

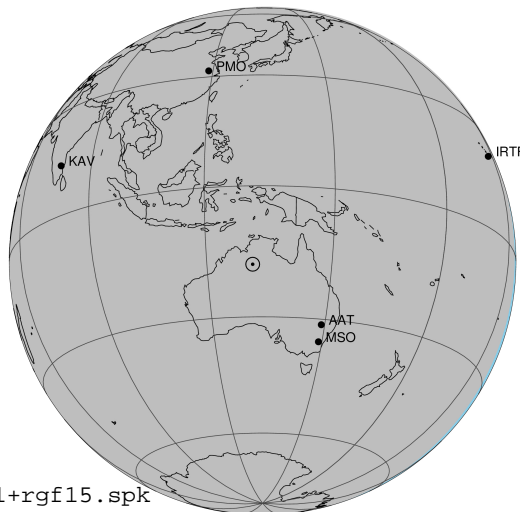
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2030-05-11T15:12:23.210
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6258300823866877056
 2Mass ID (if available) : 15215620-1715131

Jupiter 2030-05-11T15:12:23 K9.60 G12.14 Pgt

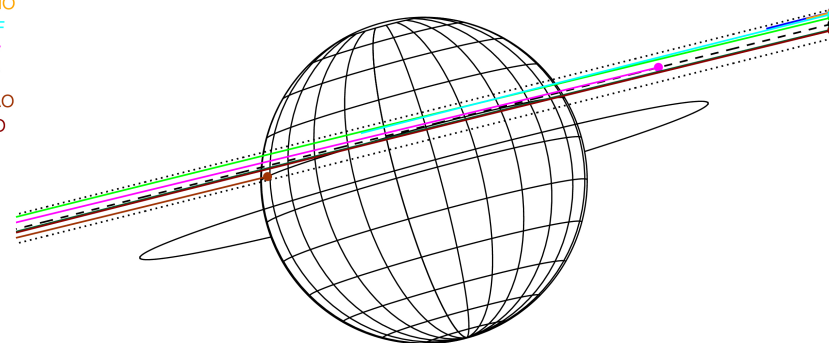
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s

RUWE (>1.4 is poor) : 1.07
 K magnitude : 9.599
 G magnitude : 12.140
 RP magnitude : 11.376
 BP magnitude : 12.768
 DUPflag : 0
 Distance (au) : 4.387
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.87
 Sun-Target sep (deg) : 177.66
 Sun-Moon sep (deg) : 81.05
 B (ring opening deg) : -3.34
 PA of pole (deg) : 15.25
 Pole direction: RA (deg): 268.05726
 Dec (deg): 64.49652
 C/A sky separation (") : 7.215
 C/A sky separation (km) : 22956.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2030-05-11T15:12:23 K9.60 G12.14
 Pgt



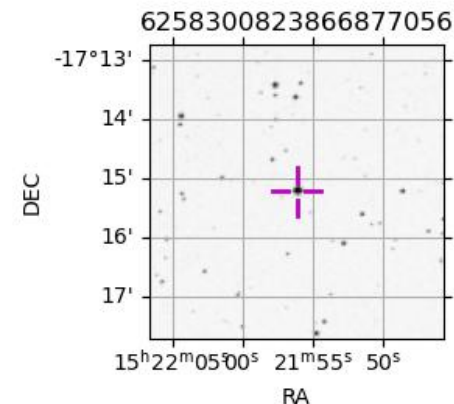
Earth
 PAL
 PMO
 KPNO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2030-05-11T15:12:23.2100 at: 15 21 56.1886 6: -17 15 13.255 C/A 7.202" PA 194.11 deg v_sky -16.87 km/s D 04.39 AU
 Credit: Styled after SORA/Lucky Star

