

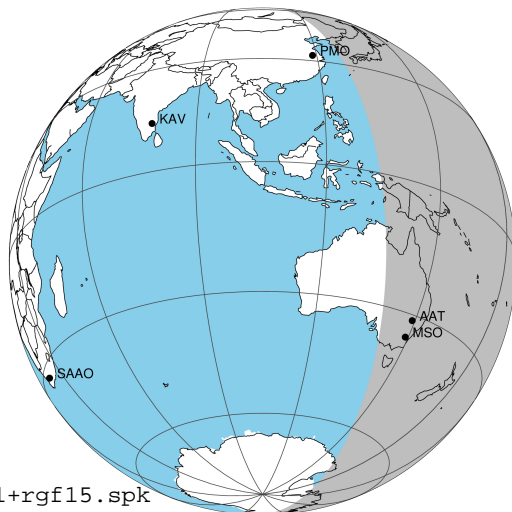
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-10-17T08:52:17.280  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116682172756641152  
 2Mass ID (if available) : 17343724-2309539

Jupiter 2031-10-17T08:52:17 K8.67 G14.31 Pgt

ICRS Star Coord at Epoch: 17h 34m 37.24533s -23°09:54.21747s

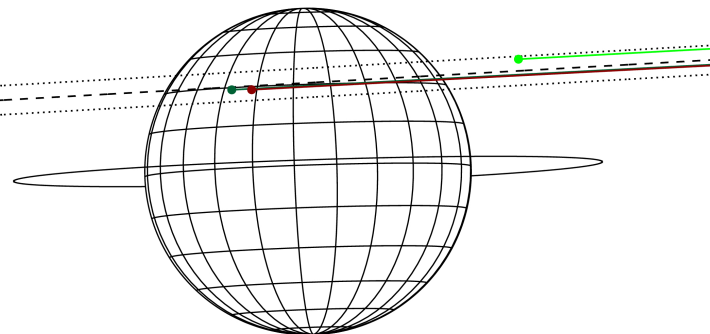
RUWE (>1.4 is poor) : 0.98  
 K magnitude : 8.668  
 G magnitude : 14.307  
 RP magnitude : 12.900  
 BP magnitude : 16.766  
 DUPflag : 0  
 Distance (au) : 5.650  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 27.68  
 Sun-Target sep (deg) : 60.82  
 Sun-Moon sep (deg) : 48.11  
 B (ring opening deg) : -2.27  
 PA of pole (deg) : 1.90  
 Pole direction: RA (deg): 268.05682  
 Dec (deg): 64.49652  
 C/A sky separation (") : 9.466  
 C/A sky separation (km) : 38790.5  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-10-17T08:52:17 K8.67 G14.31  
 Pgt



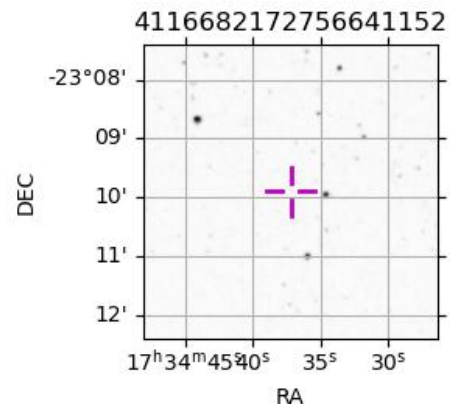
2031-10-17T08:52:17.2800 cc: 17 34 37.2453 s: -23 09 54.217 C/A 9.4577 PA 183.25 deg v\_sky +27.68 km/s D 05.65 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PMO  
 IRTF  
 AAT  
 MSO



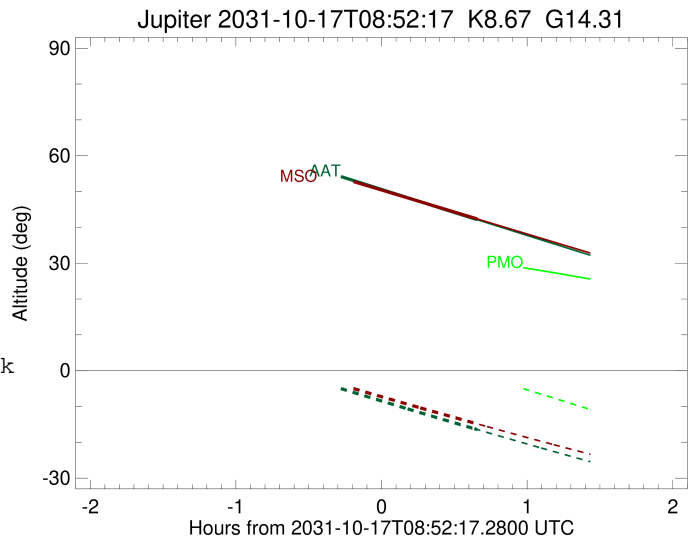
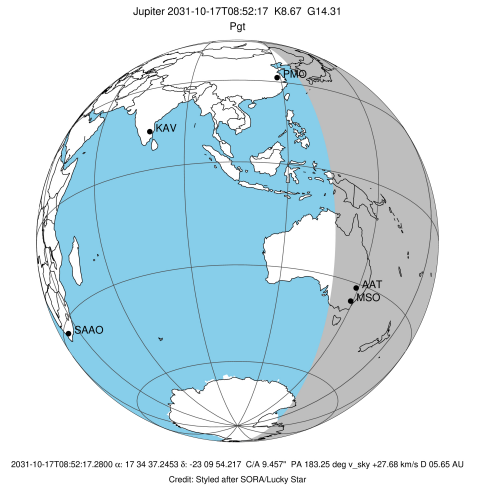
Observable events with sun below -5 deg and altitude above 5 deg

