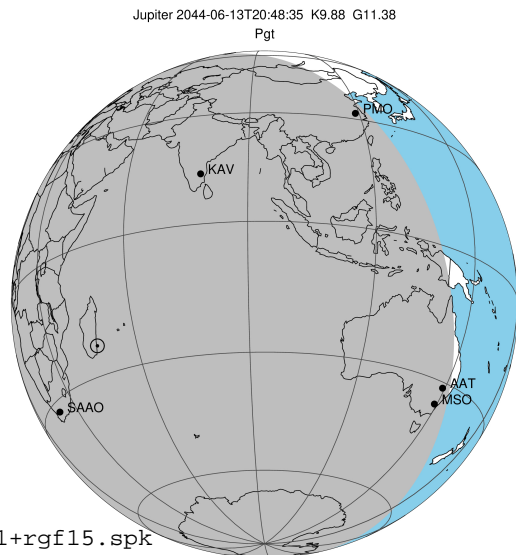


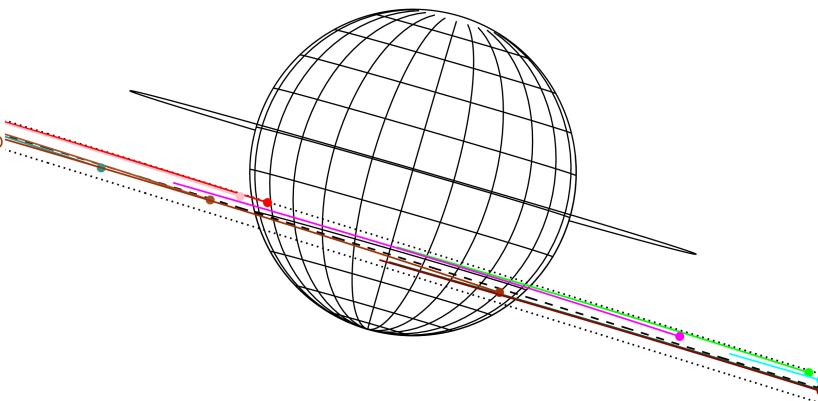
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2044-06-13T20:48:35.700
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6859788552469380864
 2Mass ID (if available) : 20324119-1918015

Jupiter 2044-06-13T20:48:35 K9.88 G11.38 Pgt

ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
 RUWE (>1.4 is poor) : 1.17
 K magnitude : 9.876
 G magnitude : 11.380
 RP magnitude : 10.836
 BP magnitude : 11.732
 DUPflag : 0
 Distance (au) : 4.347
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -8.22
 Sun-Target sep (deg) : 137.17
 Sun-Moon sep (deg) : 8.18
 B (ring opening deg) : -0.71
 PA of pole (deg) : -16.11
 Pole direction: RA (deg): 268.05687
 Dec (deg): 64.49728
 C/A sky separation (") : 11.833
 C/A sky separation (km) : 37302.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



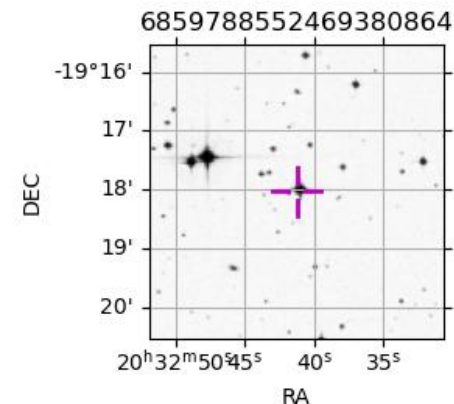
Earth
 PIC
 PMO
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2044-06-13T20:48:35.7000 α: 20 32 41.2892 δ: -19 18 02.358 C/A ***** PA 342.73 deg v_sky - 8.22 km/s D 04.35 AU
 Credit: Styled after SORA/Lucky Star

