

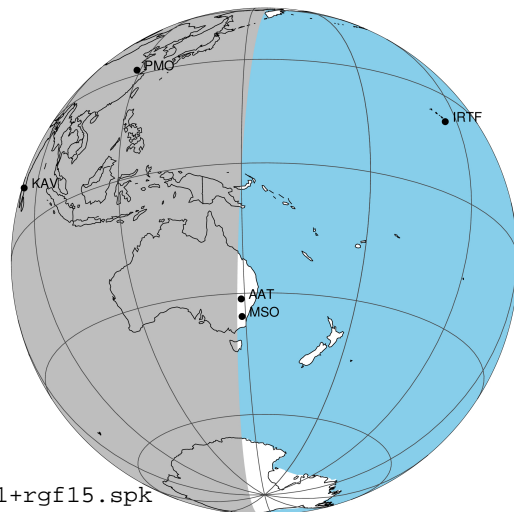
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-11T20:09:23.570
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068854722625507840
 2Mass ID (if available) : 17454826-2251504

Jupiter 2031-03-11T20:09:23 K9.56 G14.83 Pgt

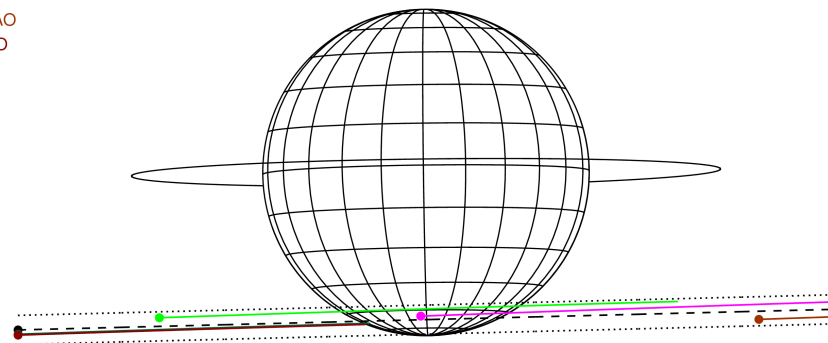
ICRS Star Coord at Epoch: 17h 45m 48.26228s -22:51:50.50635s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 9.556
 G magnitude : 14.834
 RP magnitude : 13.509
 BP magnitude : 16.778
 DUPflag : 0
 Distance (au) : 5.325
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 16.31
 Sun-Target sep (deg) : 83.89
 Sun-Moon sep (deg) : 63.36
 B (ring opening deg) : -2.63
 PA of pole (deg) : 0.69
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 16.683
 C/A sky separation (km) : 64432.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-11T20:09:23 K9.56 G14.83
 Pgt



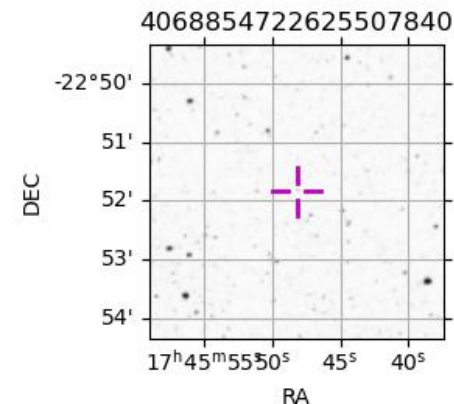
Earth
 PMO
 KAV
 AAT
 SAAO
 MSO



2031-03-11T20:09:23.5700 α: 17 45 48.2623 δ: -22 51 50.506 C/A ***** PA 1.45 deg v_sky +16.31 km/s D 05.33 AU
 Credit: Styled after SORA/Lucky Star