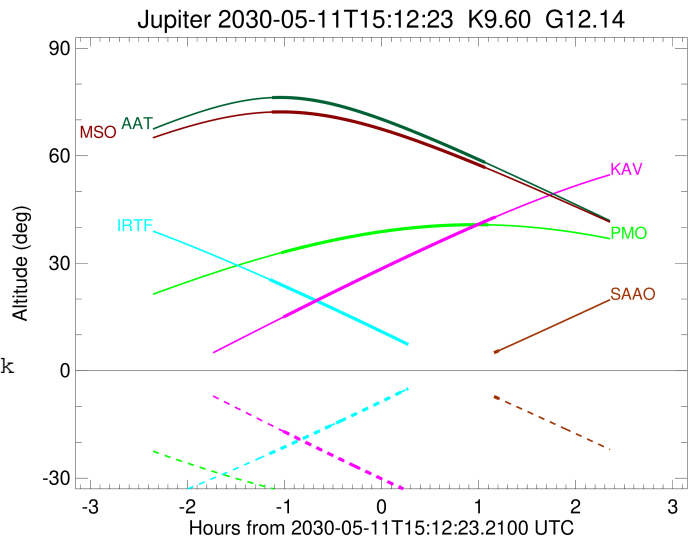
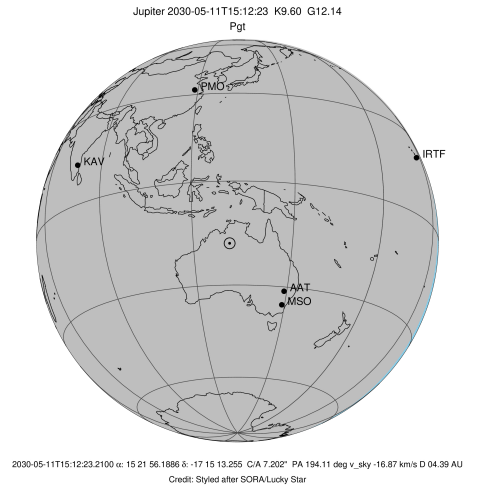
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	MAY 11 14:10 - MAY 11 16:18	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	+	MAY 11 14:03 - MAY 11 14:03	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	MAY 11 14:11 - MAY 11 16:22	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	+ +	MAY 11 14:04 - MAY 11 16:16	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAY 11 16:24 - MAY 11 16:24	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 11 14:04 - MAY 11 16:16	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-05-11T15:14:35.610
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      : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 9.599
G magnitude          : 12.140
RP magnitude         : 11.376
BP magnitude         : 12.768
DUPflag             : 0
Distance (au)       : 4.387
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg) : 177.66
Sun-Moon sep (deg)  : 81.60
B (ring opening deg) : -3.34
PA of pole (deg)    : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation (" ) : 8.574
C/A sky separation (km) : 27279.4
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
    
