

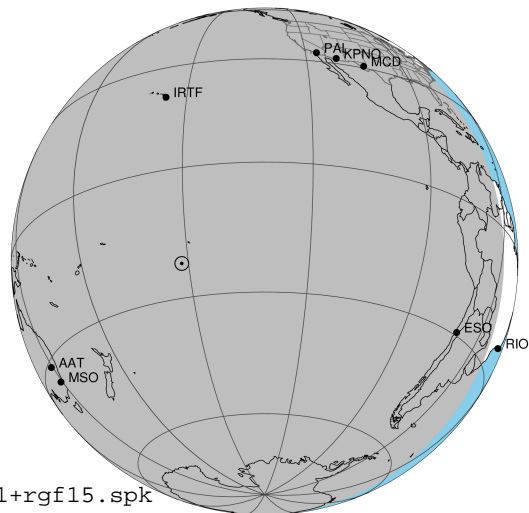
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-02T10:04:49.820
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069247935458745856
 2Mass ID (if available) : 18011216-2303007

Jupiter 2043-06-02T10:04:49 K7.75 G12.74 Pgt

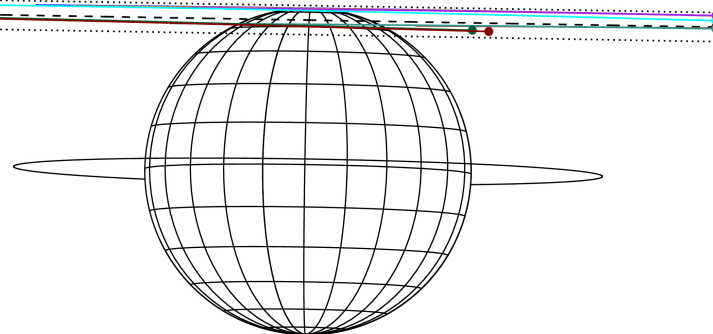
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23°03'00.92489s

RUWE (>1.4 is poor) : 0.89
 K magnitude : 7.745
 G magnitude : 12.735
 RP magnitude : 11.502
 BP magnitude : 14.429
 DUPflag : 0
 Distance (au) : 4.304
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.78
 Sun-Target sep (deg) : 160.92
 Sun-Moon sep (deg) : 91.44
 B (ring opening deg) : -2.44
 PA of pole (deg) : -0.97
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 21.243
 C/A sky separation (km) : 66307.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-02T10:04:49 K7.75 G12.74 Pgt



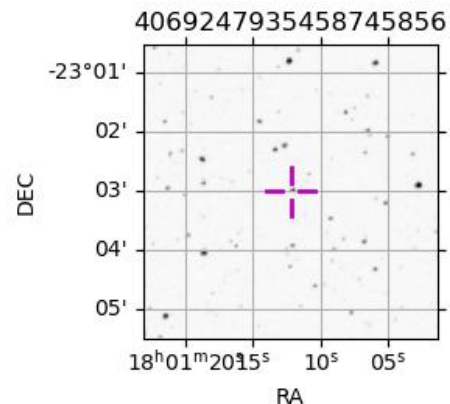
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 RIO
 ESO
 AAT
 MSO



2043-06-02T10:04:49.8200 a: 18 01 12.1832 s: -23 03 00.925 C/A ***** PA 179.02 deg v_sky -14.78 km/s D 04.30 AU
 Credit: Styled after SORA/Lucky Star

