

target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-06-01T16:05:59.970  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116567450035344768  
 2Mass ID (if available) : 17395497-2251466

Jupiter 2031-06-01T16:05:59 K7.49 G14.53 Pgt

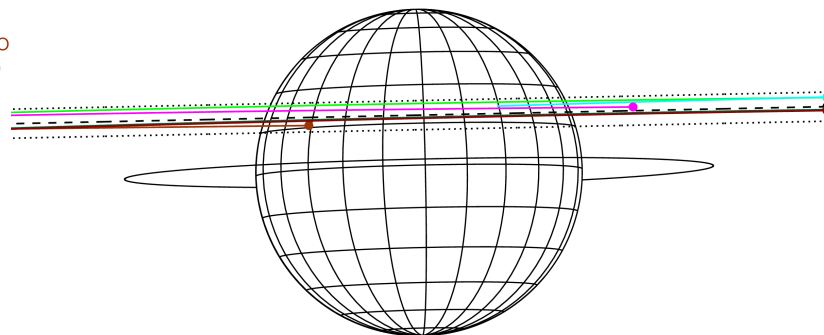
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s

RUWE (>1.4 is poor) : 0.95  
 K magnitude : 7.486  
 G magnitude : 14.526  
 RP magnitude : 12.918  
 BP magnitude : 18.413  
 DUPflag : 0  
 Distance (au) : 4.299  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -15.46  
 Sun-Target sep (deg) : 165.17  
 Sun-Moon sep (deg) : 66.42  
 B (ring opening deg) : -2.61  
 PA of pole (deg) : 1.33  
 Pole direction: RA (deg): 268.05693  
 Dec (deg): 64.49651  
 C/A sky separation (") : 8.056  
 C/A sky separation (km) : 25116.4  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-06-01T16:05:59 K7.49 G14.53  
 Pgt



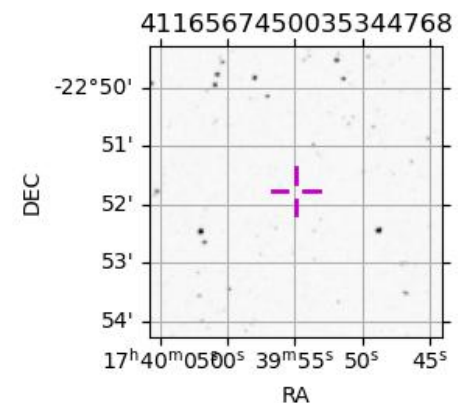
Earth  
 PMO  
 IRTF  
 KAV  
 AAT  
 SAAO  
 MSO



2031-06-01T16:05:59.9700 at: 17 39 54.9741 s: -22 51 46.774 C/A 8.044" PA 181.20 deg v\_sky -15.46 km/s D 04.30 AU  
 Credit: Styled after SORA/Lucky Star

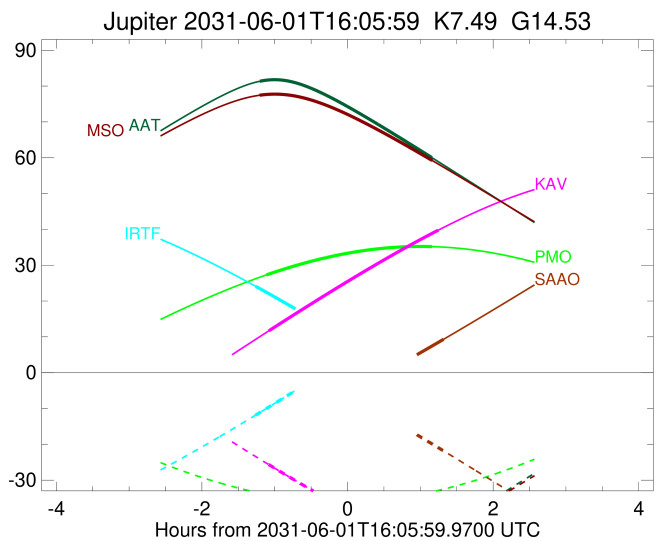
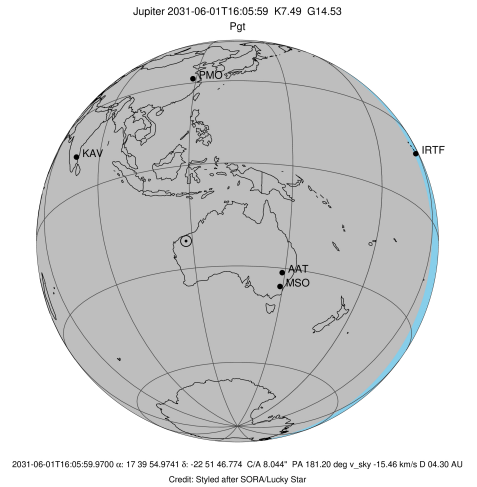
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 01 14:59 - JUN 01 17:15	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 01 14:50 - JUN 01 14:50	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 01 15:01 - JUN 01 17:20	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 01 14:53 - JUN 01 17:15	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 01 17:25 - JUN 01 17:25	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 01 14:53 - JUN 01 17:15	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-01T16:07:29.560
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      : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 7.486
G magnitude          : 14.526
RP magnitude         : 12.918
BP magnitude         : 18.413
DUPflag             : 0
Distance (au)        : 4.299
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)   : 66.84
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 9.696
C/A sky separation (km) : 30226.9
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
    