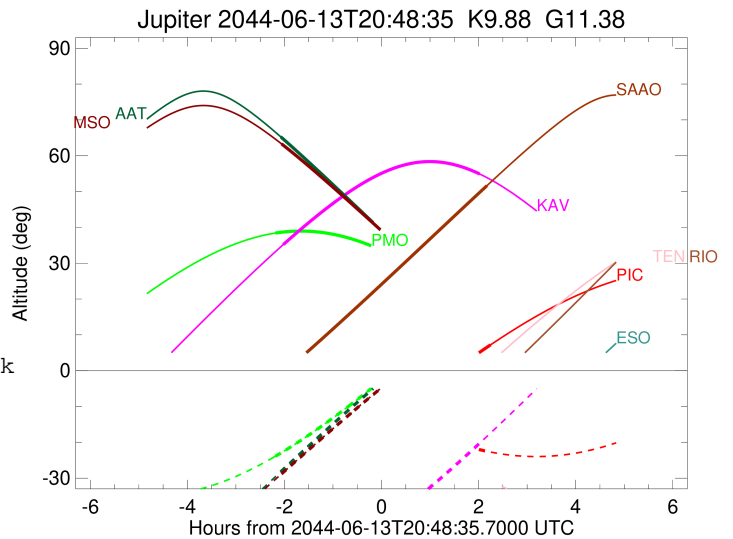
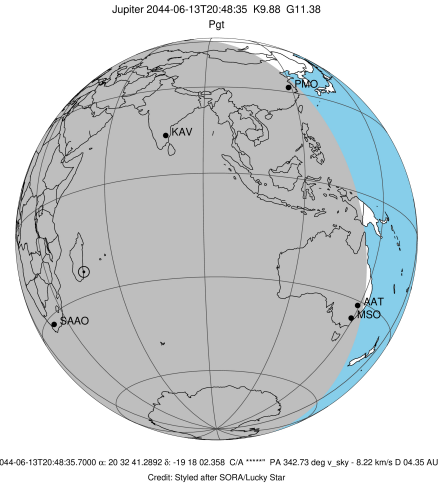
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JUN 13 23:03 - JUN 13 23:03	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 13 18:37 - JUN 13 18:37	Pin
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			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 13 18:47 - JUN 13 22:50	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	+	JUN 13 18:43 - JUN 13 18:43	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 13 22:59 - JUN 13 22:59	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 13 18:44 - JUN 13 18:44	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T20:56:03.020
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       : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 9.876
G magnitude           : 11.380
RP magnitude          : 10.836
BP magnitude          : 11.732
DUPflag              : 0
Distance (au)        : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.22
Sun-Target sep (deg) : 137.17
Sun-Moon sep (deg)   : 8.00
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 10.167
C/A sky separation (km) : 32051.1
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
    
```

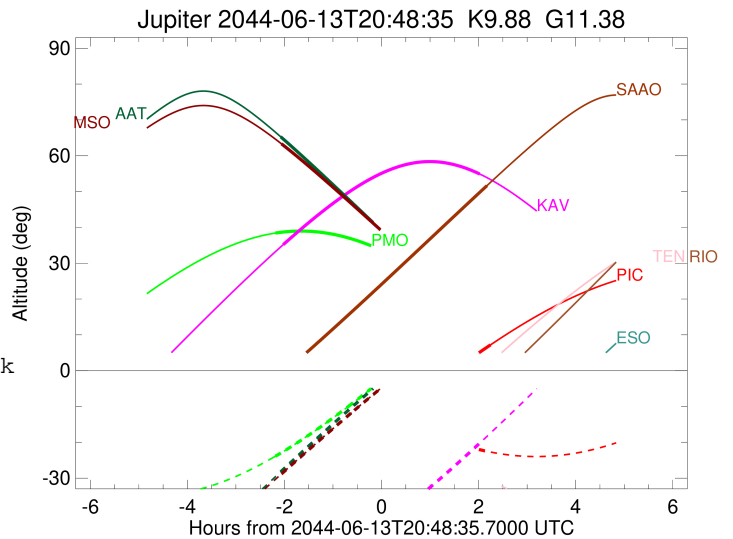
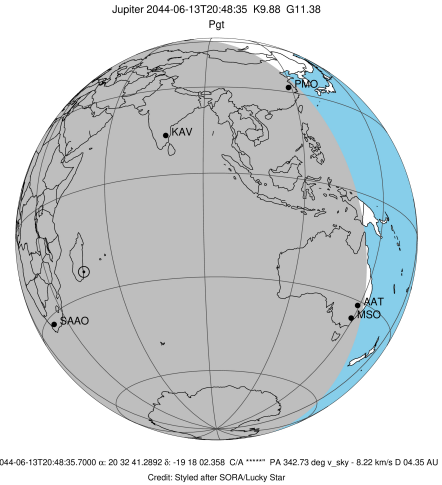


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T18:45:19.341	-38.06x	7.74x	71491.8	-28.73	-32.02
Jupiter	E	2044-06-13T23:03:26.144	7.21	-22.72	71491.9	-24.95	-27.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T20:40:20.420
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      : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor) : 1.17
K magnitude          : 9.876
G magnitude          : 11.380
RP magnitude         : 10.836
BP magnitude         : 11.732
DUPflag             : 0
Distance (au)       : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.22
Sun-Target sep (deg) : 137.17
Sun-Moon sep (deg)  : 8.92
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 10.578
C/A sky separation (km) : 33348.3
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
    
```

