

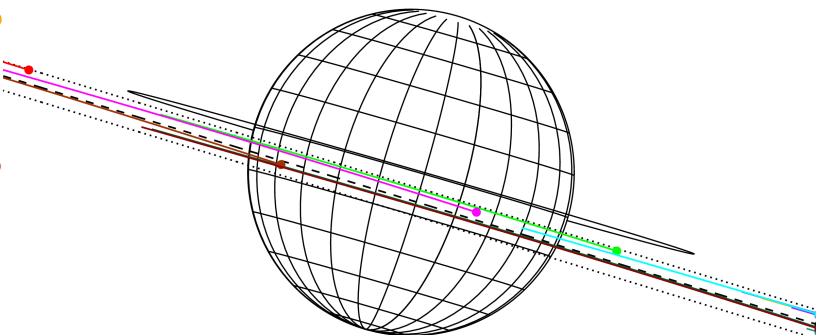
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2044-06-15T17:11:35.150  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 6859970079261726208  
 2Mass ID (if available) : 20321186-1920021

Jupiter 2044-06-15T17:11:35 K7.32 G9.76 Pgt

ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s  
 RUWE (>1.4 is poor) : 3.39  
 K magnitude : 7.321  
 G magnitude : 9.762  
 RP magnitude : 9.015  
 BP magnitude : 10.365  
 DUPflag : 0  
 Distance (au) : 4.327  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -8.86  
 Sun-Target sep (deg) : 139.06  
 Sun-Moon sep (deg) : 14.78  
 B (ring opening deg) : -0.71  
 PA of pole (deg) : -16.07  
 Pole direction: RA (deg): 268.05687  
 Dec (deg): 64.49728  
 C/A sky separation (") : 3.717  
 C/A sky separation (km) : 11664.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



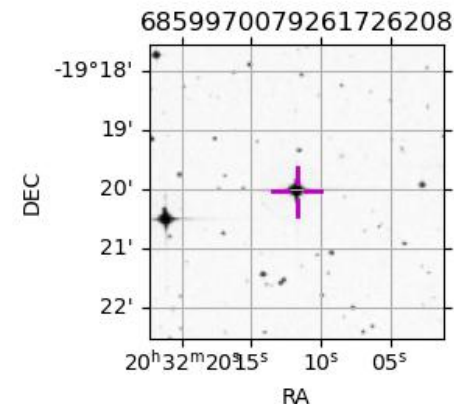
Earth  
 PIC  
 PAL  
 PMO  
 KPNO  
 MCD  
 IRTF  
 KAV  
 ESO  
 AAT  
 SAAO  
 MSO



2044-06-15T17:11:35.1500 a: 20 32 11.8239 s: -19 20 02.288 C/A 3.723° PA 343.02 deg v\_sky - 8.86 km/s D 04.33 AU  
 Credit: Styled after SORA/Lucky Star

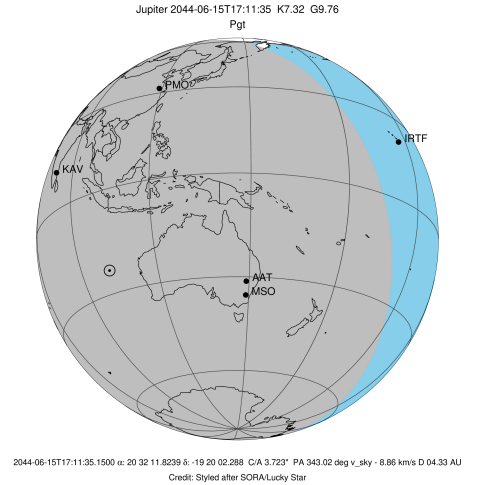
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUN 15 15:03 - JUN 15 19:21	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	+	JUN 15 14:51 - JUN 15 14:51	Pin
KAV	Kavalur Observatory	12.6	78.8	+	JUN 15 19:29 - JUN 15 19:29	Pne
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 15 15:04 - JUN 15 19:18	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 15 19:34 - JUN 15 19:34	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 15 15:04 - JUN 15 19:18	Pie