```

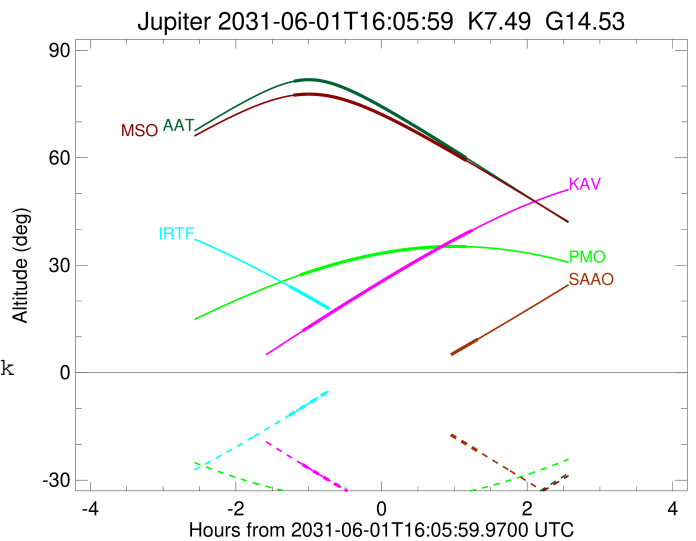
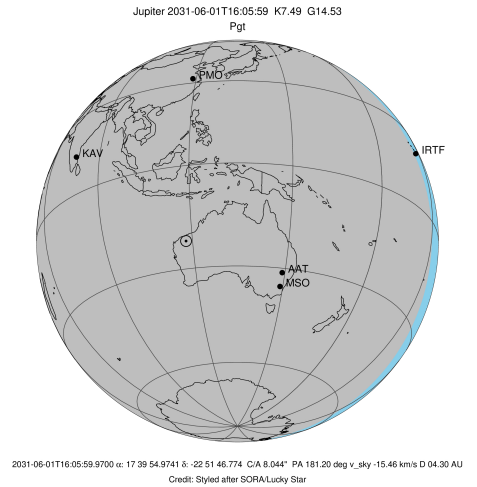


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-01T14:59:11.950	27.29	-33.94	71490.4	24.61	27.61
Jupiter	E	2031-06-01T17:15:37.907	35.18	-33.26	71490.3	25.20	28.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-01T16:00:18.500
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      : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 7.486
G magnitude          : 14.526
RP magnitude         : 12.918
BP magnitude         : 18.413
DUPflag             : 0
Distance (au)       : 4.299
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)  : 66.90
B (ring opening deg) : -2.61
PA of pole (deg)    : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (" ) : 8.991
C/A sky separation (km) : 28031.0
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
    
```

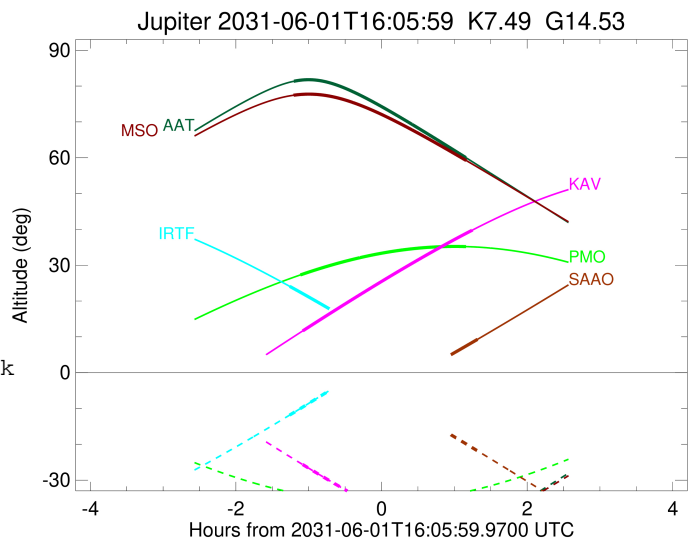
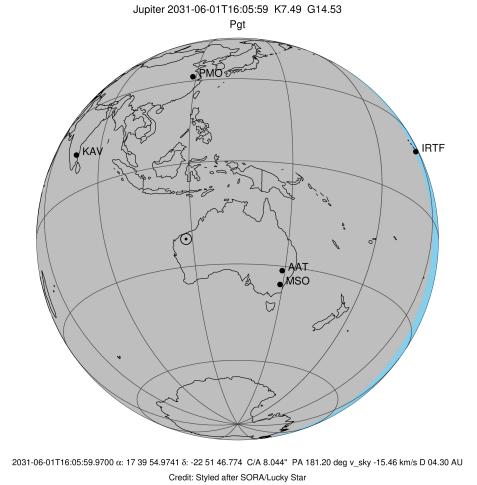


