

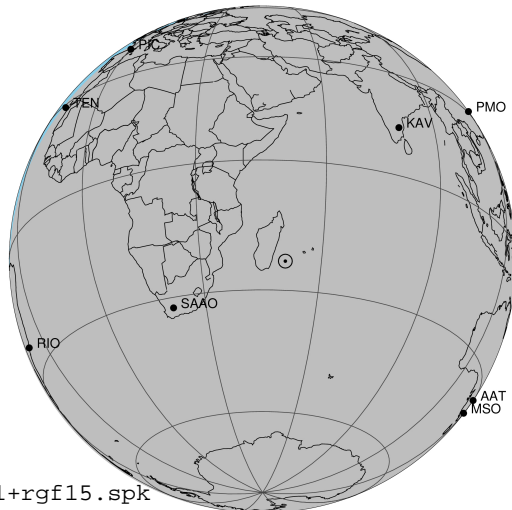
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-24T20:38:29.080
 Event type : Pt
 : Jupiter occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4068874719981673472
 2Mass ID (if available) : 17490650-2304195

Jupiter 2043-06-24T20:38:29 K8.70 G14.47 Pt

ICRS Star Coord at Epoch: 17h 49m 06.50954s -23:04:19.49318s

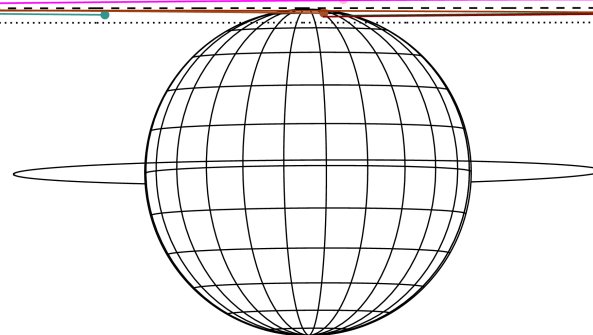
RUWE (>1.4 is poor) : 0.96
 K magnitude : 8.695
 G magnitude : 14.470
 RP magnitude : 13.058
 BP magnitude : 16.953
 DUPflag : 0
 Distance (au) : 4.252
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.30
 Sun-Target sep (deg) : 174.84
 Sun-Moon sep (deg) : 31.39
 B (ring opening deg) : -2.43
 PA of pole (deg) : 0.34
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 23.353
 C/A sky separation (km) : 72013.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-24T20:38:29 K8.70 G14.47 Pt



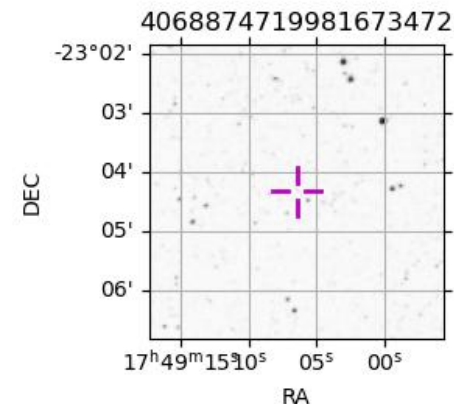
2043-06-24T20:38:29.0800 a: 17 49 06.5095 s: -23 04 19.493 C/A ***** PA 180.03 deg v_sky -16.30 km/s D 0.0425 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



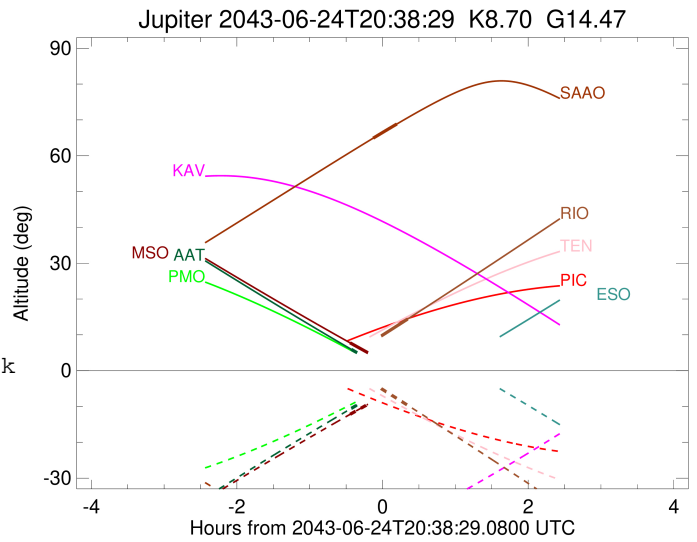
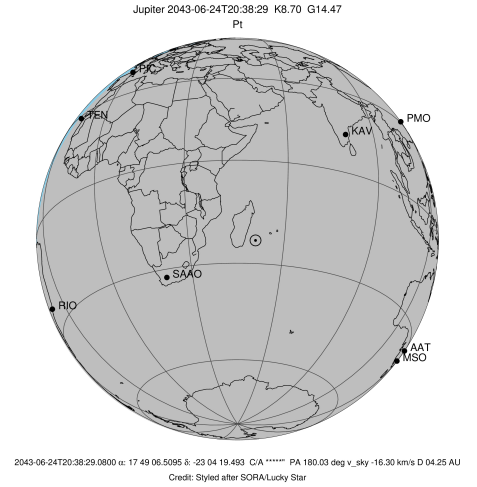
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | JUN 24 20:59 - JUN 24 20:59 | Pne |
| ESO | European Southern Obs. (3.6m) | -29.3 | 289.3 | | | Pnn |
| AAT | Siding Spring (AAT) | -31.3 | 149.1 | + | JUN 24 20:12 - JUN 24 20:12 | Pin |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | + | JUN 24 20:30 - JUN 24 20:50 | Pie |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + | JUN 24 20:11 - JUN 24 20:11 | Pin |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T20:43:45.770
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4068874719981673472
2Mass ID (if available) : 17490650-2304195
ICRS Star Coord at Epoch: 17h 49m 06.50954s -23:04:19.49318s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.695
G magnitude           : 14.470
RP magnitude          : 13.058
BP magnitude          : 16.953
DUPflag              : 0
Distance (au)         : 4.252
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg)  : 174.84
Sun-Moon sep (deg)   : 32.14
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.34
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 22.661
C/A sky separation (km): 69881.0
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
    
