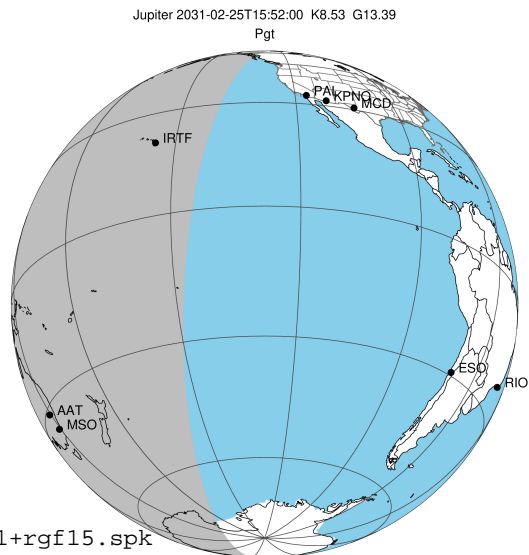


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-02-25T15:52:00.340
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116753572289928320
 2Mass ID (if available) : 17383044-2248303

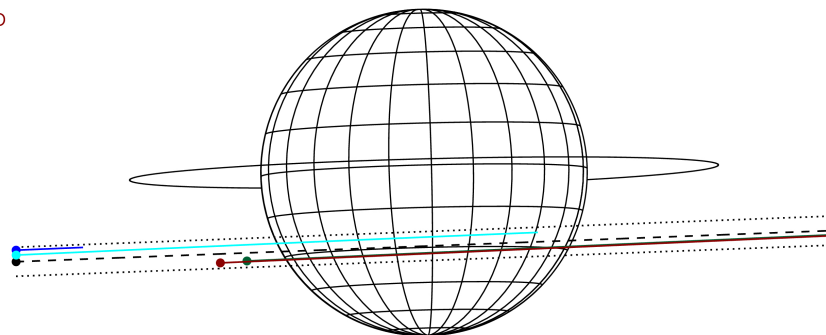
Jupiter 2031-02-25T15:52:00 K8.53 G13.39 Pgt

ICRS Star Coord at Epoch: 17h 38m 30.43847s -22:48:30.51225s

RUWE (>1.4 is poor) : 0.86
 K magnitude : 8.533
 G magnitude : 13.392
 RP magnitude : 12.162
 BP magnitude : 15.066
 DUPflag : 0
 Distance (au) : 5.550
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 22.65
 Sun-Target sep (deg) : 71.36
 Sun-Moon sep (deg) : 121.81
 B (ring opening deg) : -2.65
 PA of pole (deg) : 1.48
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 8.012
 C/A sky separation (km) : 32246.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



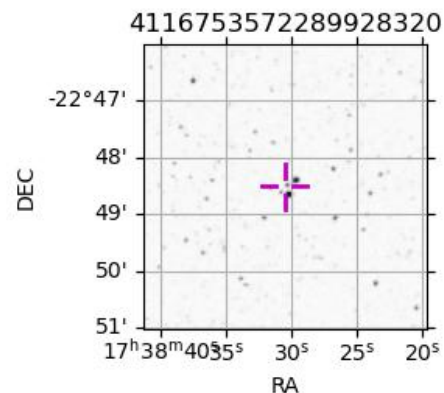
Earth
 PAL
 IRTF
 AAT
 MSO



2031-02-25T15:52:00.3400 a: 17 38 30.4385 s: -22 48 30.512 C/A 8.022" PA 2.18 deg v_sky +22.65 km/s D 05.55 AU
 Credit: Styled after SORA/Lucky Star

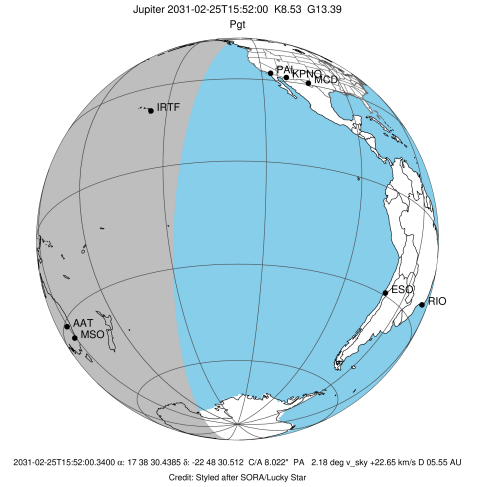
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | | | 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 | + | FEB 25 15:00 - FEB 25 15:00 | 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 | + + | FEB 25 15:02 - FEB 25 16:34 | Pie |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + + | FEB 25 15:02 - FEB 25 16:34 | Pie |