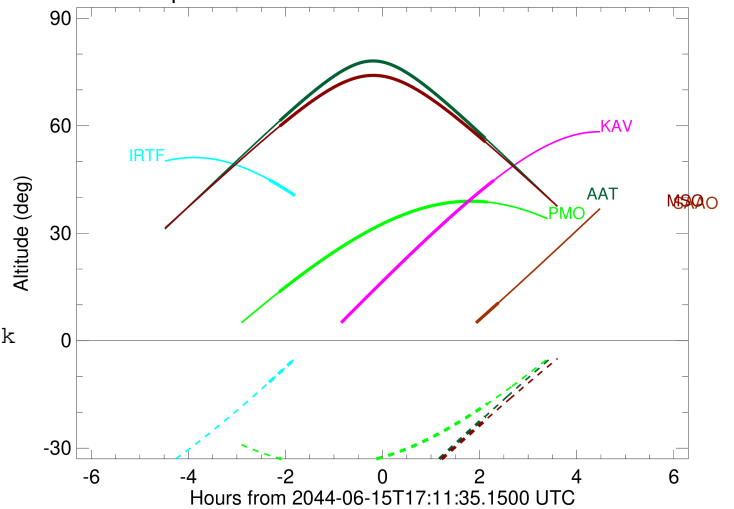


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-15T17:13:16.350
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude           : 7.321
G magnitude           : 9.762
RP magnitude         : 9.015
BP magnitude         : 10.365
DUPflag              : 0
Distance (au)        : 4.327
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)   : 15.17
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 2.036
C/A sky separation (km) : 6389.1
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
    
```



Jupiter 2044-06-15T17:11:35 K7.32 G9.76

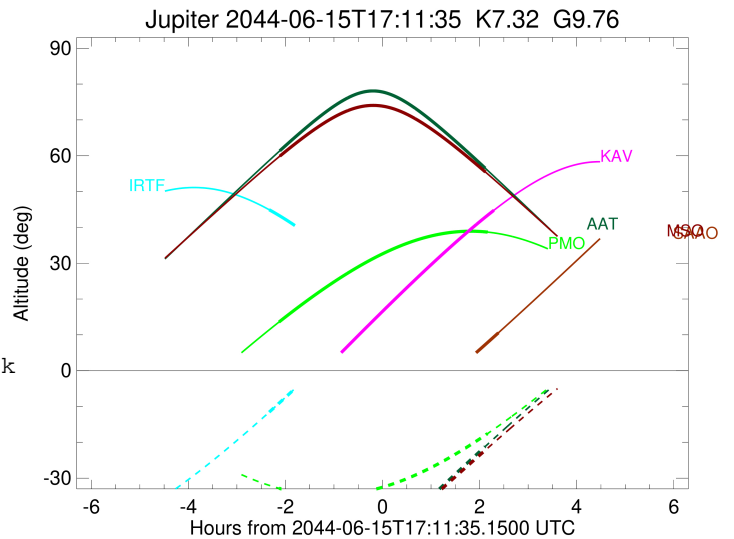
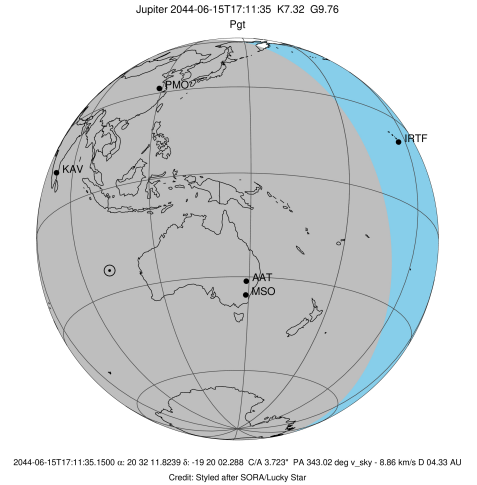


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-15T15:03:33.950	13.56	-32.82	71492.0	-6.04	-6.90
Jupiter	E	2044-06-15T19:21:31.464	38.67	-17.56	71492.0	-4.78	-5.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-15T17:00:32.280
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        : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude           : 7.321
G magnitude           : 9.762
RP magnitude          : 9.015
BP magnitude          : 10.365
DUPflag              : 0
Distance (au)         : 4.327
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)   : 14.10
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 3.227
C/A sky separation (km) : 10126.1
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
    
```