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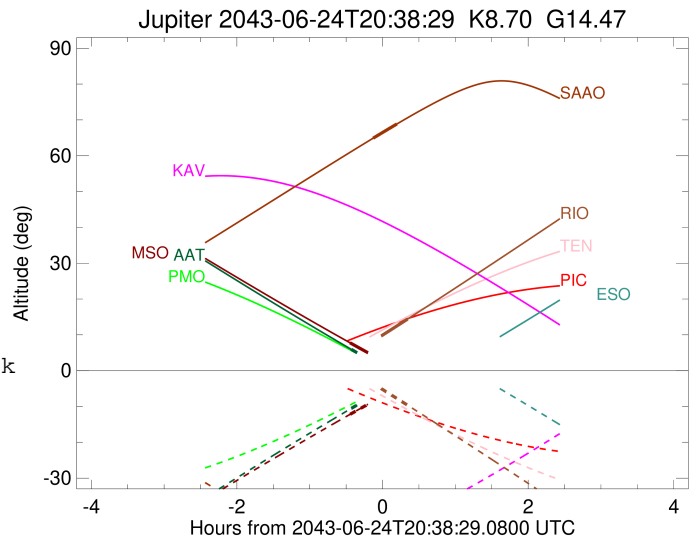
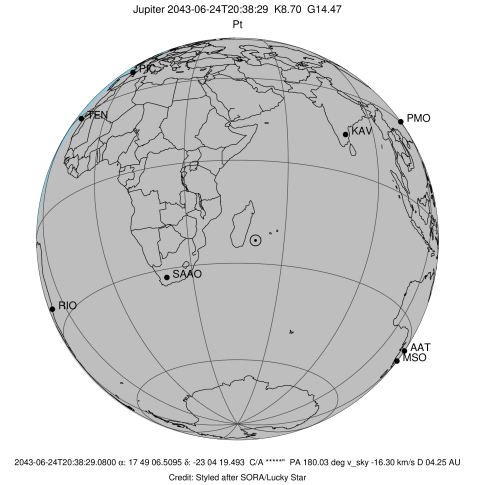


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-06-24T20:28:22.495 | 7.74 | -3.10x | 71484.4 | 76.73 | 78.26 |
| Jupiter | E | 2043-06-24T20:59:07.489 | 14.39 | -9.64 | 71484.3 | 78.48 | 79.81 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T20:33:42.470
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 4068874719981673472
2Mass ID (if available) : 17490650-2304195
ICRS Star Coord at Epoch: 17h 49m 06.50954s -23:04:19.49318s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.695
G magnitude           : 14.470
RP magnitude         : 13.058
BP magnitude         : 16.953
DUPflag              : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg) : 174.84
Sun-Moon sep (deg)   : 30.67
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.34
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 22.215
C/A sky separation (km): 68503.8
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
    
