

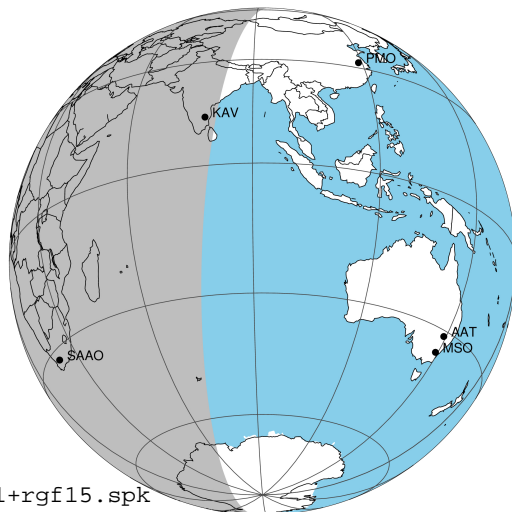
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-03T00:51:39.830
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116928639557442816
 2Mass ID (if available) : 17413097-2249392

Jupiter 2031-03-03T00:51:39 K9.30 G14.69 Pgt

ICRS Star Coord at Epoch: 17h 41m 30.96821s -22:49:39.21473s

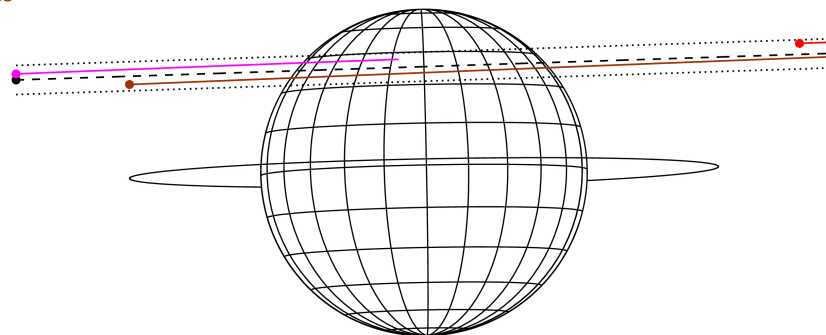
RUWE (>1.4 is poor) : 0.88
 K magnitude : 9.301
 G magnitude : 14.690
 RP magnitude : 13.362
 BP magnitude : 16.759
 DUPflag : 0
 Distance (au) : 5.466
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 20.30
 Sun-Target sep (deg) : 76.07
 Sun-Moon sep (deg) : 173.43
 B (ring opening deg) : -2.65
 PA of pole (deg) : 1.15
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 11.692
 C/A sky separation (km) : 46347.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-03T00:51:39 K9.30 G14.69
 Pgt



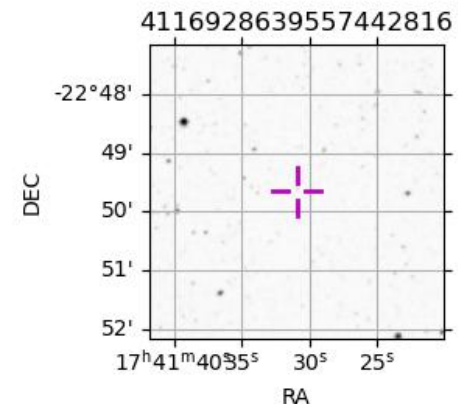
2031-03-03T00:51:39.8300 a: 17 41 30.9682 s: -22 49 39.215 C/A ***** PA 181.87 deg v_sky +20.30 km/s D 05.47 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 KAV
 SAAO



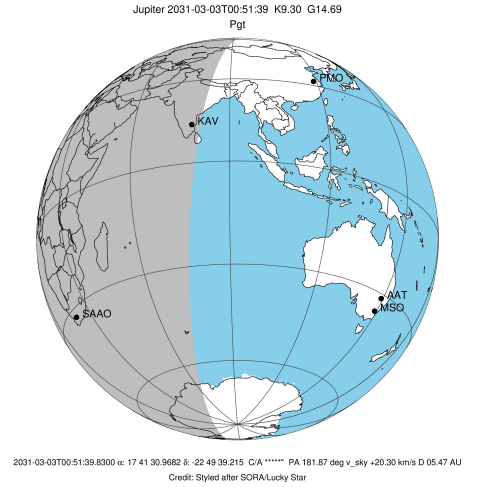
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | MAR 03 00:07 - MAR 03 00:07 | Pin |
| 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 | | | Pnn |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | + + | MAR 03 00:00 - MAR 03 01:34 | Pie |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |