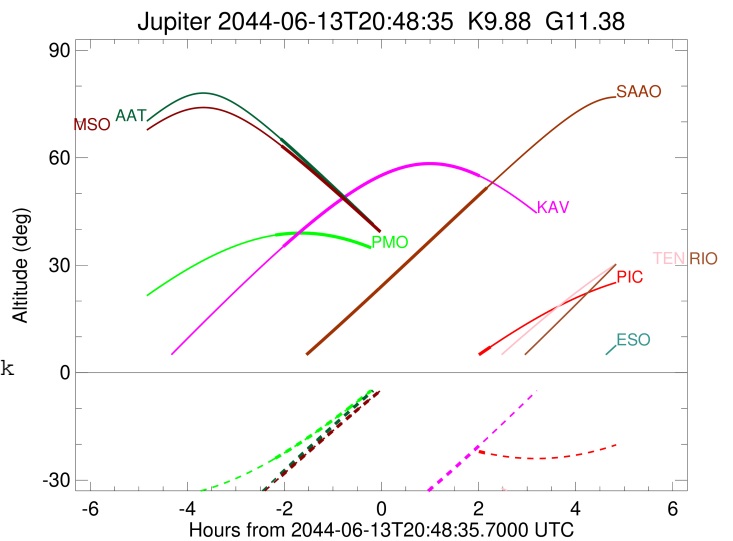
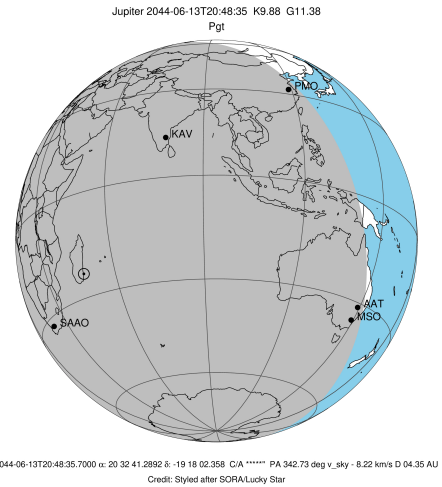


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T18:37:29.032	38.41	-23.88	71491.8	-28.09	-31.34
Jupiter	E	2044-06-13T22:44:16.760	17.35	19.99x	71491.9	-27.78	-31.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T20:48:56.770
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        : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor)  : 1.17
K magnitude           : 9.876
G magnitude           : 11.380
RP magnitude          : 10.836
BP magnitude          : 11.732
DUPflag              : 0
Distance (au)         : 4.347
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -8.22
Sun-Target sep (deg)  : 137.17
Sun-Moon sep (deg)    : 8.40
B (ring opening deg)  : -0.71
PA of pole (deg)      : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 10.689
C/A sky separation (km) : 33697.7
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
    