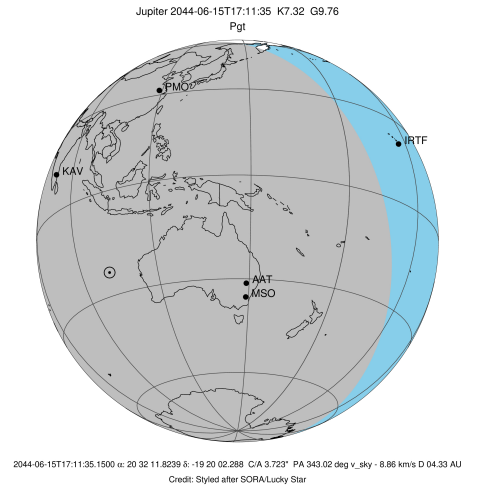


x: target alt < 5.0 deg or sun > -5.0 deg

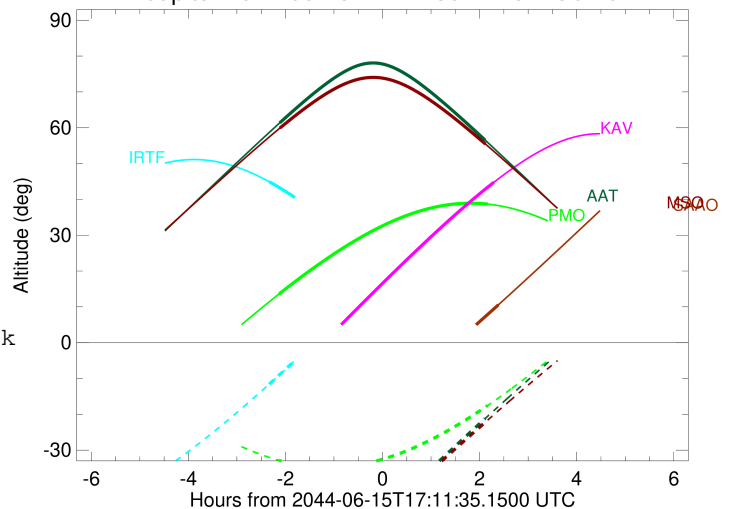
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-15T14:51:29.292	44.92	-11.58	71492.0	-7.90	-9.02
Jupiter	E	2044-06-15T19:12:10.529	-5.14x	45.76x	71492.0	-8.31	-9.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-15T17:20:38.530
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      : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude          : 7.321
G magnitude          : 9.762
RP magnitude         : 9.015
BP magnitude         : 10.365
DUPflag             : 0
Distance (au)       : 4.327
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)  : 15.60
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 2.526
C/A sky separation (km) : 7927.2
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
    
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Jupiter 2044-06-15T17:11:35 K7.32 G9.76

