$, $\lambda = 16.096^{\circ}\text{E}$
H = 10:17:31.2, M = 2.7

KSP $\Delta = 80.6\text{km}$
 Pg eNEZ 10 17 44.4
 Sg eNEZ 17 54.1

APR 2

$\phi = 51.506^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 08:01:26.9, M = 2.7

KSP $\Delta = 75.3\text{km}$
 Pg eNEZ 08 01 39.3
 Sg eNEZ 01 48.3
 OJC $\Delta = 298.5\text{km}$
 Pg eZ 08 02 17.7
 Sg eN 02 52.4

APR 3

$\phi = 51.514^{\circ}\text{N}$, $\lambda = 16.126^{\circ}\text{E}$
H = 09:38:26.9, M = 2.9

KSP $\Delta = 75.8\text{km}$
 Pg eNEZ 09 38 39.3
 Sg eNEZ 38 48.3

OJC $\Delta = 296.7\text{km}$
 Pg eZ 09 39 15.7
 Sg eE 39 50.3

APR 3

$\phi = 51.503^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 19:33:48.6, M = 2.9

KSP $\Delta = 75.0\text{km}$
 Pg eNEZ 19 34 00.9
 Sg eNEZ 34 09.9

APR 5

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
H = 14:20:06.5, M = 2.6

KSP $\Delta = 79.4\text{km}$
 Pg eNEZ 14 20 19.5
 Sg eNEZ 20 29.0

OJC $\Delta = 302.3\text{km}$
 Pg eZ 14 20 57.8
 Sg eN 21 33.2

APR 5

$\phi = 51.45^{\circ}\text{N}$, $\lambda = 16.16^{\circ}\text{E}$
H = 15:54:47, M = 2.7

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KSP	$\Delta = 68\text{km}$			
	Pg iNEZ	15	54	58.2
	Sg iNEZ		55	06.4
OJC	$\Delta = 291\text{km}$			
	Pg eZ	15	55	36.9
	Sg eN		56	09.8
<u>APR 7</u>				
$\phi = 51.450^\circ\text{N}, \lambda = 16.121^\circ\text{E}$				
$H = 15:30:02.2, M = 2.5$				
KSP	$\Delta = 68.8\text{km}$			
	Pg eNEZ	15	30	13.5
	Sg eNEZ		30	20.8
<u>APR 7</u>				
$\phi = 51.505^\circ\text{N}, \lambda = 16.084^\circ\text{E}$				
$H = 15:31:05.5, M = 3.3$				
KSP	$\Delta = 75.3\text{km}$			
	Pg iNEZ	15	31	17.8
	Sg eNEZ		31	26.9
RAC	$\Delta = 217.7\text{km}$			
	P eZ	15	31	41.9
	S eNE		32	07.5
OJC	$\Delta = 298.8\text{km}$			
	Pg eZ	15	31	55.1
	Sg eN		32	30.1
KWP	$\Delta = 514.5\text{km}$			
	Pn eZ	15	32	15.1
	eZ		32	29.3
	Sn eNE		33	10.2
<u>APR 7</u>				
$\phi = 51.504^\circ\text{N}, \lambda = 16.088^\circ\text{E}$				
$H = 16:13:36.4, M = 2.6$				
KSP	$\Delta = 75.1\text{km}$			
	Pg eNEZ	16	13	48.7
	Sg eNEZ		13	57.6
<u>APR 7</u>				
$\phi = 51.504^\circ\text{N}, \lambda = 16.088^\circ\text{E}$				
$H = 17:46:05.1, M = 2.7$				
KSP	$\Delta = 75.1\text{km}$			
	Pg eNEZ	17	46	17.4
	Sg eNEZ		46	26.6
<u>APR 7</u>				
$\phi = 51.448^\circ\text{N}, \lambda = 16.159^\circ\text{E}$				
$H = 19:20:29.6, M = 2.6$				

KSP	$\Delta = 68.2\text{km}$			
	Pg eNEZ	19	20	40.8
	Sg eNEZ		20	49.1
<u>APR 9</u>				
$\phi = 51.461^\circ\text{N}, \lambda = 16.110^\circ\text{E}$				
$H = 06:54:14.6, M = 2.6$				
KSP	$\Delta = 70.1\text{km}$			
	Pg eNEZ	06	54	26.1
	Sg eNEZ		54	34.6
<u>APR 9</u>				
$\phi = 51.450^\circ\text{N}, \lambda = 16.167^\circ\text{E}$				
$H = 11:57:19.3, M = 2.7$				
KSP	$\Delta = 68.3\text{km}$			
	Pg eNEZ	11	57	30.5
	Sg eNEZ		57	38.4
OJC	$\Delta = 290.8\text{km}$			
	Pg eNZ	11	58	08.9
	Sg eEN		58	42.6
<u>APR 9</u>				
$\phi = 51.51^\circ\text{N}, \lambda = 16.03^\circ\text{E}$				
$H = 16:03:58, M = 2.7$				
KSP	$\Delta = 77\text{km}$			
	Pg iNEZ	16	04	10.5
	Sg eNEZ		04	19.5
OJC	$\Delta = 302\text{km}$			
	Pg eZ	16	04	49.3
	Sg eN		05	24.3
<u>APR 10</u>				
$\phi = 51.476^\circ\text{N}, \lambda = 16.113^\circ\text{E}$				
$H = 01:13:51.9, M = 2.7$				
KSP	$\Delta = 71.7\text{km}$			
	Pg eNEZ	01	14	03.7
	Sg eNEZ		14	11.9
<u>APR 11</u>				
$\phi = 51.563^\circ\text{N}, \lambda = 16.009^\circ\text{E}$				
$H = 04:38:16.5, M = 3.0$				
KSP	$\Delta = 82.8\text{km}$			
	Pg iNEZ	04	38	30.1
	Sg iNEZ		38	40.0
RAC	$\Delta = 226.0\text{km}$			
	P eZ	04	38	54.6
	S eE		39	20.9
OJC	$\Delta = 306.4\text{km}$			
	Pn eZ	04	38	58.7
	Pg eZ		39	07.9
	Sn eN		39	31.9

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Sg eN 39 43.9

APR 11

$\phi = 51.455^{\circ}\text{N}$, $\lambda = 16.073^{\circ}\text{E}$
H = 05:06:37.6, M = 2.6

KSP $\Delta = 70.0\text{km}$
 Pg eNEZ 05 06 49.1
 Sg eNEZ 06 57.7

APR 13

$\phi = 51.552^{\circ}\text{N}$, $\lambda = 16.051^{\circ}\text{E}$
H = 00:32:50.4, M = 2.8

KSP $\Delta = 80.9\text{km}$
 Pg eNEZ 00 33 03.7
 Sg eNEZ 33 13.3

OJC $\Delta = 303.3\text{km}$
 Pg eZ 00 33 41.6
 Sg eE 34 17.4

APR 13

$\phi = 51.505^{\circ}\text{N}$, $\lambda = 16.086^{\circ}\text{E}$
H = 14:11:48.6, M = 2.8

KSP $\Delta = 75.3\text{km}$
 Pg eNEZ 14 12 00.9
 Sg eNEZ 12 09.8

OJC $\Delta = 298.7\text{km}$
 Pg eZ 14 12 40.1
 Sg eN 13 13.3

APR 14

$\phi = 51.524^{\circ}\text{N}$, $\lambda = 16.115^{\circ}\text{E}$
H = 06:35:26.3, M = 2.7

KSP $\Delta = 77.0\text{km}$
 Pg eNEZ 06 35 38.9
 Sg eNEZ 35 47.9

APR 14

$\phi = 51.485^{\circ}\text{N}$, $\lambda = 16.101^{\circ}\text{E}$
H = 13:43:49.5, M = 2.9

KSP $\Delta = 72.9\text{km}$
 Pg eNEZ 13 44 01.4
 Sg eNEZ 44 10.1

APR 15

$\phi = 51.454^{\circ}\text{N}$, $\lambda = 16.074^{\circ}\text{E}$
H = 02:04:55.8, M = 2.6

KSP $\Delta = 69.9\text{km}$
 Pg eNEZ 02 05 07.3
 Sg eNEZ 05 15.9

APR 15

$\phi = 51.546^{\circ}\text{N}$, $\lambda = 16.018^{\circ}\text{E}$
H = 11:51:08.1, M = 2.9

KSP $\Delta = 80.8\text{km}$
 Pg iNEZ 11 51 21.3
 Sg iNEZ 51 30.9

OJC $\Delta = 305.0\text{km}$
 Pg eZ 11 51 59.0
 Sn N 52 23.2
 Sg eN 52 34.6

APR 15

$\phi = 51.45^{\circ}\text{N}$, $\lambda = 16.17^{\circ}\text{E}$
H = 15:52:32, M = 2.6

KSP $\Delta = 68\text{km}$
 Pg eNEZ 15 52 42.9
 Sg eNEZ 52 50.9

APR 15

$\phi = 51.552^{\circ}\text{N}$, $\lambda = 16.053^{\circ}\text{E}$
H = 15:58:15.4, M = 2.7

KSP $\Delta = 80.9\text{km}$
 Pg eNEZ 15 58 28.7
 Sg eNEZ 58 38.4

APR 16

$\phi = 51.538^{\circ}\text{N}$, $\lambda = 16.085^{\circ}\text{E}$
H = 15:39:11.1, M = 2.6

KSP $\Delta = 78.9\text{km}$
 Pg eNEZ 15 39 24.0
 Sg eNEZ 39 33.7

APR 17

$\phi = 51.477^{\circ}\text{N}$, $\lambda = 16.114^{\circ}\text{E}$
H = 03:59:49.1, M = 2.6

KSP $\Delta = 71.8\text{km}$
 Pg eNEZ 04 00 00.9
 Sg eNEZ 00 09.6

APR 17

$\phi = 51.504^{\circ}\text{N}$, $\lambda = 16.089^{\circ}\text{E}$
H = 15:31:02.7, M = 3.2

KSP $\Delta = 75.1\text{km}$
 Pg iNEZ 15 31 15.0

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	Sg iNEZ	31 24.0
RAC	$\Delta = 217.4\text{km}$	
	P eZ	15 31 38.3
	S eEZ	32 05.3
OJC	$\Delta = 298.4\text{km}$	
	Pg eZ	15 31 52.7
	Sg eN	32 28.7

APR 18

$\phi = 51.518^\circ\text{N}$, $\lambda = 16.133^\circ\text{E}$
H = 13:11:08.9, M = 2.7

KSP	$\Delta = 76.1\text{km}$	
	Pg eNEZ	13 11 21.4
	Sg eNEZ	11 30.6

APR 20

$\phi = 51.483^\circ\text{N}$, $\lambda = 16.072^\circ\text{E}$
H = 04:07:24.0, M = 2.7

KSP	$\Delta = 73.1\text{km}$	
	Pg eNEZ	04 07 36.0
	Sg eNEZ	07 44.8

APR 21

$\phi = 51.535^\circ\text{N}$, $\lambda = 16.092^\circ\text{E}$
H = 01:38:17.6, M = 2.9

KSP	$\Delta = 78.5\text{km}$	
	Pg iNEZ	01 38 30.5
	Sg eNEZ	38 39.9

RAC	$\Delta = 219.7\text{km}$	
	P eZ	01 38 54.2
	S eN	39 19.6

OJC	$\Delta = 299.8\text{km}$	
	Pg eZ	01 39 07.8
	Sg eN	39 42.8

APR 22

$\phi = 51.518^\circ\text{N}$, $\lambda = 16.116^\circ\text{E}$
H = 12:26:30.0, M = 2.7

KSP	$\Delta = 76.3\text{km}$	
	Pg eNEZ	12 26 42.5
	Sg eNEZ	26 51.3

APR 22

$\phi = 51.534^\circ\text{N}$, $\lambda = 16.093^\circ\text{E}$
H = 15:35:25.7, M = 2.8

KSP	$\Delta = 78.4\text{km}$	
	Pg eNEZ	15 35 38.5
	Sg eNEZ	35 47.5

APR 23

$\phi = 51.499^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
H = 05:00:33.0, M = 2.6

KSP	$\Delta = 74.6\text{km}$	
	Pg eNEZ	05 00 45.2
	Sg eNEZ	00 54.1

OJC	$\Delta = 298.2\text{km}$	
	Pg eZ	05 01 24.0
	Sg eN	01 58.9

APR 24

$\phi = 51.513^\circ\text{N}$, $\lambda = 16.125^\circ\text{E}$
H = 03:44:41.3, M = 3.6

KSP	$\Delta = 75.7\text{km}$	
	Pg iNEZ	03 44 53.7
	Sg iNEZ	45 02.7

RAC	$\Delta = 216.4\text{km}$	
	P eNE	03 45 17.0
	S eNE	45 43.4

OJC	$\Delta = 296.7\text{km}$	
	Pn eZ	03 45 22.4
	Pg eZ	45 31.6
	Sn eN	45 53.8
	Sg eN	46 05.8

KWP	$\Delta = 512.2\text{km}$	
	Pn eZ	03 45 50.4

SUW	$\Delta = 552.7\text{km}$	
	Pn eZ	03 45 55.3
	Sn eNE	46 52.3

APR 24

$\phi = 51.514^\circ\text{N}$, $\lambda = 16.127^\circ\text{E}$
H = 03:56:42.9, M = 3.0

KSP	$\Delta = 75.8\text{km}$	
	Pg iNEZ	03 56 55.3
	Sg eNEZ	57 05.1

RAC	$\Delta = 216.4\text{km}$	
	P eNE	03 57 19.2
	S eNE	57 45.3

OJC	$\Delta = 296.6\text{km}$	
	Pg eZ	03 57 32.6
	Sn eN	57 56.0
	Sg eN	58 08.1

APR 24

$\phi = 51.511^\circ\text{N}$, $\lambda = 16.129^\circ\text{E}$
H = 03:59:25.7, M = 2.6

KSP	$\Delta = 75.4\text{km}$	
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Pg eNEZ 03 59 38.1
Sg eNEZ 59 47.1

APR 25

$\phi = 51.503^{\circ}\text{N}$, $\lambda = 16.089^{\circ}\text{E}$
 $H = 01:16:54.1$, $M = 2.7$

KSP $\Delta = 75.0\text{km}$
Pg eNEZ 01 17 06.4
Sg eNEZ 17 15.1

APR 27

$\phi = 51.45^{\circ}\text{N}$, $\lambda = 16.08^{\circ}\text{E}$
 $H = 01:04:21$, $M = 2.7$

KSP $\Delta = 69\text{km}$
Pg eNEZ 01 04 32.4
Sg eNEZ 04 40.7

APR 27

$\phi = 51.498^{\circ}\text{N}$, $\lambda = 16.089^{\circ}\text{E}$
 $H = 08:13:51.9$, $M = 2.5$

KSP $\Delta = 74.5\text{km}$
Pg eNEZ 08 14 04.1
Sg eNEZ 14 13.1

OJC $\Delta = 298.1\text{km}$
Pg eZ 08 14 42.3
Sg eN 15 18.1

APR 27

$\phi = 51.552^{\circ}\text{N}$, $\lambda = 16.049^{\circ}\text{E}$
 $H = 11:39:17.8$, $M = 2.7$

KSP $\Delta = 80.9\text{km}$
Pg eNEZ 11 39 31.1
Sg eNEZ 39 40.9

APR 29

$\phi = 51.49^{\circ}\text{N}$, $\lambda = 16.01^{\circ}\text{E}$
 $H = 15:58:29$, $M = 2.8$

OJC $\Delta = 303\text{km}$
Pg eZ 15 59 17.5
Sg eN 59 54.2

APR 30

$\phi = 51.564^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
 $H = 04:04:08.8$, $M = 2.6$

KSP $\Delta = 82.9\text{km}$
Pg eNEZ 04 04 22.4
Sg eNEZ 04 31.6

APR 30

$\phi = 51.564^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
 $H = 04:17:51.6$, $M = 2.6$

KSP $\Delta = 82.9\text{km}$
Pg eNEZ 04 18 05.2
Sg eNEZ 18 15.2

OJC $\Delta = 306.5\text{km}$
Pg eZ 04 18 42.1
Sg eN 19 18.0

APR 30

$\phi = 51.496^{\circ}\text{N}$, $\lambda = 16.102^{\circ}\text{E}$
 $H = 21:18:15.6$, $M = 2.7$

KSP $\Delta = 74.1\text{km}$
Pg eNEZ 21 18 27.7
Sg eNEZ 18 36.5

MAY 1

$\phi = 51.504^{\circ}\text{N}$, $\lambda = 16.092^{\circ}\text{E}$
 $H = 01:56:10.1$, $M = 2.9$

KSP $\Delta = 75.1\text{km}$
Pg eNEZ 01 56 22.4
Sg iNEZ 56 31.5

RAC $\Delta = 217.2\text{km}$
P eZ 01 56 47.4
S eNE 57 13.6

OJC $\Delta = 298.2\text{km}$
Pg eZ 01 56 59.7
Sg eN 57 35.3

KWP $\Delta = 512.2\text{km}$
P eZ 01 57 34.2

MAY 1

$\phi = 51.452^{\circ}\text{N}$, $\lambda = 16.172^{\circ}\text{E}$
 $H = 12:47:29.0$, $M = 2.5$

KSP $\Delta = 68.5\text{km}$
Pg eNEZ 12 47 40.2
Sg eNEZ 47 48.0

MAY 5

$\phi = 51.538^{\circ}\text{N}$, $\lambda = 16.055^{\circ}\text{E}$
 $H = 16:09:55.4$, $M = 3.2$

KSP $\Delta = 79.3\text{km}$
Pg iNEZ 16 10 08.4
Sg eNEZ 10 17.6

RAC $\Delta = 221.7\text{km}$

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	P eZ	16	10	32.7	
	S eN		10	58.1	
OJC	$\Delta = 302.3\text{km}$				
	Pg eZ	16	10	45.1	
	Sg eE		11	19.8	
KWP	$\Delta = 517.8\text{km}$				
	P eZ	16	11	20.1	

MAY 5

$\varphi = 51.489^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
 $H = 21:44:25.6$, $M = 2.8$

KSP	$\Delta = 73.5\text{km}$				
	Pg iNEZ	21	44	37.6	
	Sg eNEZ		44	46.2	
OJC	$\Delta = 297.8\text{km}$				
	Pg eZ	21	45	15.5	
	Sg eN		45	50.6	

MAY 8

$\varphi = 51.454^\circ\text{N}$, $\lambda = 16.074^\circ\text{E}$
 $H = 01:05:50.3$, $M = 2.5$

KSP	$\Delta = 69.9\text{km}$				
	Pg iNEZ	01	06	01.8	
	Sg iNEZ		06	10.4	
OJC	$\Delta = 296.9\text{km}$				
	Pg eZ	01	06	39.8	
	Sg eE		07	16.6	

MAY 8

$\varphi = 51.563^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
 $H = 01:21:36.9$, $M = 2.7$

KSP	$\Delta = 82.8\text{km}$				
	Pg eNEZ	01	21	50.5	
	Sg iNEZ		22	00.4	

MAY 8

$\varphi = 51.555^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 09:54:59.4$, $M = 2.6$

KSP	$\Delta = 80.6\text{km}$				
	Pg eNEZ	09	55	12.6	
	Sg eNEZ		55	22.1	

MAY 8

$\varphi = 51.524^\circ\text{N}$, $\lambda = 16.112^\circ\text{E}$
 $H = 10:50:39.8$, $M = 2.6$

KSP	$\Delta = 77.0\text{km}$				
	Pg eNEZ	10	50	52.4	
	Sg eNEZ		51	02.0	

OJC	$\Delta = 298.0\text{km}$				
	Pg eZ		10	51	29.8
	Sg eN		52	05.5	

MAY 9

$\varphi = 51.499^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 02:45:51.3$, $M = 2.5$

KSP	$\Delta = 74.6\text{km}$				
	Pg eNEZ		02	46	03.5
	Sg eNEZ		46	11.4	

MAY 9

$\varphi = 51.512^\circ\text{N}$, $\lambda = 16.081^\circ\text{E}$
 $H = 04:09:59.2$, $M = 2.7$

KSP	$\Delta = 76.1\text{km}$				
	Pg iNEZ	04	10	11.7	
	Sg eNEZ		10	20.5	
OJC	$\Delta = 299.3\text{km}$				
	Pg eZ	04	10	49.6	
	Sg eN		11	24.5	

MAY 9

$\varphi = 51.501^\circ\text{N}$, $\lambda = 16.086^\circ\text{E}$
 $H = 06:50:31.5$, $M = 3.1$

KSP	$\Delta = 74.9\text{km}$				
	Pg eNEZ	06	50	43.8	
	Sg eNEZ		50	52.7	
RAC	$\Delta = 217.3\text{km}$				
	P eZ	06	51	07.6	
	S eNE		51	34.3	
OJC	$\Delta = 298.5\text{km}$				
	Pn eZ	06	51	13.1	
	Pg iZ		51	22.3	
	Sg eN		51	57.0	

MAY 9

$\varphi = 51.483^\circ\text{N}$, $\lambda = 16.098^\circ\text{E}$
 $H = 19:17:36.7$, $M = 2.6$

KSP	$\Delta = 72.7\text{km}$				
	Pg eNEZ	19	17	48.6	
	Sg eNEZ		17	57.5	

MAY 10

$\varphi = 51.505^\circ\text{N}$, $\lambda = 16.086^\circ\text{E}$
 $H = 13:33:26.5$, $M = 3.0$

KSP	$\Delta = 75.3\text{km}$				
	Pg iNEZ	13	33	38.8	
	Sg iNEZ		33	47.9	
OJC	$\Delta = 298.7\text{km}$				
	Pg eZ	13	34	16.1	

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Sg eE 34 51.8
KWP $\Delta = 514.4\text{km}$
Pg eZ 13 34 50.4
Sg eE 36 01.4

MAY 12

$\phi = 51.499^\circ\text{N}$, $\lambda = 16.089^\circ\text{E}$
 $H = 22:21:02.7$, $M = 2.9$

KSP $\Delta = 74.6\text{km}$
Pg iNEZ 22 21 14.9
Sg iNEZ 21 24.0

RAC $\Delta = 217.0\text{km}$
P eZ 22 21 39.5
S eN 22 06.7

OJC $\Delta = 298.2\text{km}$
Pg eZ 22 21 52.4
Sg eE 22 28.1

KWP $\Delta = 514.0\text{km}$
Pg eZ 22 22 26.7

MAY 15

$\phi = 51.521^\circ\text{N}$, $\lambda = 16.112^\circ\text{E}$
 $H = 07:35:33.6$, $M = 2.8$