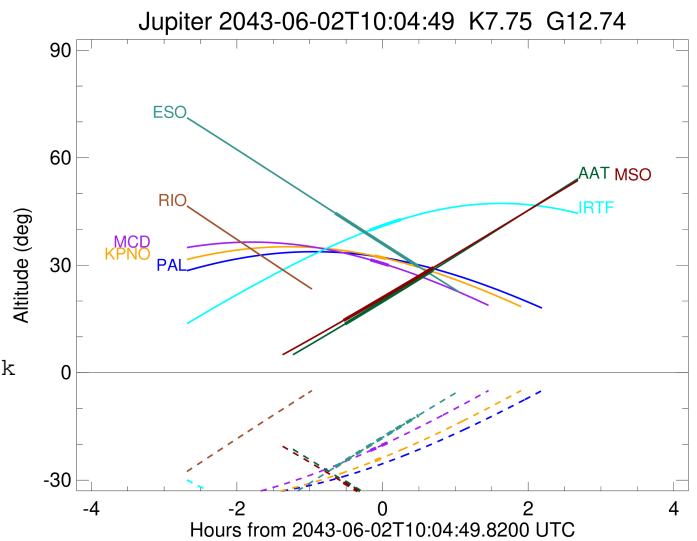
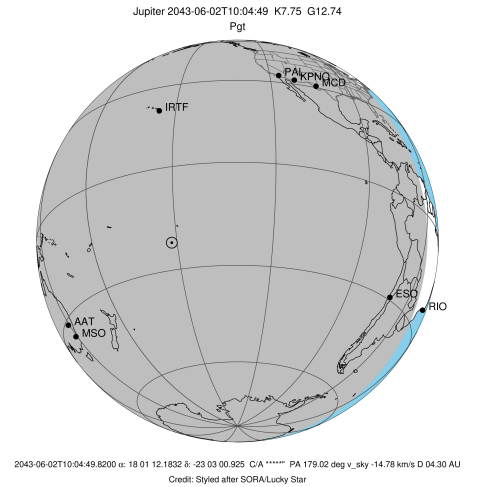
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 02 09:58 - JUN 02 10:07	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 02 09:54 - JUN 02 10:09	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 02 09:54 - JUN 02 10:20	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 02 09:25 - JUN 02 10:34	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 02 09:34 - JUN 02 10:46	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 02 09:32 - JUN 02 10:46	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T10:03:01.710
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 7.745
G magnitude           : 12.735
RP magnitude          : 11.502
BP magnitude          : 14.429
DUPflag              : 0
Distance (au)        : 4.304
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.78
Sun-Target sep (deg) : 160.92
Sun-Moon sep (deg)   : 91.97
B (ring opening deg) : -2.44
PA of pole (deg)     : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 22.863
C/A sky separation (km) : 71364.3
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
    