```

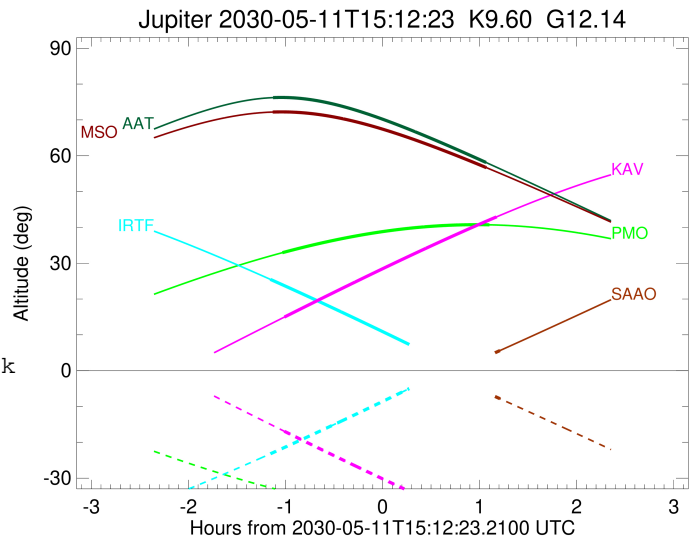
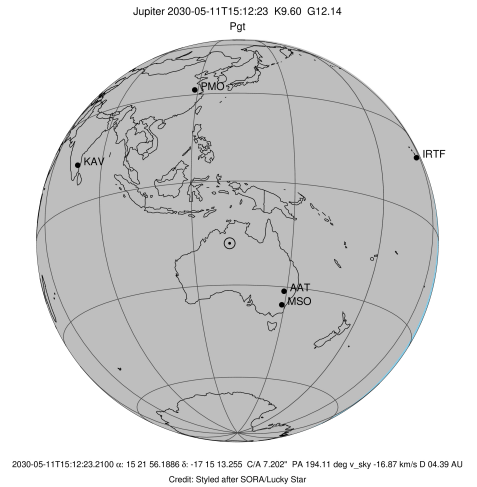


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-05-11T14:10:35.721	32.94	-33.52	71490.1	20.83	23.48
Jupiter	E	2030-05-11T16:18:28.156	40.71	-39.92	71489.5	23.88	26.81

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2030-05-11T15:07:44.490
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        : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.599
G magnitude           : 12.140
RP magnitude          : 11.376
BP magnitude          : 12.768
DUPflag              : 0
Distance (au)         : 4.387
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg)  : 177.66
Sun-Moon sep (deg)    : 81.35
B (ring opening deg) : -3.34
PA of pole (deg)      : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation (") : 8.457
C/A sky separation (km) : 26906.4
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
    
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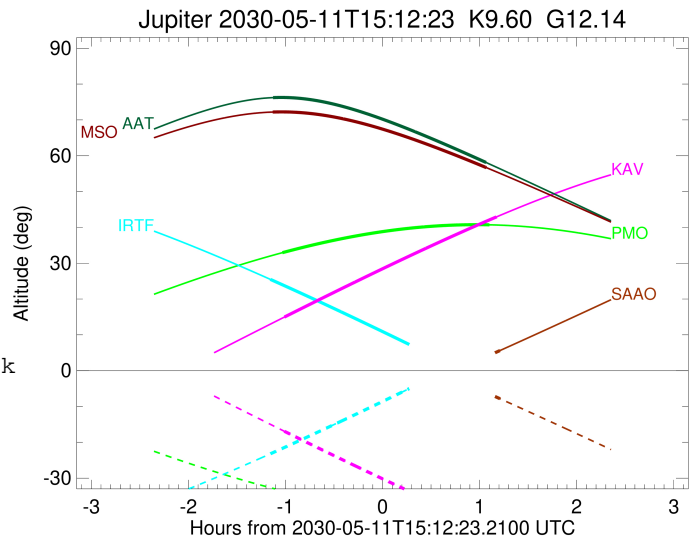
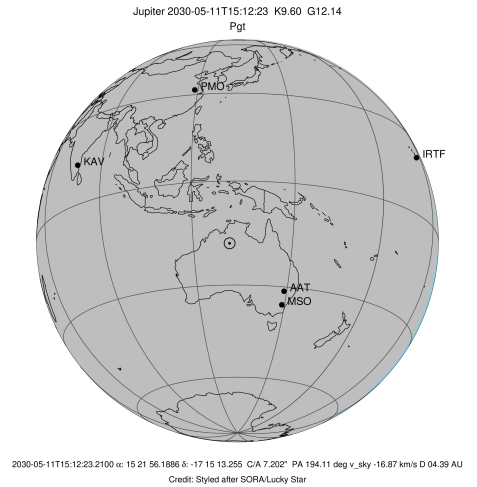


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-05-11T14:03:08.564	25.47	-23.20	71490.0	21.14	23.83
Jupiter	E	2030-05-11T16:12:44.950	-2.45x	4.74x	71489.7	22.86	25.70

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-05-11T15:17:30.680
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        : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.599
G magnitude           : 12.140
RP magnitude          : 11.376
BP magnitude          : 12.768
DUPflag              : 0
Distance (au)         : 4.387
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg) : 177.66
Sun-Moon sep (deg)   : 81.38
B (ring opening deg) : -3.34
PA of pole (deg)     : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation (") : 7.578
C/A sky separation (km) : 24109.2