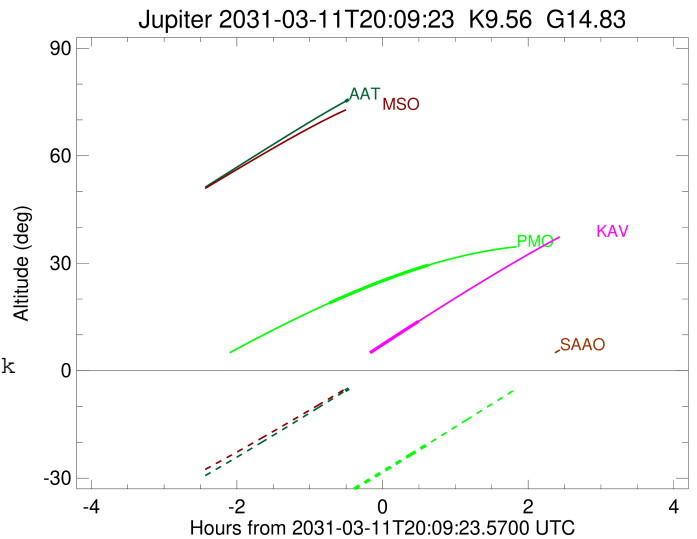
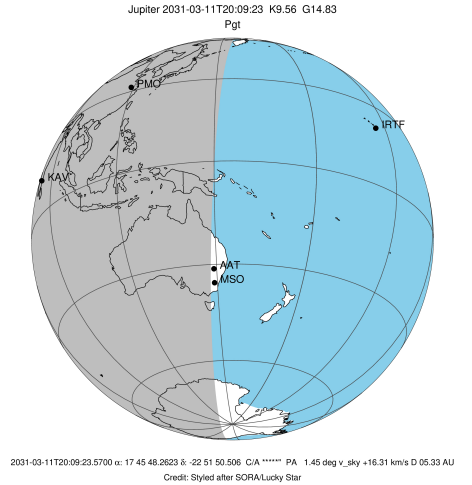
Observable events with sun below -5 deg and altitude above 5 deg

| Obs | Location | lat | Elon | Target | Observed Events Interval | 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 | + + | MAR 11 19:25 - MAR 11 20:47 | 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 | | | Pnn |
| KAV | Kavalur Observatory | 12.6 | 78.8 | + | MAR 11 20:39 - MAR 11 20:39 | 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 | + | MAR 11 19:38 - MAR 11 19:38 | Pin |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-11T20:06:19.330
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      : 4068854722625507840
2Mass ID (if available) : 17454826-2251504
ICRS Star Coord at Epoch: 17h 45m 48.26228s -22:51:50.50635s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.556
G magnitude          : 14.834
RP magnitude         : 13.509
BP magnitude         : 16.778
DUPflag             : 0
Distance (au)       : 5.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 16.31
Sun-Target sep (deg) : 83.89
Sun-Moon sep (deg)  : 63.53
B (ring opening deg) : -2.63
PA of pole (deg)    : 0.69
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (" ) : 15.465
C/A sky separation (km) : 59730.4
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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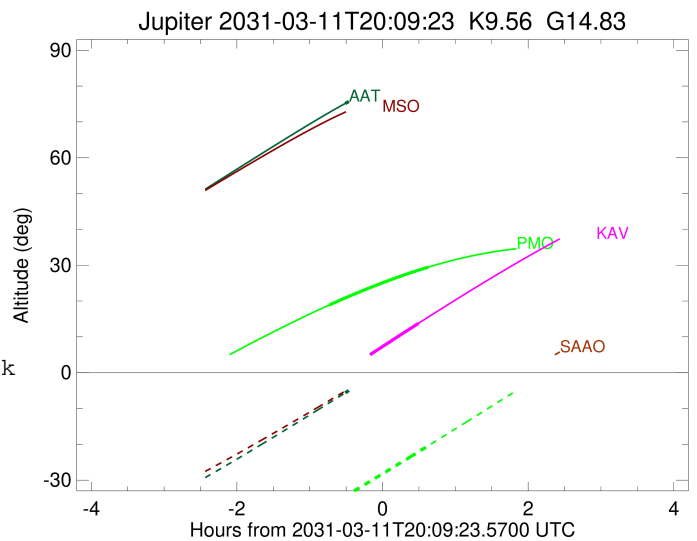
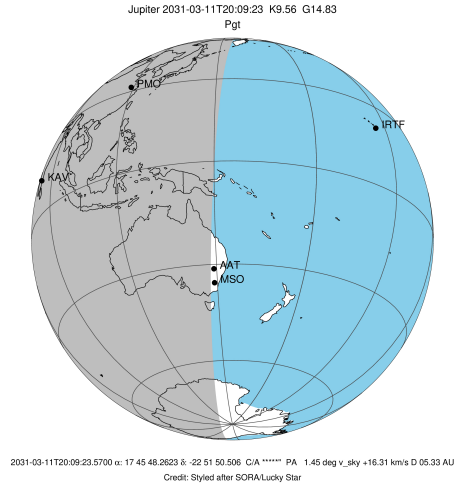


