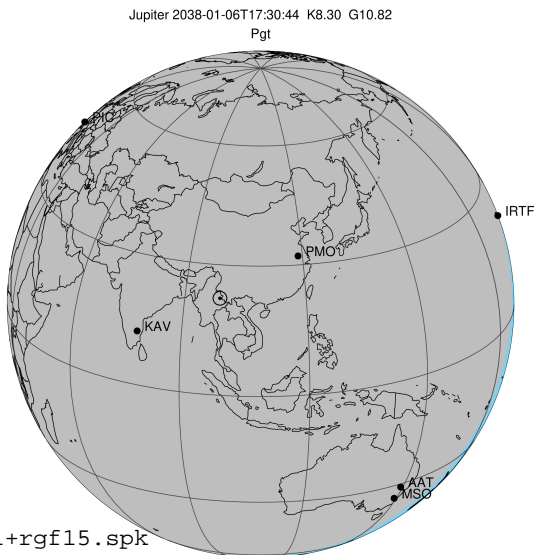


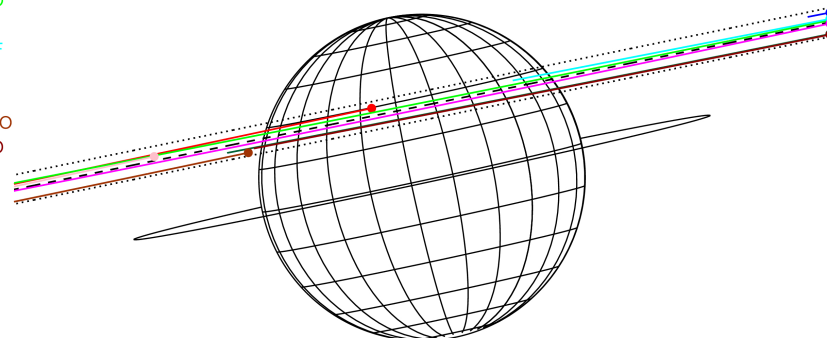
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2038-01-06T17:30:44.450  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 674462353991820928  
 2Mass ID (if available) : 07491846+2126105

Jupiter 2038-01-06T17:30:44 K8.30 G10.82 Pgt

ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s  
 RUWE (>1.4 is poor) : 0.92  
 K magnitude : 8.298  
 G magnitude : 10.815  
 RP magnitude : 10.066  
 BP magnitude : 11.430  
 DUPflag : 0  
 Distance (au) : 4.257  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.94  
 Sun-Target sep (deg) : 170.66  
 Sun-Moon sep (deg) : 175.28  
 B (ring opening deg) : 1.13  
 PA of pole (deg) : 12.16  
 Pole direction: RA (deg): 268.05622  
 Dec (deg): 64.49690  
 C/A sky separation (") : 9.952  
 C/A sky separation (km) : 30728.3  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



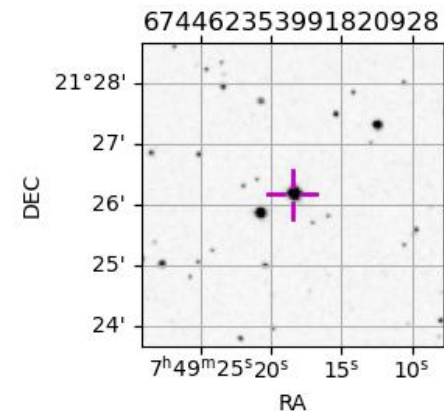
Earth  
 PIC  
 PAL  
 PMO  
 TEN  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



2038-01-06T17:30:44.4500 cc: 07 49 18.4546 s: +21 26 10.4445 C/A 9.952" PA 191.58 deg v\_sky -16.94 km/s D 04.26 AU  
 Credit: Styled after SORA/Lucky Star