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-01T14:50:22.494	24.09	-11.83	71490.5	23.46	26.35
Jupiter	E	2031-06-01T17:10:45.821	-4.71x	18.62x	71490.6	22.58	25.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-01T16:11:11.440
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      : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude         : 7.486
G magnitude         : 14.526
RP magnitude        : 12.918
BP magnitude        : 18.413
DUPflag            : 0
Distance (au)      : 4.299
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)  : 66.50
B (ring opening deg) : -2.61
PA of pole (deg)    : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (" ) : 8.894
C/A sky separation (km) : 27727.2
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
    
```

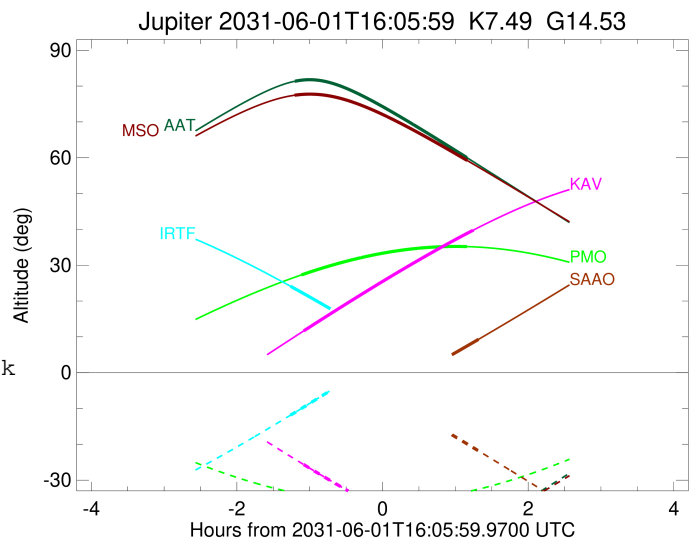
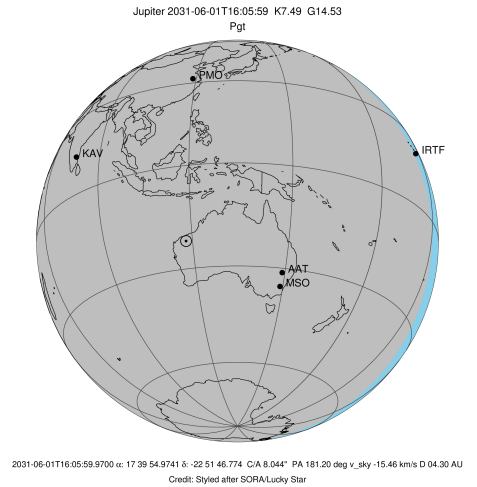


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-01T15:01:03.895	11.65	-25.65	71490.7	22.08	24.86
Jupiter	E	2031-06-01T17:20:48.102	39.78	-50.02	71490.5	23.39	26.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-01T16:04:32.550
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       : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 7.486
G magnitude           : 14.526
RP magnitude         : 12.918
BP magnitude         : 18.413
DUPflag              : 0
Distance (au)        : 4.299
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)   : 67.36
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 7.749
C/A sky separation (km): 24159.2
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
    
```