```

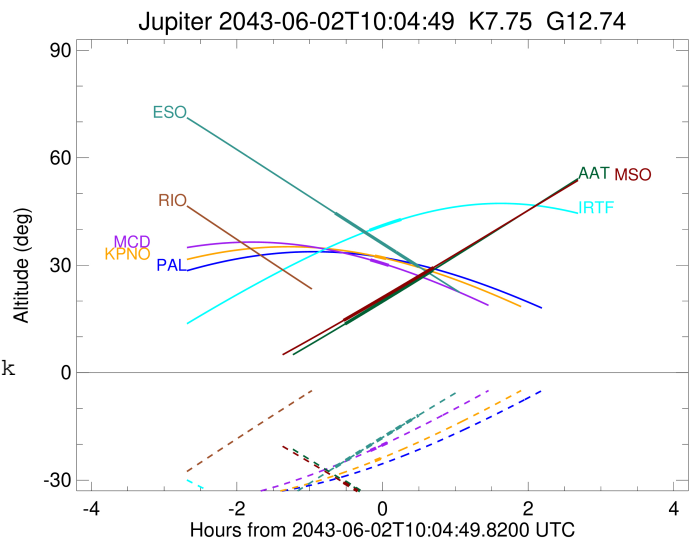
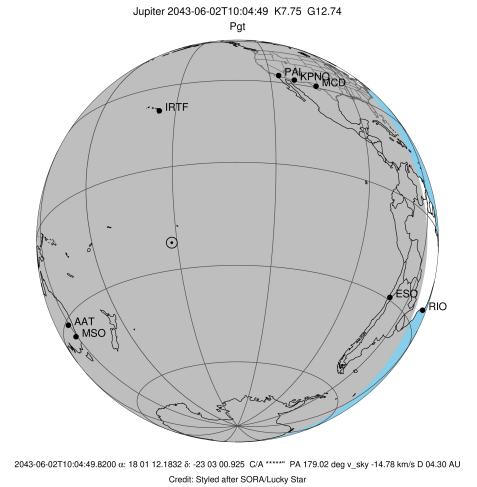


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T09:58:28.508	32.55	-24.62	71484.0	86.05	86.52
Jupiter	E	2043-06-02T10:07:34.951	31.87	-23.37	71484.0	85.72	86.22

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T10:02:22.080
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MCD
Location            : McDonald Obs. 2.7m
Latitude (deg)      : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)       : 2.075
Gaia source ID      : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor) : 0.89
K magnitude         : 7.745
G magnitude         : 12.735
RP magnitude        : 11.502
BP magnitude        : 14.429
DUPflag            : 0
Distance (au)       : 4.304
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.78
Sun-Target sep (deg) : 160.92
Sun-Moon sep (deg)  : 91.95
B (ring opening deg) : -2.44
PA of pole (deg)    : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 22.796
C/A sky separation (km) : 71157.6
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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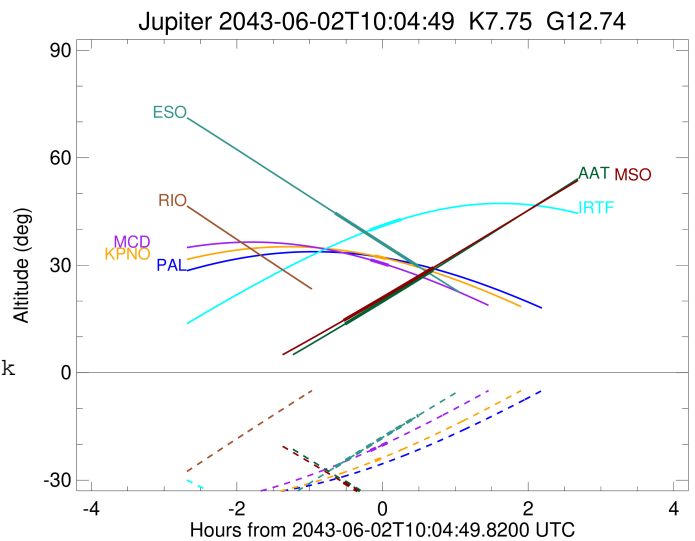
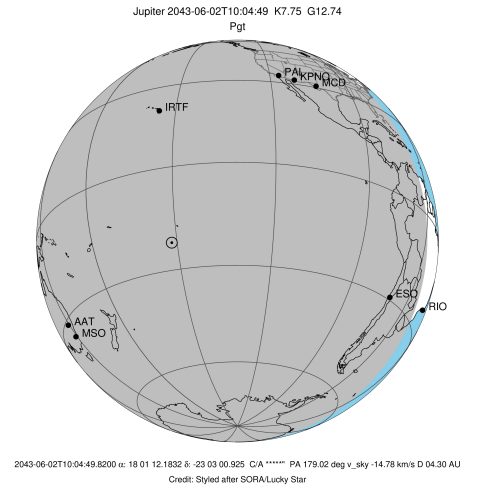


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T09:54:50.811	31.50	-21.74	71484.0	84.26	84.93
Jupiter	E	2043-06-02T10:09:53.492	29.95	-19.39	71484.0	83.74	84.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T10:07:08.920
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      : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor) : 0.89
K magnitude          : 7.745
G magnitude          : 12.735
RP magnitude         : 11.502
BP magnitude         : 14.429
DUPflag             : 0
Distance (au)       : 4.304
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.78
Sun-Target sep (deg) : 160.92
Sun-Moon sep (deg)  : 92.07
B (ring opening deg) : -2.44
PA of pole (deg)    : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 22.583
C/A sky separation (km) : 70489.9
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
    
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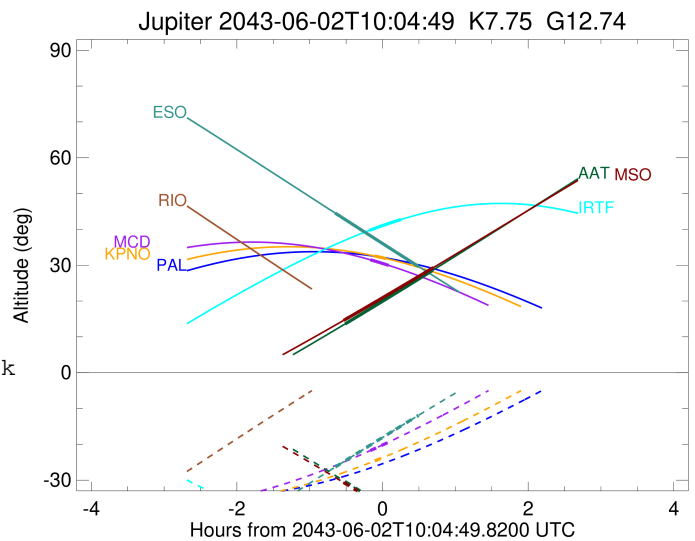
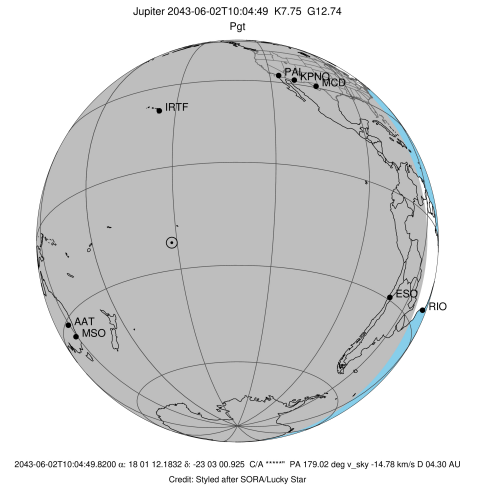


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T09:54:04.849	39.72	-47.63	71484.2	79.88	81.06
Jupiter	E	2043-06-02T10:20:12.420	42.76	-48.10	71484.2	80.35	81.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T10:00:09.990
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : ESO
Location            : European Southern Obs. (3.6m)
Latitude (deg)      : -29.26097
E. Longitude (deg)  : 289.26831
Altitude (km)       : 2.400
Gaia source ID      : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor) : 0.89
K magnitude          : 7.745
G magnitude          : 12.735
RP magnitude         : 11.502
BP magnitude         : 14.429
DUPflag             : 0
Distance (au)       : 4.304
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.78
Sun-Target sep (deg) : 160.92
Sun-Moon sep (deg)  : 92.05
B (ring opening deg) : -2.44
PA of pole (deg)    : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 20.655
C/A sky separation (km): 64472.8
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
    
```