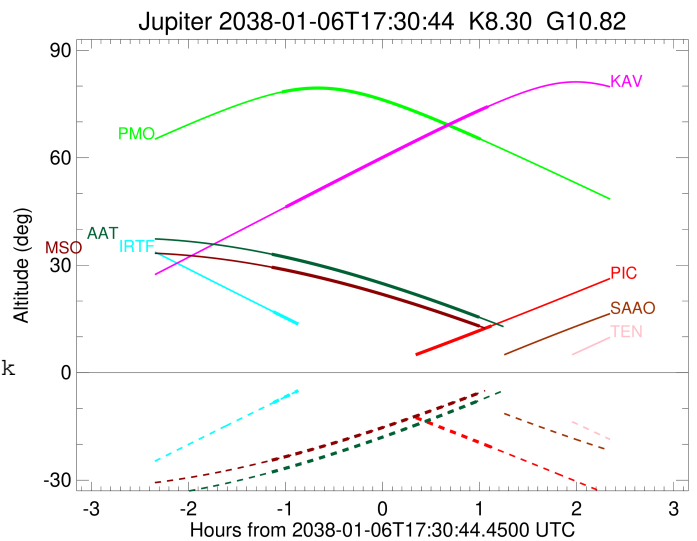
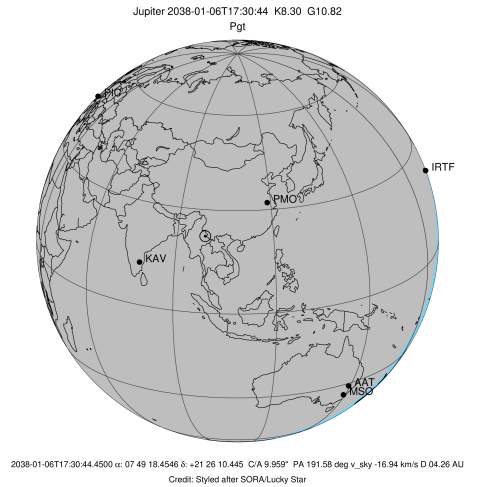
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JAN 06 18:38 - JAN 06 18:38	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JAN 06 16:28 - JAN 06 18:31	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	JAN 06 16:23 - JAN 06 16:23	Pin
KAV	Kavalur Observatory	12.6	78.8	+	JAN 06 16:30 - JAN 06 18:36	Pie
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	JAN 06 16:22 - JAN 06 18:30	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JAN 06 16:22 - JAN 06 18:30	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2038-01-06T17:36:13.610
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PIC
Location            : Pic du Midi
Latitude (deg)      : 42.93656
E. Longitude (deg)  : 0.14231
Altitude (km)       : 2.890
Gaia source ID      : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 8.298
G magnitude          : 10.815
RP magnitude         : 10.066
BP magnitude         : 11.430
DUPflag             : 0
Distance (au)       : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.94
Sun-Target sep (deg) : 170.66
Sun-Moon sep (deg)  : 175.92
B (ring opening deg) : 1.13
PA of pole (deg)    : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation (") : 11.094
C/A sky separation (km) : 34254.8
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

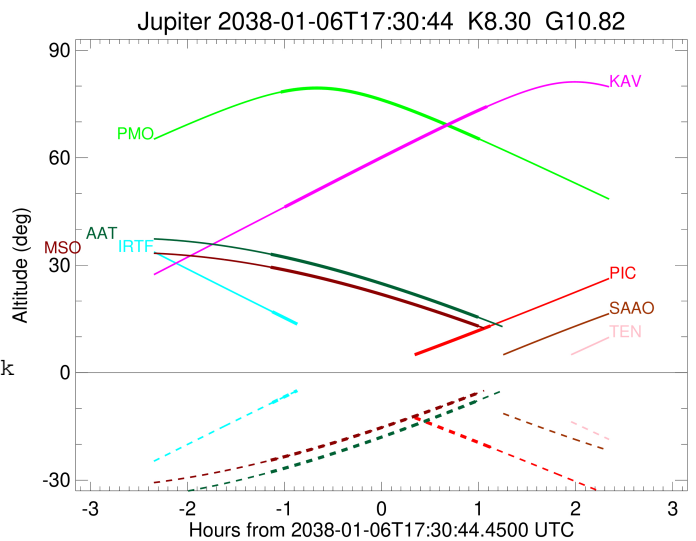
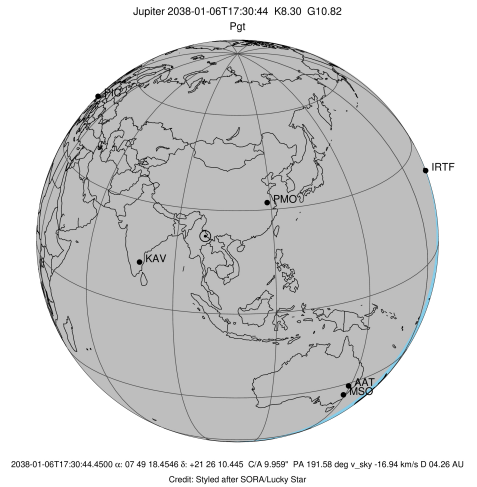


