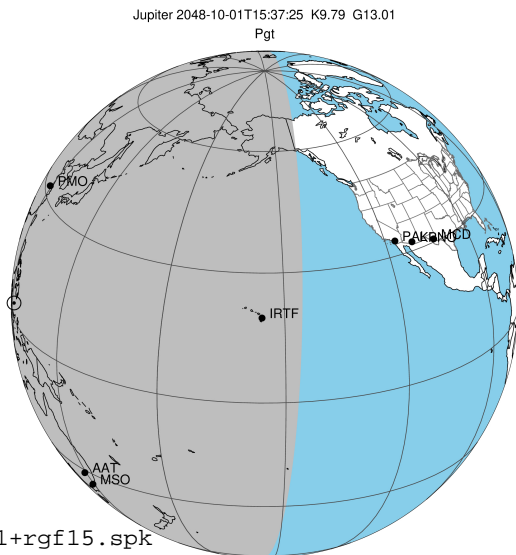


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2048-10-01T15:37:25.980
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3424548747053651456
 2Mass ID (if available) : 05592400+2255486

Jupiter 2048-10-01T15:37:25 K9.79 G13.01 Pgt

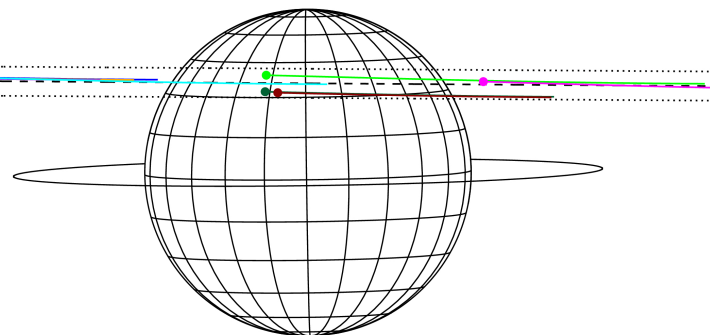
ICRS Star Coord at Epoch: 05h 59m 24.00508s +22:55:48.35273s

RUWE (>1.4 is poor) : 0.98
 K magnitude : 9.787
 G magnitude : 13.008
 RP magnitude : 12.077
 BP magnitude : 13.905
 DUPflag : 0
 Distance (au) : 4.833
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 8.07
 Sun-Target sep (deg) : 98.59
 Sun-Moon sep (deg) : 25.48
 B (ring opening deg) : 2.56
 PA of pole (deg) : 0.77
 Pole direction: RA (deg): 268.05734
 Dec (deg): 64.49722
 C/A sky separation (") : 11.142
 C/A sky separation (km) : 39058.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



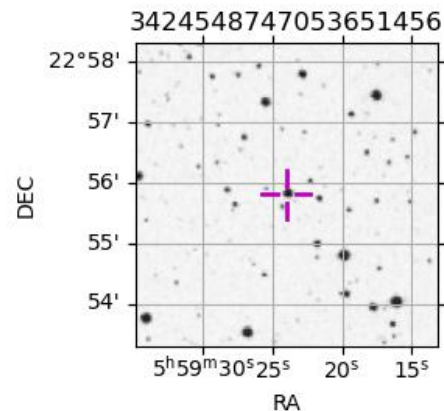
2048-10-01T15:37:25.9800 a: 05 59 24.0051 s: +22 55 48.353 C/A ***** PA 179.61 deg v_sky + 8.07 km/s D 04.83 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 MSO