KSP $\Delta = 76.7\text{km}$
Pg iNEZ 07 35 46.2
Sg eNEZ 35 55.7

OJC $\Delta = 297.9\text{km}$
Pg eZ 07 36 23.1
Sg eE 36 59.1

MAY 15

$\phi = 51.486^\circ\text{N}$, $\lambda = 16.094^\circ\text{E}$
 $H = 11:09:02.4$, $M = 2.9$

KSP $\Delta = 73.1\text{km}$
Pg eNEZ 11 09 14.4
Sg eNEZ 09 23.0

RAC $\Delta = 215.7\text{km}$
P eZ 11 09 39.8
S eNE 10 05.3

OJC $\Delta = 297.2\text{km}$
(Pn) eZ 11 09 44.8
Pg eZ 09 51.9
Sg iN 10 26.8

MAY 16

$\phi = 51.509^\circ\text{N}$, $\lambda = 16.065^\circ\text{E}$
 $H = 09:53:31.6$, $M = 4.1$

KSP $\Delta = 76.0\text{km}$
Pg iNEZ 09 53 44.1
Sg iNEZ 53 53.9

RAC $\Delta = 218.9\text{km}$
Pn eZ 09 54 04.5
eZ 54 08.3
Sn eNE 54 28.3
eNE 54 35.3

OJC $\Delta = 300.2\text{km}$
Pn eZ 09 54 12.9
Pg iZ 54 23.0
Sn eEN 54 46.7
Sg eN 54 57.7

NIE $\Delta = 381.7\text{km}$
Pn eZ 09 54 25.4
S eN 55 21.3

KWP $\Delta = 515.9\text{km}$
Pn eZ 09 54 41.3
eZ 54 56.0
S eNE 56 01.8

SUW $\Delta = 556.4\text{km}$
Pn eZ 09 54 46.8
Pg eZ 55 08.2
Sn eNE 55 46.1
Sg eNE 56 16.7

MAY 16

$\phi = 51.509^\circ\text{N}$, $\lambda = 16.065^\circ\text{E}$
 $H = 09:58:47.2$, $M = 3.6$

KSP $\Delta = 76.0\text{km}$
Pg iNEZ 09 58 59.7
Sg iNEZ 59 09.2

RAC $\Delta = 218.9\text{km}$
P eZ 09 59 22.7
S eNE 59 49.6

OJC $\Delta = 300.2\text{km}$
Pn eZ 09 59 28.8
Pg iZ 59 37.6
Sn eE 10 00 01.4
Sg eN 00 12.9

MAY 17

$\phi = 51.46^\circ\text{N}$, $\lambda = 16.11^\circ\text{E}$
 $H = 15:49:32$, $M = 3.1$

KSP $\Delta = 70\text{km}$
Pg iNEZ 15 49 43.9
Sg iNEZ 49 52.4

RAC $\Delta = 213\text{km}$
P eZ 15 50 07.6
S eN 50 32.4

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OJC $\Delta = 295\text{km}$
Pn eZ 15 50 14.7
Pg eZ 50 23.0
Sg eE 50 57.8

MAY 20

$\varphi = 51.40^\circ\text{N}$, $\lambda = 16.19^\circ\text{E}$
H = 05:24:06, M = 2.6

KSP $\Delta = 63\text{km}$
Pg eNEZ 05 24 16.3
Sg eNEZ 24 23.8

MAY 21

$\varphi = 51.467^\circ\text{N}$, $\lambda = 16.139^\circ\text{E}$
H = 11:04:33.9, M = 2.8

KSP $\Delta = 70.5\text{km}$
Pg eNEZ 11 04 45.4
Sg eNEZ 04 53.9

MAY 21

$\varphi = 51.503^\circ\text{N}$, $\lambda = 16.090^\circ\text{E}$
H = 17:04:05.8, M = 2.6

KSP $\Delta = 75.0\text{km}$
Pg eNEZ 17 04 18.1
Sg eNEZ 04 26.7

MAY 22

$\varphi = 51.513^\circ\text{N}$, $\lambda = 16.126^\circ\text{E}$
H = 15:32:58.3, M = 2.7

KSP $\Delta = 75.7\text{km}$
Pg eNEZ 15 33 10.8
Sg eNEZ 33 19.6

OJC $\Delta = 296.6\text{km}$
Pg eZ 15 33 47.3
Sg eN 34 21.4

MAY 23

$\varphi = 51.501^\circ\text{N}$, $\lambda = 16.085^\circ\text{E}$
H = 04:47:07.3, M = 2.7

KSP $\Delta = 74.9\text{km}$
Pg eNEZ 04 47 19.6
Sg eNEZ 47 28.0

MAY 23

$\varphi = 51.482^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
H = 06:05:47.0, M = 2.6

KSP $\Delta = 72.6\text{km}$

Pg eNEZ 06 05 58.9
Sg eNEZ 06 08.1
OJC $\Delta = 296.8\text{km}$
Pg eZ 06 06 36.0
Sg eE 07 11.9

MAY 23

$\varphi = 51.519^\circ\text{N}$, $\lambda = 16.066^\circ\text{E}$
H = 19:57:32.2, M = 2.6

KSP $\Delta = 77.1\text{km}$
Pg eNEZ 19 57 44.8
Sg eNEZ 57 54.2

OJC $\Delta = 300.6\text{km}$
Pg eZ 19 58 22.5
Sg eN 58 57.9

MAY 24

$\varphi = 51.482^\circ\text{N}$, $\lambda = 16.073^\circ\text{E}$
H = 00:21:33.6, M = 2.7

KSP $\Delta = 72.9\text{km}$
Pg iNEZ 00 21 45.6
Sg eNEZ 21 54.2

MAY 24

$\varphi = 51.511^\circ\text{N}$, $\lambda = 16.086^\circ\text{E}$
H = 15:43:07.2, M = 2.7

KSP $\Delta = 75.9\text{km}$
Pg eNEZ 15 43 19.6
Sg eNEZ 43 28.5

OJC $\Delta = 299.0\text{km}$
Pg eZ 15 43 56.1
Sg eN 44 31.6

MAY 24

$\varphi = 51.564^\circ\text{N}$, $\lambda = 16.007^\circ\text{E}$
H = 23:25:38.1, M = 2.6

KSP $\Delta = 82.9\text{km}$
Pg eNEZ 23 25 51.7
Sg iNEZ 26 01.7

MAY 25

$\varphi = 51.502^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
H = 03:49:57.7, M = 3.2

KSP $\Delta = 74.9\text{km}$
Pg eNEZ 03 50 10.0
Sg iNEZ 50 19.1

RAC $\Delta = 217.3\text{km}$
P eZ 03 50 33.4
S eNE 51 00.8

OJC $\Delta = 298.4\text{km}$
Pg iZ 03 50 48.1

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Sg iE 51 23.4
KWP $\Delta = 514.2\text{km}$
Pn eZ 03 51 13.4

MAY 25

$\varphi = 51.518^\circ\text{N}$, $\lambda = 16.116^\circ\text{E}$
 $H = 07:44:17.5$, $M = 2.8$

KSP $\Delta = 76.3\text{km}$
Pg eNEZ 07 44 30.0
Sg eNEZ 44 39.0

MAY 26

$\varphi = 51.535^\circ\text{N}$, $\lambda = 16.029^\circ\text{E}$
 $H = 17:18:48.9$, $M = 2.8$

KSP $\Delta = 79.4\text{km}$
Pg eNEZ 17 19 01.9
Sg eNEZ 19 11.4

OJC $\Delta = 303.7\text{km}$
Pg eZ 17 19 40.8
Sn eN 20 04.8
Sg eE 20 15.9

MAY 27

$\varphi = 51.453^\circ\text{N}$, $\lambda = 16.072^\circ\text{E}$
 $H = 02:27:45.5$, $M = 2.6$

KSP $\Delta = 69.8\text{km}$
Pg eNEZ 02 27 57.0
Sg eNEZ 28 05.7

OJC $\Delta = 296.9\text{km}$
Pg eZ 02 28 35.6
Sg eN 29 11.0

MAY 27

$\varphi = 51.584^\circ\text{N}$, $\lambda = 15.996^\circ\text{E}$
 $H = 04:32:02.9$, $M = 3.1$

KSP $\Delta = 85.3\text{km}$
Pg iNEZ 04 32 16.9
Sg iNEZ 32 27.0

OJC $\Delta = 308.3\text{km}$
Pn eZ 04 32 45.0
Pg eZ 32 55.6
Sn eN 33 21.5
Sg eN 33 31.2

MAY 27

$\varphi = 51.521^\circ\text{N}$, $\lambda = 16.112^\circ\text{E}$
 $H = 14:20:01.5$, $M = 2.7$

KSP $\Delta = 76.7\text{km}$
Pg eNEZ 14 20 14.1
Sg eNEZ 20 23.3

MAY 27

$\varphi = 51.552^\circ\text{N}$, $\lambda = 16.050^\circ\text{E}$
 $H = 22:50:33.9$, $M = 2.7$

KSP $\Delta = 80.9\text{km}$
Pg eNEZ 22 50 47.2
Sg eNEZ 50 56.8

MAY 31

$\varphi = 51.492^\circ\text{N}$, $\lambda = 16.098^\circ\text{E}$
 $H = 12:51:37.9$, $M = 2.6$

KSP $\Delta = 73.7\text{km}$
Pg eNEZ 12 51 50.0
Sg eNEZ 51 58.3

JUN 1

$\varphi = 51.563^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
 $H = 12:51:22.5$, $M = 2.8$

KSP $\Delta = 82.8\text{km}$
Pg eNEZ 12 51 36.1
Sg iNEZ 51 46.1

OJC $\Delta = 306.5\text{km}$
Pg eZ 12 52 15.0
Sg eN 52 49.7

JUN 1

$\varphi = 51.451^\circ\text{N}$, $\lambda = 16.119^\circ\text{E}$
 $H = 13:48:23.0$, $M = 2.7$

KSP $\Delta = 68.9\text{km}$
Pg eNEZ 13 48 34.3
Sg eNEZ 48 42.3

JUN 1

$\varphi = 51.503^\circ\text{N}$, $\lambda = 16.090^\circ\text{E}$
 $H = 18:01:44.0$, $M = 2.6$

KSP $\Delta = 75.0\text{km}$
Pg eNEZ 18 01 56.3
Sg eNEZ 02 05.2

JUN 2

$\varphi = 51.450^\circ\text{N}$, $\lambda = 16.166^\circ\text{E}$
 $H = 14:57:34.3$, $M = 2.7$

KSP $\Delta = 68.3\text{km}$
Pg eNEZ 14 57 45.5
Sg eNEZ 57 53.9

JUN 3

$\varphi = 51.500^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
 $H = 02:24:18.7$, $M = 2.6$

KSP $\Delta = 74.7\text{km}$

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Pg eNEZ 02 24 30.9
Sg eNEZ 24 39.6

OJC $\Delta = 298.4\text{km}$
Pg eZ 02 25 10.0
Sg eN 25 44.8

JUN 4

$\phi = 51.451^\circ\text{N}$, $\lambda = 16.163^\circ\text{E}$
 $H = 01:39:24.9$, $M = 2.6$

KSP $\Delta = 68.4\text{km}$
Pg eNEZ 01 39 36.1
Sg eNEZ 39 44.2

JUN 4

$\phi = 51.471^\circ\text{N}$, $\lambda = 16.034^\circ\text{E}$
 $H = 02:35:12.7$, $M = 2.6$

KSP $\Delta = 72.4\text{km}$
Pg iNEZ 02 35 24.6
Sg iNEZ 35 33.5

JUN 4

$\phi = 51.503^\circ\text{N}$, $\lambda = 16.149^\circ\text{E}$
 $H = 15:30:59.7$, $M = 2.6$

KSP $\Delta = 74.3\text{km}$
Pg eNEZ 15 31 11.9
Sg eNEZ 31 20.8

JUN 5

$\phi = 51.485^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 03:52:09.8$, $M = 2.7$

KSP $\Delta = 72.9\text{km}$
Pg eNEZ 03 52 21.8
Sg eNEZ 52 30.0

OJC $\Delta = 297.0\text{km}$
Pg eZ 03 52 59.7
Sg eE 53 34.4

JUN 5

$\phi = 51.556^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 06:15:43.5$, $M = 2.6$

KSP $\Delta = 80.7\text{km}$
Pg eNEZ 06 15 56.7
Sg eNEZ 16 06.2

OJC $\Delta = 300.6\text{km}$
Pg eZ 06 16 34.8
Sg eN 17 09.4

JUN 6

$\phi = 51.483^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 04:26:45.6$, $M = 2.4$

KSP $\Delta = 72.7\text{km}$
Pg eNEZ 04 26 58.1
Sg eNEZ 27 07.3

OJC $\Delta = 296.9\text{km}$
Pg eZ 04 27 35.6
Sg eN 28 09.8

JUN 6

$\phi = 51.467^\circ\text{N}$, $\lambda = 16.132^\circ\text{E}$
 $H = 09:14:35.8$, $M = 2.8$

KSP $\Delta = 70.5\text{km}$
Pg eNEZ 09 14 47.4
Sg eNEZ 14 56.8

OJC $\Delta = 293.9\text{km}$
Pg eZ 09 15 26.0
Sg eN 16 00.3

JUN 7

$\phi = 51.503^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 11:37:20.8$, $M = 3.1$

KSP $\Delta = 75.0\text{km}$
Pg eNEZ 11 37 33.1
Sg iNEZ 37 42.1

RAC $\Delta = 217.3\text{km}$
P eZ 11 37 59.0
S eN 38 25.0

OJC $\Delta = 298.4\text{km}$
Pg eZ 11 38 11.7
Sg eE 38 46.7

KWP $\Delta = 514.2\text{km}$
P eZ 11 38 45.0

JUN 9

$\phi = 51.449^\circ\text{N}$, $\lambda = 16.163^\circ\text{E}$
 $H = 09:30:30.5$, $M = 2.6$

KSP $\Delta = 68.2\text{km}$
Pg eNEZ 09 30 41.7
Sg eNEZ 30 50.3

JUN 9

$\phi = 51.454^\circ\text{N}$, $\lambda = 16.073^\circ\text{E}$
 $H = 15:24:22.1$, $M = 3.0$

KSP $\Delta = 69.9\text{km}$
Pg iNEZ 15 24 33.6

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Sg eNEZ 24 41.7

OJC $\Delta = 296.9\text{km}$
Pg eZ 15 25 12.7
Sg eN 25 47.1

JUN 10

$\varphi = 51.499^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 07:50:45.5$, $M = 2.8$

KSP $\Delta = 74.6\text{km}$
Pg eNEZ 07 50 57.7
Sg eNEZ 51 06.7

OJC $\Delta = 298.2\text{km}$
Pg eZ 07 51 36.9
Sn eN 51 59.9
Sg eN 52 11.6

JUN 10

$\varphi = 51.564^\circ\text{N}$, $\lambda = 16.007^\circ\text{E}$
 $H = 08:23:27.5$, $M = 2.8$

KSP $\Delta = 82.9\text{km}$
Pg eNEZ 08 23 41.1
Sg eNEZ 23 51.0

OJC $\Delta = 306.6\text{km}$
Pg eZ 08 24 18.9
Sg eN 24 54.9

JUN 10

$\varphi = 51.45^\circ\text{N}$, $\lambda = 16.08^\circ\text{E}$
 $H = 14:58:46$, $M = 2.7$

KSP $\Delta = 69\text{km}$
Pg iNEZ 14 58 57.5
Sg eNEZ 59 05.7

OJC $\Delta = 296\text{km}$
Pg eZ 14 59 35.9
Sg eE 15 00 11.2

JUN 10

$\varphi = 51.498^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 18:53:37.3$, $M = 2.8$

KSP $\Delta = 74.5\text{km}$
Pg eNEZ 18 53 49.5
Sg eNEZ 53 58.4

OJC $\Delta = 298.2\text{km}$
Pg eZ 18 54 28.0
Sg eN 55 03.3

JUN 12

$\varphi = 51.541^\circ\text{N}$, $\lambda = 16.129^\circ\text{E}$
 $H = 15:30:28.2$, $M = 2.6$

KSP $\Delta = 78.7\text{km}$
Pg eNEZ 15 30 41.1
Sg eE 30 50.1

JUN 12

$\varphi = 51.541^\circ\text{N}$, $\lambda = 16.130^\circ\text{E}$
 $H = 15:32:17.1$, $M = 2.6$

KSP $\Delta = 78.7\text{km}$
Pg eNEZ 15 32 30.0
Sg eE 32 39.0

JUN 12

$\varphi = 51.449^\circ\text{N}$, $\lambda = 16.163^\circ\text{E}$
 $H = 21:24:57.6$, $M = 2.6$

KSP $\Delta = 68.2\text{km}$
Pg iNEZ 21 25 08.8
Sg eEZ 25 16.1

JUN 13

$\varphi = 51.512^\circ\text{N}$, $\lambda = 16.081^\circ\text{E}$
 $H = 03:30:36.1$, $M = 2.5$

KSP $\Delta = 76.1\text{km}$
Pg iNEZ 03 30 48.6
Sg eNEZ 30 51.0

OJC $\Delta = 299.3\text{km}$
Pg eZ 03 31 26.6
Sg eN 31 59.9

JUN 13

$\varphi = 51.563^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
 $H = 07:52:10.2$, $M = 2.7$

KSP $\Delta = 82.8\text{km}$
Pg eNEZ 07 52 23.8
Sg eNEZ 52 33.8

JUN 13

$\varphi = 51.474^\circ\text{N}$, $\lambda = 16.108^\circ\text{E}$
 $H = 10:54:15.5$, $M = 2.6$

KSP $\Delta = 71.6\text{km}$
Pg eNEZ 10 54 27.2
Sg eNEZ 54 35.8

JUN 14

$\varphi = 51.45^\circ\text{N}$, $\lambda = 16.16^\circ\text{E}$
 $H = 16:19:55$, $M = 2.7$

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KSP	$\Delta = 68\text{km}$			
	Pg eNEZ	16	20	06.3
	Sg eNEZ	20	14.3	
<u>JUN 15</u>				
	$\phi = 51.453^\circ\text{N}, \lambda = 16.075^\circ\text{E}$			
	$H = 04:25:39.7, M = 2.7$			
KSP	$\Delta = 69.7\text{km}$			
	Pg eNEZ	04	25	51.1
	Sg eNEZ	25	59.4	
<u>JUN 15</u>				
	$\phi = 51.476^\circ\text{N}, \lambda = 16.112^\circ\text{E}$			
	$H = 05:18:40.9, M = 2.7$			
KSP	$\Delta = 71.8\text{km}$			
	Pg eNEZ	05	18	52.7
	Sg eNEZ	19	01.4	
<u>JUN 15</u>				
	$\phi = 51.461^\circ\text{N}, \lambda = 16.109^\circ\text{E}$			
	$H = 15:41:17.6, M = 2.7$			
KSP	$\Delta = 70.2\text{km}$			
	Pg eNEZ	15	41	29.1
	Sg eNEZ	41	37.3	
<u>JUN 16</u>				
	$\phi = 51.503^\circ\text{N}, \lambda = 16.089^\circ\text{E}$			
	$H = 03:43:53.2, M = 3.5$			
KSP	$\Delta = 75.0\text{km}$			
	Pg iNEZ	03	44	05.5
	Sg eNEZ	44	14.5	
RAC	$\Delta = 217.3\text{km}$			
	P eZ	03	44	28.7
	S eNE	44	54.2	
OJC	$\Delta = 298.4\text{km}$			
	Pn eZ	03	44	33.1
	Pg iZ	44	42.9	
	Sn eE	45	06.7	
	Sg iE	45	18.7	
<u>JUN 16</u>				
	$\phi = 51.455^\circ\text{N}, \lambda = 16.075^\circ\text{E}$			
	$H = 15:44:40.8, M = 3.0$			
KSP	$\Delta = 70.0\text{km}$			
	Pg iNEZ	15	44	52.3
	Sg eNEZ	44	59.9	
OJC	$\Delta = 296.8\text{km}$			
	Pn eZ	15	45	21.0
	Pg iZ	45	31.5	
	Sn eE	45	57.3	

	Sg iN	46	07.1	
<u>JUN 16</u>				
	$\phi = 51.534^\circ\text{N}, \lambda = 16.094^\circ\text{E}$			
	$H = 15:47:25.8, M = 2.6$			
KSP	$\Delta = 78.3\text{km}$			
	Pg eNEZ	15	47	38.7
	Sg eNEZ	47	46.3	
<u>JUN 16</u>				
	$\phi = 51.532^\circ\text{N}, \lambda = 16.090^\circ\text{E}$			
	$H = 17:33:12.8, M = 3.3$			
KSP	$\Delta = 78.2\text{km}$			
	Pg iNEZ	17	33	25.6
	Sg eNEZ	33	33.3	
RAC	$\Delta = 219.6\text{km}$			
	P eZ	17	33	49.2
	S eNE	34	15.3	
OJC	$\Delta = 299.8\text{km}$			
	Pg iZ	17	34	03.0
	Sg iN	34	37.9	
<u>JUN 17</u>				
	$\phi = 51.500^\circ\text{N}, \lambda = 16.087^\circ\text{E}$			
	$H = 03:47:17.7, M = 2.8$			
KSP	$\Delta = 74.7\text{km}$			
	Pg eNEZ	03	47	30.0
	Sg eNEZ	47	38.7	
<u>JUN 17</u>				
	$\phi = 51.461^\circ\text{N}, \lambda = 16.131^\circ\text{E}$			
	$H = 15:37:38.1, M = 2.6$			
KSP	$\Delta = 69.9\text{km}$			
	Pg eNEZ	15	37	49.6
	Sg eNEZ	37	57.0	
OJC	$\Delta = 293.6\text{km}$			
	Pg eZ	15	38	26.9
	Sg eE	39	02.1	
<u>JUN 18</u>				
	$\phi = 51.560^\circ\text{N}, \lambda = 16.013^\circ\text{E}$			
	$H = 07:44:17.1, M = 2.7$			
KSP	$\Delta = 82.4\text{km}$			
	Pg eNEZ	07	44	30.6
	Sg eNEZ	44	40.5	