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:34:04.331	-7.13x	0.25x	71491.6	28.53	31.81
Jupiter	E	2038-01-06T18:38:02.362	13.05	-20.81	71491.6	28.75	32.05

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-06T17:29:54.250
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 8.298
G magnitude           : 10.815
RP magnitude         : 10.066
BP magnitude         : 11.430
DUPflag              : 0
Distance (au)        : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.94
Sun-Target sep (deg) : 170.66
Sun-Moon sep (deg)  : 175.23
B (ring opening deg) : 1.13
PA of pole (deg)    : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation (" ) : 10.392
C/A sky separation (km) : 32088.4
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

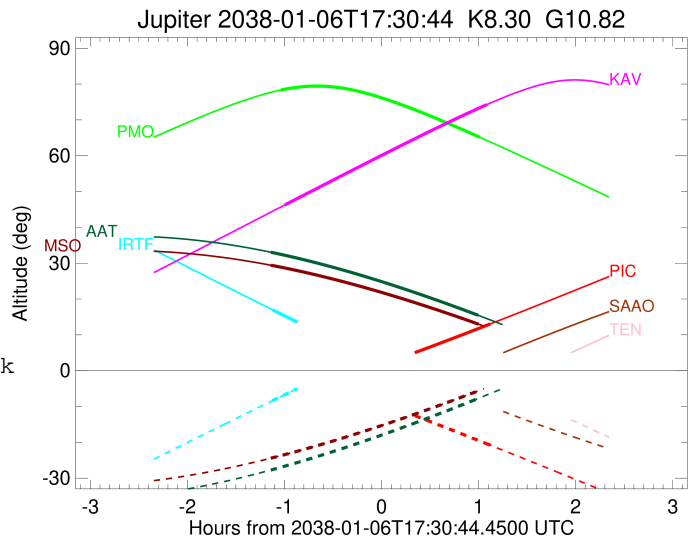
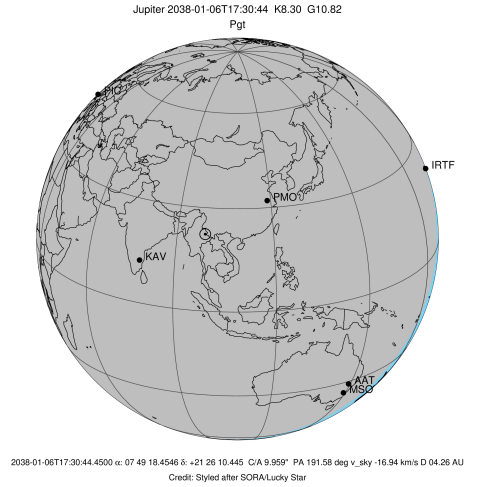


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:28:28.915	78.33	-79.73	71491.7	25.81	28.90
Jupiter	E	2038-01-06T18:31:24.471	65.16	-57.45	71491.6	27.63	30.85

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-06T17:25:06.840
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 8.298
G magnitude           : 10.815
RP magnitude         : 10.066
BP magnitude         : 11.430
DUPflag              : 0
Distance (au)        : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.94
Sun-Target sep (deg) : 170.66
Sun-Moon sep (deg)  : 174.41
B (ring opening deg) : 1.13
PA of pole (deg)    : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation (") : 11.036
C/A sky separation (km) : 34075.5
NAIF SPICE kernels  : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