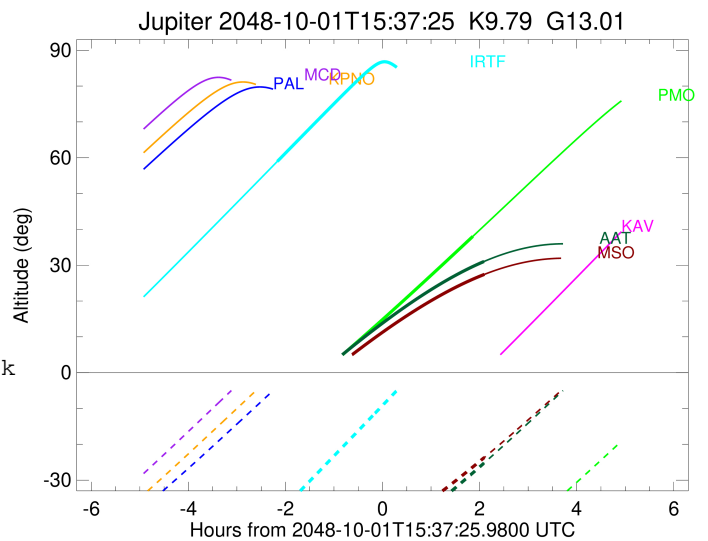
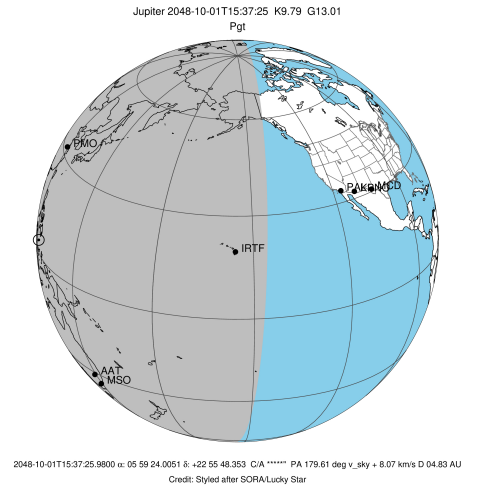
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | OCT 01 17:29 - OCT 01 17:29 | Pne |
| 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 | + | OCT 01 13:27 - OCT 01 13:27 | Pin |
| 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 01 17:42 - OCT 01 17:42 | Pne |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + | OCT 01 17:43 - OCT 01 17:43 | Pne |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-10-01T15:27:55.900
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       : 3424548747053651456
2Mass ID (if available) : 05592400+2255486
ICRS Star Coord at Epoch: 05h 59m 24.00508s +22:55:48.35273s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 9.787
G magnitude          : 13.008
RP magnitude         : 12.077
BP magnitude         : 13.905
DUPflag             : 0
Distance (au)        : 4.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.07
Sun-Target sep (deg) : 98.59
Sun-Moon sep (deg)  : 26.31
B (ring opening deg) : 2.56
PA of pole (deg)    : 0.77
Pole direction: RA (deg): 268.05734
Dec (deg): 64.49722
C/A sky separation (") : 12.018
C/A sky separation (km) : 42128.6
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
    
```

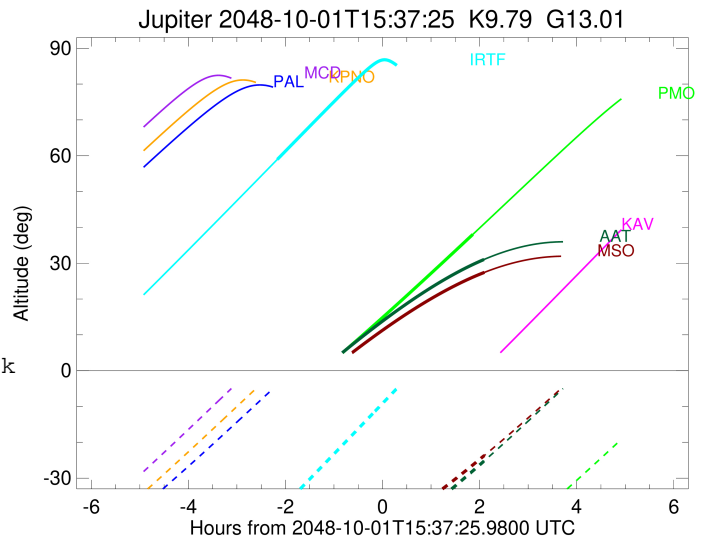
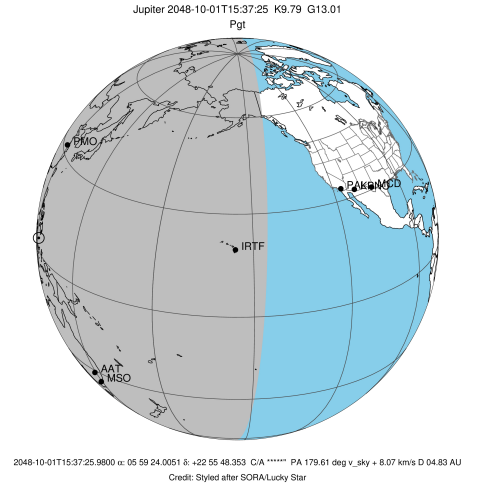


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I | 2048-10-01T13:30:15.789 | -9.43x | -45.99 | 71488.5 | 38.26 | 41.94 |
| Jupiter | E | 2048-10-01T17:29:03.281 | 38.03 | -54.01 | 71489.2 | 33.85 | 37.41 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-10-01T15:37:19.050
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       : 3424548747053651456
2Mass ID (if available) : 05592400+2255486
ICRS Star Coord at Epoch: 05h 59m 24.00508s +22:55:48.35273s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 9.787
G magnitude          : 13.008
RP magnitude         : 12.077
BP magnitude         : 13.905
DUPflag             : 0
Distance (au)        : 4.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.07
Sun-Target sep (deg) : 98.59
Sun-Moon sep (deg)   : 25.88
B (ring opening deg) : 2.56
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05734
Dec (deg): 64.49722
C/A sky separation (") : 11.040
C/A sky separation (km) : 38699.8
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
    
```