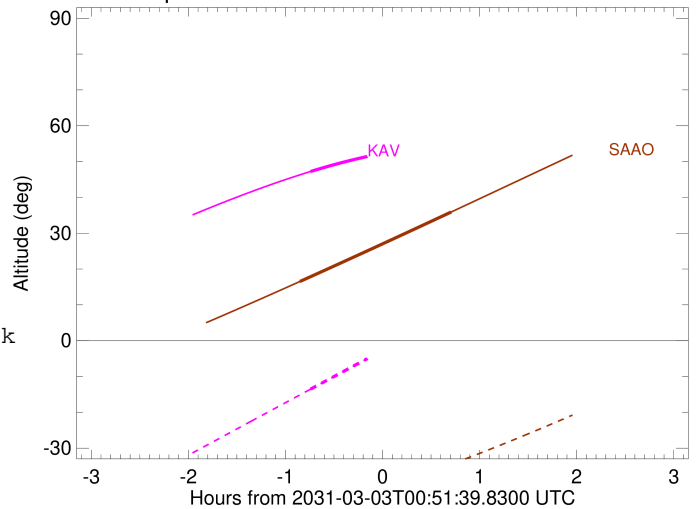


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target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-03-03T00:50:14.390
Event type             : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code          : KAV
Location               : Kavalur Observatory
Latitude (deg)         : 12.57556
E. Longitude (deg)    : 78.83167
Altitude (km)         : 0.722
Gaia source ID        : 4116928639557442816
2Mass ID (if available) : 17413097-2249392
ICRS Star Coord at Epoch: 17h 41m 30.96821s -22:49:39.21473s
RUWE (>1.4 is poor)  : 0.88
K magnitude            : 9.301
G magnitude            : 14.690
RP magnitude          : 13.362
BP magnitude          : 16.759
DUPflag               : 0
Distance (au)         : 5.466
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 20.30
Sun-Target sep (deg)  : 76.07
Sun-Moon sep (deg)    : 173.54
B (ring opening deg)  : -2.65
PA of pole (deg)     : 1.15
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 12.593
C/A sky separation (km) : 49921.1
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
    
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Jupiter 2031-03-03T00:51:39 K9.30 G14.69

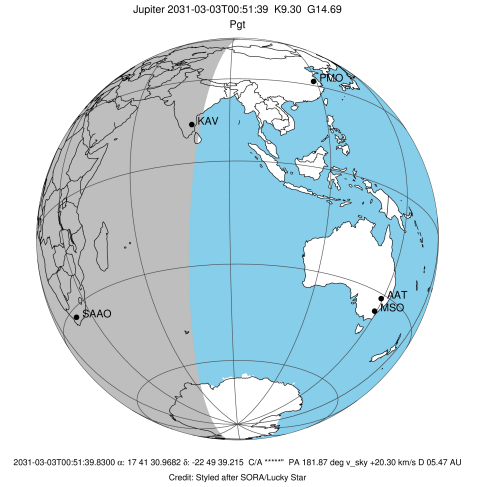


x: target alt < 5.0 deg or sun > -5.0 deg

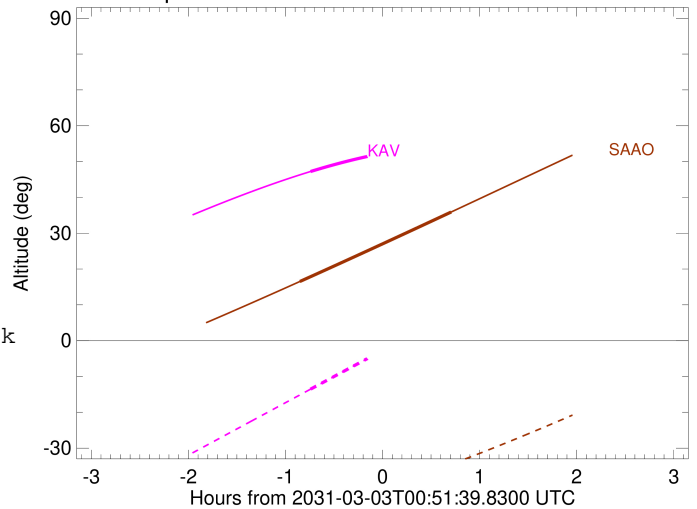
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-03T00:07:18.360 | 47.23 | -13.51 | 71487.5 | 43.31 | 47.03 |
| Jupiter | E | 2031-03-03T01:33:15.231 | 54.54 | 7.33x | 71487.2 | 45.06 | 48.76 |

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-03T00:47:14.090
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : SAAO
Location            : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)      : -32.37953
E. Longitude (deg)  : 20.81070
Altitude (km)       : 1.768
Gaia source ID      : 4116928639557442816
2Mass ID (if available) : 17413097-2249392
ICRS Star Coord at Epoch: 17h 41m 30.96821s -22:49:39.21473s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.301
G magnitude          : 14.690
RP magnitude         : 13.362
BP magnitude         : 16.759
DUPflag             : 0
Distance (au)       : 5.466
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 20.30
Sun-Target sep (deg) : 76.07
Sun-Moon sep (deg)  : 174.26
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.15
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 11.022
C/A sky separation (km) : 43693.8
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
    
```



Jupiter 2031-03-03T00:51:39 K9.30 G14.69



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 | 2031-03-03T00:00:37.370 | 16.52 | -47.24 | 71488.6 | 36.48 | 40.13 |
| Jupiter | E | 2031-03-03T01:34:03.952 | 35.90 | -34.49 | 71488.2 | 38.76 | 42.45 |