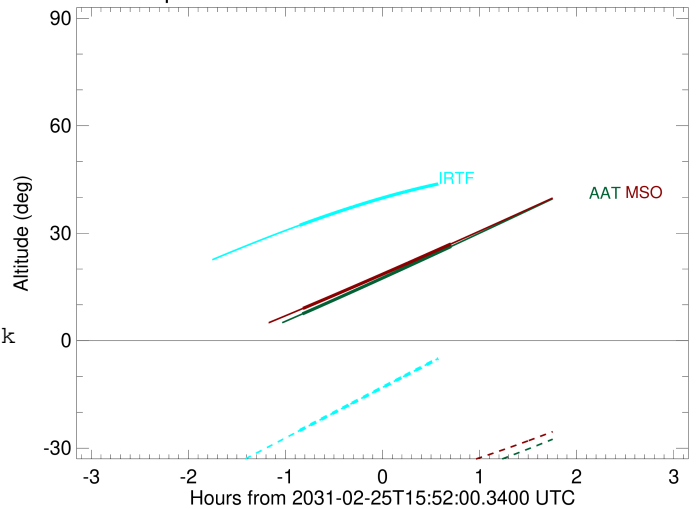


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T15:49:55.850
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       : 4116753572289928320
2Mass ID (if available) : 17383044-2248303
ICRS Star Coord at Epoch: 17h 38m 30.43847s -22:48:30.51225s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.533
G magnitude           : 13.392
RP magnitude         : 12.162
BP magnitude         : 15.066
DUPflag              : 0
Distance (au)        : 5.550
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 22.65
Sun-Target sep (deg) : 71.36
Sun-Moon sep (deg)  : 122.12
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.48
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation ("): 7.032
C/A sky separation (km): 28302.3
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
    
```



Jupiter 2031-02-25T15:52:00 K8.53 G13.39

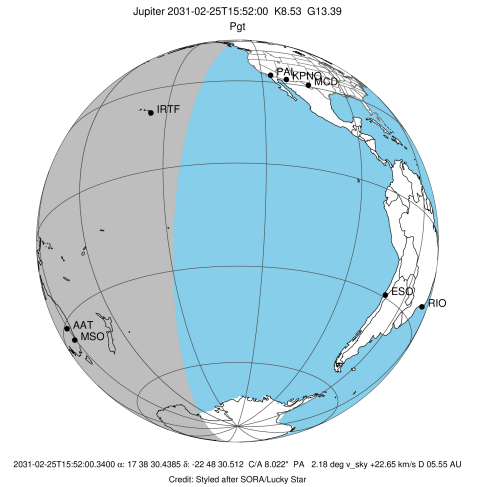


x: target alt < 5.0 deg or sun > -5.0 deg

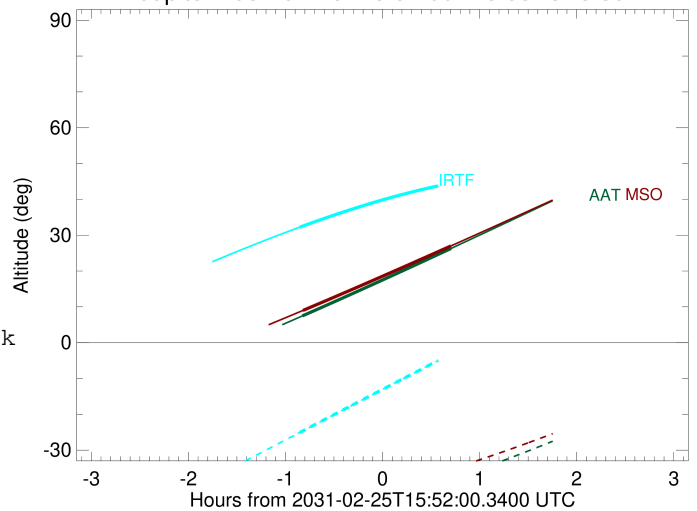
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-02-25T15:00:53.078 | 32.23 | -25.07 | 71490.4 | -24.28 | -27.24 |
| Jupiter | E | 2031-02-25T16:39:06.734 | 44.88 | -2.04x | 71490.6 | -22.39 | -25.20 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-25T15:48:16.010
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        : 4116753572289928320
2Mass ID (if available) : 17383044-2248303
ICRS Star Coord at Epoch: 17h 38m 30.43847s -22:48:30.51225s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.533
G magnitude           : 13.392
RP magnitude          : 12.162
BP magnitude          : 15.066
DUPflag              : 0
Distance (au)         : 5.550
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 22.65
Sun-Target sep (deg) : 71.36
Sun-Moon sep (deg)   : 121.63
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.48
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 8.754
C/A sky separation (km) : 35235.0
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
    
```