| 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 |        |                             | 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  |        |                             | Pnn   |
| 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 | +      | OCT 17 09:31 - OCT 17 09:31 | Pne   |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8  |        |                             | Pnn   |
| MSO  | Mt. Stromlo Observatory           | -35.3 | 149.0 | +      | OCT 17 09:31 - OCT 17 09:31 | Pne   |



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-17T08:54:42.230
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        : 4116682172756641152
2Mass ID (if available) : 17343724-2309539
ICRS Star Coord at Epoch: 17h 34m 37.24533s -23:09:54.21747s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 8.668
G magnitude           : 14.307
RP magnitude          : 12.900
BP magnitude          : 16.766
DUPflag              : 0
Distance (au)         : 5.650
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 27.68
Sun-Target sep (deg)  : 60.82
Sun-Moon sep (deg)    : 49.05
B (ring opening deg) : -2.27
PA of pole (deg)      : 1.90
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 9.152
C/A sky separation (km) : 37506.7
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
    
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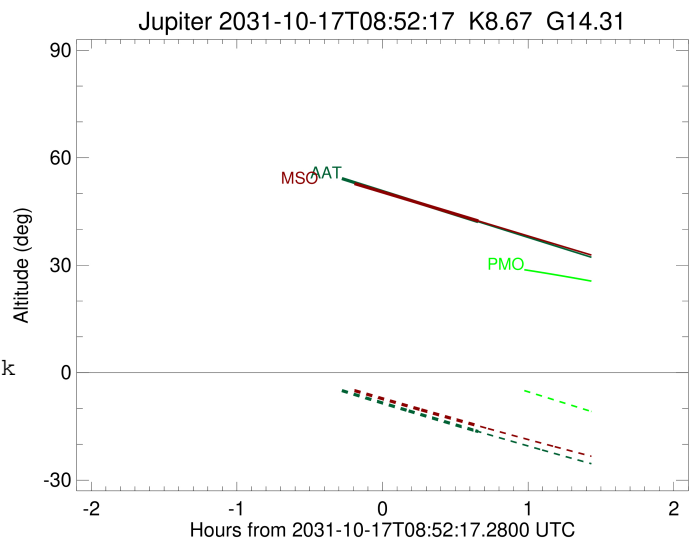
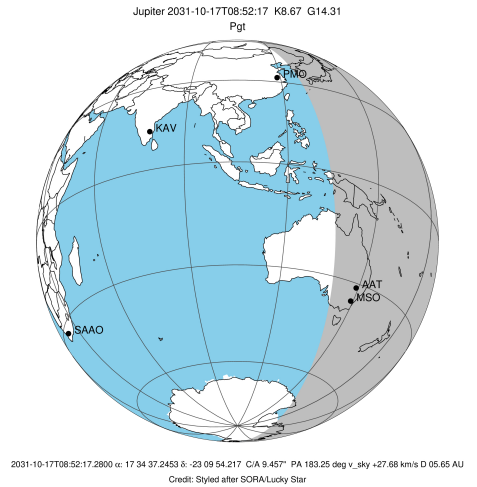


x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2031-10-17T08:17:37.700 | 58.02 | -1.26x  | 71490.2 | 30.44   | 33.84        |
| Jupiter | E   | 2031-10-17T09:31:42.202 | 42.14 | -16.43  | 71489.9 | 32.75   | 36.26        |

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-17T08:54:36.350
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        : 4116682172756641152
2Mass ID (if available) : 17343724-2309539
ICRS Star Coord at Epoch: 17h 34m 37.24533s -23:09:54.21747s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 8.668
G magnitude           : 14.307
RP magnitude          : 12.900
BP magnitude          : 16.766
DUPflag              : 0
Distance (au)         : 5.650
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 27.68
Sun-Target sep (deg)  : 60.82
Sun-Moon sep (deg)    : 49.03
B (ring opening deg) : -2.27
PA of pole (deg)     : 1.90
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 9.050
C/A sky separation (km) : 37086.1
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   | 2031-10-17T08:17:23.554 | 57.49 | -0.36x  | 71490.2 | 30.04   | 33.41        |
| Jupiter | E   | 2031-10-17T09:31:44.726 | 42.35 | -14.85  | 71490.0 | 32.36   | 35.85        |