```

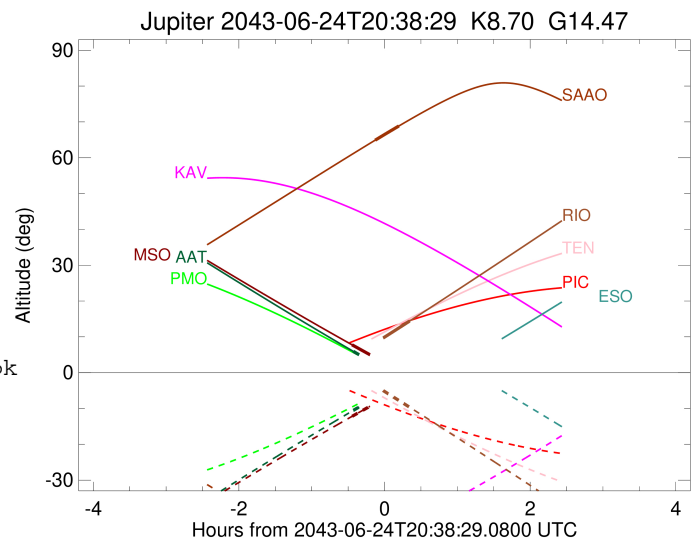
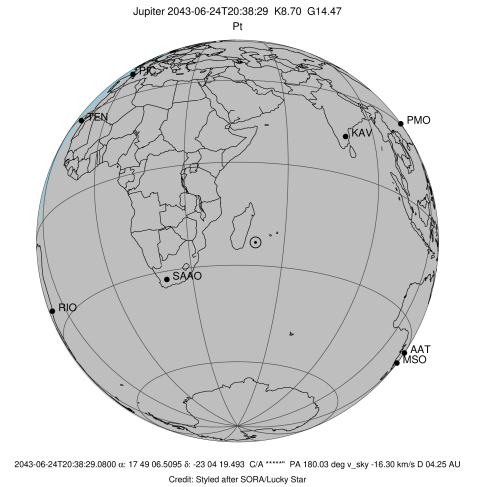


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I | 2043-06-24T20:12:44.401 | 5.95 | -10.54 | 71484.6 | 73.46 | 75.33 |
| Jupiter | E | 2043-06-24T20:54:43.253 | -2.14x | -2.30x | 71484.7 | 73.00 | 74.92 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-24T20:40:28.380
Event type          : Pt
                    : Jupiter occs: topocentric, not geocentric
                    : 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      : 4068874719981673472
2Mass ID (if available) : 17490650-2304195
ICRS Star Coord at Epoch: 17h 49m 06.50954s -23:04:19.49318s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 8.695
G magnitude          : 14.470
RP magnitude         : 13.058
BP magnitude         : 16.953
DUPflag             : 0
Distance (au)       : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg) : 174.84
Sun-Moon sep (deg)  : 32.09
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.34
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 22.968
C/A sky separation (km): 70828.3
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
    
```

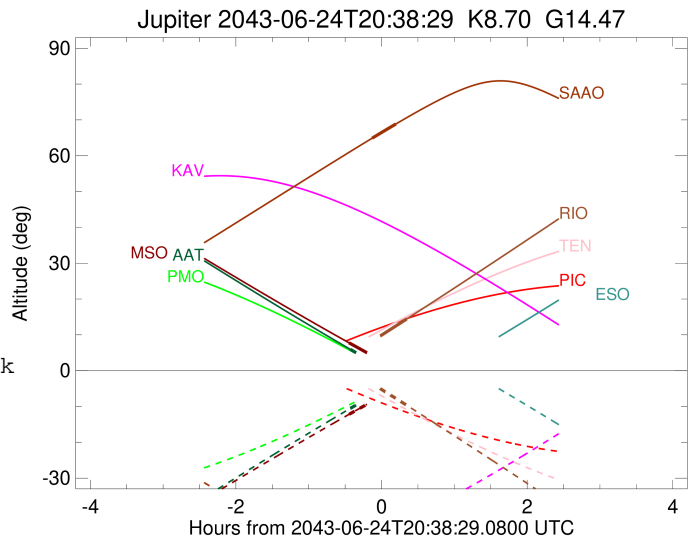
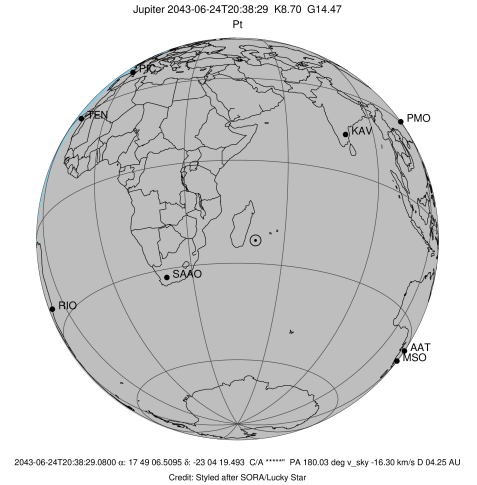


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2043-06-24T20:30:47.608 | 64.89 | -60.39 | 71484.2 | 81.36 | 82.37 |
| Jupiter | E | 2043-06-24T20:50:08.923 | 68.81 | -64.40 | 71484.1 | 82.35 | 83.24 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-24T20:33:55.350
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 4068874719981673472
2Mass ID (if available) : 17490650-2304195
ICRS Star Coord at Epoch: 17h 49m 06.50954s -23:04:19.49318s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 8.695
G magnitude          : 14.470
RP magnitude         : 13.058
BP magnitude         : 16.953
DUPflag             : 0
Distance (au)        : 4.252
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.30
Sun-Target sep (deg) : 174.84
Sun-Moon sep (deg)   : 30.71
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.34
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 22.110
C/A sky separation (km): 68181.0
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
    
```



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 | 2043-06-24T20:11:52.713 | 7.75 | -12.17 | 71484.7 | 72.56 | 74.53 |
| Jupiter | E | 2043-06-24T20:56:00.840 | -0.39x | -3.87x | 71484.7 | 72.15 | 74.16 |