Jupiter 2031-02-25T15:52:00 K8.53 G13.39

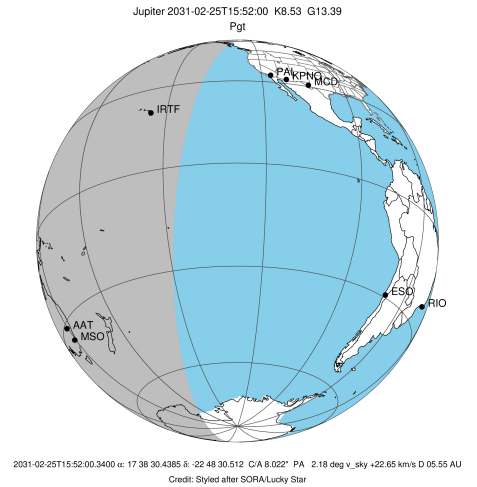


x: target alt < 5.0 deg or sun > -5.0 deg

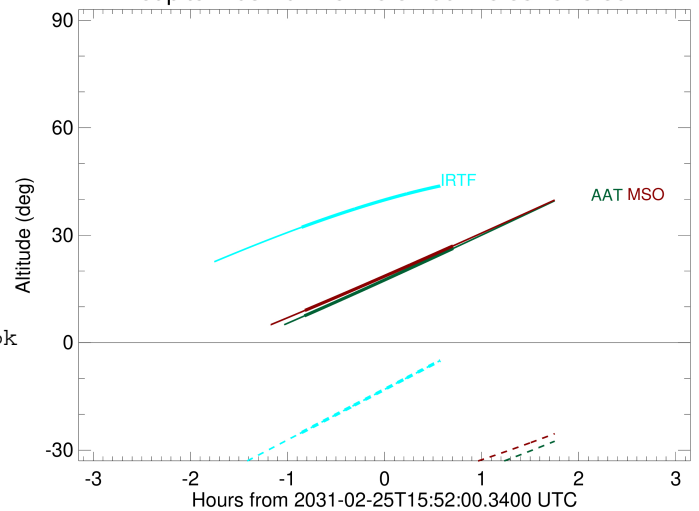
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-02-25T15:02:31.252 | 7.47 | -48.42 | 71489.5 | -30.59 | -33.99 |
| Jupiter | E | 2031-02-25T16:34:12.194 | 26.26 | -38.13 | 71489.8 | -28.40 | -31.67 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T15:48:26.980
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       : 4116753572289928320
2Mass ID (if available) : 17383044-2248303
ICRS Star Coord at Epoch: 17h 38m 30.43847s -22:48:30.51225s
RUWE (>1.4 is poor) : 0.86
K magnitude          : 8.533
G magnitude          : 13.392
RP magnitude         : 12.162
BP magnitude         : 15.066
DUPflag             : 0
Distance (au)       : 5.550
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 22.65
Sun-Target sep (deg) : 71.36
Sun-Moon sep (deg)  : 121.66
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.48
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 8.840
C/A sky separation (km) : 35582.4
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
    
```



Jupiter 2031-02-25T15:52:00 K8.53 G13.39



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 | 2031-02-25T15:02:50.939 | 9.00 | -44.55 | 71489.5 | -30.89 | -34.31 |
| Jupiter | E | 2031-02-25T16:34:13.942 | 26.99 | -35.26 | 71489.8 | -28.74 | -32.03 |