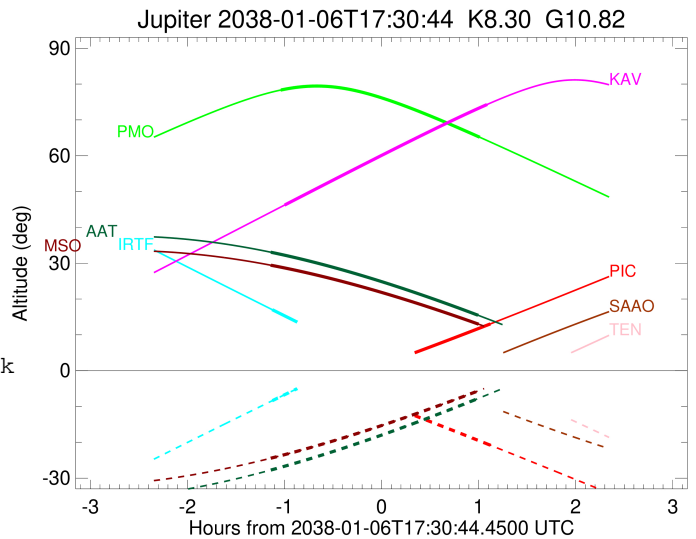
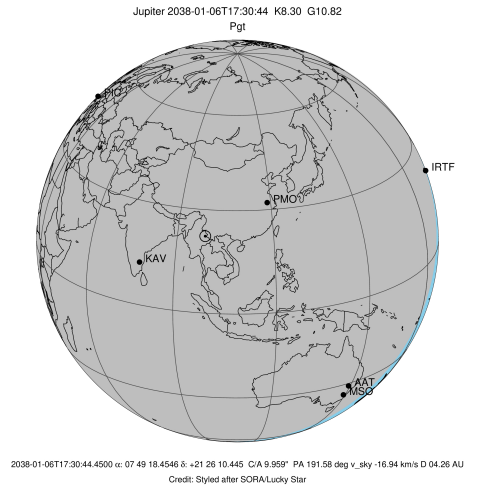


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:23:14.534	17.02	-8.39	71491.6	27.35	30.55
Jupiter	E	2038-01-06T18:27:24.213	-10.17x	17.77x	71491.6	29.49	32.83

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2038-01-06T17:33:31.760
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 8.298
G magnitude           : 10.815
RP magnitude          : 10.066
BP magnitude          : 11.430
DUPflag              : 0
Distance (au)         : 4.257
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.94
Sun-Target sep (deg)  : 170.66
Sun-Moon sep (deg)   : 175.79
B (ring opening deg) : 1.13
PA of pole (deg)     : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation ("): 9.531
C/A sky separation (km): 29429.9
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

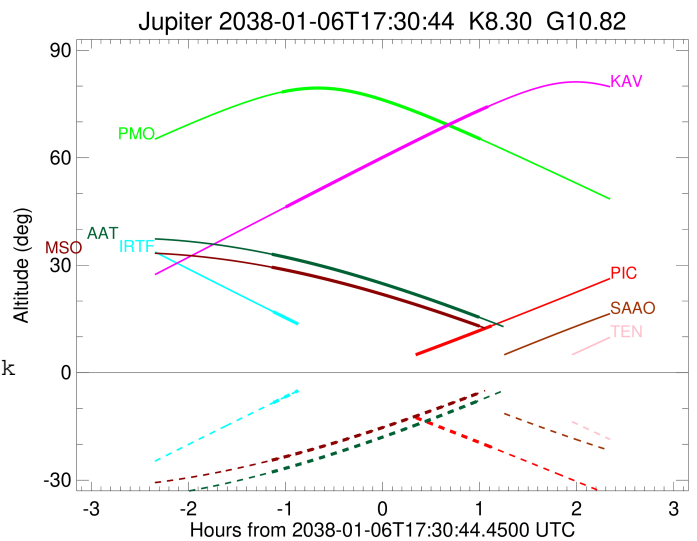
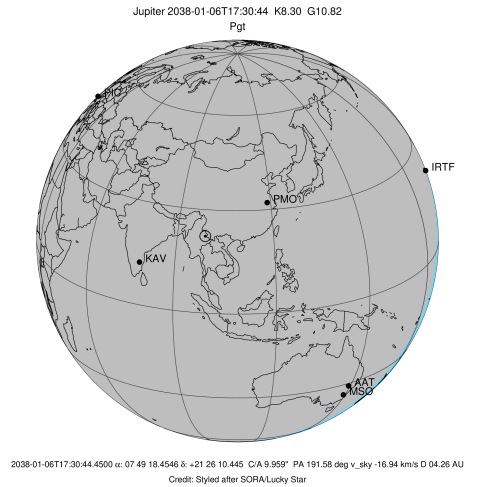


