

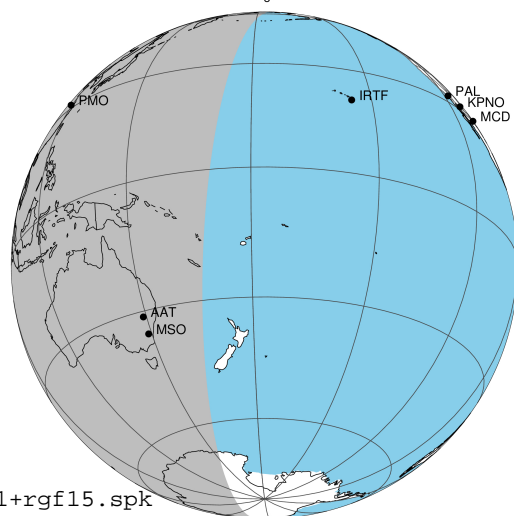
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-02T18:49:17.870
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116928669516961536
 2Mass ID (if available) : 17412290-2249433

Jupiter 2031-03-02T18:49:17 K9.86 G13.24 Pgt

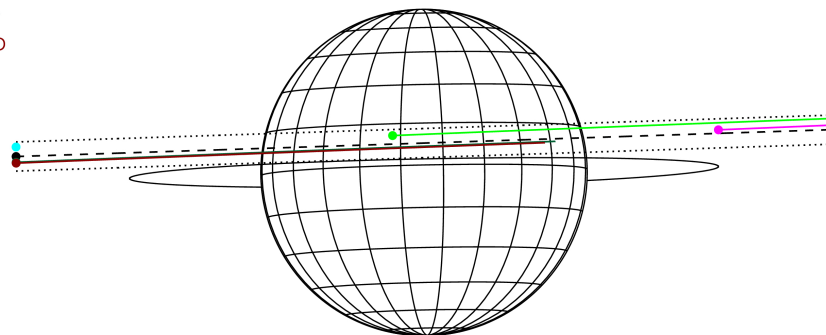
ICRS Star Coord at Epoch: 17h 41m 22.88099s -22:49:43.98875s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 9.863
 G magnitude : 13.240
 RP magnitude : 12.260
 BP magnitude : 14.214
 DUPflag : 0
 Distance (au) : 5.470
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 20.41
 Sun-Target sep (deg) : 75.85
 Sun-Moon sep (deg) : 176.23
 B (ring opening deg) : -2.65
 PA of pole (deg) : 1.17
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 3.247
 C/A sky separation (km) : 12882.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-02T18:49:17 K9.86 G13.24
 Pgt



Earth
 PMO
 IRTF
 KAV
 AAT
 MSO

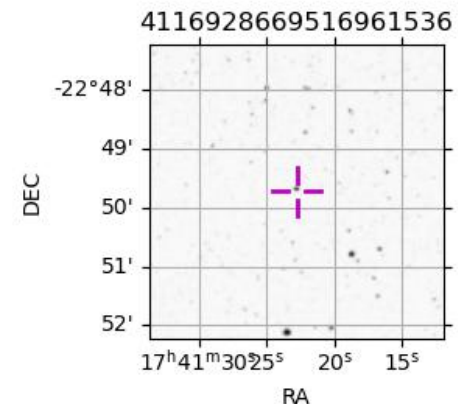


2031-03-02T18:49:17.8700 cc: 17 41 22.8810 s: -22 49 43.9889 C/A 3.2377 PA 181.89 deg v_sky +20.41 km/s D 05.47 AU

Credit: Styled after SORA/Lucky Star

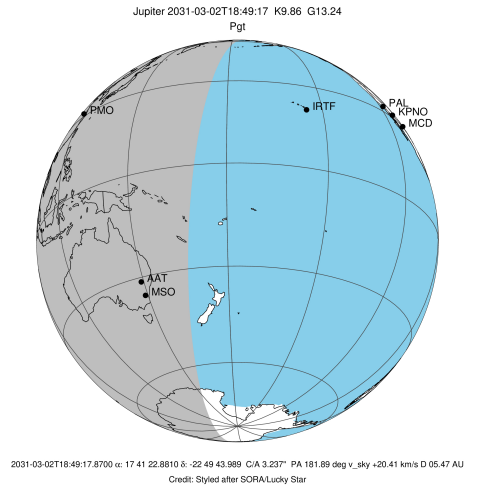
Observable events with sun below -5 deg and altitude above 5 deg

| 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 02 19:42 - MAR 02 19:42 | 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 | | | 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 | + | MAR 02 17:48 - MAR 02 17:48 | Pin |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + | MAR 02 17:48 - MAR 02 17:48 | Pin |

