

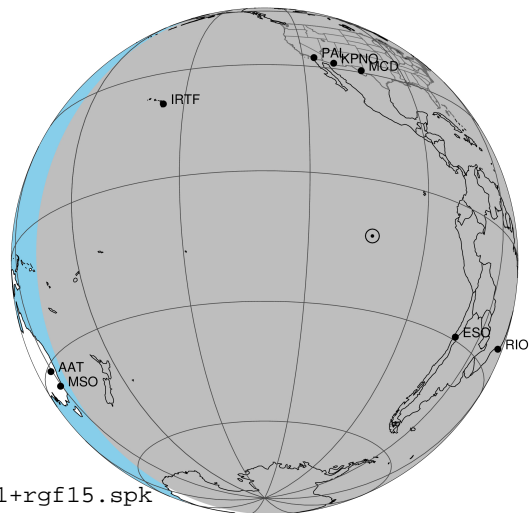
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2044-08-17T07:01:39.060
 Event type : Pt
 : Jupiter occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 6865862946190909056
 2Mass ID (if available) : 20030240-2104241

Jupiter 2044-08-17T07:01:39 K9.64 G12.15 Pt

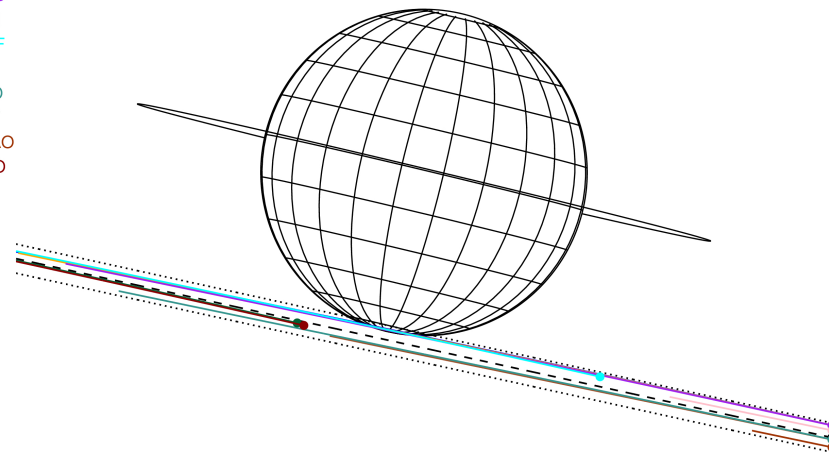
ICRS Star Coord at Epoch: 20h 03m 02.40353s -21:04:25.01165s

RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.637
 G magnitude : 12.155
 RP magnitude : 11.391
 BP magnitude : 12.779
 DUPflag : 0
 Distance (au) : 4.186
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.16
 Sun-Target sep (deg) : 154.09
 Sun-Moon sep (deg) : 127.21
 B (ring opening deg) : -0.78
 PA of pole (deg) : -13.45
 Pole direction: RA (deg): 268.05690
 Dec (deg): 64.49728
 C/A sky separation (") : 24.748
 C/A sky separation (km) : 75131.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2044-08-17T07:01:39 K9.64 G12.15 Pt



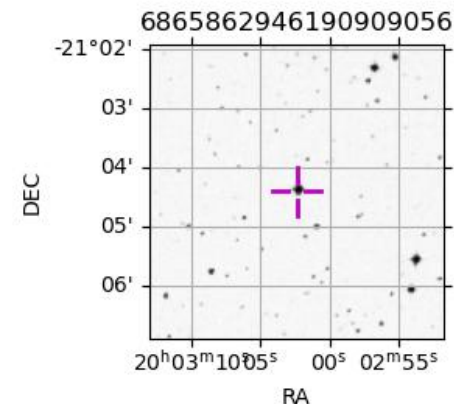
Earth
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2044-08-17T07:01:39.0600 a: 20 03 02.40353 s -21 04 25.012 C/A ***** PA 347.63 deg v_sky -13.16 km/s D 04.19 AU
 Credit: Styled after SORA/Lucky Star