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JUN 18

**$\phi = 51.500^{\circ}\text{N}$, $\lambda = 16.086^{\circ}\text{E}$
H = 13:33:34.7, M = 2.7**

KSP $\Delta = 74.7\text{km}$
 Pg eNEZ 13 33 47.0
 Sg eNEZ 33 56.2

JUN 18

**$\phi = 51.496^{\circ}\text{N}$, $\lambda = 16.100^{\circ}\text{E}$
H = 15:22:29.7, M = 2.9**

KSP $\Delta = 74.1\text{km}$
 Pg eNEZ 15 22 41.8
 Sg eNEZ 22 50.8

OJC $\Delta = 297.3\text{km}$
 Pg eZ 15 23 19.1
 Sg eN 23 54.2

JUN 18

**$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 21:31:06.8, M = 2.6**

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 21 31 19.1
 Sg eNEZ 31 28.0

JUN 18

**$\phi = 51.550^{\circ}\text{N}$, $\lambda = 16.049^{\circ}\text{E}$
H = 22:18:20.8, M = 2.7**

KSP $\Delta = 80.7\text{km}$
 Pg eNEZ 22 18 34.0
 Sg eNEZ 18 43.6

JUN 19

**$\phi = 51.500^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 20:29:32.2, M = 2.7**

KSP $\Delta = 74.7\text{km}$
 Pg eNEZ 20 29 44.4
 Sg eNEZ 29 53.3

OJC $\Delta = 298.4\text{km}$
 Pg eZ 20 30 22.2
 Sg eN 30 56.7

JUN 20

**$\phi = 51.482^{\circ}\text{N}$, $\lambda = 16.097^{\circ}\text{E}$
H = 03:59:41.9, M = 3.7**

KSP $\Delta = 72.6\text{km}$
 Pg iNEZ 03 59 53.8
 Sg iNEZ 04 00 02.5

RAC $\Delta = 215.2\text{km}$
 Pn eZ 04 00 13.8

S eNE 00 43.0

GKP $\Delta = 214.1\text{km}$
 Pn eZ 04 00 15.0
 S eE 00 44.6

OJC $\Delta = 296.8\text{km}$
 Pn eZ 04 00 22.6
 Pg iZ 00 32.3
 Sn eE 00 54.4
 Sg iN 01 07.3

NIE $\Delta = 378.1\text{km}$
 Pn eZ 04 00 34.1
 iZ 00 44.1
 S eE 01 28.7

KWP $\Delta = 512.8\text{km}$
 Pn eZ 04 00 51.0
 Sn eNE 01 45.7

SUW $\Delta = 556.2\text{km}$
 Pn eZ 04 00 56.4
 Pg eZ 01 13.1
 Sn eNE 01 53.6
 Sg eNE 02 13.4

JUN 21

**$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
H = 06:02:34.8, M = 3.0**

KSP $\Delta = 79.4\text{km}$
 Pg iNEZ 06 02 47.8
 Sg eNEZ 02 57.0

OJC $\Delta = 302.3\text{km}$
 Pn eZ 06 03 15.8
 Pg eZ 03 26.0
 Sn eN 03 50.8
 Sg eN 04 01.6

JUN 22

**$\phi = 51.506^{\circ}\text{N}$, $\lambda = 16.089^{\circ}\text{E}$
H = 03:04:01.9, M = 2.8**

KSP $\Delta = 75.3\text{km}$
 Pg eNEZ 03 04 14.3
 Sg iNEZ 04 23.4

OJC $\Delta = 298.5\text{km}$
 Pg eZ 03 04 52.4
 Sg eE 05 26.9

JUN 22

**$\phi = 51.536^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 10:36:09.3, M = 2.6**

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KSP $\Delta = 78.6\text{km}$
Pg eNEZ 10 36 22.2
Sg eNEZ 36 31.6

JUN 22
 $\phi = 51.564^\circ\text{N}, \lambda = 16.008^\circ\text{E}$
 $H = 13:58:02.5, M = 2.6$

KSP $\Delta = 82.9\text{km}$
Pg eNEZ 13 58 16.1
Sg eNEZ 58 25.9

JUN 24
 $\phi = 51.448^\circ\text{N}, \lambda = 16.163^\circ\text{E}$
 $H = 20:25:57.6, M = 2.7$

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 20 26 08.8
Sg eNEZ 26 17.5

JUN 26
 $\phi = 51.560^\circ\text{N}, \lambda = 16.007^\circ\text{E}$
 $H = 13:27:08.3, M = 2.8$

KSP $\Delta = 82.5\text{km}$
Pg eNEZ 13 27 21.8
Sg eNEZ 27 31.5

OJC $\Delta = 306.4\text{km}$
Pg eZ 13 28 00.0
Sg eE 28 36.0

JUN 26
 $\phi = 51.500^\circ\text{N}, \lambda = 16.088^\circ\text{E}$
 $H = 14:02:39.5, M = 2.7$

KSP $\Delta = 74.7\text{km}$
Pg eNEZ 14 02 51.7
Sg eNEZ 03 00.6

JUN 26
 $\phi = 51.501^\circ\text{N}, \lambda = 16.088^\circ\text{E}$
 $H = 16:07:02.5, M = 2.8$

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 16 07 14.8
Sg eNEZ 07 23.7

OJC $\Delta = 298.3\text{km}$
Pg eZ 16 07 53.0
Sg eN 08 28.5

JUN 28
 $\phi = 51.500^\circ\text{N}, \lambda = 16.087^\circ\text{E}$

$H = 19:00:30.9, M = 2.5$

KSP $\Delta = 74.7\text{km}$
Pg eNEZ 19 00 43.1
Sg eNEZ 00 51.9

JUN 30
 $\phi = 51.46^\circ\text{N}, \lambda = 16.13^\circ\text{E}$
 $H = 03:46:52, M = 3.0$

KSP $\Delta = 70\text{km}$
Pg eNEZ 03 47 03.3
Sg eNEZ 47 10.7

GKP $\Delta = 216\text{km}$
Pn eZ 03 47 24.7

OJC $\Delta = 294\text{km}$
Pn eZ 03 47 32.6
Pg eZ 47 42.2
Sn eE 48 03.0
Sg eN 48 17.5

JUN 30
 $\phi = 51.495^\circ\text{N}, \lambda = 16.105^\circ\text{E}$
 $H = 04:37:49.9, M = 2.6$

KSP $\Delta = 73.9\text{km}$
Pg eNEZ 04 38 02.0
Sg eNEZ 38 10.6

JUN 30
 $\phi = 51.466^\circ\text{N}, \lambda = 16.139^\circ\text{E}$
 $H = 13:13:12.6, M = 2.6$

KSP $\Delta = 70.3\text{km}$
Pg eNEZ 13 13 24.1
Sg eNEZ 13 32.6

OJC $\Delta = 293.4\text{km}$
Pg eZ 13 14 01.2
Sg eE 14 35.7

JUL 1
 $\phi = 51.551^\circ\text{N}, \lambda = 16.049^\circ\text{E}$
 $H = 15:50:42.2, M = 2.7$

KSP $\Delta = 80.8\text{km}$
Pg iNEZ 15 50 55.4
Sg iNEZ 51 05.1

JUL 4
 $\phi = 51.477^\circ\text{N}, \lambda = 16.113^\circ\text{E}$
 $H = 00:13:43.6, M = 3.0$

KSP $\Delta = 71.9\text{km}$
Pg eNEZ 00 13 55.4
Sg eNEZ 14 04.0

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RAC	$\Delta = 214.0\text{km}$			
	Pn eZ	00	14	15.3
	eZ		14	19.2
	S eNE		14	46.1
OJC	$\Delta = 295.6\text{km}$			
	Pg eZ	00	14	32.8
	Sg eE		15	08.9
KWP	$\Delta = 511.5\text{km}$			
	Pg eZ	00	15	07.2
	Sg eNE		16	19.5
<u>JUL 5</u>				
	$\phi = 51.563^\circ\text{N}, \lambda = 16.008^\circ\text{E}$			
	$H = 13:51:50.5, M = 2.8$			
KSP	$\Delta = 82.8\text{km}$			
	Pg eNEZ	13	52	04.1
	Sg eNEZ		52	14.1
<u>JUL 7</u>				
	$\phi = 51.499^\circ\text{N}, \lambda = 16.087^\circ\text{E}$			
	$H = 04:53:09.1, M = 2.7$			
KSP	$\Delta = 74.6\text{km}$			
	Pg eNEZ	04	53	21.3
	Sg eNEZ		53	30.2
OJC	$\Delta = 298.3\text{km}$			
	Pg eZ	04	53	59.1
	Sg eE		54	34.9
<u>JUL 9</u>				
	$\phi = 51.525^\circ\text{N}, \lambda = 16.110^\circ\text{E}$			
	$H = 07:59:06.2, M = 2.9$			
KSP	$\Delta = 77.2\text{km}$			
	Pg eNEZ	07	59	18.8
	Sg eNEZ		59	27.9
OJC	$\Delta = 298.2\text{km}$			
	Pg eZ	07	59	57.1
	Sg eN	08	00	31.1
<u>JUL 10</u>				
	$\phi = 51.584^\circ\text{N}, \lambda = 15.996^\circ\text{E}$			
	$H = 05:44:03.9, M = 3.2$			
KSP	$\Delta = 85.3\text{km}$			
	Pg iNEZ	05	44	17.9
	Sg eNEZ		44	28.1
OJC	$\Delta = 308.3\text{km}$			
	Pn eZ	05	44	48.9
	Pg eZ		44	55.9
	Sg eN		45	31.6
KWP	$\Delta = 523.5\text{km}$			
	Pn eZ	05	45	21.7
	Pg eZ		45	42.2

	Sn eNE		46	15.1
	Sg eNE		46	42.8
<u>JUL 10</u>				
	$\phi = 51.500^\circ\text{N}, \lambda = 16.089^\circ\text{E}$			
	$H = 11:56:00.2, M = 2.6$			
KSP	$\Delta = 74.7\text{km}$			
	Pg eNEZ	11	56	12.4
	Sg eNEZ		56	20.9
<u>JUL 11</u>				
	$\phi = 51.511^\circ\text{N}, \lambda = 16.079^\circ\text{E}$			
	$H = 03:30:43.7, M = 2.6$			
KSP	$\Delta = 76.0\text{km}$			
	Pg iNEZ	03	30	56.2
	Sg eNEZ		31	05.1
OJC	$\Delta = 299.4\text{km}$			
	Pg eZ	03	31	34.1
	Sg eN		32	09.0
<u>JUL 14</u>				
	$\phi = 51.519^\circ\text{N}, \lambda = 16.117^\circ\text{E}$			
	$H = 10:47:19.6, M = 2.9$			
KSP	$\Delta = 76.4\text{km}$			
	Pg eNEZ	10	47	32.1
	Sg eNEZ		47	41.2
OJC	$\Delta = 297.5\text{km}$			
	Pn eZ	10	48	01.0
	Pg eZ		48	09.9
	Sn eN		48	32.8
	Sg eN		48	45.3
<u>JUL 14</u>				
	$\phi = 51.515^\circ\text{N}, \lambda = 16.120^\circ\text{E}$			
	$H = 17:02:00.1, M = 2.7$			
KSP	$\Delta = 75.9\text{km}$			
	Pg eNEZ	17	02	12.6
	Sg eNEZ		02	21.6
OJC	$\Delta = 297.1\text{km}$			
	Pn eZ	17	02	41.8
	Pg iZ		02	50.7
	Sn eN		03	13.3
	Sg iE		03	25.9
<u>JUL 15</u>				
	$\phi = 51.536^\circ\text{N}, \lambda = 16.095^\circ\text{E}$			
	$H = 15:33:58.4, M = 2.8$			
KSP	$\Delta = 78.6\text{km}$			
	Pg eNEZ	15	34	11.3
	Sg eNEZ		34	20.7

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OJC $\Delta = 299.7\text{km}$
Pg eZ 15 34 49.0
Sg eN 35 23.8

JUL 16

$\phi = 51.502^\circ\text{N}$, $\lambda = 16.089^\circ\text{E}$
 $H = 10:51:43.4$, $M = 2.6$

KSP $\Delta = 74.9\text{km}$
Pg eNEZ 10 51 55.7
Sg eNEZ 52 04.8

JUL 18

$\phi = 51.450^\circ\text{N}$, $\lambda = 16.166^\circ\text{E}$
 $H = 09:34:36.0$, $M = 2.6$

KSP $\Delta = 68.3\text{km}$
Pg eNEZ 09 34 47.2
Sg eNEZ 34 55.5

JUL 18

$\phi = 51.554^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 20:23:51.9$, $M = 2.8$

KSP $\Delta = 80.5\text{km}$
Pg eNEZ 20 24 05.1
Sg eNEZ 24 14.6

OJC $\Delta = 300.5\text{km}$
Pn eZ 20 24 32.0
Pg eZ 24 42.1
Sg eE 25 17.9

JUL 18

$\phi = 51.501^\circ\text{N}$, $\lambda = 16.088^\circ\text{E}$
 $H = 23:06:06.0$, $M = 3.2$

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 23 06 18.3
Sg eNEZ 06 27.1

RAC $\Delta = 217.2\text{km}$
P eZ 23 06 43.1
S eNE 07 09.0

OJC $\Delta = 298.3\text{km}$
Pn eZ 23 06 46.4
Pg iZ 06 56.9
Sn eZ 07 19.8
Sg iN 07 31.4

KWP $\Delta = 514.1\text{km}$
Pn eZ 23 07 22.3
Pg eZ 07 38.9

JUL 20

$\phi = 51.457^\circ\text{N}$, $\lambda = 16.080^\circ\text{E}$
 $H = 20:48:27.1$, $M = 2.6$

KSP $\Delta = 70.1\text{km}$
Pg eNEZ 20 48 38.6
Sg eNEZ 48 47.4

JUL 21

$\phi = 51.485^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
 $H = 03:37:02.8$, $M = 2.7$

KSP $\Delta = 72.9\text{km}$
Pg eNEZ 03 37 14.8
Sg eNEZ 37 23.6

OJC $\Delta = 297.0\text{km}$
Pn eZ 03 37 45.0
Pg iZ 37 54.3
Sn iN 38 16.2
Sg eN 38 28.0

JUL 21

$\phi = 51.500^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
 $H = 03:50:48.6$, $M = 3.0$

KSP $\Delta = 74.7\text{km}$
Pg eNEZ 03 51 00.9
Sg eNEZ 51 09.9

RAC $\Delta = 217.2\text{km}$
P eZ 03 51 26.7
S eN 51 52.0

OJC $\Delta = 298.4\text{km}$
Pn eZ 03 51 30.4
Pg iZ 51 39.3
Sn eN 52 02.4
Sg iN 52 14.6

KWP $\Delta = 514.1\text{km}$
Pg eZ 03 52 12.6

JUL 21

$\phi = 51.515^\circ\text{N}$, $\lambda = 15.977^\circ\text{E}$
 $H = 09:14:10.5$, $M = 2.7$

KSP $\Delta = 78.2\text{km}$
Pg eNEZ 09 14 23.3
Sg eNEZ 14 31.8

OJC $\Delta = 305.9\text{km}$
Pg eZ 09 15 03.3
Sg eN 15 37.2

JUL 23

$\phi = 51.492^\circ\text{N}$, $\lambda = 16.096^\circ\text{E}$
 $H = 12:10:28.5$, $M = 3.1$

KSP $\Delta = 73.7\text{km}$
Pg iNEZ 12 10 40.6
Sg eNEZ 10 49.4

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RAC $\Delta = 216.1\text{km}$
P eZ 12 11 04.7
S eN 11 30.5

OJC $\Delta = 297.4\text{km}$
Pg eZ 12 11 18.1
Sg eEN 11 54.3

JUL 24

$\varphi = 51.562^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
H = 16:33:18.8, M = 2.7

KSP $\Delta = 82.7\text{km}$
Pg eNEZ 16 33 32.4
Sg iNEZ 33 42.3

JUL 26

$\varphi = 51.544^\circ\text{N}$, $\lambda = 16.013^\circ\text{E}$
H = 04:39:15.1, M = 2.6

KSP $\Delta = 80.6\text{km}$
Pg eNEZ 04 39 28.3
Sg eNEZ 39 37.9

JUL 28

$\varphi = 51.516^\circ\text{N}$, $\lambda = 16.118^\circ\text{E}$
H = 07:16:24.2, M = 2.6

KSP $\Delta = 76.1\text{km}$
Pg eNEZ 07 16 36.7
Sg eNEZ 16 45.8

OJC $\Delta = 297.3\text{km}$
Pg eZ 07 17 14.0
Sg eE 17 49.0

JUL 29

$\varphi = 51.486^\circ\text{N}$, $\lambda = 16.095^\circ\text{E}$
H = 03:51:44.1, M = 2.7

KSP $\Delta = 73.1\text{km}$
Pg eNEZ 03 51 56.1
Sg eNEZ 52 05.1

OJC $\Delta = 297.1\text{km}$
Pg eZ 03 52 33.9
Sg eN 53 09.4

JUL 31

$\varphi = 51.448^\circ\text{N}$, $\lambda = 16.163^\circ\text{E}$
H = 11:52:02.2, M = 2.6

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 11 52 13.4
Sg eNEZ 52 21.1

OJC $\Delta = 291.0\text{km}$
Pg eZ 11 52 50.0
Sg eN 53 25.3

AUG 3

$\varphi = 51.563^\circ\text{N}$, $\lambda = 16.007^\circ\text{E}$
H = 16:04:58.8, M = 2.6

KSP $\Delta = 82.8\text{km}$
Pg eNEZ 16 05 12.4
Sg eNEZ 05 22.3

AUG 3

$\varphi = 51.501^\circ\text{N}$, $\lambda = 16.087^\circ\text{E}$
H = 23:04:57.3, M = 2.8

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 23 05 09.6
Sg eNEZ 05 18.5

OJC $\Delta = 298.4\text{km}$
Pg eZ 23 05 47.4
Sg eN 06 23.2

KWP $\Delta = 514.2\text{km}$
Pn eZ 23 06 18.3

AUG 4

$\varphi = 51.550^\circ\text{N}$, $\lambda = 16.049^\circ\text{E}$
H = 08:31:31.2, M = 2.6

KSP $\Delta = 80.7\text{km}$
Pg eNZ 08 31 44.4
Sg eNEZ 31 54.2

AUG 4

$\varphi = 51.450^\circ\text{N}$, $\lambda = 16.085^\circ\text{E}$
H = 13:32:23.9, M = 2.6

KSP $\Delta = 69.3\text{km}$
Pg eNEZ 13 32 35.3
Sg eNEZ 32 43.1

AUG 6

$\varphi = 51.452^\circ\text{N}$, $\lambda = 16.084^\circ\text{E}$
H = 17:06:18.8, M = 2.7

KSP $\Delta = 69.5\text{km}$
Pg eNEZ 17 06 30.2
Sg eNEZ 06 38.4

AUG 8

$\varphi = 51.450^\circ\text{N}$, $\lambda = 16.118^\circ\text{E}$
H = 18:34:11.6, M = 2.7

KSP $\Delta = 68.8\text{km}$
Pg iNEZ 18 34 22.9
Sg eNEZ 34 30.3

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OJC $\Delta = 293.9\text{km}$
Pn eZ 18 34 53.6
Pg eZ 35 01.5
Sg eN 35 36.3

AUG 11

$\varphi = 51.406^\circ\text{N}$, $\lambda = 16.242^\circ\text{E}$
H = 01:18:13.8, M = 2.7

KSP $\Delta = 62.9\text{km}$
Pg iNEZ 01 18 24.1
Sg eNEZ 18 31.9

OJC $\Delta = 284.0\text{km}$
Pg eZ 01 19 01.9
Sg eN 19 35.8

AUG 11

$\varphi = 51.448^\circ\text{N}$, $\lambda = 16.161^\circ\text{E}$
H = 11:04:29.8, M = 2.7

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 11 04 41.0
Sg eNEZ 04 49.0

OJC $\Delta = 291.1\text{km}$
Pg eZ 11 05 17.8
Sg eN 05 52.6

AUG 12

$\varphi = 51.514^\circ\text{N}$, $\lambda = 16.126^\circ\text{E}$
H = 00:47:25.9, M = 2.7

OJC $\Delta = 296.7\text{km}$
Pg eZ 00 48 13.0
Sg eN 48 48.2

AUG 13

$\varphi = 51.473^\circ\text{N}$, $\lambda = 16.029^\circ\text{E}$
H = 05:30:05.0, M = 2.8

KSP $\Delta = 72.7\text{km}$
Pg eNEZ 05 30 16.9
Sg iNEZ 30 25.8

OJC $\Delta = 300.6\text{km}$
Pn eZ 05 30 48.8
Pg iZ 30 58.2
Sn eN 31 19.1
Sg iN 31 32.9

AUG 13

$\varphi = 51.523^\circ\text{N}$, $\lambda = 16.109^\circ\text{E}$
H = 15:30:57.5, M = 2.8

KSP $\Delta = 77.0\text{km}$
Pg eNEZ 15 31 10.1
Sg eNEZ 31 19.4

OJC $\Delta = 298.2\text{km}$
Pg eZ 15 31 48.3
Sg eN 32 22.3

AUG 14

$\varphi = 51.562^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
H = 06:55:34.6, M = 2.8

KSP $\Delta = 82.7\text{km}$
Pg eNEZ 06 55 48.2
Sg eNEZ 55 58.1

OJC $\Delta = 306.4\text{km}$
Pg eZ 06 56 25.7
Sg eE 57 02.6

AUG 14

$\varphi = 51.542^\circ\text{N}$, $\lambda = 16.130^\circ\text{E}$
H = 19:56:13.3, M = 2.9

KSP $\Delta = 78.8\text{km}$
Pg iNEZ 19 56 26.2
Sg eNEZ 56 34.3

RAC $\Delta = 218.5\text{km}$
P eZ 19 56 49.9
S eN 57 16.0

OJC $\Delta = 297.9\text{km}$
Pn eZ 19 56 54.0
Pg eZ 57 03.9
Sg eE 57 39.1

AUG 16

$\varphi = 51.474^\circ\text{N}$, $\lambda = 16.030^\circ\text{E}$
H = 02:26:27.7, M = 2.8

KSP $\Delta = 72.8\text{km}$
Pg iNEZ 02 26 39.6
Sg eNEZ 26 47.8

OJC $\Delta = 300.6\text{km}$
Pg eZ 02 27 17.1
Sg eN 27 53.7

AUG 16

$\varphi = 51.512^\circ\text{N}$, $\lambda = 16.081^\circ\text{E}$
H = 03:30:41.4, M = 2.7