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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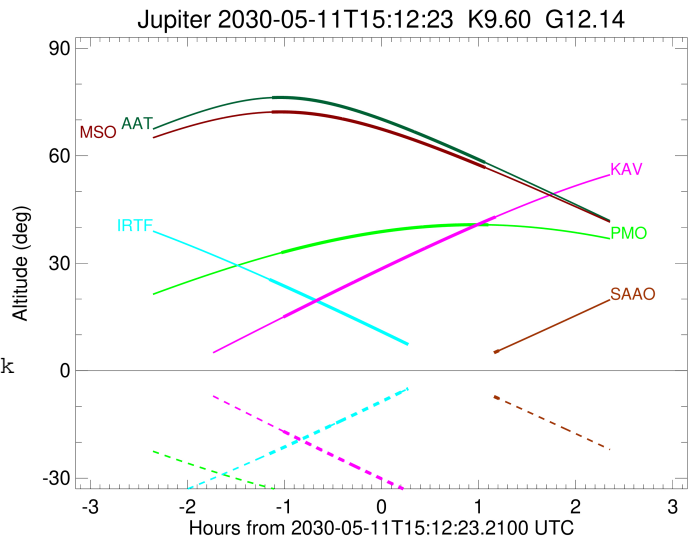
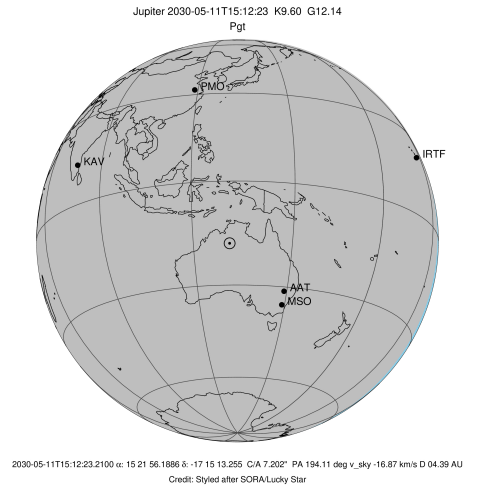


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-05-11T14:11:43.928	14.96	-16.92	71490.6	17.98	20.34
Jupiter	E	2030-05-11T16:22:53.138	42.93	-44.26	71490.0	21.37	24.08

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-05-11T15:10:33.520
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      : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 9.599
G magnitude          : 12.140
RP magnitude         : 11.376
BP magnitude         : 12.768
DUPflag             : 0
Distance (au)       : 4.387
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg) : 177.66
Sun-Moon sep (deg)  : 81.98
B (ring opening deg) : -3.34
PA of pole (deg)    : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation ("): 6.845
C/A sky separation (km) : 21777.5
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
    
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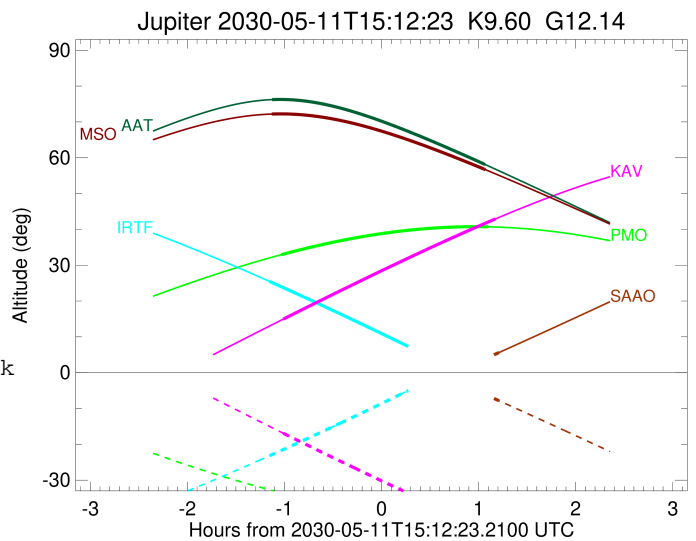
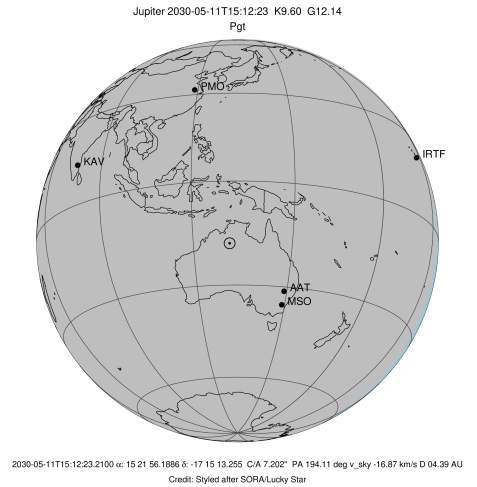


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-05-11T14:04:45.956	76.21	-76.84	71490.8	16.30	18.48
Jupiter	E	2030-05-11T16:16:25.852	58.10	-56.53	71490.4	18.98	21.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-05-11T15:16:12.220
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       : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.599
G magnitude           : 12.140
RP magnitude         : 11.376
BP magnitude         : 12.768
DUPflag              : 0
Distance (au)        : 4.387
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg) : 177.66
Sun-Moon sep (deg)   : 80.81
B (ring opening deg) : -3.34
PA of pole (deg)     : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation ("): 5.665
C/A sky separation (km): 18024.1
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
    
```