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-11T19:25:31.942 | 18.88 | -37.08 | 71485.2 | -57.73 | -60.94 |
| Jupiter | E | 2031-03-11T20:47:15.329 | 29.46 | -20.36 | 71485.5 | -55.51 | -58.86 |

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T20:03:49.540
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        : 4068854722625507840
2Mass ID (if available) : 17454826-2251504
ICRS Star Coord at Epoch: 17h 45m 48.26228s -22:51:50.50635s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.556
G magnitude           : 14.834
RP magnitude          : 13.509
BP magnitude          : 16.778
DUPflag              : 0
Distance (au)         : 5.325
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.31
Sun-Target sep (deg) : 83.89
Sun-Moon sep (deg)   : 63.06
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.69
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 16.257
C/A sky separation (km) : 62789.6
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
    
```

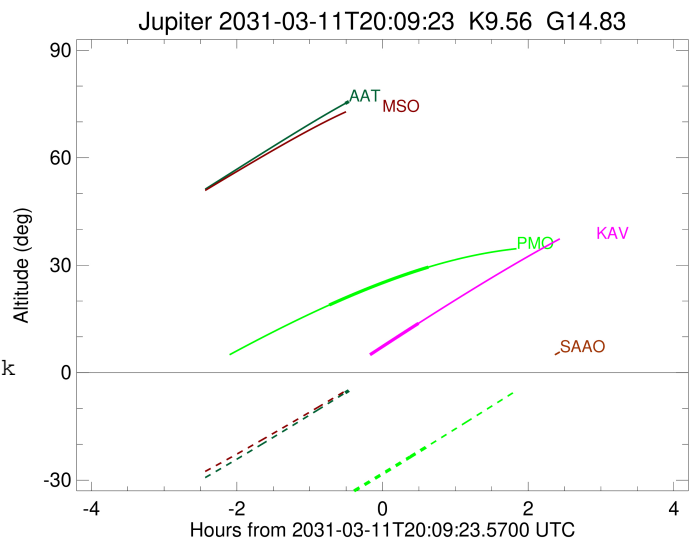
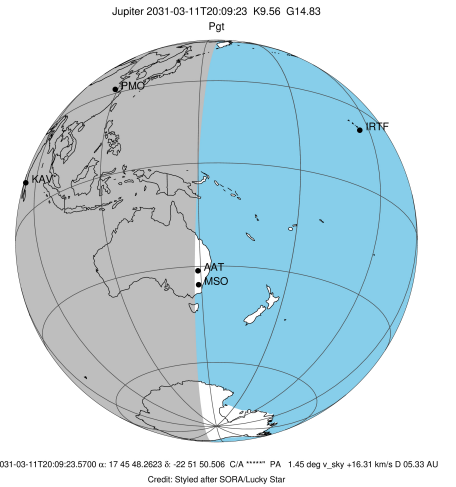


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-11T19:28:48.933 | -1.78x | -77.70 | 71484.5 | -62.70 | -65.57 |
| Jupiter | E | 2031-03-11T20:39:00.340 | 13.76 | -62.68 | 71484.9 | -59.98 | -63.04 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T20:08:54.370
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        : 4068854722625507840
2Mass ID (if available) : 17454826-2251504
ICRS Star Coord at Epoch: 17h 45m 48.26228s -22:51:50.50635s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.556
G magnitude           : 14.834
RP magnitude          : 13.509
BP magnitude          : 16.778
DUPflag              : 0
Distance (au)         : 5.325
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.31
Sun-Target sep (deg) : 83.89
Sun-Moon sep (deg)   : 64.18
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.69
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 16.926
C/A sky separation (km) : 65371.6
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
    
```



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 | 2031-03-11T19:38:41.053 | 75.14 | -5.63 | 71484.0 | -66.88 | -69.39 |
| Jupiter | E | 2031-03-11T20:39:09.620 | 81.69 | 7.28x | 71484.2 | -65.19 | -67.85 |