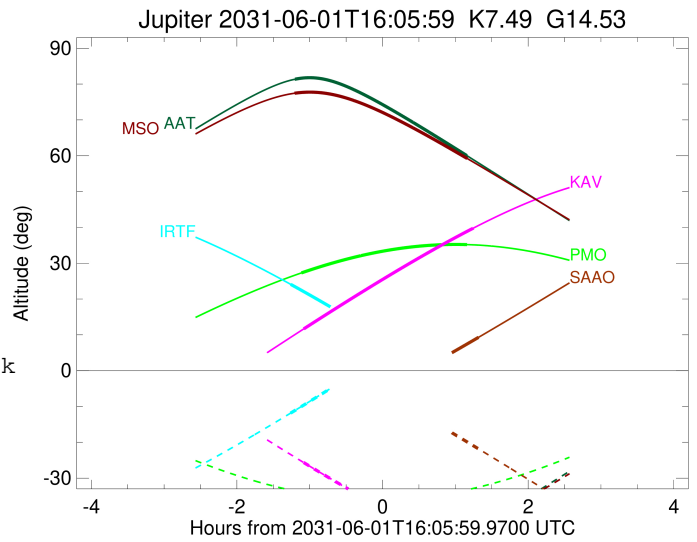
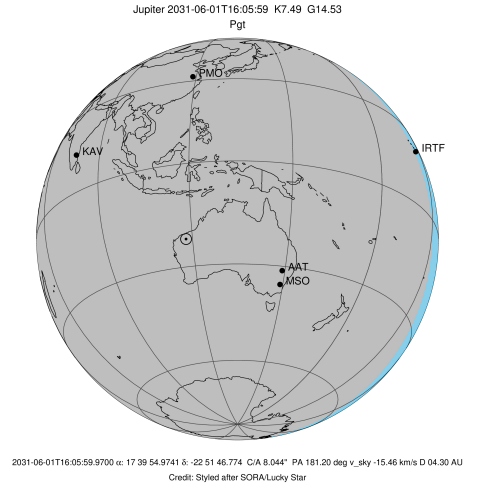


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-01T14:53:46.430	81.34	-75.27	71490.9	19.63	22.17
Jupiter	E	2031-06-01T17:15:25.014	60.04	-46.10	71490.9	19.66	22.20

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-01T16:11:06.610
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        : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 7.486
G magnitude           : 14.526
RP magnitude          : 12.918
BP magnitude          : 18.413
DUPflag              : 0
Distance (au)         : 4.299
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)   : 66.02
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 6.774
C/A sky separation (km): 21117.7
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
    
```

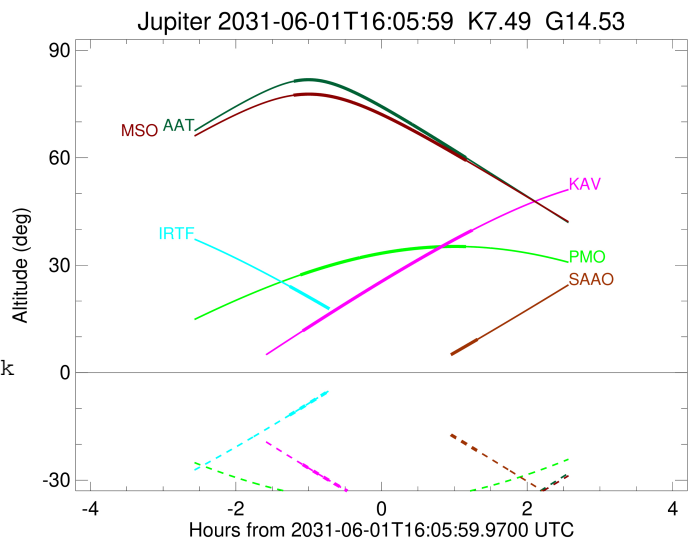
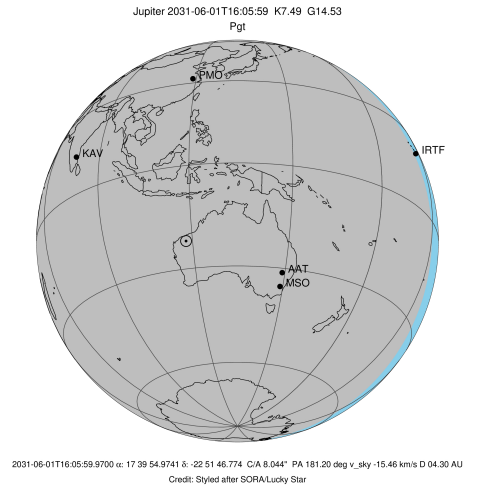


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-01T14:56:30.659	-17.48x	7.19x	71491.2	16.56	18.77
Jupiter	E	2031-06-01T17:25:06.996	9.30	-21.82	71491.1	17.84	20.18

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-01T16:04:36.130
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       : 4116567450035344768
2Mass ID (if available) : 17395497-2251466
ICRS Star Coord at Epoch: 17h 39m 54.97407s -22:51:46.77413s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 7.486
G magnitude           : 14.526
RP magnitude         : 12.918
BP magnitude         : 18.413
DUPflag              : 0
Distance (au)        : 4.299
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.46
Sun-Target sep (deg) : 165.17
Sun-Moon sep (deg)   : 67.35
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.33
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 7.609
C/A sky separation (km) : 23720.7
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	2031-06-01T14:53:35.534	77.44	-72.73	71491.0	19.26	21.76
Jupiter	E	2031-06-01T17:15:42.740	59.24	-45.97	71491.0	19.29	21.79