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:30:51.661	46.23	-55.34	71491.7	23.81	26.74
Jupiter	E	2038-01-06T18:36:00.078	74.29	-79.49	71491.7	24.97	27.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-06T17:26:15.790
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 8.298
G magnitude           : 10.815
RP magnitude         : 10.066
BP magnitude         : 11.430
DUPflag              : 0
Distance (au)        : 4.257
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.94
Sun-Target sep (deg) : 170.66
Sun-Moon sep (deg)   : 174.73
B (ring opening deg) : 1.13
PA of pole (deg)     : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation (") : 8.719
C/A sky separation (km) : 26923.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

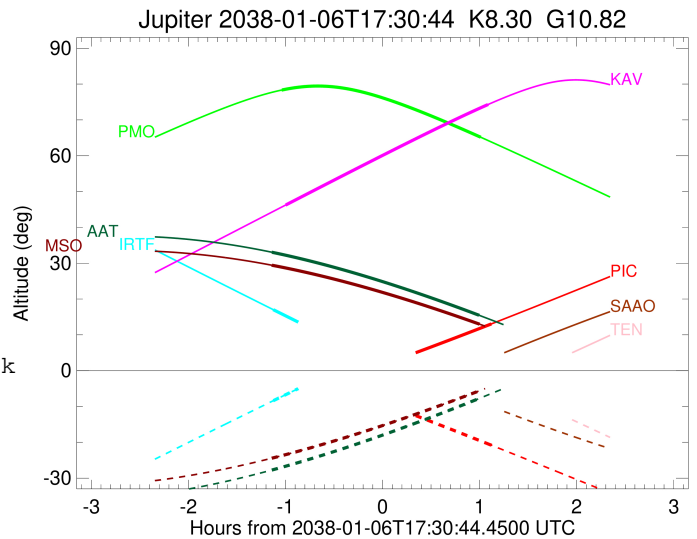
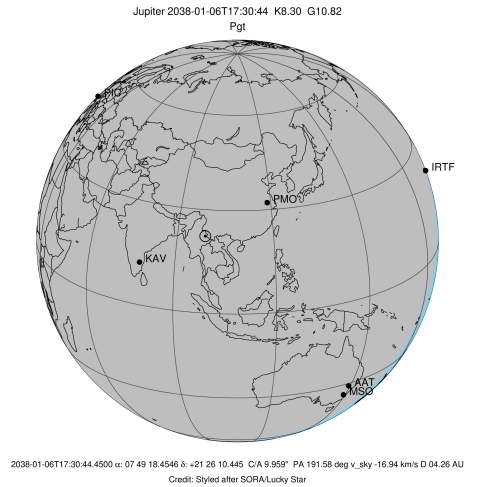


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:22:19.530	33.06	-27.74	71491.8	21.08	23.76
Jupiter	E	2038-01-06T18:30:28.305	15.46	-7.76	71491.7	23.22	26.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-06T17:26:22.310
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)        : -35.32000
E. Longitude (deg)    : 149.00833
Altitude (km)         : 0.770
Gaia source ID        : 674462353991820928
2Mass ID (if available) : 07491846+2126105
ICRS Star Coord at Epoch: 07h 49m 18.45464s +21:26:10.44466s
RUWE (>1.4 is poor)  : 0.92
K magnitude           : 8.298
G magnitude           : 10.815
RP magnitude          : 10.066
BP magnitude          : 11.430
DUPflag              : 0
Distance (au)         : 4.257
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.94
Sun-Target sep (deg)  : 170.66
Sun-Moon sep (deg)    : 174.74
B (ring opening deg)  : 1.13
PA of pole (deg)      : 12.16
Pole direction: RA (deg): 268.05622
Dec (deg): 64.49690
C/A sky separation (") : 8.620
C/A sky separation (km) : 26616.9
NAIF SPICE kernels    : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
urall6.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-06T16:22:15.673	29.44	-24.44	71491.8	20.83	23.49
Jupiter	E	2038-01-06T18:30:44.519	12.98	-5.60	71491.7	22.93	25.78