KSP $\Delta = 76.1\text{km}$
Pg eNEZ 03 30 53.9
Sg eNEZ 31 02.8

AUG 16

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$\phi = 51.513^{\circ}\text{N}$, $\lambda = 16.082^{\circ}\text{E}$
H = 03:32:35.3, M = 2.6

KSP $\Delta = 76.2\text{km}$
 Pg eNEZ 03 32 47.8
 Sg eNEZ 32 57.0

AUG 16

$\phi = 51.513^{\circ}\text{N}$, $\lambda = 16.082^{\circ}\text{E}$
H = 08:44:41.1, M = 3.1

KSP $\Delta = 76.2\text{km}$
 Pg eNEZ 08 44 53.6
 Sg eNEZ 45 02.3

RAC $\Delta = 218.4\text{km}$
 P eZ 08 45 18.9
 S eN 45 43.7

OJC $\Delta = 299.3\text{km}$
 Pg eZ 08 45 30.5
 Sg iN 46 06.4

AUG 16

$\phi = 51.513^{\circ}\text{N}$, $\lambda = 16.084^{\circ}\text{E}$
H = 09:47:59.1, M = 2.8

KSP $\Delta = 76.2\text{km}$
 Pg iNEZ 09 48 11.6
 Sg eNEZ 48 20.5

OJC $\Delta = 299.2\text{km}$
 Pg eZ 09 48 49.6
 Sg iN 49 24.5

AUG 17

$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 08:37:21.5, M = 3.0

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 08 37 33.8
 Sg eNEZ 37 42.5

OJC $\Delta = 298.4\text{km}$
 Pg eZ 08 38 11.3
 Sg eN 38 46.6

AUG 20

$\phi = 51.564^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
H = 00:19:10.7, M = 2.6

KSP $\Delta = 82.9\text{km}$
 Pg eNEZ 00 19 24.3
 Sg eNEZ 19 34.3

AUG 20

$\phi = 51.537^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 03:43:41.3, M = 2.7

KSP $\Delta = 78.7\text{km}$
 Pg eNEZ 03 43 54.2
 Sg eNEZ 44 03.7

AUG 20

$\phi = 51.536^{\circ}\text{N}$, $\lambda = 16.094^{\circ}\text{E}$
H = 03:47:52.7, M = 2.6

KSP $\Delta = 78.6\text{km}$
 Pg eNEZ 03 48 05.6
 Sg eNEZ 48 15.1

AUG 20

$\phi = 51.450^{\circ}\text{N}$, $\lambda = 16.166^{\circ}\text{E}$
H = 10:11:21.1, M = 2.8

KSP $\Delta = 68.3\text{km}$
 Pg eNEZ 10 11 32.3
 Sg eNEZ 11 40.5

AUG 22

$\phi = 51.485^{\circ}\text{N}$, $\lambda = 16.095^{\circ}\text{E}$
H = 03:47:40.4, M = 2.6

KSP $\Delta = 73.0\text{km}$
 Pg eNEZ 03 47 52.4
 Sg eNEZ 48 01.1

OJC $\Delta = 297.1\text{km}$
 Pg eZ 03 48 30.5
 Sg eN 49 05.4

AUG 24

$\phi = 51.466^{\circ}\text{N}$, $\lambda = 16.110^{\circ}\text{E}$
H = 04:46:50.3, M = 2.7

KSP $\Delta = 70.7\text{km}$
 Pg eNEZ 04 47 01.9
 Sg eNEZ 48 10.0

OJC $\Delta = 295.2\text{km}$
 Pg eZ 04 47 41.4
 Sg eE 48 15.1

AUG 24

$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 13:14:15.8, M = 2.7

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 13 14 28.1
 Sg eNEZ 14 37.2

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AUG 25

$\phi = 51.473^{\circ}\text{N}$, $\lambda = 16.119^{\circ}\text{E}$
H = 06:55:11.1, M = 3.6

KSP $\Delta = 71.3\text{km}$
Pg iNEZ 06 55 22.8
Sg iNEZ 55 31.4

RAC $\Delta = 213.4\text{km}$
P eZ 06 55 46.7
S eNE 56 13.4

OJC $\Delta = 295.0\text{km}$
Pn eZ 06 55 51.5
Pg iZ 56 01.3
Sn eE 56 22.6
Sg iE 56 36.5

NIE $\Delta = 376.3\text{km}$
P eZ 06 56 03.0
S eN 56 58.2

KWP $\Delta = 511.0\text{km}$
Pn eZ 06 56 19.7
Pg iZ 56 33.8
Sn eNE 57 14.4
Sg eNE 57 37.9

SUW $\Delta = 555.5\text{km}$
Pg eZ 06 56 49.0

AUG 25

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.162^{\circ}\text{E}$
H = 07:15:44.4, M = 2.6

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 07 15 55.6
Sg eNEZ 16 04.1

AUG 25

$\phi = 51.500^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 07:52:43.0, M = 2.9

KSP $\Delta = 74.7\text{km}$
Pg eNEZ 07 52 55.3
Sg iNEZ 53 04.2

OJC $\Delta = 298.4\text{km}$
Pg eZ 07 53 35.2
Sg eN 54 09.3

AUG 27

$\phi = 51.531^{\circ}\text{N}$, $\lambda = 16.136^{\circ}\text{E}$
H = 00:34:40.4, M = 2.9

KSP $\Delta = 77.6\text{km}$
Pg eNEZ 00 34 53.1
Sg eNEZ 35 02.2

RAC $\Delta = 217.3\text{km}$
P eZ 00 35 16.7
S eE 35 41.4

OJC $\Delta = 296.9\text{km}$
Pg eZ 00 35 29.9
Sg eN 36 05.1

AUG 27

$\phi = 51.548^{\circ}\text{N}$, $\lambda = 16.054^{\circ}\text{E}$
H = 18:09:17.8, M = 3.0

KSP $\Delta = 80.4\text{km}$
Pg eNEZ 18 09 31.0
Sg eNEZ 09 40.5

OJC $\Delta = 302.9\text{km}$
Pg eZ 18 10 07.9
Sg eE 10 43.7

KWP $\Delta = 518.2\text{km}$
Pn eZ 18 10 43.6

AUG 27

$\phi = 51.451^{\circ}\text{N}$, $\lambda = 16.083^{\circ}\text{E}$
H = 18:34:57.8, M = 2.6

KSP $\Delta = 69.4\text{km}$
Pg eNEZ 18 35 09.2
Sg eNEZ 35 17.5

OJC $\Delta = 296.1\text{km}$
Pg eZ 18 35 48.7
Sg eN 36 23.8

AUG 29

$\phi = 51.484^{\circ}\text{N}$, $\lambda = 16.097^{\circ}\text{E}$
H = 03:34:40.5, M = 3.6

KSP $\Delta = 72.8\text{km}$
Pg iNEZ 03 34 52.4
Sg iNEZ 35 01.1

RAC $\Delta = 215.4\text{km}$
Pn eZ 03 35 12.4
eZ 35 15.5
Sn eN 35 36.1
eNE 35 41.5

GKP $\Delta = 213.9\text{km}$
Pn eZ 03 35 13.9
S eE 35 43.3

OJC $\Delta = 296.9\text{km}$
Pn eZ 03 35 21.3

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	Pg eZ	35	30.3
	Sg eN	36	05.2
NIE	$\Delta = 378.3\text{km}$		
	Pn eZ	03	35 32.2
	eZ	35	42.1
	S eN	36	28.3
KWP	$\Delta = 512.8\text{km}$		
	Pn eZ	03	35 49.6
	Pg eZ	36	04.5
	Sn eNE	36	37.8
	Sg eNE	37	14.5
SUW	$\Delta = 556.1\text{km}$		
	Pn eZ	03	35 55.9
	Pg eZ	36	19.6
	Sn eNE	36	52.1
	Sg eNE	37	23.2

AUG 29

**$\phi = 51.471^\circ\text{N}$, $\lambda = 16.031^\circ\text{E}$
H = 23:01:51.4, M = 2.9**

KSP	$\Delta = 72.4\text{km}$		
	Pg eNEZ	23	02 03.3
	Sg eNEZ	02	12.2
OJC	$\Delta = 300.4\text{km}$		
	Pg eZ	23	02 44.2
	Sg eN	03	18.6

AUG 30

**$\phi = 51.476^\circ\text{N}$, $\lambda = 16.030^\circ\text{E}$
H = 12:50:54.5, M = 2.7**

KSP	$\Delta = 73.0\text{km}$		
	Pg eNEZ	12	51 06.5
	Sg eNEZ	51	14.1

AUG 30

**$\phi = 51.539^\circ\text{N}$, $\lambda = 16.056^\circ\text{E}$
H = 22:41:05.1, M = 2.7**

KSP	$\Delta = 79.4\text{km}$		
	Pg eNEZ	22	41 18.1
	Sg eNEZ	41	27.9

SEP 2

**$\phi = 51.514^\circ\text{N}$, $\lambda = 16.125^\circ\text{E}$
H = 05:24:55.0, M = 3.9**

KSP	$\Delta = 75.8\text{km}$		
	Pg iNEZ	05	25 07.4
	Sg iNEZ	25	16.0

RAC	$\Delta = 216.4\text{km}$		
	Pn eZ	05	25 26.4

	eZ	25	30.6
S	eNE	25	56.4

GKP	$\Delta = 210.1\text{km}$		
	Pn eZ	05	25 27.6
	S eE	25	56.6

OJC	$\Delta = 296.7\text{km}$		
	Pn eZ	05	25 35.7
	Pg iZ	25	45.4
	Sg iE	26	19.7

NIE	$\Delta = 378.7\text{km}$		
	Pn eZ	05	25 46.9
	eZ	26	00.3
	S eE	26	42.6

KWP	$\Delta = 512.2\text{km}$		
	Pn eZ	05	26 03.6
	Pg eZ	26	18.5
	Sn eNE	27	26.6
	Sg eNE	27	46.6

SUW	$\Delta = 552.6\text{km}$		
	Pn eZ	05	26 08.8
	Pg eZ	26	28.3
	Sn eNE	27	04.1

SEP 2

**$\phi = 51.450^\circ\text{N}$, $\lambda = 16.165^\circ\text{E}$
H = 07:02:16.3, M = 2.6**

KSP	$\Delta = 68.3\text{km}$		
	Pg eNEZ	07	02 27.9
	Sg eNEZ	02	36.1

SEP 2

**$\phi = 51.518^\circ\text{N}$, $\lambda = 16.057^\circ\text{E}$
H = 12:23:05.9, M = 3.1**

KSP	$\Delta = 77.1\text{km}$		
	Pg eNEZ	12	23 18.5
	Sg eNEZ	23	27.4

OJC	$\Delta = 301.1\text{km}$		
	Pn eZ	12	23 47.5
	Pg eZ	23	56.6
	Sn eN	24	19.3
	Sg eN	24	31.6

KWP	$\Delta = 516.8\text{km}$		
	Pn eZ	12	24 31.8
	Sn eNE	25	33.5

SEP 2

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$\varphi = 51.455^{\circ}\text{N}$, $\lambda = 16.076^{\circ}\text{E}$
H = 13:58:28.9, M = 2.6

KSP $\Delta = 70.0\text{km}$
 Pg eNEZ 13 58 40.4
 Sg eNEZ 58 48.9

SEP 3

$\varphi = 51.504^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 03:48:45.7, M = 3.1

KSP $\Delta = 75.1\text{km}$
 Pg iNEZ 03 48 58.0
 Sg iNEZ 49 07.1

RAC $\Delta = 217.5\text{km}$
 P eZ 03 49 21.3
 S eN 49 47.9

GKP $\Delta = 212.1\text{km}$
 P eZ 03 49 25.1
 S eE 49 47.7

OJC $\Delta = 298.6\text{km}$
 Pg eZ 03 49 35.3
 Sg eN 50 10.9

KWP $\Delta = 514.3\text{km}$
 P eZ 03 50 09.8
 Sg eNE 51 28.1

SEP 3

$\varphi = 51.510^{\circ}\text{N}$, $\lambda = 16.063^{\circ}\text{E}$
H = 08:59:40.2, M = 2.7

KSP $\Delta = 76.1\text{km}$
 Pg eNEZ 08 59 52.7
 Sg eNEZ 09 00 02.1

OJC $\Delta = 300.3\text{km}$
 Pg eZ 09 00 30.3
 Sg eE 01 06.4

SEP 3

$\varphi = 51.535^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 18:24:47.7, M = 2.7

KSP $\Delta = 78.6\text{km}$
 Pg iNEZ 18 25 00.6
 Sg eNEZ 25 09.7

OJC $\Delta = 300.2\text{km}$
 Pg eZ 18 25 38.2
 Sg eN 26 13.1

SEP 4

$\varphi = 51.448^{\circ}\text{N}$, $\lambda = 16.162^{\circ}\text{E}$
H = 02:27:54.3, M = 2.7

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 02 28 05.5
 Sg eNEZ 28 13.3

SEP 4

$\varphi = 51.556^{\circ}\text{N}$, $\lambda = 16.098^{\circ}\text{E}$
H = 13:00:53.1, M = 2.7

KSP $\Delta = 80.7\text{km}$
 Pg eNEZ 13 01 06.3
 Sg eNEZ 01 15.9

SEP 4

$\varphi = 51.500^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 21:40:30.6, M = 2.6

KSP $\Delta = 74.7\text{km}$
 Pg eNEZ 21 40 42.8
 Sg eNEZ 40 51.0

SEP 4

$\varphi = 51.564^{\circ}\text{N}$, $\lambda = 16.007^{\circ}\text{E}$
H = 23:32:06.9, M = 2.7

KSP $\Delta = 82.9\text{km}$
 Pg eNEZ 23 32 20.5
 Sg eNEZ 32 30.7

SEP 6

$\varphi = 51.520^{\circ}\text{N}$, $\lambda = 16.060^{\circ}\text{E}$
H = 15:51:13.7, M = 2.9

KSP $\Delta = 77.3\text{km}$
 Pg eNEZ 15 51 26.4
 Sg eNEZ 51 35.5

OJC $\Delta = 301.0\text{km}$
 Pg eZ 15 52 03.3
 (Sg) eN 52 39.1

SEP 6

$\varphi = 51.518^{\circ}\text{N}$, $\lambda = 16.082^{\circ}\text{E}$
H = 20:22:52.3, M = 2.6

KSP $\Delta = 76.7\text{km}$
 Pg eNEZ 20 23 04.9
 Sg eNEZ 23 13.4

SEP 7

$\varphi = 51.447^{\circ}\text{N}$, $\lambda = 16.117^{\circ}\text{E}$
H = 03:47:56.6, M = 2.7

KSP $\Delta = 68.5\text{km}$
 Pg iNEZ 03 48 07.8

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Sg eNEZ 48 16.2
OJC $\Delta = 293.8\text{km}$
Pg eZ 03 48 46.6
Sg eN 49 21.2

SEP 7

**$\varphi = 51.525^\circ\text{N}$, $\lambda = 16.050^\circ\text{E}$
 $H = 13:58:17.8$, $M = 2.6$**

KSP $\Delta = 78.0\text{km}$
Pg eNZ 13 58 30.6
Sg eNEZ 58 39.9

SEP 8

**$\varphi = 51.564^\circ\text{N}$, $\lambda = 16.008^\circ\text{E}$
 $H = 20:36:49.3$, $M = 2.6$**

KSP $\Delta = 82.9\text{km}$
Pg eNZ 20 37 02.9
Sg iNEZ 37 12.9

SEP 9

**$\varphi = 51.505^\circ\text{N}$, $\lambda = 16.085^\circ\text{E}$
 $H = 03:31:04.3$, $M = 2.6$**

KSP $\Delta = 75.3\text{km}$
Pg eNEZ 03 31 16.6
Sg eNEZ 31 25.8

OJC $\Delta = 298.7\text{km}$
Pg eZ 03 31 54.6
Sg eN 32 30.3

SEP 9

**$\varphi = 51.491^\circ\text{N}$, $\lambda = 16.100^\circ\text{E}$
 $H = 20:52:41.9$, $M = 3.9$**

KSP $\Delta = 73.5\text{km}$
Pg iNEZ 20 52 54.0
Sg eNEZ 53 02.6

RAC $\Delta = 215.8\text{km}$
Pn eZ 20 53 13.8
eZ 53 17.3
S eNE 53 42.5

GKP $\Delta = 213.1\text{km}$
Pn eZ 20 53 15.3
S eE 53 44.4

OJC $\Delta = 297.1\text{km}$
Pn eZ 20 53 22.8
Pg iZ 53 31.5
Sn iN 53 55.1
Sg eEZ 54 07.4

NIE $\Delta = 378.6\text{km}$
Pn eZ 20 53 32.7
iZ 53 46.6
S eN 54 29.4

KWP $\Delta = 512.9\text{km}$
Pn eZ 20 53 51.6
Pg eZ 54 05.7 c

SUW $\Delta = 555.5\text{km}$
Pn eZ 20 53 56.3
Sn eNE 54 52.8

SEP 9

**$\varphi = 51.496^\circ\text{N}$, $\lambda = 16.100^\circ\text{E}$
 $H = 22:02:07.1$, $M = 3.0$**

KSP $\Delta = 74.1\text{km}$
Pg eNEZ 22 02 19.2
Sg iNEZ 02 28.1

RAC $\Delta = 216.2\text{km}$
P eZ 22 02 42.3
S eNE 03 08.3

OJC $\Delta = 297.3\text{km}$
Pg eZ 22 02 55.9
Sn eN 03 20.6
Sg eN 03 31.6

SEP 10

**$\varphi = 51.49^\circ\text{N}$, $\lambda = 16.05^\circ\text{E}$
 $H = 04:06:06$, $M = 3.2$**

KSP $\Delta = 74\text{km}$
Pg iNEZ 04 06 18.4
Sg eNEZ 06 26.1

RAC $\Delta = 218\text{km}$
P eZ 04 06 42.8
S eN 07 08.5

OJC $\Delta = 300\text{km}$
Pn eZ 04 06 47.9
Pg eZ 06 56.3
Sn eN 07 20.3
Sg eN 07 31.9

SEP 10

**$\varphi = 51.472^\circ\text{N}$, $\lambda = 16.030^\circ\text{E}$
 $H = 09:04:56.4$, $M = 2.8$**

KSP $\Delta = 72.6\text{km}$
Pg eNEZ 09 05 08.3
Sg iNEZ 05 17.2

SEP 10

**$\varphi = 51.449^\circ\text{N}$, $\lambda = 16.162^\circ\text{E}$
 $H = 21:26:24.7$, $M = 3.2$**

KSP $\Delta = 68.2\text{km}$
Pg iNEZ 21 26 35.9
Sg eNEZ 26 43.7

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RAC $\Delta = 209.4\text{km}$
P eZ 21 26 58.7
S eNE 27 23.4

OJC $\Delta = 291.1\text{km}$
Pg eZ 21 27 13.7
Sg eN 27 48.7

KWP $\Delta = 507.2\text{km}$
Pn eZ 21 27 34.0
Pg eZ 27 54.4
Sg eNE 28 50.2

SEP 11

**$\varphi = 51.556^\circ\text{N}$, $\lambda = 16.098^\circ\text{E}$
H = 00:38:22.4, M = 3.5**

KSP $\Delta = 80.7\text{km}$
Pg iNEZ 00 38 35.6
Sg iNEZ 38 45.3

RAC $\Delta = 221.1\text{km}$
P eZ 00 38 58.5
S eNE 39 24.5

OJC $\Delta = 300.6\text{km}$
Pn eZ 00 39 05.2
Pg eZ 39 13.1
Sg eE 39 48.0

NIE $\Delta = 383.0\text{km}$
Pn eZ 00 39 17.2
eZ 39 26.9
S eE 40 09.2

KWP $\Delta = 515.7\text{km}$
Pn eZ 00 39 31.7
Pg eZ 39 51.1
Sg eNE 40 58.7

SEP 11

**$\varphi = 51.479^\circ\text{N}$, $\lambda = 16.076^\circ\text{E}$
H = 04:11:00.6, M = 2.9**

KSP $\Delta = 72.6\text{km}$
Pg iNEZ 04 11 12.5
Sg eNEZ 11 21.0

OJC $\Delta = 298.0\text{km}$
Pg eZ 04 11 51.2
Sg eN 12 26.0

SEP 11

**$\varphi = 51.556^\circ\text{N}$, $\lambda = 16.098^\circ\text{E}$
H = 07:04:29.2, M = 2.6**

KSP $\Delta = 80.7\text{km}$
Pg eNEZ 07 04 42.4
Sg eNEZ 04 52.0

SEP 12

**$\varphi = 51.513^\circ\text{N}$, $\lambda = 16.081^\circ\text{E}$
H = 03:36:50.2, M = 2.7**

KSP $\Delta = 76.2\text{km}$
Pg eNZ 03 37 02.7
Sg eNEZ 37 11.6

OJC $\Delta = 299.4\text{km}$
Pg eZ 03 37 44.7
Sg eN 38 19.5

SEP 12

**$\varphi = 51.46^\circ\text{N}$, $\lambda = 16.13^\circ\text{E}$
H = 11:41:43, M = 2.8**

KSP $\Delta = 70\text{km}$
Pg iNEZ 11 41 54.5
Sg eNEZ 42 01.9

OJC $\Delta = 294\text{km}$
Pg eNZ 11 42 32.7
Sg eN 43 07.5

SEP 12

**$\varphi = 51.460^\circ\text{N}$, $\lambda = 16.132^\circ\text{E}$
H = 13:35:42.0, M = 2.8**

KSP $\Delta = 69.7\text{km}$
Pg iNEZ 13 35 53.4
Sg eNEZ 36 00.8

OJC $\Delta = 293.5\text{km}$
Pg eZ 13 36 32.2
Sg eE 37 06.7

SEP 14

**$\varphi = 51.448^\circ\text{N}$, $\lambda = 16.163^\circ\text{E}$
H = 06:59:24.1, M = 2.8**

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 06 59 35.3
Sg eNEZ 59 42.5

SEP 15

**$\varphi = 51.451^\circ\text{N}$, $\lambda = 16.084^\circ\text{E}$
H = 02:16:27.9, M = 2.7**

KSP $\Delta = 69.4\text{km}$
Pg eNEZ 02 16 39.3
Sg eNEZ 16 47.5

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SEP 15

$\phi = 51.449^{\circ}\text{N}$, $\lambda = 16.159^{\circ}\text{E}$
H = 06:12:09.5, M = 2.9