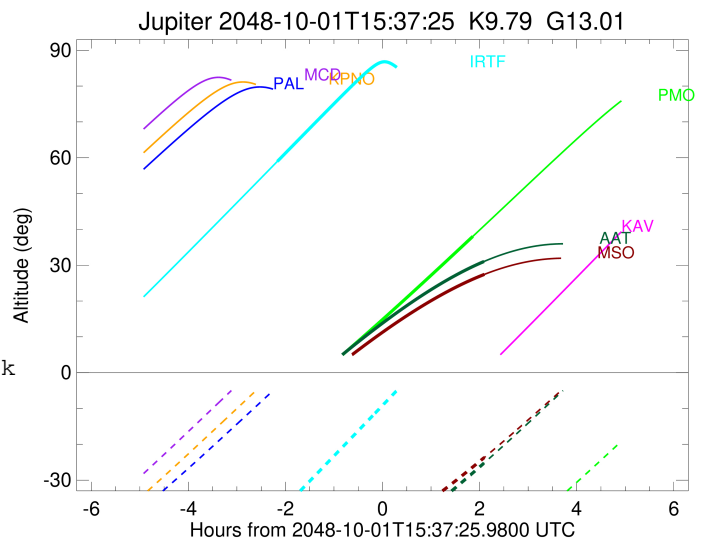
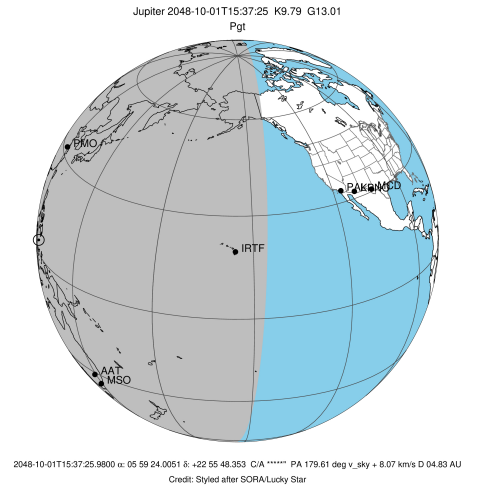


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2048-10-01T13:27:23.235 | 58.95 | -39.56 | 71489.1 | 34.27 | 37.84 |
| Jupiter | E | 2048-10-01T17:48:03.757 | 59.97 | 21.35x | 71489.5 | 31.91 | 35.38 |