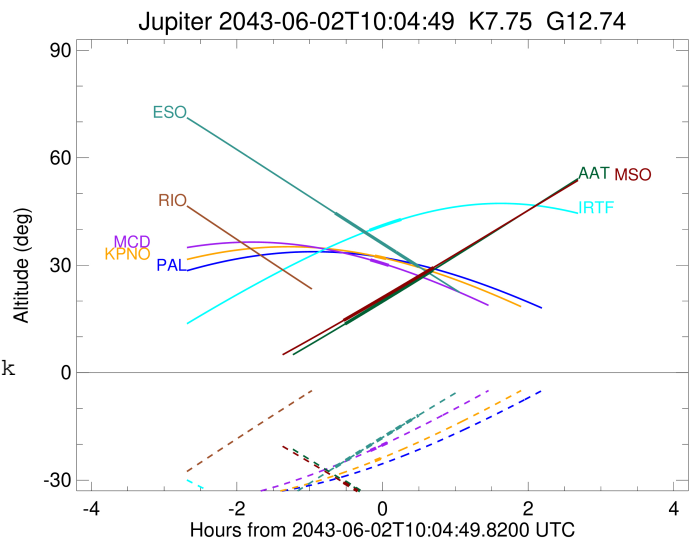
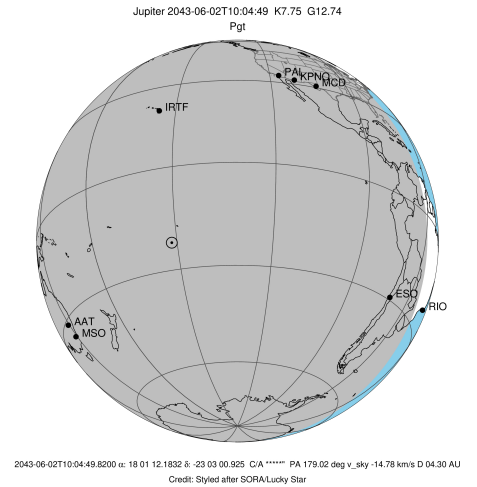