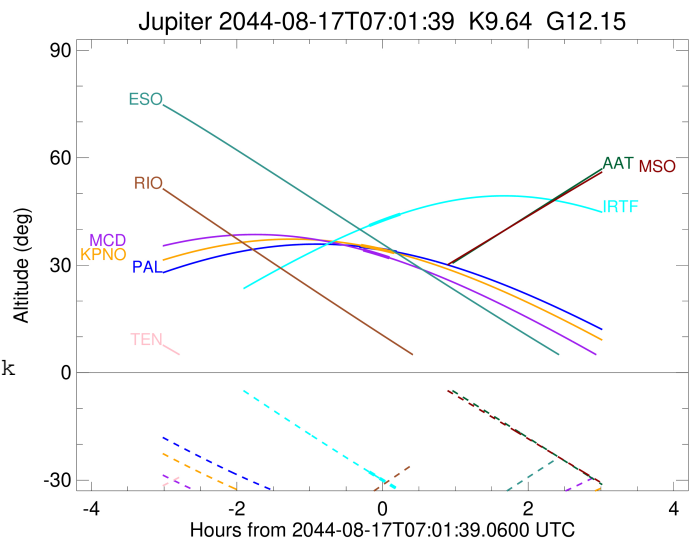
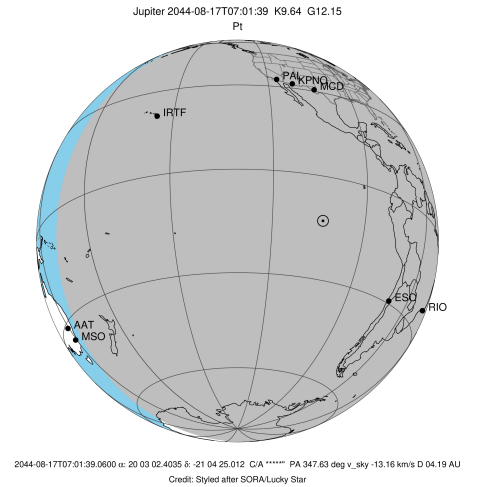
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + + | AUG 17 06:42 - AUG 17 07:13 | Pie |
| PMO | Purple Mtn Obs. Nanking | 32.1 | 118.8 | | | Pnn |
| KPNO | Kitt Peak Natl Obs | 32.0 | 248.4 | + + | AUG 17 06:43 - AUG 17 07:11 | Pie |
| MCD | McDonald Obs. 2.7m | 30.7 | 256.0 | + + | AUG 17 06:45 - AUG 17 07:07 | Pie |
| TEN | Teide Obs./Tenerife | 28.3 | 343.5 | | | Pnn |
| IRTF | Mauna Kea/IRTF | 19.8 | 204.5 | + + | AUG 17 06:50 - AUG 17 07:16 | Pie |
| 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 | | | Pnn |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-08-17T06:58:03.680
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 6865862946190909056
2Mass ID (if available) : 20030240-2104241
ICRS Star Coord at Epoch: 20h 03m 02.40353s -21:04:25.01165s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.637
G magnitude           : 12.155
RP magnitude         : 11.391
BP magnitude         : 12.779
DUPflag              : 0
Distance (au)        : 4.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 154.09
Sun-Moon sep (deg)  : 127.91
B (ring opening deg) : -0.78
PA of pole (deg)    : -13.45
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 23.187
C/A sky separation (km): 70391.8
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
    