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2048-10-01T15:29:03.250
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        : 3424548747053651456
2Mass ID (if available) : 05592400+2255486
ICRS Star Coord at Epoch: 05h 59m 24.00508s +22:55:48.35273s
RUWE (>1.4 is poor)  : 0.98
K magnitude           : 9.787
G magnitude           : 13.008
RP magnitude          : 12.077
BP magnitude          : 13.905
DUPflag              : 0
Distance (au)         : 4.833
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.07
Sun-Target sep (deg)  : 98.59
Sun-Moon sep (deg)   : 26.11
B (ring opening deg) : 2.56
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05734
Dec (deg): 64.49722
C/A sky separation (") : 9.961
C/A sky separation (km) : 34917.7
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
    
```

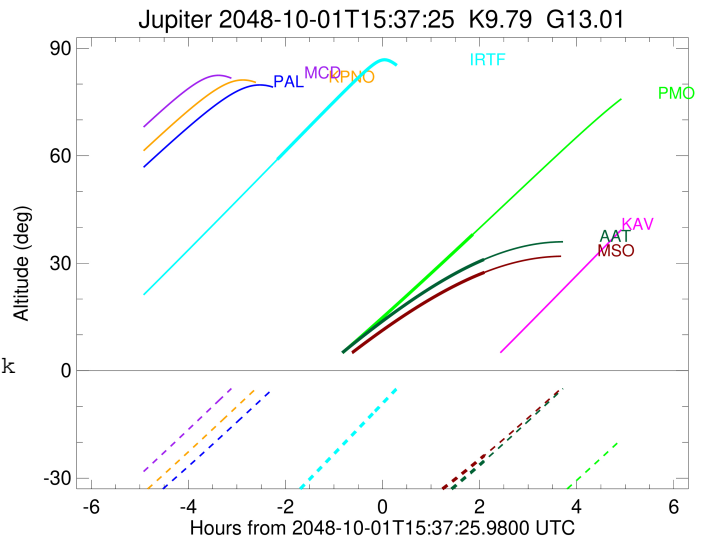
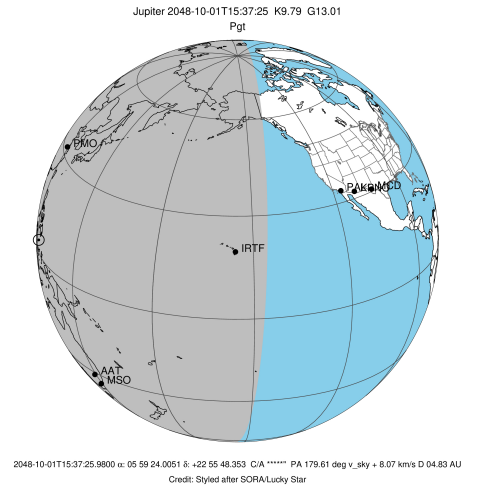


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|---------|---------|---------|---------|--------------|
| Jupiter | I | 2048-10-01T13:19:05.524 | -12.22x | -54.38 | 71489.6 | 31.42 | 34.87 |
| Jupiter | E | 2048-10-01T17:42:49.273 | 31.02 | -25.26 | 71490.1 | 27.29 | 30.49 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-10-01T15:29:25.370
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      : 3424548747053651456
2Mass ID (if available) : 05592400+2255486
ICRS Star Coord at Epoch: 05h 59m 24.00508s +22:55:48.35273s
RUWE (>1.4 is poor) : 0.98
K magnitude         : 9.787
G magnitude         : 13.008
RP magnitude        : 12.077
BP magnitude        : 13.905
DUPflag            : 0
Distance (au)       : 4.833
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 8.07
Sun-Target sep (deg) : 98.59
Sun-Moon sep (deg)  : 26.06
B (ring opening deg) : 2.56
PA of pole (deg)    : 0.77
Pole direction: RA (deg): 268.05734
Dec (deg): 64.49722
C/A sky separation (") : 9.876
C/A sky separation (km) : 34621.5
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 | 2048-10-01T13:19:11.114 | -13.57x | -50.46 | 71489.6 | 31.10 | 34.54 |
| Jupiter | E | 2048-10-01T17:43:20.191 | 27.43 | -23.67 | 71490.1 | 27.06 | 30.24 |