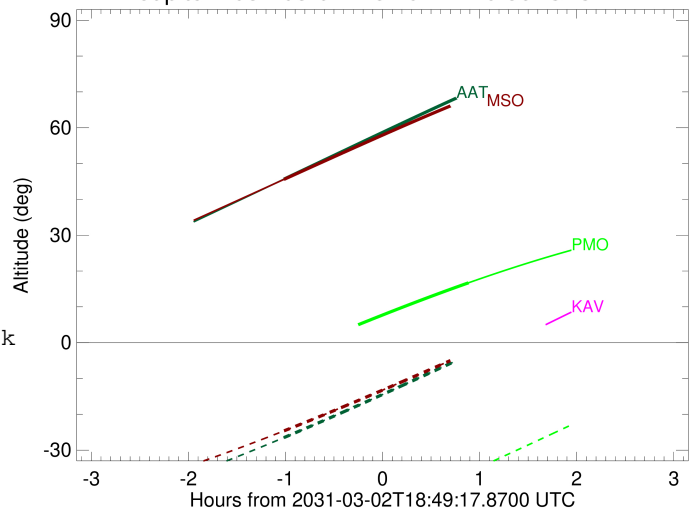


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-02T18:45:05.430
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PMO
Location            : Purple Mtn Obs. Nanking
Latitude (deg)      : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)       : 0.364
Gaia source ID      : 4116928669516961536
2Mass ID (if available) : 17412290-2249433
ICRS Star Coord at Epoch: 17h 41m 22.88099s -22:49:43.98875s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.863
G magnitude          : 13.240
RP magnitude         : 12.260
BP magnitude         : 14.214
DUPflag             : 0
Distance (au)       : 5.470
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.41
Sun-Target sep (deg) : 75.85
Sun-Moon sep (deg)  : 176.50
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.17
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 4.213
C/A sky separation (km) : 16713.5
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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Jupiter 2031-03-02T18:49:17 K9.86 G13.24

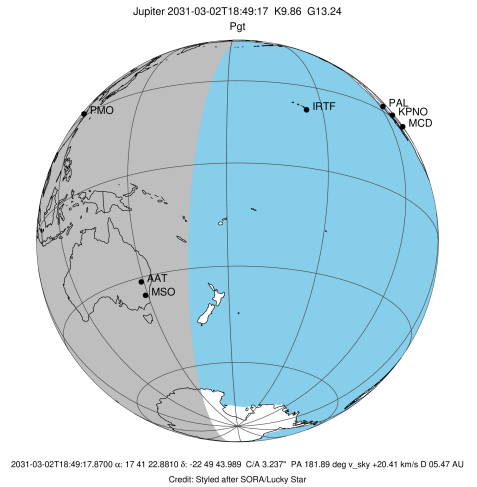


x: target alt < 5.0 deg or sun > -5.0 deg

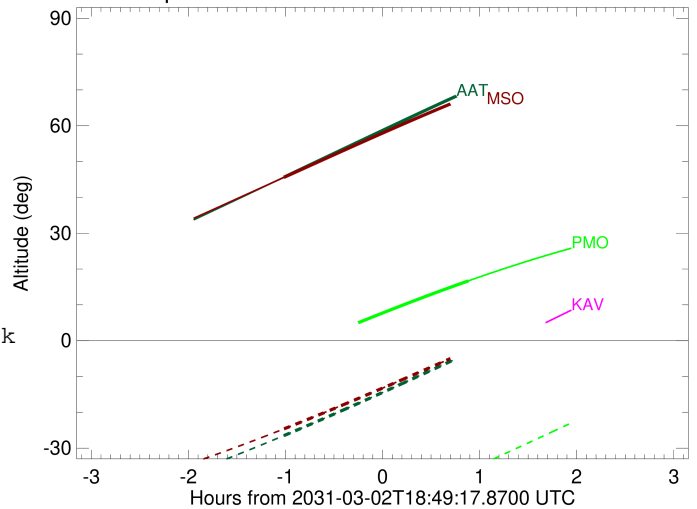
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-02T17:48:02.345 | -3.70x | -57.33 | 71491.6 | 12.36 | 14.07 |
| Jupiter | E | 2031-03-02T19:42:27.259 | 16.71 | -36.18 | 71491.4 | 14.61 | 16.59 |