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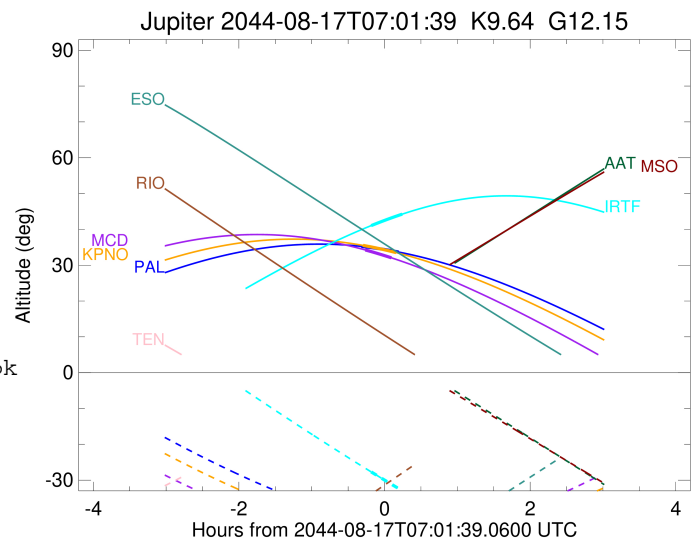
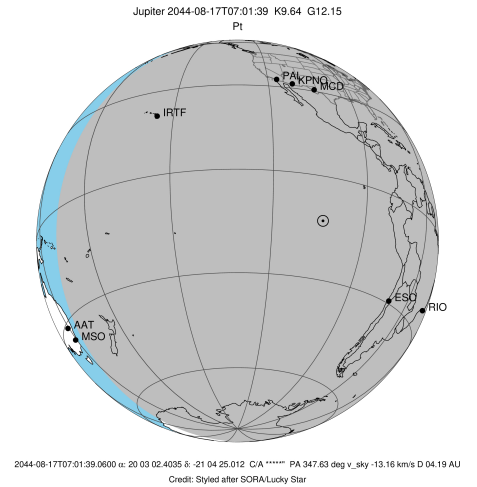


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2044-08-17T06:42:42.034 | 35.24 | -40.83 | 71491.2 | -78.37 | -79.72 |
| Jupiter | E | 2044-08-17T07:13:26.036 | 33.65 | -42.77 | 71491.2 | -81.48 | -82.47 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-08-17T06:57:25.280
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 6865862946190909056
2Mass ID (if available) : 20030240-2104241
ICRS Star Coord at Epoch: 20h 03m 02.40353s -21:04:25.01165s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.637
G magnitude           : 12.155
RP magnitude          : 11.391
BP magnitude          : 12.779
DUPflag              : 0
Distance (au)         : 4.186
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 154.09
Sun-Moon sep (deg)   : 127.95
B (ring opening deg) : -0.78
PA of pole (deg)     : -13.45
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 23.266
C/A sky separation (km): 70631.7
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
    
```

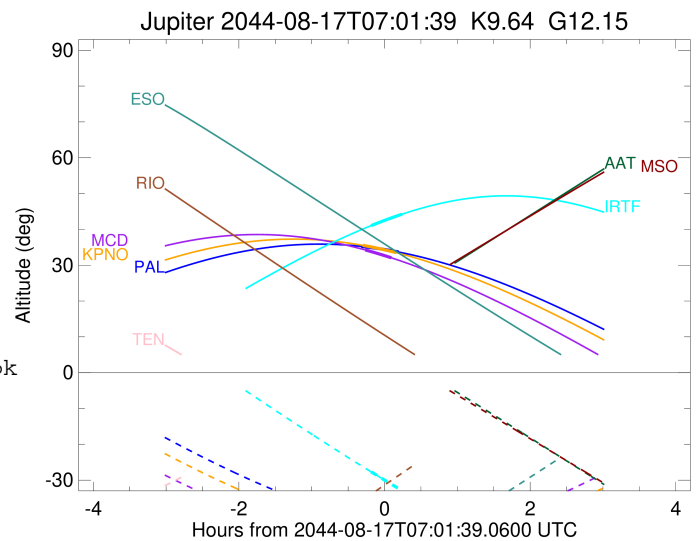
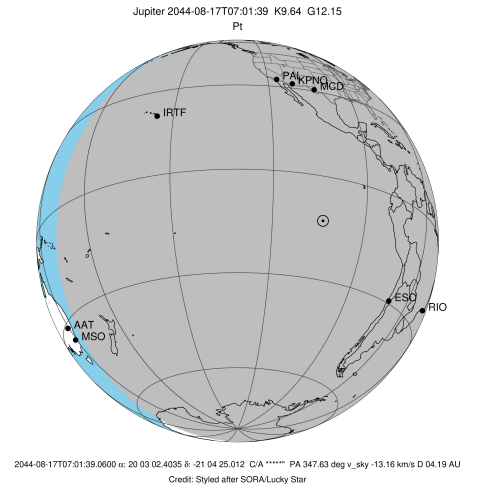


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2044-08-17T06:43:49.275 | 35.53 | -43.67 | 71491.2 | -79.49 | -80.71 |
| Jupiter | E | 2044-08-17T07:11:01.970 | 33.53 | -44.80 | 71491.2 | -82.68 | -83.54 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-08-17T06:56:31.930
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 6865862946190909056
2Mass ID (if available) : 20030240-2104241
ICRS Star Coord at Epoch: 20h 03m 02.40353s -21:04:25.01165s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.637
G magnitude           : 12.155
RP magnitude          : 11.391
BP magnitude          : 12.779
DUPflag              : 0
Distance (au)         : 4.186
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 154.09
Sun-Moon sep (deg)   : 127.99
B (ring opening deg) : -0.78
PA of pole (deg)     : -13.45
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 23.373
C/A sky separation (km): 70956.9
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
    
```