KSP $\Delta = 68.3\text{km}$
 Pg eNEZ 06 12 20.7
 Sg iNEZ 12 29.0

OJC $\Delta = 291.3\text{km}$
 Pg eZ 06 12 58.3
 Sg eE 13 34.2

SEP 15

$\phi = 51.490^{\circ}\text{N}$, $\lambda = 16.095^{\circ}\text{E}$
H = 16:13:14.3, M = 2.7

KSP $\Delta = 73.5\text{km}$
 Pg eNEZ 16 13 26.4
 Sg eNEZ 13 35.2

SEP 16

$\phi = 51.531^{\circ}\text{N}$, $\lambda = 16.085^{\circ}\text{E}$
H = 15:40:48.5, M = 2.8

KSP $\Delta = 78.2\text{km}$
 Pg eNEZ 15 41 01.3
 Sg eNEZ 41 10.6

OJC $\Delta = 300.1\text{km}$
 Pg eZ 15 41 38.5
 Sg eN 42 13.8

SEP 16

$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 18:03:09.7, M = 2.8

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 18 03 22.0
 Sg iNEZ 03 30.8

OJC $\Delta = 298.3\text{km}$
 Pg eZ 18 03 59.8
 Sg eN 04 35.4

SEP 17

$\phi = 51.500^{\circ}\text{N}$, $\lambda = 16.085^{\circ}\text{E}$
H = 00:49:41.4, M = 2.6

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 00 49 53.7
 Sg eNEZ 50 02.5

OJC $\Delta = 298.5\text{km}$
 Pg eZ 00 50 30.5
 Sg eE 51 05.4

SEP 18

$\phi = 51.495^{\circ}\text{N}$, $\lambda = 16.104^{\circ}\text{E}$
H = 22:22:34.7, M = 2.6

KSP $\Delta = 73.9\text{km}$
 Pg eNEZ 22 22 46.8
 Sg eNEZ 22 55.7

SEP 19

$\phi = 51.495^{\circ}\text{N}$, $\lambda = 16.105^{\circ}\text{E}$
H = 10:19:56.1, M = 2.6

KSP $\Delta = 73.9\text{km}$
 Pg eNEZ 10 20 08.2
 Sg eNEZ 20 16.7

OJC $\Delta = 297.0\text{km}$
 Pg eZ 10 20 45.5
 Sg eN 21 19.9

SEP 20

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.163^{\circ}\text{E}$
H = 05:12:56.0, M = 2.7

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 05 13 07.2
 Sg eNEZ 13 15.4

OJC $\Delta = 291.0\text{km}$
 Pg eZ 05 13 44.1
 Sg eN 14 19.1

SEP 20

$\phi = 51.563^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
H = 16:20:28.5, M = 2.8

KSP $\Delta = 82.8\text{km}$
 Pg eNEZ 16 20 42.1
 Sg eNEZ 20 51.9

SEP 22

$\phi = 51.503^{\circ}\text{N}$, $\lambda = 16.092^{\circ}\text{E}$
H = 05:50:37.1, M = 3.1

KSP $\Delta = 75.0\text{km}$
 Pg eNEZ 05 50 49.4
 Sg eNEZ 50 58.2

OJC $\Delta = 298.2\text{km}$
 Pg iZ 05 51 27.3
 Sg iE 52 02.4

SEP 22

$\phi = 51.474^{\circ}\text{N}$, $\lambda = 16.105^{\circ}\text{E}$
H = 09:38:33.5, M = 2.6

KSP $\Delta = 71.6\text{km}$
 Pg iNEZ 09 38 45.2
 Sg eNEZ 38 53.7

SEP 22

$\phi = 51.506^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$

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H = 11:36:59.5, M = 2.7

KSP Δ = 75.3km
Pg eNEZ 11 37 11.9
Sg eNEZ 37 20.9

OJC Δ = 298.5km
Pg eZ 11 37 49.5
Sg eN 38 25.2

SEP 22

**$\phi = 51.542^\circ\text{N}$, $\lambda = 16.129^\circ\text{E}$
H = 15:35:08.8, M = 3.5**

KSP Δ = 78.8km
Pg iNEZ 15 35 21.7
Sg eNEZ 35 30.7

RAC Δ = 218.5km
P eZ 15 35 45.1
S eNE 36 10.8

OJC Δ = 297.9km
Pn eZ 15 35 50.0
Pg eZ 35 59.1
Sg eN 36 33.4

KWP Δ = 513.1km
Pg eZ 15 36 34.0
Sg eNE 37 44.7

SEP 23

**$\phi = 51.517^\circ\text{N}$, $\lambda = 16.118^\circ\text{E}$
H = 03:46:18.1, M = 2.9**

KSP Δ = 76.2km
Pg eNEZ 03 46 30.6
Sg eNEZ 46 39.6

OJC Δ = 297.3km
Pg eZ 03 47 08.1
Sg eN 47 43.1

SEP 23

**$\phi = 51.486^\circ\text{N}$, $\lambda = 16.093^\circ\text{E}$
H = 06:59:24.8, M = 2.7**

KSP Δ = 73.1km
Pg eNEZ 06 59 36.8
Sg eNEZ 59 45.4

OJC Δ = 297.3km
Pg eZ 07 00 15.8
Sg eN 00 50.7

SEP 24

$\phi = 51.480^\circ\text{N}$, $\lambda = 16.078^\circ\text{E}$

H = 07:17:57.6, M = 3.2

KSP Δ = 72.6km
Pg eNEZ 07 18 09.5
Sg eNEZ 18 17.9

RAC Δ = 216.0km
P eZ 07 18 33.8
S eNE 18 59.4

OJC Δ = 297.9km
Pn eZ 07 18 40.4
Pg eZ 18 48.3
Sg eN 19 23.2

SEP 25

**$\phi = 51.551^\circ\text{N}$, $\lambda = 16.055^\circ\text{E}$
H = 01:02:11.6, M = 2.7**

KSP Δ = 80.8km
Pg eNEZ 01 02 24.8
Sg iNEZ 02 34.5

SEP 25

**$\phi = 51.510^\circ\text{N}$, $\lambda = 16.063^\circ\text{E}$
H = 15:48:11.5, M = 2.9**

KSP Δ = 76.1km
Pg iNEZ 15 48 24.0
Sg eNEZ 48 32.8

SEP 26

**$\phi = 51.524^\circ\text{N}$, $\lambda = 16.110^\circ\text{E}$
H = 02:11:55.5, M = 3.5**

KSP Δ = 77.1km
Pg iNEZ 02 12 08.0
Sg eNEZ 12 17.1

RAC Δ = 218.0km
P eZ 02 12 31.4
S eNE 12 58.7

GKP Δ = 209.4km
Pn eZ 02 12 28.3
eZ 12 31.6
S eE 12 57.7

OJC Δ = 298.2km
Pn eZ 02 12 36.3
Pg iZ 12 45.1
Sg eE 13 20.5

NIE Δ = 380.2km
Pn eZ 02 12 47.7
eZ 12 59.6
S eE 13 43.4

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KWP $\Delta = 513.6\text{km}$
 Pn eZ 02 13 03.6
 Pg eZ 13 19.3
 Sg eNE 14 32.3

SEP 26
 $\varphi = 51.484^\circ\text{N}, \lambda = 16.097^\circ\text{E}$
 $H = 19:32:18.7, M = 2.7$

KSP $\Delta = 72.8\text{km}$
 Pg eNEZ 19 32 30.6
 Sg eNEZ 32 39.2

OJC $\Delta = 296.9\text{km}$
 Pg eZ 19 33 08.1
 Sg eE 33 43.6

SEP 28
 $\varphi = 51.447^\circ\text{N}, \lambda = 16.165^\circ\text{E}$
 $H = 03:03:02.4, M = 2.7$

KSP $\Delta = 68.0\text{km}$
 Pg eNEZ 03 03 13.6
 Sg eNEZ 03 21.9

OJC $\Delta = 290.8\text{km}$
 Pg eZ 03 03 52.7
 Sg eE 04 26.5

SEP 28
 $\varphi = 51.447^\circ\text{N}, \lambda = 16.163^\circ\text{E}$
 $H = 09:47:08.8, M = 2.8$

KSP $\Delta = 68.0\text{km}$
 Pg eNEZ 09 47 20.0
 Sg eNEZ 47 28.1

SEP 28
 $\varphi = 51.448^\circ\text{N}, \lambda = 16.163^\circ\text{E}$
 $H = 09:47:43.3, M = 3.0$

KSP $\Delta = 68.1\text{km}$
 Pg iNEZ 09 47 54.5
 Sg eNEZ 48 02.6

OJC $\Delta = 291.0\text{km}$
 Pg eZ 09 48 32.1
 Sg eN 49 07.2

SEP 29
 $\varphi = 51.487^\circ\text{N}, \lambda = 16.054^\circ\text{E}$
 $H = 04:03:37.8, M = 2.9$

KSP $\Delta = 73.8\text{km}$
 Pg eNEZ 04 03 49.9
 Sg eNEZ 03 58.4

OJC $\Delta = 299.7\text{km}$
 Pg eZ 04 04 27.5

Sg eE 05 03.8

SEP 29
 $\varphi = 51.452^\circ\text{N}, \lambda = 16.084^\circ\text{E}$
 $H = 12:00:02.5, M = 2.6$

KSP $\Delta = 69.5\text{km}$
 Pg eNEZ 12 00 13.9
 Sg eNEZ 00 22.1

SEP 30
 $\varphi = 51.472^\circ\text{N}, \lambda = 16.111^\circ\text{E}$
 $H = 01:06:33.6, M = 2.7$

KSP $\Delta = 71.3\text{km}$
 Pg eNEZ 01 06 45.3
 Sg eNEZ 06 53.3

SEP 30
 $\varphi = 51.502^\circ\text{N}, \lambda = 16.091^\circ\text{E}$
 $H = 03:32:39.5, M = 2.7$

KSP $\Delta = 74.9\text{km}$
 Pg eNEZ 03 32 51.8
 Sg eNEZ 33 01.1

SEP 30
 $\varphi = 51.562^\circ\text{N}, \lambda = 16.007^\circ\text{E}$
 $H = 20:36:41.8, M = 2.7$

KSP $\Delta = 82.7\text{km}$
 Pg eNEZ 20 36 55.4
 Sg eNEZ 37 05.1

OJC $\Delta = 306.5\text{km}$
 Pg eZ 20 37 34.2
 Sg eE 38 09.6

OCT 1
 $\varphi = 51.473^\circ\text{N}, \lambda = 16.033^\circ\text{E}$
 $H = 06:45:03.1, M = 3.0$

KSP $\Delta = 72.6\text{km}$
 Pg eNEZ 06 45 15.0
 Sg eNEZ 45 23.8

OJC $\Delta = 300.4\text{km}$
 Pg eZ 06 45 53.9
 Sg eE 46 29.6

OCT 1

Lubin Copper Basin 2004

$\phi = 51.563^{\circ}\text{N}$, $\lambda = 16.007^{\circ}\text{E}$
H = 15:00:52.4, M = 2.6

KSP $\Delta = 82.8\text{km}$
 Pg eNEZ 15 01 06.0
 Sg eNEZ 01 16.0

OCT 2

$\phi = 51.487^{\circ}\text{N}$, $\lambda = 16.094^{\circ}\text{E}$
H = 08:33:14.2, M = 2.6

KSP $\Delta = 73.2\text{km}$
 Pg eNEZ 08 33 26.2
 Sg eNEZ 33 35.2

OCT 2

$\phi = 51.459^{\circ}\text{N}$, $\lambda = 16.106^{\circ}\text{E}$
H = 12:57:00.7, M = 3.0

KSP $\Delta = 70.0\text{km}$
 Pg eNEZ 12 57 12.2
 Sg eNEZ 57 20.7

OJC $\Delta = 295.1\text{km}$
 Pn eZ 12 57 42.8
 Pg iZ 57 50.6
 Sn eE 58 12.3
 Sg eN 58 25.9

OCT 3

$\phi = 51.470^{\circ}\text{N}$, $\lambda = 16.036^{\circ}\text{E}$
H = 05:33:19.8, M = 2.9

KSP $\Delta = 72.2\text{km}$
 Pg iNEZ 05 33 31.7
 Sg eNEZ 33 40.0

OJC $\Delta = 300.0\text{km}$
 Pn eZ 05 34 01.2
 Pg eZ 34 10.4
 Sg eN 34 46.3

OCT 4

$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.088^{\circ}\text{E}$
H = 00:01:19.8, M = 2.6

KSP $\Delta = 74.8\text{km}$
 Pg eNEZ 00 01 32.1
 Sg eNEZ 01 41.0

OCT 4

$\phi = 51.452^{\circ}\text{N}$, $\lambda = 16.083^{\circ}\text{E}$
H = 10:03:47.1, M = 2.8

KSP $\Delta = 69.5\text{km}$
 Pg eNEZ 10 03 58.5
 Sg eNEZ 04 06.5

OJC $\Delta = 296.2\text{km}$
 Pg eZ 10 04 34.8
 Sg eN 05 11.0

OCT 4

$\phi = 51.52^{\circ}\text{N}$, $\lambda = 16.11^{\circ}\text{E}$
H = 16:02:19, M = 2.7

KSP $\Delta = 77\text{km}$
 Pg eNEZ 16 02 32.1
 Sg eNEZ 02 41.1

OCT 5

$\phi = 51.503^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 01:50:52.2, M = 2.7

KSP $\Delta = 75.0\text{km}$
 Pg eNEZ 01 51 04.5
 Sg eNEZ 51 12.4

OCT 5

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
H = 15:19:32.3, M = 2.6

KSP $\Delta = 79.4\text{km}$
 Pg eNEZ 15 19 45.3
 Sg eNEZ 19 54.7

OCT 5

$\phi = 51.509^{\circ}\text{N}$, $\lambda = 15.993^{\circ}\text{E}$
H = 18:34:32.0, M = 2.7

KSP $\Delta = 77.2\text{km}$
 Pg eNEZ 18 34 44.7
 Sg eNEZ 34 54.0

OCT 5

$\phi = 51.451^{\circ}\text{N}$, $\lambda = 16.164^{\circ}\text{E}$
H = 22:30:37.1, M = 2.9

KSP $\Delta = 68.4\text{km}$
 Pg eNEZ 22 30 48.3
 Sg eNEZ 30 56.7

OJC $\Delta = 291.1\text{km}$
 Pg eZ 22 31 26.7
 Sg eN 32 02.0

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OCT 6

$\phi = 51.564^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
H = 09:30:16.6, M = 2.7

KSP $\Delta = 82.9\text{km}$
 Pg eNZ 09 30 30.2
 Sg eNEZ 30 40.2

OCT 6

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.161^{\circ}\text{E}$
H = 17:30:18.3, M = 2.8

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 17 30 29.5
 Sg eNEZ 30 37.9

OJC $\Delta = 291.1\text{km}$
 Pg eZ 17 31 08.1
 Sg eN 31 43.3

OCT 7

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.128^{\circ}\text{E}$
H = 15:31:04.4, M = 3.2

KSP $\Delta = 78.5\text{km}$
 Pg iNEZ 15 31 17.3
 Sg eNEZ 31 26.7

RAC $\Delta = 218.3\text{km}$
 P eZ 15 31 40.8
 S eN 32 08.4

OJC $\Delta = 297.8\text{km}$
 Pg eZ 15 31 54.9
 Sg eN 32 28.9

OCT 7

$\phi = 51.556^{\circ}\text{N}$, $\lambda = 16.098^{\circ}\text{E}$
H = 23:08:18.2, M = 3.5

KSP $\Delta = 80.7\text{km}$
 Pg iNEZ 23 08 31.4
 Sg eNEZ 08 41.0

RAC $\Delta = 221.1\text{km}$
 P eZ 23 08 54.4
 S eN 09 20.0

GKP $\Delta = 206.4\text{km}$
 P eZ 23 08 56.6
 S eE 09 19.0

OJC $\Delta = 300.6\text{km}$
 Pn eZ 23 09 01.0
 Pg eZ 09 09.1

Sg eNE 09 43.7

KWP $\Delta = 515.7\text{km}$
 Pn eZ 23 09 26.9
 Pg eZ 09 43.1
 Sg eNE 10 47.9

OCT 8

$\phi = 51.51^{\circ}\text{N}$, $\lambda = 16.03^{\circ}\text{E}$
H = 04:04:52, M = 2.8

KSP $\Delta = 77\text{km}$
 Pg iNEZ 04 05 04.9
 Sg eNEZ 05 13.9

OJC $\Delta = 302\text{km}$
 Pg eZ 04 05 43.7
 Sg eN 06 18.7

OCT 8

$\phi = 51.557^{\circ}\text{N}$, $\lambda = 16.099^{\circ}\text{E}$
H = 06:33:38.3, M = 2.8

KSP $\Delta = 80.8\text{km}$
 Pg eNEZ 06 33 51.6
 Sg eNEZ 34 01.2

OJC $\Delta = 300.6\text{km}$
 Pg eZ 06 34 29.2
 Sg eN 35 04.1

OCT 8

$\phi = 51.496^{\circ}\text{N}$, $\lambda = 16.100^{\circ}\text{E}$
H = 08:14:52.7, M = 2.9

KSP $\Delta = 74.1\text{km}$
 Pg eNEZ 08 15 04.8
 Sg eNEZ 15 13.4

OJC $\Delta = 297.3\text{km}$
 Pg eZ 08 15 42.3
 Sg eN 16 17.5

OCT 8

$\phi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 15:32:59, M = 2.9

KSP $\Delta = 75\text{km}$
 Pg eNEZ 15 33 11.1
 Sg eNEZ 33 20.4

OJC $\Delta = 298\text{km}$
 Pg eZ 15 33 48.5

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Sg eN 34 23.9

OCT 9

$\varphi = 51.45^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 04:30:31, M = 2.7

KSP $\Delta = 69\text{km}$
 Pg iPgc 04 30 42.2
 Sg eNEZ 30 50.6

OCT 9

$\varphi = 51.50^{\circ}\text{N}$, $\lambda = 16.14^{\circ}\text{E}$
H = 15:38:32, M = 4.0

KSP $\Delta = 74\text{km}$
 Pg iNEZ 15 38 44.5
 Sg eNEZ 38 53.6

RAC $\Delta = 215\text{km}$
 Pn eZ 15 39 03.9
 eZ 39 08.1
 Sn eNE 39 28.0
 eNE 39 33.5

GKP $\Delta = 211\text{km}$
 Pn eZ 15 39 05.0
 eZ 39 08.9
 S eE 39 34.8

OJC $\Delta = 295\text{km}$
 Pn eZ 15 39 13.1
 Pg iZ 39 21.8
 Sn eN 39 44.6
 Sg iE 39 57.7

KWP $\Delta = 511\text{km}$
 Pn eZ 15 39 41.0
 Pg eZ 40 01.5
 Sg eE 41 06.1

SUW $\Delta = 553\text{km}$
 Pn eZ 15 39 46.1
 Pg eZ 40 04.8
 Sn eNE 40 43.2
 Sg eNE 41 18.8

OCT 9

$\varphi = 51.501^{\circ}\text{N}$, $\lambda = 16.142^{\circ}\text{E}$
H = 17:06:15.0, M = 2.8

KSP $\Delta = 74.2\text{km}$
 Pg eNEZ 17 06 27.2
 Sg eNEZ 06 36.1

OJC $\Delta = 295.0\text{km}$
 (Pg) eZ 17 07 05.1

Sg eN 07 39.1

OCT 10

$\varphi = 51.484^{\circ}\text{N}$, $\lambda = 16.098^{\circ}\text{E}$
H = 04:57:52.2, M = 3.1

KSP $\Delta = 72.8\text{km}$
 Pg iNEZ 04 58 04.1
 Sg eNEZ 58 12.6

RAC $\Delta = 215.3\text{km}$
 P eZ 04 58 28.4
 S eN 58 53.6

OJC $\Delta = 296.9\text{km}$
 Pg eZ 04 58 42.2
 Sg eN 59 17.5

OCT 11

$\varphi = 51.562^{\circ}\text{N}$, $\lambda = 16.008^{\circ}\text{E}$
H = 14:08:19.0, M = 2.7

KSP $\Delta = 82.7\text{km}$
 Pg eNEZ 14 08 32.6
 Sg eNEZ 08 42.0

OCT 12

$\varphi = 51.450^{\circ}\text{N}$, $\lambda = 16.082^{\circ}\text{E}$
H = 08:26:31.4, M = 2.9

KSP $\Delta = 69.3\text{km}$
 Pg iNEZ 08 26 42.8
 Sg eNEZ 26 51.3

OJC $\Delta = 296.2\text{km}$
 Pg eZ 08 27 20.1
 Sg eN 27 56.2

OCT 12

$\varphi = 51.536^{\circ}\text{N}$, $\lambda = 16.090^{\circ}\text{E}$
H = 12:18:05.2, M = 2.6

KSP $\Delta = 78.6\text{km}$
 Pg eNEZ 12 18 18.1
 Sg eNEZ 18 27.1

OCT 12

$\varphi = 51.461^{\circ}\text{N}$, $\lambda = 16.107^{\circ}\text{E}$
H = 20:41:09.4, M = 2.6

KSP $\Delta = 70.2\text{km}$
 Pg iNEZ 20 41 20.9
 Sg eNEZ 41 29.8

OCT 13

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$\phi = 51.449^{\circ}\text{N}$, $\lambda = 16.083^{\circ}\text{E}$
H = 08:12:05.6, M = 2.7

KSP $\Delta = 69.2\text{km}$
 Pg eNEZ 08 12 17.0
 Sg iNEZ 12 25.2

OCT 13

$\phi = 51.47^{\circ}\text{N}$, $\lambda = 16.04^{\circ}\text{E}$
H = 14:28:45, M = 2.6

KSP $\Delta = 72\text{km}$
 Pg eNEZ 14 28 56.7
 Sg eNEZ 29 05.5

OCT 13

$\phi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 15:33:24, M = 2.7

KSP $\Delta = 75\text{km}$
 Pg eNEZ 15 33 36.8
 Sg eNEZ 33 46.2

OCT 14

$\phi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 03:40:04, M = 2.8

KSP $\Delta = 75\text{km}$
 Pg eNEZ 03 40 16.5
 Sg eNEZ 40 25.2

OJC $\Delta = 298\text{km}$
 Pn eZ 03 40 45.1
 Pg eZ 40 54.5
 Sn eN 41 17.7
 Sg eE 41 29.4