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-03-02T18:46:44.870
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        : 4116928669516961536
2Mass ID (if available) : 17412290-2249433
ICRS Star Coord at Epoch: 17h 41m 22.88099s -22:49:43.98875s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 9.863
G magnitude           : 13.240
RP magnitude          : 12.260
BP magnitude          : 14.214
DUPflag              : 0
Distance (au)         : 5.470
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 20.41
Sun-Target sep (deg)  : 75.85
Sun-Moon sep (deg)    : 176.74
B (ring opening deg)  : -2.65
PA of pole (deg)      : 1.17
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 2.898
C/A sky separation (km) : 11497.7
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
    
```



Jupiter 2031-03-02T18:49:17 K9.86 G13.24

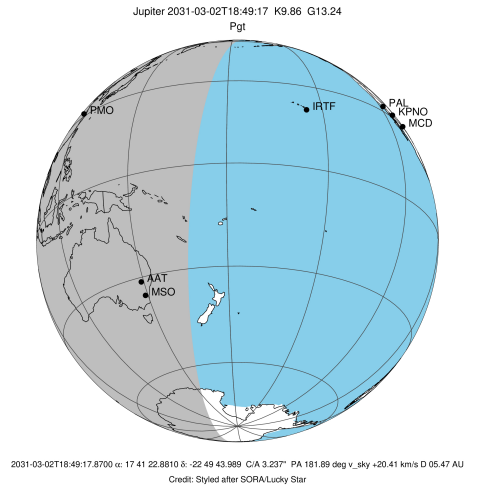


x: target alt < 5.0 deg or sun > -5.0 deg

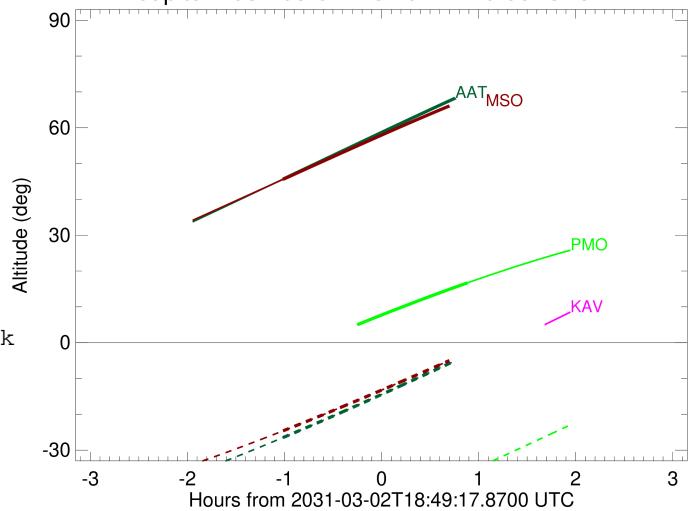
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-02T17:48:19.061 | 45.62 | -26.51 | 71491.8 | 8.21 | 9.36 |
| Jupiter | E | 2031-03-02T19:45:24.609 | 70.40 | -2.81x | 71491.7 | 10.19 | 11.62 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-02T18:46:52.480
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      : 4116928669516961536
2Mass ID (if available) : 17412290-2249433
ICRS Star Coord at Epoch: 17h 41m 22.88099s -22:49:43.98875s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.863
G magnitude          : 13.240
RP magnitude         : 12.260
BP magnitude         : 14.214
DUPflag             : 0
Distance (au)       : 5.470
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.41
Sun-Target sep (deg) : 75.85
Sun-Moon sep (deg)   : 176.75
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.17
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation ("): 2.792
C/A sky separation (km): 11077.6
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
    
```



Jupiter 2031-03-02T18:49:17 K9.86 G13.24



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 | 2031-03-02T17:48:25.673 | 45.58 | -24.61 | 71491.8 | 7.88 | 8.99 |
| Jupiter | E | 2031-03-02T19:45:32.754 | 68.67 | -2.13x | 71491.7 | 9.84 | 11.22 |