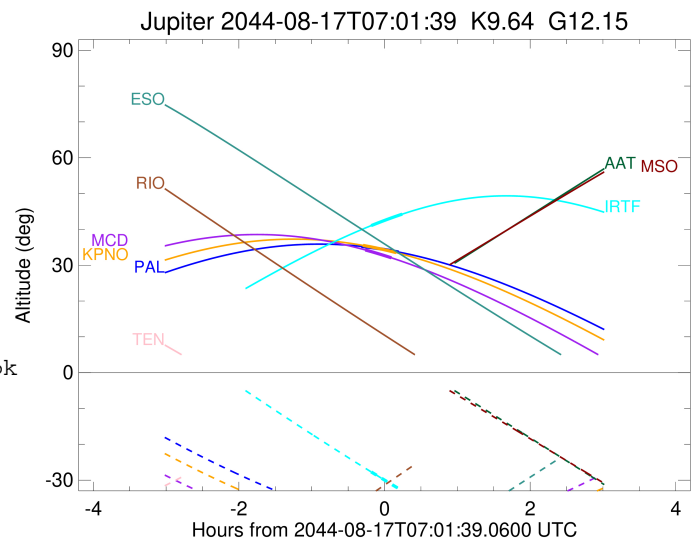
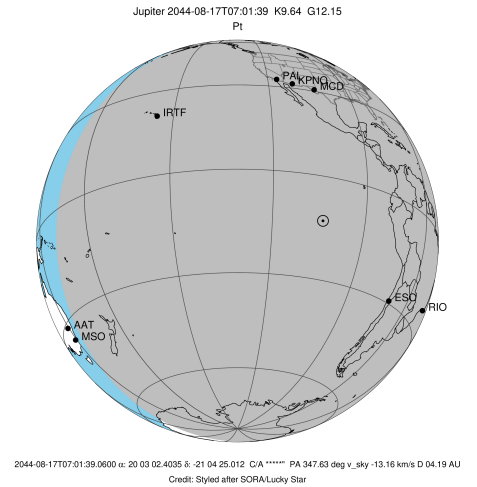


x: target alt < 5.0 deg or sun > -5.0 deg

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2044-08-17T06:45:46.892 | 34.26 | -46.19 | 71491.2 | -81.30 | -82.32 |
| Jupiter | E | 2044-08-17T07:07:17.499 | 32.06 | -46.29 | 71491.2 | -84.61 | -85.24 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-08-17T07:03:30.230
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 6865862946190909056
2Mass ID (if available) : 20030240-2104241
ICRS Star Coord at Epoch: 20h 03m 02.40353s -21:04:25.01165s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.637
G magnitude           : 12.155
RP magnitude         : 11.391
BP magnitude         : 12.779
DUPflag              : 0
Distance (au)        : 4.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 154.09
Sun-Moon sep (deg)  : 127.62
B (ring opening deg) : -0.78
PA of pole (deg)    : -13.45
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 23.295
C/A sky separation (km): 70719.9
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 | 2044-08-17T06:50:39.725 | 41.04 | -27.69 | 71491.2 | -80.39 | -81.51 |
| Jupiter | E | 2044-08-17T07:16:20.386 | 44.25 | -32.96 | 71491.2 | -82.73 | -83.59 |