```

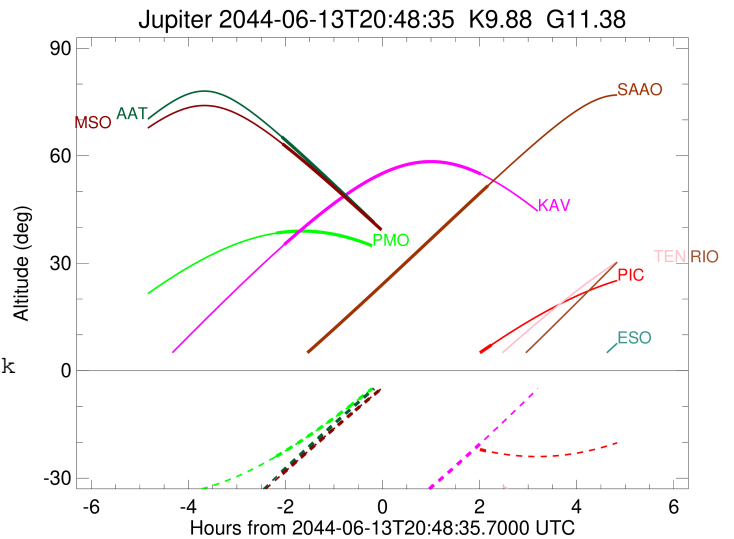
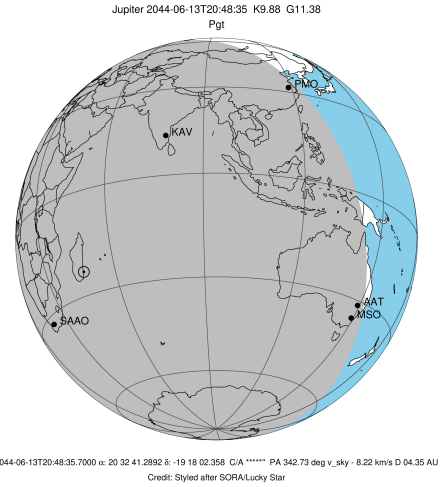


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T18:47:03.177	35.16	-54.23	71491.8	-28.98	-32.29
Jupiter	E	2044-06-13T22:49:59.925	54.89	-20.23	71491.8	-27.86	-31.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T20:39:43.480
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       : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 9.876
G magnitude           : 11.380
RP magnitude          : 10.836
BP magnitude          : 11.732
DUPflag              : 0
Distance (au)        : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.22
Sun-Target sep (deg) : 137.17
Sun-Moon sep (deg)   : 8.61
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 12.866
C/A sky separation (km) : 40560.0
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
    
```

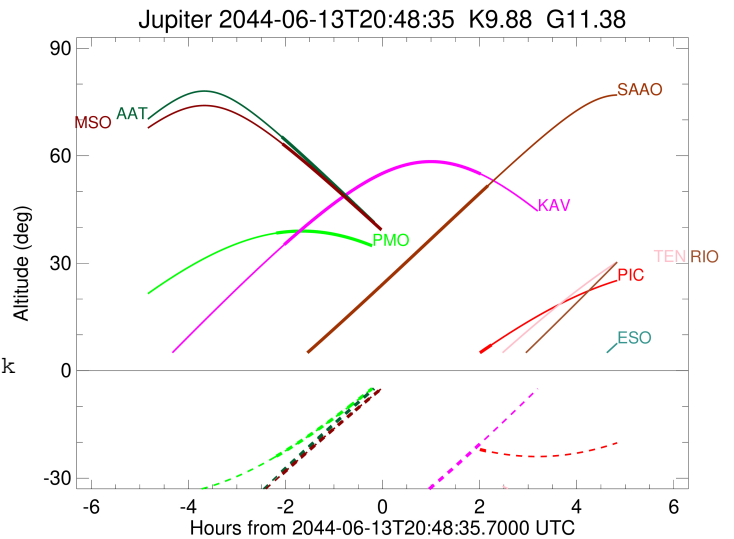
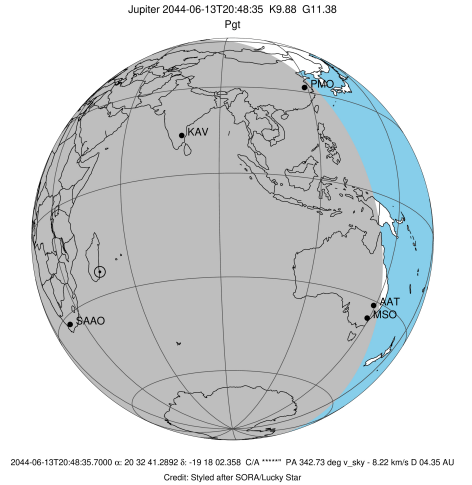