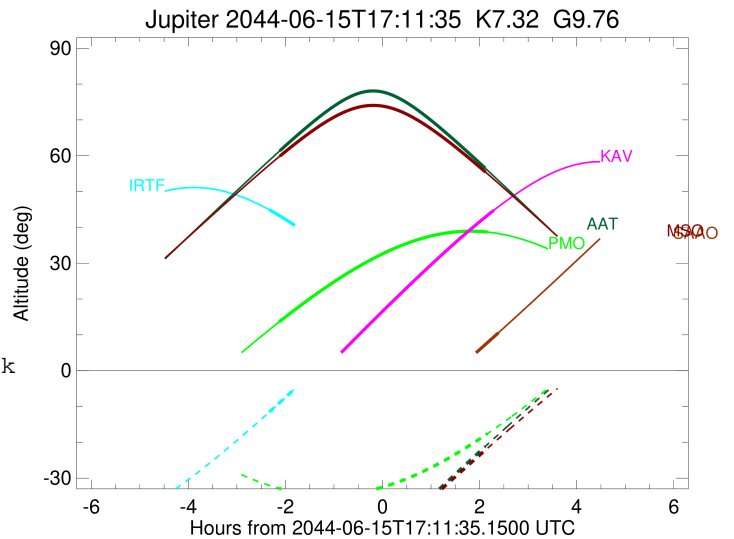
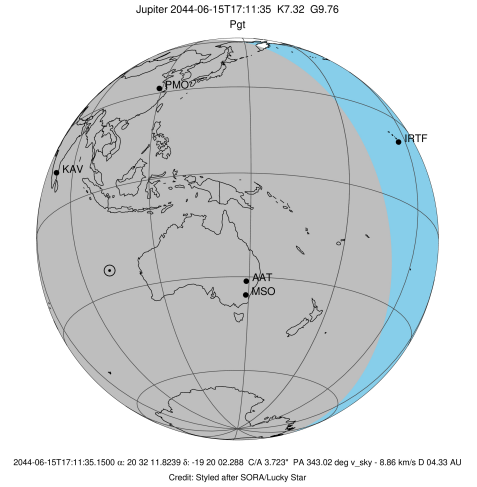


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-15T15:08:29.868	-11.66x	-26.01	71492.0	-8.05	-9.18
Jupiter	E	2044-06-15T19:29:22.581	44.78	-52.57	71492.0	-5.34	-6.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-15T17:11:29.660
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       : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude           : 7.321
G magnitude           : 9.762
RP magnitude          : 9.015
BP magnitude          : 10.365
DUPflag              : 0
Distance (au)        : 4.327
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)   : 15.00
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 4.145
C/A sky separation (km) : 13008.0
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
    
```

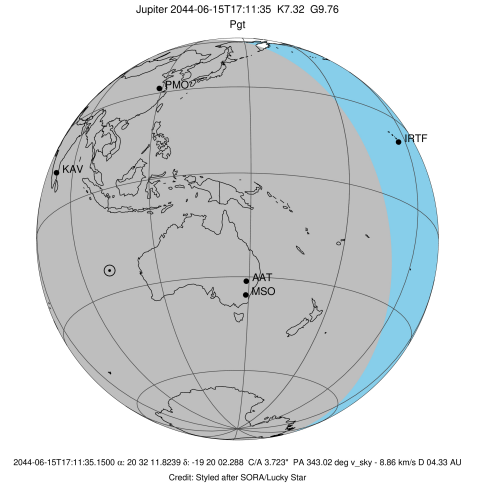


x: target alt < 5.0 deg or sun > -5.0 deg

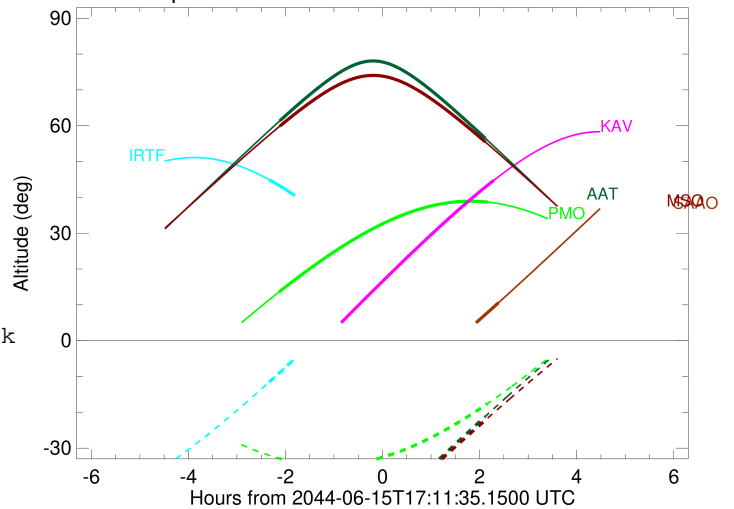
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-15T15:04:33.290	61.35	-74.56	71492.0	-10.87	-12.38
Jupiter	E	2044-06-15T19:18:29.894	56.53	-21.18	71492.0	-10.51	-11.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-15T17:22:34.670
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        : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude           : 7.321
G magnitude           : 9.762
RP magnitude          : 9.015
BP magnitude          : 10.365
DUPflag              : 0
Distance (au)         : 4.327
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)   : 15.40
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation ("): 4.557
C/A sky separation (km): 14301.0
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
    
```