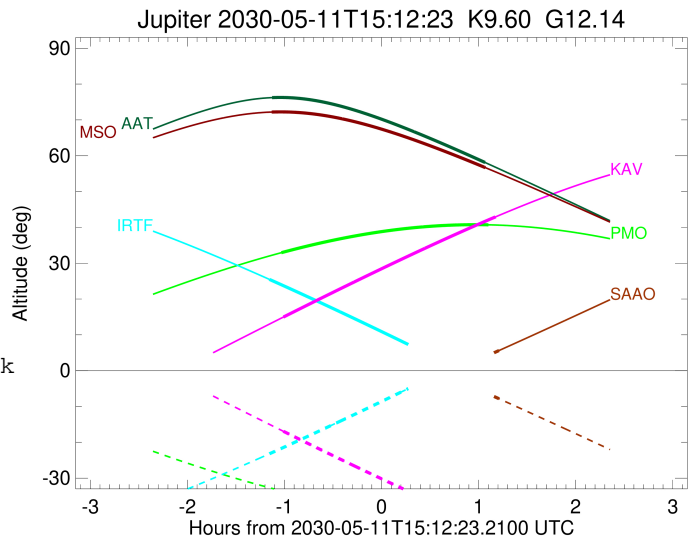
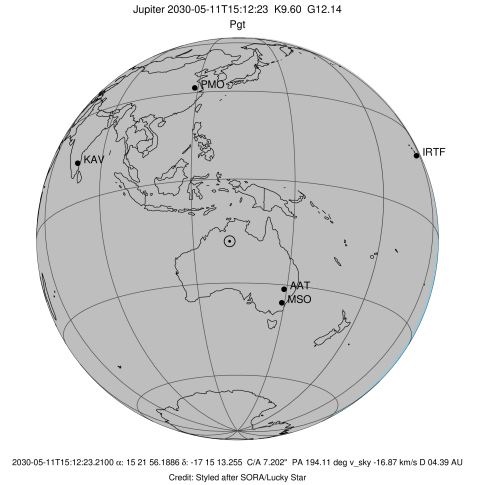


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-05-11T14:06:59.444	-20.40x	18.33x	71491.2	13.27	15.09
Jupiter	E	2030-05-11T16:24:59.308	5.62	-7.83	71490.8	16.01	18.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-05-11T15:10:31.730
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       : 6258300823866877056
2Mass ID (if available) : 15215620-1715131
ICRS Star Coord at Epoch: 15h 21m 56.18858s -17:15:13.25485s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.599
G magnitude           : 12.140
RP magnitude          : 11.376
BP magnitude          : 12.768
DUPflag              : 0
Distance (au)        : 4.387
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.87
Sun-Target sep (deg) : 177.66
Sun-Moon sep (deg)   : 81.96
B (ring opening deg) : -3.34
PA of pole (deg)     : 15.25
Pole direction: RA (deg): 268.05726
Dec (deg): 64.49652
C/A sky separation ("): 6.709
C/A sky separation (km): 21345.1
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	2030-05-11T14:04:32.331	72.18	-72.83	71490.8	15.95	18.09
Jupiter	E	2030-05-11T16:16:35.682	56.66	-55.31	71490.5	18.61	21.04