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T18:43:57.059	65.29	-28.25	71491.8	-34.59	-38.17
Jupiter	E	2044-06-13T22:37:32.429	15.92	16.51x	71491.8	-34.50	-38.08

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T21:00:40.740
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : SAAO
Location            : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)      : -32.37953
E. Longitude (deg)  : 20.81070
Altitude (km)       : 1.768
Gaia source ID      : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor) : 1.17
K magnitude          : 9.876
G magnitude          : 11.380
RP magnitude         : 10.836
BP magnitude         : 11.732
DUPflag             : 0
Distance (au)       : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.22
Sun-Target sep (deg) : 137.17
Sun-Moon sep (deg)  : 7.42
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation ("): 12.139
C/A sky separation (km): 38266.0
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
    
```

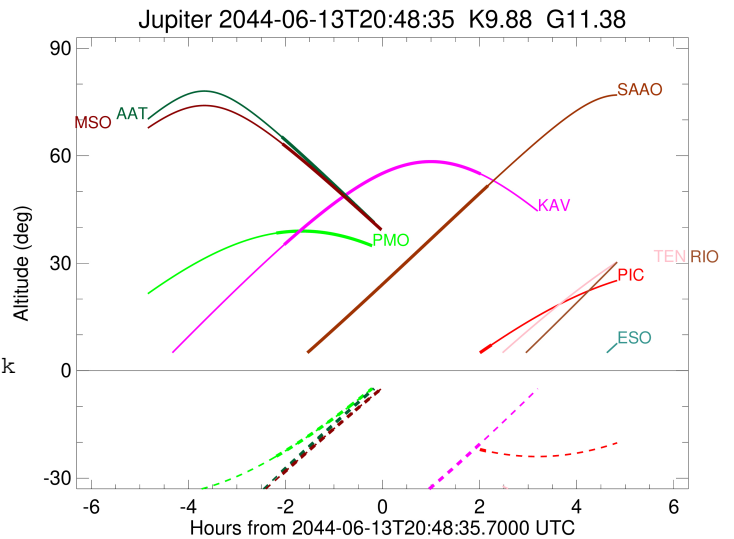
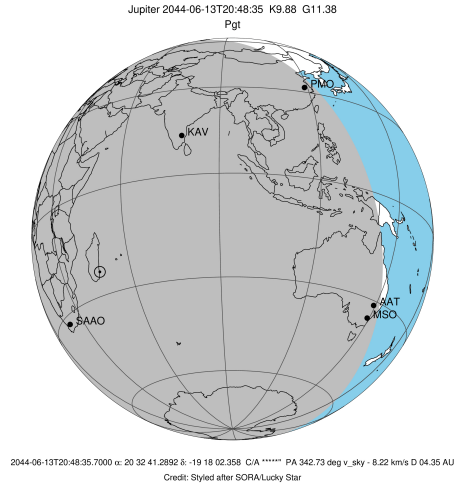


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T18:59:24.338	1.75x	-41.54	71491.8	-34.30	-37.87
Jupiter	E	2044-06-13T22:59:02.096	51.66	-79.84	71491.8	-30.98	-34.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T20:40:24.100
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        : 6859788552469380864
2Mass ID (if available) : 20324119-1918015
ICRS Star Coord at Epoch: 20h 32m 41.28919s -19:18:02.35839s
RUWE (>1.4 is poor)  : 1.17
K magnitude           : 9.876
G magnitude           : 11.380
RP magnitude          : 10.836
BP magnitude          : 11.732
DUPflag              : 0
Distance (au)         : 4.347
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -8.22
Sun-Target sep (deg)  : 137.17
Sun-Moon sep (deg)    : 8.55
B (ring opening deg)  : -0.71
PA of pole (deg)      : -16.11
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 12.970
C/A sky separation (km) : 40888.5
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	2044-06-13T18:44:53.963	63.33	-28.83	71491.8	-34.96	-38.55
Jupiter	E	2044-06-13T22:37:49.958	16.78	13.83x	71491.8	-34.77	-38.36