OCT 14

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.163^{\circ}\text{E}$
H = 08:42:16.5, M = 2.8

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 08 42 27.7
 Sg eNEZ 42 36.0

OJC $\Delta = 291.0\text{km}$
 Pg eZ 08 43 06.4
 Sg eN 43 39.6

OCT 15

$\phi = 51.543^{\circ}\text{N}$, $\lambda = 16.131^{\circ}\text{E}$
H = 03:42:54.8, M = 2.7

KSP $\Delta = 78.9\text{km}$
 Pg eNEZ 03 43 07.7
 Sg eNEZ 43 16.8

OJC $\Delta = 297.9\text{km}$

Pg eZ 03 43 45.4
 Sg eN 44 21.8

OCT 16

$\phi = 51.452^{\circ}\text{N}$, $\lambda = 16.084^{\circ}\text{E}$
H = 07:44:28.6, M = 2.6

KSP $\Delta = 69.5\text{km}$
 Pg eNEZ 07 44 40.0
 Sg eNEZ 44 48.3

OCT 16

$\phi = 51.449^{\circ}\text{N}$, $\lambda = 16.118^{\circ}\text{E}$
H = 12:12:15.3, M = 2.8

KSP $\Delta = 68.7\text{km}$
 Pg iNEZ 12 12 26.6
 Sg eNEZ 12 34.0

OJC $\Delta = 293.9\text{km}$
 Pg eZ 12 13 05.5
 Sg eN 13 40.0

OCT 16

$\phi = 51.484^{\circ}\text{N}$, $\lambda = 16.097^{\circ}\text{E}$
H = 15:11:43.5, M = 2.8

KSP $\Delta = 72.8\text{km}$
 Pg eNEZ 15 11 55.4
 Sg eNEZ 12 04.0

OJC $\Delta = 296.9\text{km}$
 Pg eZ 15 12 34.9
 Sg eN 13 08.1

OCT 16

$\phi = 51.472^{\circ}\text{N}$, $\lambda = 16.106^{\circ}\text{E}$
H = 17:07:24.7, M = 2.8

KSP $\Delta = 71.4\text{km}$
 Pg iNEZ 17 07 36.4
 Sg eNEZ 07 38.1

OJC $\Delta = 295.8\text{km}$
 (Pg) eZ 17 08 16.0
 Sg eE 08 49.9

OCT 18

$\phi = 51.488^{\circ}\text{N}$, $\lambda = 16.053^{\circ}\text{E}$
H = 17:06:04.5, M = 2.7

KSP $\Delta = 73.9\text{km}$
 Pg eNEZ 17 06 16.6
 Sg iNEZ 06 25.4

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OJC $\Delta = 299.9\text{km}$
 Pg eZ 17 06 55.4
 Sg eE 07 30.6

OCT 19
 $\phi = 51.452^\circ\text{N}, \lambda = 16.084^\circ\text{E}$
 $H = 04:34:54.4, M = 2.8$

KSP $\Delta = 69.5\text{km}$
 Pg iNEZ 04 35 05.8
 Sg eNEZ 35 15.2

OJC $\Delta = 296.1\text{km}$
 Pg eZ 04 35 44.3
 Sg eN 36 18.5

KWP $\Delta = 512.4\text{km}$
 P eZ 04 36 27.3

OCT 19
 $\phi = 51.475^\circ\text{N}, \lambda = 16.032^\circ\text{E}$
 $H = 15:55:58.3, M = 2.7$

KSP $\Delta = 72.8\text{km}$
 Pg eNEZ 15 56 10.2
 Sg eNEZ 56 18.9

OCT 20
 $\phi = 51.448^\circ\text{N}, \lambda = 16.161^\circ\text{E}$
 $H = 11:14:22.6, M = 2.7$

KSP $\Delta = 68.1\text{km}$
 Pg eNEZ 11 14 33.8
 Sg eNEZ 14 42.2

OJC $\Delta = 291.1\text{km}$
 Pg eZ 11 15 11.3
 Sg eN 15 45.5

OCT 21
 $\phi = 51.487^\circ\text{N}, \lambda = 16.094^\circ\text{E}$
 $H = 08:32:00.2, M = 2.6$

KSP $\Delta = 73.2\text{km}$
 Pg eNEZ 08 33 12.2
 Sg eNEZ 33 21.0

OCT 21
 $\phi = 51.502^\circ\text{N}, \lambda = 16.092^\circ\text{E}$
 $H = 15:29:43.4, M = 2.6$

KSP $\Delta = 74.9\text{km}$
 Pg eNEZ 15 29 55.7
 Sg eNEZ 30 04.9

OCT 21
 $\phi = 51.503^\circ\text{N}, \lambda = 16.091^\circ\text{E}$
 $H = 23:46:15.5, M = 2.8$

KSP $\Delta = 75.0\text{km}$
 Pg eNEZ 23 46 27.8
 Sg eNEZ 46 36.8

OCT 22
 $\phi = 51.513^\circ\text{N}, \lambda = 16.084^\circ\text{E}$
 $H = 04:23:06.3, M = 3.0$

KSP $\Delta = 76.2\text{km}$
 Pg iNEZ 04 23 18.8
 Sg eNEZ 23 27.6

OJC $\Delta = 299.2\text{km}$
 Pg eZ 04 23 56.7
 Sg eN 24 31.6

OCT 22
 $\phi = 51.562^\circ\text{N}, \lambda = 16.007^\circ\text{E}$
 $H = 05:23:23.0, M = 2.8$

KSP $\Delta = 82.7\text{km}$
 Pg eNEZ 05 23 36.6
 Sg iNEZ 23 46.0

OCT 22
 $\phi = 51.56^\circ\text{N}, \lambda = 16.01^\circ\text{E}$
 $H = 19:09:13, M = 3.2$

KSP $\Delta = 82\text{km}$
 Pg iNEZ 19 09 27.0
 Sg iNEZ 09 36.6

RAC $\Delta = 226\text{km}$
 P eZ 19 09 50.8
 S eNE 10 17.2

OJC $\Delta = 306\text{km}$
 Pg eZ 19 10 03.8
 Sg eN 10 40.4

OCT 23
 $\phi = 51.532^\circ\text{N}, \lambda = 16.135^\circ\text{E}$
 $H = 16:00:47.6, M = 3.0$

KSP $\Delta = 77.7\text{km}$
 Pg iNEZ 16 01 00.3
 Sg eNEZ 01 09.4

OJC $\Delta = 297.0\text{km}$
 Pg eZ 16 01 37.0
 Sg eN 02 11.7

OCT 24

Lubin Copper Basin 2004

$\phi = 51.406^{\circ}\text{N}$, $\lambda = 16.243^{\circ}\text{E}$
H = 09:27:05.5, M = 2.8

KSP $\Delta = 62.9\text{km}$
Pg eNEZ 09 27 15.8
Sg eNEZ 27 23.5

OJC $\Delta = 283.9\text{km}$
Pg eZ 09 27 53.5
Sg eN 28 27.7

OCT 24

$\phi = 51.532^{\circ}\text{N}$, $\lambda = 16.135^{\circ}\text{E}$
H = 23:39:44.4, M = 2.6

KSP $\Delta = 77.7\text{km}$
Pg eNEZ 23 39 57.1
Sg eNEZ 40 06.3

OCT 26

$\phi = 51.504^{\circ}\text{N}$, $\lambda = 16.092^{\circ}\text{E}$
H = 13:24:58.9, M = 2.8

KSP $\Delta = 75.1\text{km}$
Pg eNEZ 13 25 11.2
Sg eNEZ 25 20.1

OJC $\Delta = 298.2\text{km}$
Pg eZ 13 25 49.2
Sg eE 26 24.0

OCT 26

$\phi = 51.49^{\circ}\text{N}$, $\lambda = 16.05^{\circ}\text{E}$
H = 15:59:20, M = 3.1

KSP $\Delta = 74\text{km}$
Pg iNEZ 15 59 31.9 c
Sg eNEZ 59 39.5

OJC $\Delta = 300\text{km}$
Pg eZ 16 00 09.7
Sg eN 00 45.3

OCT 26

$\phi = 51.501^{\circ}\text{N}$, $\lambda = 16.087^{\circ}\text{E}$
H = 18:51:43.1, M = 2.6

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 18 51 55.4
Sg eNEZ 52 04.2

OCT 27

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.163^{\circ}\text{E}$
H = 01:51:04.6, M = 2.8

KSP $\Delta = 68.1\text{km}$
Pg iNEZc 01 51 15.8

Sg eNEZ 51 23.9

OCT 27

$\phi = 51.542^{\circ}\text{N}$, $\lambda = 16.127^{\circ}\text{E}$
H = 07:47:29.5, M = 2.6

KSP $\Delta = 78.9\text{km}$
Pg eNEZ 07 47 42.4
Sg eNEZ 47 51.7

OCT 27

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.058^{\circ}\text{E}$
H = 12:07:42.9, M = 2.6

KSP $\Delta = 79.4\text{km}$
Pg eEZ 12 07 55.9
Sg eNEZ 08 05.2

OCT 27

$\phi = 51.542^{\circ}\text{N}$, $\lambda = 16.128^{\circ}\text{E}$
H = 20:19:30.2, M = 2.6

OJC $\Delta = 298.0\text{km}$
Pg eZ 20 20 17.5
Sg eN 20 54.0

OCT 28

$\phi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 15:30:53, M = 2.8

KSP $\Delta = 75\text{km}$
Pg eNEZ 15 31 05.6
Sg eNEZ 31 14.2

OJC $\Delta = 298\text{km}$
Pg eZ 15 31 42.9
Sg eN 32 19.5

OCT 29

$\phi = 51.494^{\circ}\text{N}$, $\lambda = 16.095^{\circ}\text{E}$
H = 15:58:34.6, M = 2.6

KSP $\Delta = 73.9\text{km}$
Pg eNEZ 15 58 46.7
Sg eNEZ 58 55.4

OCT 31

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.162^{\circ}\text{E}$
H = 22:39:45.6, M = 2.7

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 22 39 56.8
Sg eNEZ 40 05.0

NOV 2

$\phi = 51.460^{\circ}\text{N}$, $\lambda = 16.106^{\circ}\text{E}$
H = 17:07:24.7, M = 3.0

KSP $\Delta = 70.1\text{km}$
Pg iNEZ 17 07 36.2

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Sg eNEZ 07 44.6
OJC $\Delta = 295.2\text{km}$
Pg eZ 17 08 15.2
Sg eN 08 50.2

NOV 2

$\phi = 51.452^\circ\text{N}, \lambda = 16.084^\circ\text{E}$
 $H = 18:32:41.8, M = 2.6$

KSP $\Delta = 69.5\text{km}$
Pg eNEZ 18 32 53.2
Sg eNEZ 33 01.6

NOV 3

$\phi = 51.501^\circ\text{N}, \lambda = 16.088^\circ\text{E}$
 $H = 12:58:50.7, M = 2.6$

KSP $\Delta = 74.8\text{km}$
Pg eNEZ 12 59 03.0
Sg eNEZ 59 12.0

NOV 3

$\phi = 51.472^\circ\text{N}, \lambda = 16.029^\circ\text{E}$
 $H = 14:03:24.5, M = 2.7$

KSP $\Delta = 72.6\text{km}$
Pg eNEZ 14 03 36.4
Sg eNEZ 03 45.4

NOV 4

$\phi = 51.504^\circ\text{N}, \lambda = 16.087^\circ\text{E}$
 $H = 17:40:48.6, M = 3.1$

KSP $\Delta = 75.1\text{km}$
Pg iNEZ 17 41 00.9
Sg eNEZ 41 09.9

OJC $\Delta = 298.6\text{km}$
Pg eZ 17 41 37.5
Sg eN 42 13.7

KWP $\Delta = 514.3\text{km}$
Pg eZ 17 42 12.9

NOV 4

$\phi = 51.491^\circ\text{N}, \lambda = 16.097^\circ\text{E}$
 $H = 22:45:12.1, M = 2.6$

KSP $\Delta = 73.6\text{km}$
Pg eNEZ 22 45 24.2
Sg eNEZ 45 33.1

NOV 5

$\phi = 51.513^\circ\text{N}, \lambda = 16.081^\circ\text{E}$
 $H = 10:43:36.9, M = 2.7$

KSP $\Delta = 76.2\text{km}$
Pg eNEZ 10 43 49.4

Sg eNEZ 43 58.3

NOV 6

$\phi = 51.504^\circ\text{N}, \lambda = 16.090^\circ\text{E}$
 $H = 01:08:13.6, M = 3.7$

KSP $\Delta = 75.1\text{km}$
Pg eNEZ 01 08 25.9
Sg eNEZ 08 35.0

RAC $\Delta = 217.3\text{km}$
Pn eZ 01 08 46.0
eZ 08 49.0
S eNE 09 14.7

GKP $\Delta = 212.0\text{km}$
Pn eZ 01 08 46.9
eZ 08 50.1
S eE 09 15.6

OJC $\Delta = 298.4\text{km}$
Pn eZ 01 08 56.5
Pg eZ 09 03.5
Sn eE 09 27.3
Sg iE 09 39.3

KWP $\Delta = 514.1\text{km}$
Pn eZ 01 09 23.9
Pg eZ 09 37.9
Sg eNE 10 39.6

NOV 6

$\phi = 51.507^\circ\text{N}, \lambda = 16.091^\circ\text{E}$
 $H = 02:06:02.2, M = 2.6$

KSP $\Delta = 75.4\text{km}$
Pg eNEZ 02 06 14.6
Sg eNEZ 06 23.7

NOV 6

$\phi = 51.507^\circ\text{N}, \lambda = 16.091^\circ\text{E}$
 $H = 02:07:16.1, M = 2.9$

KSP $\Delta = 75.4\text{km}$
Pg eNEZ 02 07 28.5
Sg eNEZ 07 37.7

OJC $\Delta = 298.5\text{km}$
Pg eZ 02 08 07.1
Sg eE 08 41.8

NOV 6

$\phi = 51.54^\circ\text{N}, \lambda = 16.13^\circ\text{E}$
 $H = 16:33:25, M = 2.6$

KSP $\Delta = 79\text{km}$

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Pg eNEZ 16 33 37.5
Sg eNEZ 33 46.8

NOV 6

$\phi = 51.448^{\circ}\text{N}$, $\lambda = 16.162^{\circ}\text{E}$
 $H = 17:03:17.0$, $M = 2.8$

KSP $\Delta = 68.1\text{km}$
Pg eNEZ 17 03 28.2
Sg eNEZ 03 36.4

OJC $\Delta = 291.1\text{km}$
(Pg) eZ 17 04 06.5
Sg eN 04 40.8

NOV 9

$\phi = 51.45^{\circ}\text{N}$, $\lambda = 16.16^{\circ}\text{E}$
 $H = 04:51:09$, $M = 2.7$

KSP $\Delta = 68\text{km}$
Pg eNEZ 04 51 20.0
Sg eNEZ 51 28.1

NOV 13

$\phi = 51.447^{\circ}\text{N}$, $\lambda = 16.163^{\circ}\text{E}$
 $H = 04:57:21.0$, $M = 2.7$

KSP $\Delta = 68.0\text{km}$
Pg iNEZ 04 57 32.1
Sg eNEZ 57 40.3

NOV 15

$\phi = 51.542^{\circ}\text{N}$, $\lambda = 16.133^{\circ}\text{E}$
 $H = 16:44:27.7$, $M = 2.7$

KSP $\Delta = 78.8\text{km}$
Pg eNEZ 16 44 40.6
Sg eNEZ 44 49.9

NOV 16

$\phi = 51.496^{\circ}\text{N}$, $\lambda = 16.100^{\circ}\text{E}$
 $H = 07:13:16.2$, $M = 3.0$

KSP $\Delta = 74.1\text{km}$
Pg eNEZ 07 13 28.3
Sg eNEZ 13 37.1

OJC $\Delta = 297.3\text{km}$
Pg eZ 07 14 05.8
Sg eN 14 41.0

NOV 16

$\phi = 51.452^{\circ}\text{N}$, $\lambda = 16.082^{\circ}\text{E}$
 $H = 07:25:03.6$, $M = 2.7$

KSP $\Delta = 69.5\text{km}$

Pg eNEZ 07 25 15.0
Sg eNEZ 25 23.2

NOV 16

$\phi = 51.562^{\circ}\text{N}$, $\lambda = 16.007^{\circ}\text{E}$
 $H = 16:51:54.6$, $M = 2.6$

KSP $\Delta = 82.7\text{km}$
Pg eNEZ 16 52 08.2
Sg eNEZ 52 17.9

NOV 17

$\phi = 51.446^{\circ}\text{N}$, $\lambda = 16.133^{\circ}\text{E}$
 $H = 03:45:49.4$, $M = 2.7$

KSP $\Delta = 68.2\text{km}$
Pg eNEZ 03 46 00.6
Sg eNEZ 46 08.7

NOV 17

$\phi = 51.474^{\circ}\text{N}$, $\lambda = 16.104^{\circ}\text{E}$
 $H = 18:39:32.5$, $M = 2.8$

KSP $\Delta = 71.6\text{km}$
Pg eNEZ 18 39 44.2
Sg eNEZ 39 52.6

NOV 17

$\phi = 51.447^{\circ}\text{N}$, $\lambda = 16.117^{\circ}\text{E}$
 $H = 19:25:39.0$, $M = 3.6$

KSP $\Delta = 68.5\text{km}$
Pg iNEZ 19 25 50.2
Sg eNEZ 25 57.7

RAC $\Delta = 211.5\text{km}$
Pn eZ 19 26 10.2
eZ 26 14.5
S eNE 26 39.7

GKP $\Delta = 217.3\text{km}$
Pn eZ 19 26 12.8
eZ 26 15.7
S eE 26 43.4
eE 26 46.0

OJC $\Delta = 293.8\text{km}$
Pn eZ 19 26 19.9
Pg eZ 26 29.2
Sg eN 27 04.8

KWP $\Delta = 510.1\text{km}$
Pn eZ 19 26 49.0
Pg eZ 27 02.2
Sg eNE 28 10.0

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NOV 17

$\varphi = 51.525^{\circ}\text{N}$, $\lambda = 16.110^{\circ}\text{E}$
H = 23:07:19.7, M = 3.3

KSP $\Delta = 77.2\text{km}$
 Pg iNEZ 23 07 32.3
 Sg iNEZ 07 41.6

RAC $\Delta = 218.1\text{km}$
 P eZ 23 07 56.9
 S eNE 08 21.7

OJC $\Delta = 298.2\text{km}$
 Pg eZ 23 08 10.7
 Sg eN 08 45.1

NOV 18

$\varphi = 51.526^{\circ}\text{N}$, $\lambda = 16.110^{\circ}\text{E}$
H = 03:40:23.7, M = 3.6

KSP $\Delta = 77.3\text{km}$
 Pg iNEZ 03 40 36.4
 Sg iNEZ 40 45.7

RAC $\Delta = 218.1\text{km}$
 Pn eZ 03 40 55.7
 eZ 41 00.0
 S eNE 41 25.7

GKP $\Delta = 209.2\text{km}$
 Pn eZ 03 40 56.2
 eZ 41 02.5

OJC $\Delta = 298.3\text{km}$
 Pn eZ 03 41 04.7
 Pg iZ 41 13.9
 Sn eN 41 31.8
 Sg iN 41 48.6

KWP $\Delta = 513.7\text{km}$
 Pn eZ 03 41 33.6
 Pg eZ 41 52.0
 Sg eNE 42 53.7

SUW $\Delta = 552.8\text{km}$
 Pn eZ 03 41 38.0
 Pg eZ 42 00.8
 Sn eN 42 35.8

NOV 18

$\varphi = 51.525^{\circ}\text{N}$, $\lambda = 16.112^{\circ}\text{E}$
H = 04:14:46.8, M = 2.7

KSP $\Delta = 77.2\text{km}$
 Pg eNEZ 04 14 59.4
 Sg eNEZ 15 08.2

NOV 18

$\varphi = 51.542^{\circ}\text{N}$, $\lambda = 16.130^{\circ}\text{E}$
H = 19:49:58.8, M = 2.7

KSP $\Delta = 78.8\text{km}$
 Pg eNEZ 19 50 11.7
 Sg eNEZ 50 20.4

NOV 19

$\varphi = 51.450^{\circ}\text{N}$, $\lambda = 16.171^{\circ}\text{E}$
H = 20:08:39.4, M = 2.9

KSP $\Delta = 68.3\text{km}$
 Pg eNEZ 20 08 50.6
 Sg eNEZ 08 58.8

OJC $\Delta = 290.6\text{km}$
 Pg eZ 20 09 28.2
 Sg eN 10 02.7

NOV 20

$\varphi = 51.557^{\circ}\text{N}$, $\lambda = 16.100^{\circ}\text{E}$
H = 00:22:36.6, M = 2.9

KSP $\Delta = 80.8\text{km}$
 Pg iNEZc 00 22 49.8
 Sg eNEZ 22 59.4

OJC $\Delta = 300.5\text{km}$
 Pg eZ 00 23 28.2
 Sg eE 24 02.9

NOV 20

$\varphi = 51.50^{\circ}\text{N}$, $\lambda = 16.09^{\circ}\text{E}$
H = 04:33:27, M = 2.8

KSP $\Delta = 75\text{km}$
 Pg eNEZ 04 33 39.1
 Sg eNEZ 33 48.1

OJC $\Delta = 298\text{km}$
 (Pg) eZ 04 34 16.4
 (Sg) eN 34 53.0

NOV 20

$\varphi = 51.542^{\circ}\text{N}$, $\lambda = 16.128^{\circ}\text{E}$
H = 14:14:17.3, M = 2.7

KSP $\Delta = 78.8\text{km}$
 Pg eNEZ 14 14 30.2
 Sg eNEZ 14 39.5

NOV 20

$\varphi = 51.563^{\circ}\text{N}$, $\lambda = 16.006^{\circ}\text{E}$
H = 16:14:38.5, M = 2.7

KSP $\Delta = 82.8\text{km}$
 Pg eNEZ 16 14 52.1
 Sg eNEZ 15 02.0

NOV 20

$\varphi = 51.537^{\circ}\text{N}$, $\lambda = 16.026^{\circ}\text{E}$
H = 16:47:33.3, M = 2.9