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T09:25:51.449	44.54	-26.35	71485.4	64.80	67.49
Jupiter	E	2043-06-02T10:34:34.929	29.64	-11.89	71485.5	63.76	66.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T10:10:11.480
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        : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor)  : 0.89
K magnitude           : 7.745
G magnitude           : 12.735
RP magnitude          : 11.502
BP magnitude          : 14.429
DUPflag              : 0
Distance (au)         : 4.304
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -14.78
Sun-Target sep (deg)  : 160.92
Sun-Moon sep (deg)    : 91.75
B (ring opening deg)  : -2.44
PA of pole (deg)      : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 20.446
C/A sky separation (km) : 63821.7
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
    
```

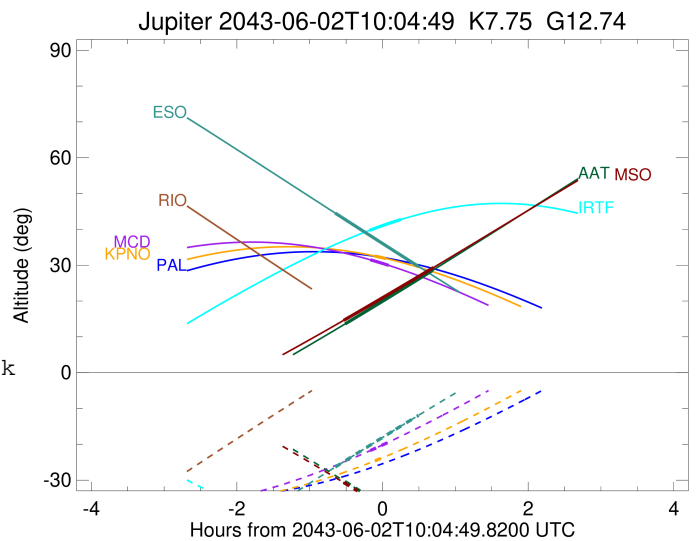
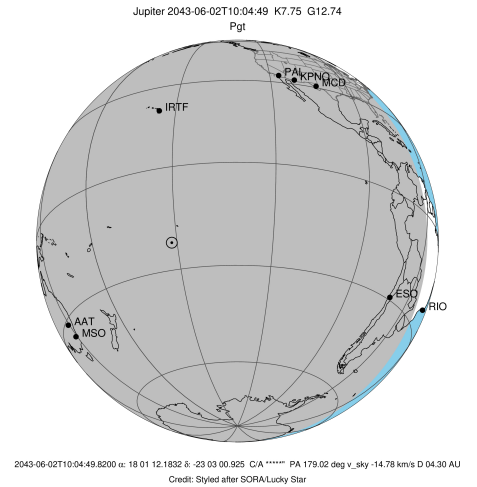


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T09:33:59.906	13.60	-30.40	71485.6	62.52	65.40
Jupiter	E	2043-06-02T10:46:13.849	28.57	-45.79	71485.5	63.70	66.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T10:09:58.010
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       : 4069247935458745856
2Mass ID (if available) : 18011216-2303007
ICRS Star Coord at Epoch: 18h 01m 12.18315s -23:03:00.92489s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 7.745
G magnitude           : 12.735
RP magnitude          : 11.502
BP magnitude          : 14.429
DUPflag              : 0
Distance (au)        : 4.304
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.78
Sun-Target sep (deg) : 160.92
Sun-Moon sep (deg)   : 91.77
B (ring opening deg) : -2.44
PA of pole (deg)     : -0.97
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 20.327
C/A sky separation (km) : 63448.5
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	2043-06-02T09:32:56.726	14.62	-30.69	71485.7	61.89	64.82
Jupiter	E	2043-06-02T10:46:50.067	29.34	-45.77	71485.6	63.02	65.86