Jupiter 2044-06-15T17:11:35 K7.32 G9.76

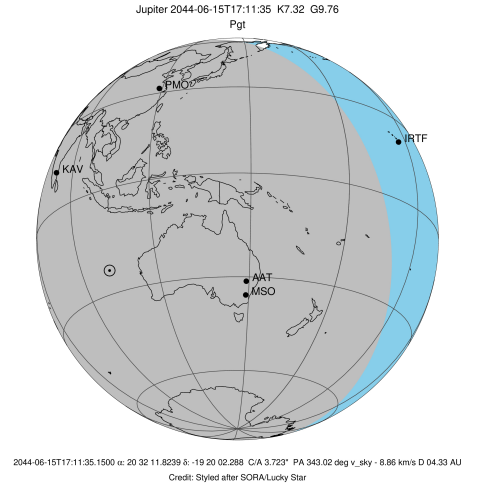


x: target alt < 5.0 deg or sun > -5.0 deg

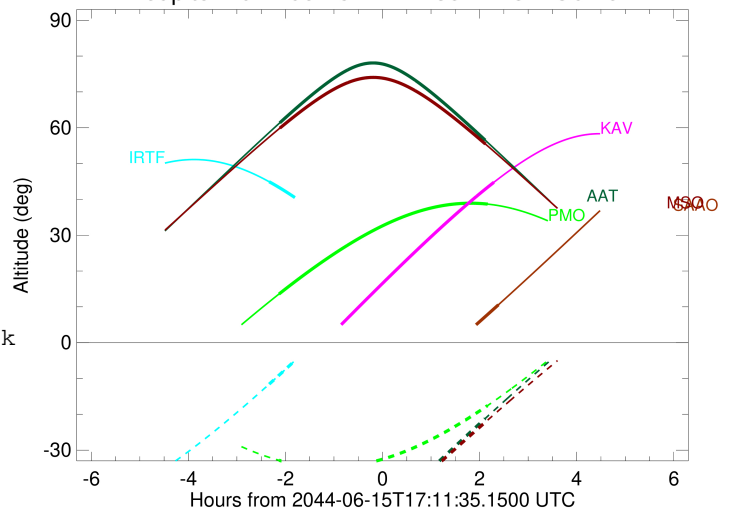
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-15T15:06:44.066	-33.95x	5.05x	71492.0	-13.56	-15.41
Jupiter	E	2044-06-15T19:34:57.486	10.59	-48.99	71492.0	-9.67	-11.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-15T17:11:45.660
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      : 6859970079261726208
2Mass ID (if available) : 20321186-1920021
ICRS Star Coord at Epoch: 20h 32m 11.82391s -19:20:02.28752s
RUWE (>1.4 is poor) : 3.39
K magnitude          : 7.321
G magnitude          : 9.762
RP magnitude         : 9.015
BP magnitude         : 10.365
DUPflag             : 0
Distance (au)       : 4.327
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.86
Sun-Target sep (deg) : 139.06
Sun-Moon sep (deg)  : 15.01
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.07
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 4.276
C/A sky separation (km) : 13419.8
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
    
```



Jupiter 2044-06-15T17:11:35 K7.32 G9.76



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	2044-06-15T15:04:43.657	59.89	-72.40	71492.0	-11.23	-12.79
Jupiter	E	2044-06-15T19:18:50.435	55.44	-22.16	71492.0	-10.80	-12.30