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KSP $\Delta = 79.7\text{km}$
Pg eNEZ 16 47 46.4
Sg iNEZ 47 56.0

OJC $\Delta = 304.0\text{km}$
Pg eZ 16 48 23.6
Sg eN 48 59.8

NOV 21

$\phi = 51.47^\circ\text{N}$, $\lambda = 16.03^\circ\text{E}$
 $H = 09:06:28$, $M = 2.6$

KSP $\Delta = 72\text{km}$
Pg eNEZ 09 06 40.1
Sg eNEZ 06 48.9

NOV 21

$\phi = 51.461^\circ\text{N}$, $\lambda = 16.083^\circ\text{E}$
 $H = 12:54:13.2$, $M = 2.9$

KSP $\Delta = 70.5\text{km}$
Pg iNEZ 12 54 24.8
Sg iNEZ 54 33.4

OJC $\Delta = 296.6\text{km}$
Pg eZ 12 55 01.6
Sg eZ 55 38.5

NOV 23

$\phi = 51.450^\circ\text{N}$, $\lambda = 16.170^\circ\text{E}$
 $H = 03:06:18.5$, $M = 2.7$

KSP $\Delta = 68.3\text{km}$
Pg eNEZ 03 06 29.7
Sg eNEZ 06 38.1

NOV 23

$\phi = 51.47^\circ\text{N}$, $\lambda = 16.11^\circ\text{E}$
 $H = 04:42:28$, $M = 2.9$

OJC $\Delta = 295\text{km}$
(Pg) eZ 04 43 15.3
(Sg) eE 43 50.5

NOV 25

$\phi = 51.448^\circ\text{N}$, $\lambda = 16.118^\circ\text{E}$
 $H = 02:28:24.0$, $M = 2.6$

KSP $\Delta = 68.6\text{km}$
Pg eNEZ 02 28 35.2
Sg eNEZ 28 42.6

NOV 27

$\phi = 51.465^\circ\text{N}$, $\lambda = 16.130^\circ\text{E}$
 $H = 08:58:32.3$, $M = 2.8$

KSP $\Delta = 70.3\text{km}$
Pg eNEZ 08 58 43.8
Sg eNEZ 58 51.2

OJC $\Delta = 293.9\text{km}$
Pn eZ 08 59 14.3
Pg eZ 59 23.8
Sn eN 59 44.5
Sg eN 59 57.2

NOV 27

$\phi = 51.496^\circ\text{N}$, $\lambda = 16.099^\circ\text{E}$
 $H = 14:31:28.8$, $M = 3.2$

KSP $\Delta = 74.1\text{km}$
Pg eNEZ 14 31 41.0
Sg eNEZ 31 50.0

RAC $\Delta = 216.2\text{km}$
P eZ 14 32 07.8
S eNE 32 32.6

OJC $\Delta = 297.4\text{km}$
Pg eZ 14 32 17.8
Sg eN 32 53.8

NOV 27

$\phi = 51.50^\circ\text{N}$, $\lambda = 16.09^\circ\text{E}$
 $H = 17:18:26$, $M = 3.6$

KSP $\Delta = 75\text{km}$
Pg iNEZ 17 18 38.2
Sg eNEZ 18 47.3

RAC $\Delta = 217\text{km}$
P eZ 17 19 02.4
S eNE 19 27.2

GKP $\Delta = 212\text{km}$
P eZ 17 19 05.5
S eE 19 27.9

OJC $\Delta = 298\text{km}$
Pn eZ 17 19 06.0
Pg eZ 19 15.7
Sg iN 19 51.1

KWP $\Delta = 514\text{km}$
Pg eZ 17 19 50.0
S eNE 21 00.9

NOV 28

$\phi = 51.51^\circ\text{N}$, $\lambda = 16.13^\circ\text{E}$
 $H = 04:33:03$, $M = 3.4$

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KSP	$\Delta = 75\text{km}$			
	Pg iNEZ	04	33	15.3
	Sg eNEZ		33	23.8
RAC	$\Delta = 216\text{km}$			
	P eZ	04	33	38.3
	S eNE		34	04.3
GKP	$\Delta = 210\text{km}$			
	P eZ	04	33	41.1
	S eE		34	04.7
OJC	$\Delta = 296\text{km}$			
	Pn eZ	04	33	43.6
	Pg eZ		33	52.1
	Sg eN		34	26.5
KWP	$\Delta = 512\text{km}$			
	Pg eZ	04	34	26.4
<u>NOV 28</u>				
	$\phi = 51.502^\circ\text{N}, \lambda = 16.089^\circ\text{E}$			
	$H = 23:14:04.3, M = 2.6$			
KSP	$\Delta = 74.9\text{km}$			
	Pg eNEZ	23	14	16.6
	Sg eNEZ		14	35.5
OJC	$\Delta = 298.3\text{km}$			
	Pg eZ	23	15	05.3
	Sg eN		15	40.3
<u>NOV 30</u>				
	$\phi = 51.510^\circ\text{N}, \lambda = 16.061^\circ\text{E}$			
	$H = 16:43:05.3, M = 2.9$			
KSP	$\Delta = 76.2\text{km}$			
	Pg eNEZ	16	43	17.8
	Sg eNEZ		43	27.1
OJC	$\Delta = 300.5\text{km}$			
	Pg eZ	16	43	56.2
	Sg eN		44	32.9
<u>DEC 1</u>				
	$\phi = 51.505^\circ\text{N}, \lambda = 16.086^\circ\text{E}$			
	$H = 04:33:38.6, M = 2.8$			
KSP	$\Delta = 75.3\text{km}$			
	Pg eNEZ	04	33	50.9
	Sg eNEZ		34	00.0
OJC	$\Delta = 298.7\text{km}$			
	Pg eZ	04	34	29.0

	Sg eN		35	03.1
<u>DEC 1</u>				
	$\phi = 51.447^\circ\text{N}, \lambda = 16.114^\circ\text{E}$			
	$H = 06:12:12.1, M = 2.6$			
KSP	$\Delta = 68.6\text{km}$			
	Pg eNEZ	06	12	23.3
	Sg eNEZ		12	30.8
<u>DEC 1</u>				
	$\phi = 51.563^\circ\text{N}, \lambda = 16.007^\circ\text{E}$			
	$H = 16:29:47.3, M = 2.7$			
KSP	$\Delta = 82.8\text{km}$			
	Pg eNEZ	16	30	00.9
	Sg eNEZ		30	10.5
<u>DEC 1</u>				
	$\phi = 51.583^\circ\text{N}, \lambda = 15.996^\circ\text{E}$			
	$H = 20:51:16.4, M = 3.4$			
KSP	$\Delta = 85.1\text{km}$			
	Pg iNEZ	20	51	30.4
	Sg eNEZ		51	40.6
RAC	$\Delta = 228.2\text{km}$			
	Pn eZ	20	51	50.8
	S eN		52	21.7
OJC	$\Delta = 308.2\text{km}$			
	Pn eZ	20	51	59.1
	Pg iZ		52	08.3
	Sn eN		52	30.9
	Sg eE		52	44.0
<u>DEC 1</u>				
	$\phi = 51.403^\circ\text{N}, \lambda = 16.212^\circ\text{E}$			
	$H = 22:12:12.3, M = 2.9$			
KSP	$\Delta = 62.8\text{km}$			
	Pg iNEZ	22	12	22.6
	Sg iNEZ		12	30.2
OJC	$\Delta = 285.7\text{km}$			
	Pg eZ	22	13	00.0
	Sg eN		13	36.2
<u>DEC 2</u>				
	$\phi = 51.447^\circ\text{N}, \lambda = 16.163^\circ\text{E}$			
	$H = 03:41:51.7, M = 2.6$			
KSP	$\Delta = 68.0\text{km}$			
	Pg eNEZ	03	42	02.8
	Sg eNEZ		42	11.0
<u>DEC 3</u>				
	$\phi = 51.459^\circ\text{N}, \lambda = 16.106^\circ\text{E}$			

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H = 15:15:43.2, M = 3.3

KSP $\Delta = 70.0\text{km}$
Pg iNEZ 15 15 54.7
Sg eNEZ 16 03.2

RAC $\Delta = 212.9\text{km}$
P eZ 15 16 17.6
S eNE 16 43.3

OJC $\Delta = 295.1\text{km}$
Pn eZ 15 16 25.3
Pg eZ 16 33.1
Sg eN 17 08.1

DEC 3

**$\phi = 51.51^\circ\text{N}$, $\lambda = 16.06^\circ\text{E}$
H = 16:29:07, M = 2.9**

KSP $\Delta = 76\text{km}$
Pg eNEZ 16 29 19.7
Sg eNEZ 29 29.1

OJC $\Delta = 300\text{km}$
Pg eZ 16 29 57.8
Sg eN 30 34.5

DEC 4

**$\phi = 51.461^\circ\text{N}$, $\lambda = 16.133^\circ\text{E}$
H = 20:01:05.4, M = 2.7**

KSP $\Delta = 69.9\text{km}$
Pg iNEZ 20 01 16.8
Sg eNEZ 01 24.3

DEC 5

**$\phi = 51.502^\circ\text{N}$, $\lambda = 16.092^\circ\text{E}$
H = 04:47:31.5, M = 2.6**

KSP $\Delta = 74.9\text{km}$
Pg eNEZ 04 47 43.8
Sg eNEZ 47 52.3

DEC 5

**$\phi = 51.513^\circ\text{N}$, $\lambda = 16.080^\circ\text{E}$
H = 18:14:46.9, M = 2.6**

KSP $\Delta = 76.2\text{km}$
Pg eNEZ 18 14 59.4
Sg eNEZ 15 08.4

DEC 6

**$\phi = 51.450^\circ\text{N}$, $\lambda = 16.170^\circ\text{E}$
H = 14:23:41.9, M = 2.7**

KSP $\Delta = 68.3\text{km}$
Pg eNEZ 14 23 53.1
Sg eNEZ 24 01.6

DEC 9

$\phi = 51.502^\circ\text{N}$, $\lambda = 16.092^\circ\text{E}$

H = 16:46:14.6, M = 2.8

KSP $\Delta = 74.9\text{km}$
Pg eNEZ 16 46 26.9
Sg eNEZ 46 36.2

OJC $\Delta = 298.1\text{km}$
Pg eZ 16 47 04.5
Sg eN 47 39.7

DEC 10

**$\phi = 51.496^\circ\text{N}$, $\lambda = 16.099^\circ\text{E}$
H = 23:47:55.3, M = 2.9**

KSP $\Delta = 74.1\text{km}$
Pg eNEZ 23 48 07.5
Sg eNEZ 48 16.2

OJC $\Delta = 297.4\text{km}$
Pg eZ 23 48 45.6
Sg eN 49 19.6

DEC 14

**$\phi = 51.484^\circ\text{N}$, $\lambda = 16.097^\circ\text{E}$
H = 09:44:07.1, M = 3.0**

KSP $\Delta = 72.8\text{km}$
Pg eNEZ 09 44 19.0
Sg eNEZ 44 27.4

OJC $\Delta = 296.9\text{km}$
Pg eZ 09 44 56.8
Sg eN 45 31.6

DEC 16

**$\phi = 51.541^\circ\text{N}$, $\lambda = 16.130^\circ\text{E}$
H = 18:30:21.1, M = 3.5**

KSP $\Delta = 78.7\text{km}$
Pg iNEZ 18 30 34.0
Sg eNEZ 30 43.3

RAC $\Delta = 218.4\text{km}$
P eZ 18 30 56.4
S eNE 31 23.2

GKP $\Delta = 207.1\text{km}$
P eZ 18 30 59.8
S eE 31 22.9

OJC $\Delta = 297.8\text{km}$
Pg eZ 18 31 09.5
Sg eN 31 45.6

KWP $\Delta = 513.0\text{km}$
P eZ 18 31 46.4

DEC 16

Lubin Copper Basin 2004

**$\varphi = 51.542^{\circ}\text{N}$, $\lambda = 16.127^{\circ}\text{E}$
H = 18:31:38.3, M = 2.9**

KSP $\Delta = 78.9\text{km}$
Pg eNEZ 18 31 51.2
Sg eNEZ 32 00.3

DEC 17

**$\varphi = 51.447^{\circ}\text{N}$, $\lambda = 16.188^{\circ}\text{E}$
H = 06:53:07.3, M = 2.7**

KSP $\Delta = 67.8\text{km}$
Pg iNEZ 06 53 18.4
Sg eNEZ 53 26.2

DEC 17

**$\varphi = 51.403^{\circ}\text{N}$, $\lambda = 16.209^{\circ}\text{E}$
H = 08:49:40.7, M = 2.7**

KSP $\Delta = 62.8\text{km}$
Pg iNEZ 08 49 51.0
Sg eNEZ 49 58.3

DEC 18

**$\varphi = 51.51^{\circ}\text{N}$, $\lambda = 16.13^{\circ}\text{E}$
H = 04:51:18, M = 3.2**

KSP $\Delta = 75\text{km}$
Pg iNEZ 04 51 30.8
Sg eNEZ 51 39.3

OJC $\Delta = 296\text{km}$
Pg eZ 04 52 07.5
Sg eN 52 42.0

DEC 18

**$\varphi = 51.562^{\circ}\text{N}$, $\lambda = 16.007^{\circ}\text{E}$
H = 08:25:37.4, M = 2.7**

KSP $\Delta = 82.7\text{km}$
Pg eNEZ 08 25 51.0
Sg eNEZ 26 01.1

DEC 18

**$\varphi = 51.445^{\circ}\text{N}$, $\lambda = 16.115^{\circ}\text{E}$
H = 10:22:01.3, M = 3.1**

KSP $\Delta = 68.3\text{km}$
Pg iNEZ 10 22 12.5
Sg eNEZ 22 19.7

OJC $\Delta = 293.8\text{km}$
Pn eZ 10 22 43.4
Pg eZ 22 51.3
Sg eN 23 25.6

DEC 18

**$\varphi = 51.444^{\circ}\text{N}$, $\lambda = 16.117^{\circ}\text{E}$
H = 13:04:00.9, M = 3.0**

KSP $\Delta = 68.2\text{km}$
Pg eNEZ 13 04 12.1
Sg eNEZ 04 19.3

OJC $\Delta = 293.7\text{km}$
Pn eZ 13 04 42.2
Pg eZ 04 50.7
Sg eN 05 25.2

DEC 18

**$\varphi = 51.45^{\circ}\text{N}$, $\lambda = 16.13^{\circ}\text{E}$
H = 16:06:46, M = 2.7**

KSP $\Delta = 69\text{km}$
Pg eNEZ 16 06 57.1
Sg eNEZ 07 05.2

DEC 18

**$\varphi = 51.494^{\circ}\text{N}$, $\lambda = 16.095^{\circ}\text{E}$
H = 23:54:09.3, M = 3.6**

KSP $\Delta = 73.9\text{km}$
Pg iNEZ 23 54 21.4
Sg eNEZ 54 30.2

RAC $\Delta = 216.3\text{km}$
P eZ 23 54 44.8
S eNE 55 10.8

GKP $\Delta = 212.9\text{km}$
P eZ 23 54 46.1
S eE 55 11.5

OJC $\Delta = 297.5\text{km}$
Pn eZ 23 54 50.5
Pg eZ 54 58.9
Sg eN 55 34.2

KWP $\Delta = 513.4\text{km}$
P eZ 23 55 32.8

DEC 19

**$\varphi = 51.510^{\circ}\text{N}$, $\lambda = 16.025^{\circ}\text{E}$
H = 00:41:07.7, M = 3.3**

KSP $\Delta = 76.8\text{km}$
Pg eNEZ 00 41 20.3
Sg eNEZ 41 29.3

RAC $\Delta = 221.0\text{km}$
P eZ 00 41 43.8
S eNE 42 10.8

OJC $\Delta = 302.7\text{km}$
Pn eZ 00 41 49.6
Pg eZ 41 58.4
Sg eN 42 34.3

Lubin Copper Basin 2004

DEC 23

$\phi = 51.450^{\circ}\text{N}$, $\lambda = 16.171^{\circ}\text{E}$
 $H = 13:37:53.6$, $M = 2.8$

KSP $\Delta = 68.3\text{km}$
 Pg eNEZ 13 38 04.8
 Sg eNEZ 38 12.7

DEC 23

$\phi = 51.495^{\circ}\text{N}$, $\lambda = 16.104^{\circ}\text{E}$
 $H = 19:00:44.3$, $M = 2.7$

KSP $\Delta = 73.9\text{km}$
 Pg eNEZ 19 00 56.4
 Sg eNEZ 01 05.2

DEC 24

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.056^{\circ}\text{E}$
 $H = 13:26:40.9$, $M = 2.7$

KSP $\Delta = 79.4\text{km}$
 Pg eNEZ 13 26 53.9
 Sg eNEZ 27 03.3

DEC 25

$\phi = 51.47^{\circ}\text{N}$, $\lambda = 16.11^{\circ}\text{E}$
 $H = 03:49:29$, $M = 2.6$

KSP $\Delta = 71\text{km}$
 Pg eNEZ 03 49 40.5
 Sg eNEZ 49 48.8

DEC 27

$\phi = 51.46^{\circ}\text{N}$, $\lambda = 16.11^{\circ}\text{E}$
 $H = 16:58:22$, $M = 3.0$

KSP $\Delta = 70\text{km}$
 Pg eNEZ 16 58 34.1
 Sg eNEZ 58 42.2

OJC $\Delta = 295\text{km}$
 Pg eZ 16 59 12.5
 Sg eN 59 47.1

DEC 28

$\phi = 51.539^{\circ}\text{N}$, $\lambda = 16.142^{\circ}\text{E}$
 $H = 07:21:18.9$, $M = 2.9$

KSP $\Delta = 78.4\text{km}$
 Pg eNEZ 07 21 31.7
 Sg eNEZ 21 40.9

OJC $\Delta = 297.0\text{km}$
 Pg eZ 07 22 09.4
 Sg eN 22 43.3

DEC 28

$\phi = 51.537^{\circ}\text{N}$, $\lambda = 16.025^{\circ}\text{E}$
 $H = 17:22:19.0$, $M = 3.0$

KSP $\Delta = 79.7\text{km}$
 Pg eNEZ 17 22 32.1
 Sg eNEZ 22 41.7

DEC 30

$\phi = 51.449^{\circ}\text{N}$, $\lambda = 16.170^{\circ}\text{E}$
 $H = 20:50:30.0$, $M = 3.0$

KSP $\Delta = 68.2\text{km}$
 Pg eNEZ 20 50 41.2
 Sg eNEZ 50 49.2

OJC $\Delta = 290.6\text{km}$
 Pg eZ 20 51 19.4
 Sg eN 51 53.7

DEC 31

$\phi = 51.505^{\circ}\text{N}$, $\lambda = 16.086^{\circ}\text{E}$
 $H = 04:27:02.6$, $M = 3.0$

KSP $\Delta = 75.3\text{km}$
 Pg eNEZ 04 27 14.9
 Sg eNEZ 27 23.9

OJC $\Delta = 298.7\text{km}$
 Pg eZ 04 27 52.9
 Sg eN 28 27.3

DEC 31

$\phi = 51.473^{\circ}\text{N}$, $\lambda = 16.109^{\circ}\text{E}$
 $H = 20:01:22.7$, $M = 2.7$

KSP $\Delta = 71.5\text{km}$
 Pg iNEZ 20 01 34.4
 Sg eNEZ 01 43.0

DEC 31

$\phi = 51.453^{\circ}\text{N}$, $\lambda = 16.086^{\circ}\text{E}$
 $H = 22:23:34.4$, $M = 2.9$

KSP $\Delta = 69.6\text{km}$
 Pg eNEZ 22 23 45.8
 Sg iNEZ 23 54.4

RAC $\Delta = 213.5\text{km}$
 P eZ 22 24 09.6
 S eN 24 35.5

OJC $\Delta = 296.0\text{km}$
 Pg eZ 22 24 24.2
 Sg eE 25 00.7

Belchatów 2004

JAN 02

$\varphi = 51.236^{\circ}\text{N}$, $\lambda = 19.243^{\circ}\text{E}$
 $H = 20:28:58$, $M = 2.1$

OJC $\Delta = 120.0\text{km}$
Pg eZ 20 29 18.3
Sg eE 29 34.2

JAN 05

$\varphi = 51.223^{\circ}\text{N}$, $\lambda = 19.332^{\circ}\text{E}$
 $H = 13:14:50$, $M = 2.2$

OJC $\Delta = 116.7\text{km}$
Pg eZ 13 15 10.1
Sg eE 15 24.3

NIE $\Delta = 213.0\text{km}$
Pg eZ 13 15 28.6
S eE 15 50.5

FEB 20

$\varphi = 51.242^{\circ}\text{N}$, $\lambda = 19.290^{\circ}\text{E}$
 $H = 18:11:32$, $M = 2.0$

OJC $\Delta = 119.6\text{km}$
Pg eZ 18 11 52.4
Sg eN 12 07.9

FEB 27

$\varphi = 51.258^{\circ}\text{N}$, $\lambda = 19.257^{\circ}\text{E}$
 $H = 18:13:18$, $M = 2.1$

OJC $\Delta = 122.0\text{km}$
Pg eZ 18 13 39.0
Sg eE 13 54.2

KSP $\Delta = 213.4\text{km}$
Pg eNEZ 18 13 56.4
Sg eNEZ 14 19.4

MAR 06

$\varphi = 51.232^{\circ}\text{N}$, $\lambda = 19.289^{\circ}\text{E}$
 $H = 06:56:32$, $M = 2.0$

OJC $\Delta = 118.5\text{km}$
Pg eZ 06 56 51.9
Sg eN 57 07.0

MAR 16

$\varphi = 51.244^{\circ}\text{N}$, $\lambda = 19.289^{\circ}\text{E}$
 $H = 02:41:06$, $M = 2.7$

OJC $\Delta = 119.8\text{km}$
ePg Z 02 41 26.2
eSg E 41 41.5

RAC $\Delta = 150.9\text{km}$
Pg eZ 02 41 31.3
Sg eE 41 50.3

KSP $\Delta = 215.3\text{km}$
Pn eNEZ 02 41 38.7
Pg eNEZ 41 41.7
Sn eNEZ 42 03.0
Sg eNEZ 42 06.8

NIE $\Delta = 216.2\text{km}$
Pg eZ 02 41 42.7
S eE 42 07.6

MAY 02

$\varphi = 51.254^{\circ}\text{N}$, $\lambda = 19.298^{\circ}\text{E}$
 $H = 16:50:04$, $M = 2.0$

OJC $\Delta = 120.7\text{km}$
Pg eZ 16 50 24.6
Sg eN 50 39.6
eN 50 40.1

MAY 03

$\varphi = 51.244^{\circ}\text{N}$, $\lambda = 19.273^{\circ}\text{E}$
 $H = 10:02:32$, $M = 2.0$

OJC $\Delta = 120.2\text{km}$
(Pg) eZ 10 02 52.9
Sg eE 03 07.3
eN 03 07.8

MAY 31

$\varphi = 51.246^{\circ}\text{N}$, $\lambda = 19.275^{\circ}\text{E}$
 $H = 15:21:07$, $M = 2.1$

OJC $\Delta = 120.3\text{km}$
Pg eZ 15 21 27.8
Sg eE 21 42.8

JUN 08

$\varphi = 51.238^{\circ}\text{N}$, $\lambda = 19.245^{\circ}\text{E}$
 $H = 03:05:25$, $M = 3.1$

OJC $\Delta = 120.2\text{km}$
Pg eZ 03 05 44.9
Sg eE 06 00.4

RAC $\Delta = 148.8\text{km}$
Pg eZ 03 05 50.1
Sg eNE 06 09.0

Belchatów 2004

KSP $\Delta = 212.2\text{km}$
Pn eNEZ 03 05 57.1
05 58.1
Pg eNEZ 05 59.8
Sn eNEZ 06 21.0
Sg eNEZ 06 24.7

NIE $\Delta = 216.7\text{km}$
(Pn) eZ 03 05 58.3
Pg eZ 06 00.8
Sg eE 06 28.2

KWP $\Delta = 304.8\text{km}$
Pn eZ 03 06 09.5
Pg eZ 06 14.6
Sg eNE 06 43.6

GKP $\Delta = 265.1\text{km}$
Pg eZ 03 06 13.8
Sg eE 06 47.3

JUN 13

$\phi = 51.233^\circ\text{N}$, $\lambda = 19.286^\circ\text{E}$
H = 18:44:10, M = 2.0

OJC $\Delta = 118.7\text{km}$
Pg eZ 18 44 29.8
Sg eE 44 44.7

JUN 24

$\phi = 51.234^\circ\text{N}$, $\lambda = 19.269^\circ\text{E}$
H = 11:30:46, M = 2.3

OJC $\Delta = 119.2\text{km}$
Pg eZ 11 31 06.8
Sg eE 31 22.1

JUN 24

$\phi = 51.255^\circ\text{N}$, $\lambda = 19.279^\circ\text{E}$
H = 17:11:50, M = 2.0

OJC $\Delta = 121.2\text{km}$
Pg eZ 17 12 11.5
Sg eE 12 26.4

JUL 05

$\phi = 51.248^\circ\text{N}$, $\lambda = 19.266^\circ\text{E}$
H = 12:41:06, M = 2.1

OJC $\Delta = 120.7\text{km}$
Pg eZ 12 41 27.0
Sg eE 41 41.8

JUL 24

$\phi = 51.226^\circ\text{N}$, $\lambda = 19.310^\circ\text{E}$
H = 23:32:04, M = 2.1

OJC $\Delta = 117.5\text{km}$
Pg eZ 23 32 25.7 c
Sg eN 32 41.4

NOV 14

$\phi = 51.251^\circ\text{N}$, $\lambda = 19.291^\circ\text{E}$
H = 19:48:38, M = 2.2

OJC $\Delta = 120.5\text{km}$
Pg eZ 19 48 59.0
Sg eNE 49 13.8

KSP $\Delta = 215.6\text{km}$
(Pg) eNEZ 19 49 17.3
Sg eNEZ 49 39.5

Podhale 2004

FEB 21

$\phi = 49.5^{\circ}\text{N}$, $\lambda = 20.6^{\circ}\text{E}$
H = 21:41:47, M = 2.2 (NIE)

NIE $\Delta = 23\text{km}$
 Pg iZ 21 41 51.3 d
 Sg iE 41 53.9

OJC $\Delta = 99\text{km}$
 Pg eZ 21 42 04.6
 Sg eN 42 16.3

NOV 30

$\phi = 49.34^{\circ}\text{N} \pm 0.067$, $\lambda = 19.88^{\circ}\text{E} \pm 0.048$
H = 17:18:34.3 $\pm$ 0.76, M = 4.3 (OJC)
 $\phi_{\text{mac}} = 49.40^{\circ}\text{N}$, $\lambda_{\text{mac}} = 19.92^{\circ}\text{E}$
 $h_{\text{mac}} = 3 \pm 1\text{km}$, $M_{\text{mac}} = 4.4$, $I_o = 7$

NIE $\Delta = 33\text{km}$
 Pg eZ 17 18 41.5 c
 (Sg) eN 18 45.9

OJC $\Delta = 98\text{km}$
 Pg eZ 17 18 52.3 c
 Sg eN 19 04.1

RAC $\Delta = 147\text{km}$
 Pg iZ 17 19 01.4 c
 Sg eNEZ 19 20.1

KWP $\Delta = 208\text{km}$
 Pn eZ 17 19 09.8
 PmP Z 19 11.7 c
 Sn eNE 19 37.3
 SmS eNE 19 41.6

KSP $\Delta = 307\text{km}$
 Pn eNEZ 17 19 20.4
 PmPPmP eNEZ 19 28.0
 Sn eNE 19 54.1
 (SmS) eNEZ 20 01.3

GKP $\Delta = 476\text{km}$
 (P) eZ 17 19 53.0
 (S) eNE 21 17.8

SUW $\Delta = 569\text{km}$
 P iZ 17 19 42.3 c
 S eE 20 59.4

NOV 30

$\phi \approx 49.4^{\circ}\text{N}$, $\lambda \approx 19.9^{\circ}\text{E}$
H $\approx$ 19:26:35, M = 2.4 (NIE)

NIE $\Delta \approx 30\text{km}$
 Pg eZ 19 26 39.7
 iZ 26 39.9
 Sg iNE 26 44.1

OJC $\Delta \approx 90\text{km}$
 Pg eZ 19 26 50.8
 Sg eN 27 02.2

NOV 30

$\phi = 49.32^{\circ}\text{N} \pm 0.070$, $\lambda = 19.89^{\circ}\text{E} \pm 0.089$
H = 23:32:12.2 $\pm$ 1.43, M = 2.5 (NIE)

NIE $\Delta = 30\text{km}$
 Pg eZ 23 32 19.1
 Sg eN 32 23.4

OJC $\Delta = 100\text{km}$
 Pg eZ 23 32 30.0
 Sg eN 32 42.2

NOV 30

$\phi = 49.31^{\circ}\text{N} \pm 0.069$, $\lambda = 19.90^{\circ}\text{E} \pm 0.089$
H = 23:56:33.6 $\pm$ 1.43, M = 2.4 (NIE)

NIE $\Delta = 32\text{km}$
 Pg eZ 23 56 40.9 c
 Sg eN 56 45.2

OJC $\Delta = 102\text{km}$
 Pg eZ 23 56 52.2
 Sg eN 57 04.2

DEC 01

$\phi = 49.32^{\circ}\text{N} \pm 0.069$, $\lambda = 19.91^{\circ}\text{E} \pm 0.091$
H = 01:12:23.0 $\pm$ 1.46, M = 2.5 (NIE)

NIE $\Delta = 31\text{km}$
 Pg eZ 01 12 30.0
 Sg iN 12 34.4

OJC $\Delta = 101\text{km}$
 Pg eZ 01 12 41.0
 Sg eN 12 53.1

DEC 01

$\phi = 49.32^{\circ}\text{N} \pm 0.070$, $\lambda = 19.92^{\circ}\text{E} \pm 0.092$
H = 06:00:40.1 $\pm$ 1.47, M = 2.5 (NIE)

NIE $\Delta = 31\text{km}$
 Pg eZ 06 00 47.2
 Sg eN 00 51.5

OJC $\Delta = 101\text{km}$
 Pg eZ 06 00 58.5
 Sg eN 01 10.0

Podhale 2004

DEC 01

$\varphi = 49.32^{\circ}\text{N} \pm 0.052$, $\lambda = 19.85^{\circ}\text{E} \pm 0.108$
 $H = 23:25:13.1 \pm 1.30$, $M = 2.8$ (NIE)
 $M_{\text{mac}} = 2.9$, $I_o = 4$

NIE	$\Delta = 35\text{km}$				
Pg	eZ	23	25	19.9	c
Sg	eE		25	24.1	
OJC	$\Delta = 100\text{km}$				
Pg	eZ	23	25	31.1	
Sg	eN		25	43.1	

DEC 01

$\varphi = 49.32^{\circ}\text{N} \pm 0.069$, $\lambda = 19.91^{\circ}\text{E} \pm 0.091$
 $H = 23:50:13.0 \pm 1.45$, $M = 2.8$ (NIE)
 $M_{\text{mac}} = 2.9$, $I_o = 4$

NIE	$\Delta = 31\text{km}$				
Pg	eZ	23	50	20.0	
Sg	eE		50	24.0	
OJC	$\Delta = 101\text{km}$				
Pg	eZ	23	50	30.9	
Sg	eN		50	42.6	

DEC 02

$\varphi = 49.31^{\circ}\text{N} \pm 0.069$, $\lambda = 19.90^{\circ}\text{E} \pm 0.090$
 $H = 00:13:55.2 \pm 1.45$, $M = 2.4$ (NIE)

NIE	$\Delta = 32\text{km}$				
Pg	eZ	00	14	02.4	
	iZ		14	02.6	
Sg	eNE		14	06.7	
OJC	$\Delta = 102\text{km}$				
Pg	eZ	00	14	13.4	
Sg	eN		14	25.1	

DEC 02

$\varphi = 49.31^{\circ}\text{N} \pm 0.069$, $\lambda = 19.86^{\circ}\text{E} \pm 0.073$
 $H = 01:35:28.1 \pm 1.15$, $M = 2.5$ (NIE)

NIE	$\Delta = 35\text{km}$				
Pg	eZ	01	35	35.4	c
Sg	eN		35	39.8	
OJC	$\Delta = 101\text{km}$				
Pg	eZ	01	35	46.4	
Sg	eN		35	58.2	

DEC 02

$\varphi = 49.31^{\circ}\text{N} \pm 0.069$, $\lambda = 19.91^{\circ}\text{E} \pm 0.091$
 $H = 06:11:28.2 \pm 1.46$, $M = 2.3$ (NIE)

NIE	$\Delta = 32\text{km}$				
Pg	eZ	06	11	35.0	
Sg	eNE		11	39.4	
OJC	$\Delta = 102\text{km}$				
Pg	eZ	06	11	46.1	
Sg	eE		11	58.1	

DEC 02

$\varphi = 49.31^{\circ}\text{N} \pm 0.069$, $\lambda = 19.91^{\circ}\text{E} \pm 0.091$
 $H = 08:43:48.2 \pm 1.46$, $M = 2.4$ (NIE)

NIE	$\Delta = 32\text{km}$				
Pg	eZ	08	43	55.3	
Sg	eNE		43	59.5	
OJC	$\Delta = 102\text{km}$				
Pg	eZ	08	44	06.3	
Sg	eN		44	18.3	

DEC 02

$\varphi = 49.32^{\circ}\text{N} \pm 0.049$, $\lambda = 19.85^{\circ}\text{E} \pm 0.051$
 $H = 18:25:37.2 \pm 0.74$, $M = 3.6$ (NIE)
 $\varphi_{\text{mac}} = 49.40^{\circ}\text{N}$, $\lambda_{\text{mac}} = 19.92^{\circ}\text{E}$
 $h_{\text{mac}} = 3 \pm 1\text{km}$, $M_{\text{mac}} = 3.6$, $I_o = 5$

NIE	$\Delta = 35\text{km}$				
Pg	eZ	18	25	43.9	c
	iZ		25	44.3	
Sg	iNE		25	48.2	
OJC	$\Delta = 100\text{km}$				
Pg	iZ	18	25	54.5	c
Sg	iN		26	06.3	
RAC	$\Delta = 147\text{km}$				
Pg	eZ	18	26	03.7	
Sg	eNE		26	22.1	
KWP	$\Delta = 210\text{km}$				
Pn	eZ	18	26	12.1	
PmP	eZ		26	15.3	
Sn	eNE		26	39.5	
SmS	eNE		26	43.9	
KSP	$\Delta = 306\text{km}$				
Pn	eNEZ	18	26	23.6	
(PmPPmP)	eNEZ		26	30.4	
Sn	eNEZ		26	56.6	
(SmS)	eNEZ		27	03.8	

Podhale 2004

SUW $\Delta = 572\text{km}$
(P) eZ 18 26 55.9
S eNE 28 03.3

DEC 02

$\varphi \approx 49.4^\circ\text{N}$, $\lambda \approx 19.9^\circ\text{E}$
H $\approx 20:15:00$, M = 2.1 (NIE)

NIE $\Delta \approx 30\text{km}$
Pg eZ 20 15 06.2
iZ 15 06.6
Sg iNE 15 10.5

OJC $\Delta \approx 90\text{km}$
Pg eZ 20 15 17.3
Sg eN 15 29.3

DEC 03

$\varphi = 49.32^\circ\text{N} \pm 0.070$, $\lambda = 19.90^\circ\text{E} \pm 0.089$
H = 08:30:22.4 ± 1.36 , M = 2.5 (NIE)

NIE $\Delta = 32\text{km}$
Pg eZ 08 30 29.3
Sg eNE 30 33.7

OJC $\Delta = 101\text{km}$
Pg eZ 08 30 40.0
Sg eN 30 52.3

DEC 03

$\varphi = 49.34^\circ\text{N} \pm 0.056$, $\lambda = 19.86^\circ\text{E} \pm 0.074$
H = 10:07:02.9 ± 1.24 , M = 2.7 (NIE)

NIE $\Delta = 34\text{km}$
Pg eZ 10 07 09.9
Sg eNE 07 14.1

OJC $\Delta = 98\text{km}$
Pg eZ 10 07 20.3
Sg eN 07 32.1

DEC 05

$\varphi = 49.34^\circ\text{N} \pm 0.056$, $\lambda = 19.87^\circ\text{E} \pm 0.080$
H = 08:29:59.9 ± 1.32 , M = 2.5 (NIE)

NIE $\Delta = 33\text{km}$
Pg eZ 08 30 06.7
iZ 30 07.1
Sg eN 30 10.9

OJC $\Delta = 98\text{km}$
Pg eZ 08 30 17.8
Sg eN 30 29.8

DEC 09

$\varphi = 49.34^\circ\text{N} \pm 0.054$, $\lambda = 19.86^\circ\text{E} \pm 0.062$
H = 01:09:03.6 ± 1.07 , M = 3.4 (NIE)
 $\varphi_{\text{mac}} = 49.40^\circ\text{N}$, $\lambda_{\text{mac}} = 19.92^\circ\text{E}$
 $h_{\text{mac}} = 3\text{--}5\text{km}$, $M_{\text{mac}} = 3.4$, $I_o = 5$

NIE $\Delta = 34\text{km}$
Pg eZ 01 09 10.6
Sg eNE 09 14.9

OJC $\Delta = 98\text{km}$
Pg eZ 01 09 21.4
Sg eN 09 33.8

RAC $\Delta = 146\text{km}$
Pg eZ 01 09 30.6
Sg eNE 09 48.3

KWP $\Delta = 209\text{km}$
Pn eZ 01 09 40.3
PmP eZ 09 44.9
SmS eNE 10 12.3

KSP $\Delta = 306\text{km}$
Pn eNEZ 01 09 50.5
(PmPPmP) eNEZ 09 56.6
Sn eNEZ 10 23.3
(SmS) eNEZ 10 29.8

DEC 12

$\varphi = 49.31^\circ\text{N} \pm 0.068$, $\lambda = 19.91^\circ\text{E} \pm 0.090$
H = 15:01:24.4 ± 1.45 , M = 2.4 (NIE)

NIE $\Delta = 32\text{km}$
Pg eZ 15 01 31.6
Sg eN 01 35.8

OJC $\Delta = 102\text{km}$
Pg eZ 15 01 43.0
Sg eE 01 55.3

DEC 13

$\varphi = 49.32^\circ\text{N} \pm 0.070$, $\lambda = 19.89^\circ\text{E} \pm 0.090$
H = 00:05:29.2 ± 1.44 , M = 2.9 (NIE)

NIE $\Delta = 33\text{km}$
Pg eZ 00 05 36.5
Sg eN 05 40.9

OJC $\Delta = 100\text{km}$
Pg eZ 00 05 47.1
Sg eN 05 58.0

RAC $\Delta = 149\text{km}$
Pg eZ 00 05 56.3
Sg eNE 06 15.2

KSP $\Delta = 309\text{km}$
PmPPmP eNEZ 00 06 22.0
(SmS) eNEZ 06 55.7

Podhale 2004

DEC 13

$\varphi = 49.35^\circ\text{N} \pm 0.054$, $\lambda = 19.91^\circ\text{E} \pm 0.079$
H = 03:29:05.1 $\pm$ 1.12, M = 2.7 (NIE)

NIE	$\Delta = 30\text{km}$		
Pg	eZ	03 29 11.0	c
Sg	eN	29 15.3	

OJC	$\Delta = 97\text{km}$		
Pg	eZ	03 29 21.9	
Sg	eE	29 34.0	

DEC 13

$\varphi \sim 49.4^\circ\text{N}$, $\lambda \sim 19.9^\circ\text{E}$
H $\sim$ 12:27:23, M = 2.0 (NIE)

NIE	$\Delta \sim 30\text{km}$		
Pg	eZ	12 27 29.3	
	iZ	27 29.9	
Sg	eE	27 33.8	

OJC	$\Delta \sim 90\text{km}$		
Pg	eZ	12 27 41.0	
Sg	eN	27 53.2	

DEC 15

$\varphi = 49.31^\circ\text{N} \pm 0.068$, $\lambda = 19.90^\circ\text{E} \pm 0.088$
H = 01:34:35.5 $\pm$ 1.44, M = 2.2 (NIE)

NIE	$\Delta = 32\text{km}$		
Pg	eZ	01 34 42.8	
Sg	eE	34 47.1	

OJC	$\Delta = 102\text{km}$		
Pg	eZ	01 34 54.0	
Sg	eN	35 05.9	

DEC 27

$\varphi = 49.31^\circ\text{N} \pm 0.069$, $\lambda = 19.91^\circ\text{E} \pm 0.091$
H = 14:02:51.1 $\pm$ 1.46, M = 2.4 (NIE)

NIE	$\Delta = 32\text{km}$		
Pg	eZ	14 02 58.2	d
Sg	eN	03 02.4	

OJC	$\Delta = 102\text{km}$		
Pg	eZ	14 03 09.3	
Sg	eN	03 20.8	

Kaliningrad 2004

SEP 21

$\varphi = 54.924^{\circ}\text{N} \pm 0.021$, $\lambda = 20.120^{\circ}\text{E} \pm 0.050$

$H = 11:05:01.6 \pm 1.4$, $M1 = 5.0$

SUW $\Delta = 223.5\text{km}$
Pn eZ 11 05 39.4
PmP eZ 05 41.4
Sn eNE 06 06.0
(SmS) eNE 06 08.3

GKP $\Delta = 264.3\text{km}$
(Pn) eZ 11 05 43.7
PmP eZ 05 48.8
Sn eE 06 13.6
SmS eE 06 19.9

WAR $\Delta = 305.4\text{km}$
Pn eZ 11 05 48.2
PmP eZ 05 54.3
(S) eE 06 25.5

OJC $\Delta = 525.4\text{km}$
P eZ 11 06 13.8
iZ 06 33.3
S eE 07 04.4
iE 07 29.7

KSP $\Delta = 523.4\text{km}$
P eNEZ 11 06 14.1
S eNEZ 07 02.4

RAC $\Delta = 555.7\text{km}$
P eZ 11 06 20.2
S eNE 07 17.9

NIE $\Delta = 614.3\text{km}$
P eZ 11 06 25.2
(S) eE 07 29.2

KWP $\Delta = 616.4\text{km}$
P eZ 11 06 27.0

SEP 21

$\varphi = 54.876^{\circ}\text{N} \pm 0.021$, $\lambda = 20.120^{\circ}\text{E} \pm 0.055$

$H = 13:32:31.0 \pm 1.3$, $M1 = 5.3$

SUW $\Delta = 221.2\text{km}$
Pn eZ 13 33 05.9 c
PmP eZ 33 07.6
Sn eNE 33 32.2
SmS eNE 33 34.4

GKP $\Delta = 260.7\text{km}$
Pn eZ 13 33 10.2 c
PmP eZ 33 15.4
PmPPmP eZ 33 19.3
Sn eE 33 39.0
SmS eE 33 49.6

WAR $\Delta = 300.1\text{km}$
Pn eZ 13 33 15.2 d
(PmP) eZ 33 20.8

OJC $\Delta = 520.0\text{km}$
P eZ 13 33 40.2
S eN 34 31.3
iE 34 54.4

KSP $\Delta = 518.8\text{km}$
P eNEZ 13 33 39.9
S eNEZ 34 27.8

RAC $\Delta = 550.6\text{km}$
P eZ 13 33 44.5
eZ 34 06.0
S eNE 34 40.3

NIE $\Delta = 609.0\text{km}$
P eZ 13 33 50.9
eZ 34 15.1
S eE 34 55.6
eE 35 23.7

KWP $\Delta = 611.3\text{km}$
P eZ 13 33 53.0 d
S eNE 34 58.6

SEP 21

$\varphi = 54.866^{\circ}\text{N}$, $\lambda = 20.100^{\circ}\text{E}$

$H = 13:36:(32)$, $M1 = 4.3$

SUW $\Delta = 221.9\text{km}$
PmP eZ 13 37 08.4
(SmS) eE 37 35.2

GKP $\Delta = 259.0\text{km}$
Pn eZ 13 37 11.7
PmP eZ 37 15.1
(S) eE 37 45.5

WAR $\Delta = 299.2\text{km}$
(P) eZ 13 37 27.2
S eE 37 58.2

OJC $\Delta = 518.8\text{km}$
(P) eZ 13 38 00.2
(S) iE 38 56.7