

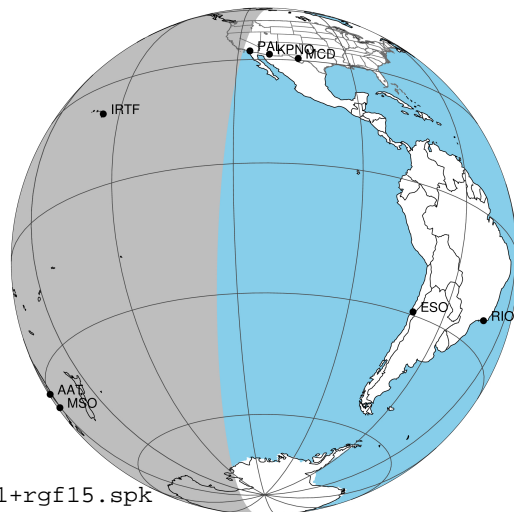
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-06T14:20:13.230
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116882730553857792
 2Mass ID (if available) : 17432096-2250384

Jupiter 2031-03-06T14:20:13 K8.19 G14.43 Pgt

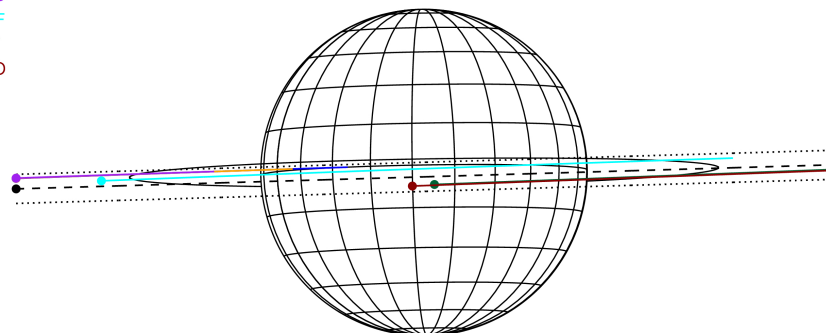
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s

RUWE (>1.4 is poor) : 0.87
 K magnitude : 8.194
 G magnitude : 14.429
 RP magnitude : 12.916
 BP magnitude : 17.739
 DUPflag : 0
 Distance (au) : 5.409
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 18.70
 Sun-Target sep (deg) : 79.21
 Sun-Moon sep (deg) : 131.12
 B (ring opening deg) : -2.64
 PA of pole (deg) : 0.96
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 0.486
 C/A sky separation (km) : 1907.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-06T14:20:13 K8.19 G14.43
 Pgt



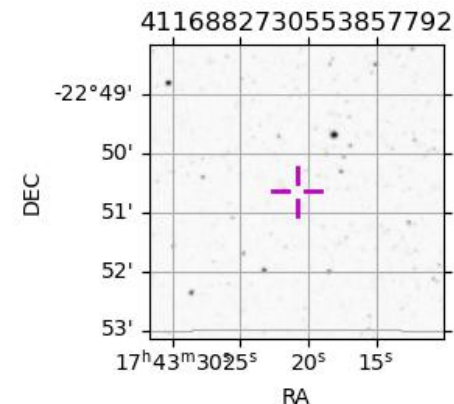
Earth
 PAL
 KPNO
 MCD
 IRTF
 AAT
 MSO



2031-03-06T14:20:13.2300 a: 17 43 20.9553 & -22 50 38.716 C/A 0.496" PA 1.68 deg v_sky +18.70 km/s D 05.41 AU
 Credit: Styled after SORA/Lucky Star

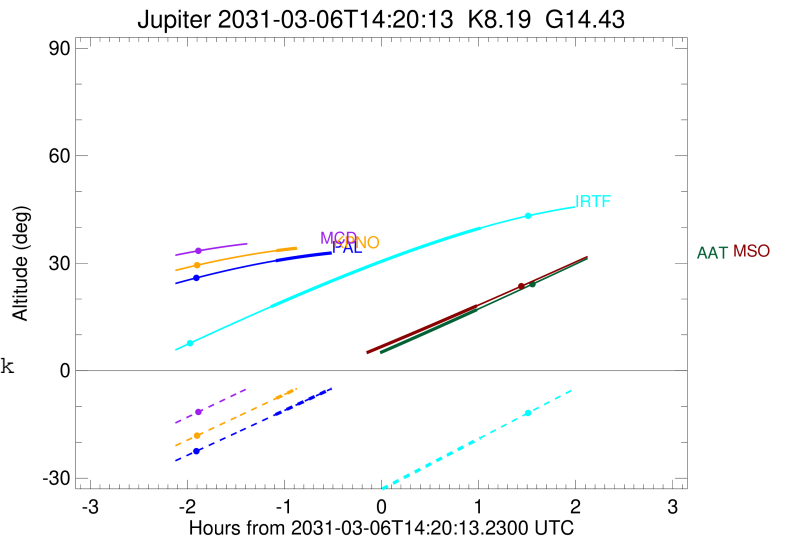
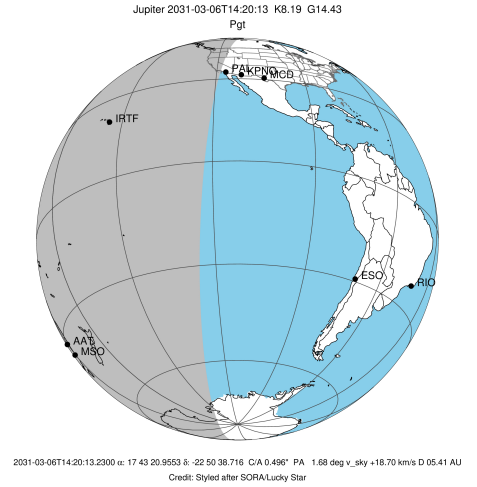
Observable events with sun below -5 deg and altitude above 5 deg

| 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 | + | MAR 06 13:14 - MAR 06 13:14 | Pin |
| PMO | Purple Mtn Obs. Nanking | 32.1 | 118.8 | | | Pnn |
| KPNO | Kitt Peak Natl Obs | 32.0 | 248.4 | + | MAR 06 13:15 - MAR 06 13:15 | Pin |
| 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 | + + | MAR 06 13:11 - MAR 06 15:21 | 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 | + | MAR 06 15:19 - MAR 06 15:19 | Pne |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + | MAR 06 15:19 - MAR 06 15:19 | Pne |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-06T14:19:45.210
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : 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      : 4116882730553857792
2Mass ID (if available) : 17432096-2250384
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 8.194
G magnitude          : 14.429
RP magnitude         : 12.916
BP magnitude         : 17.739
DUPflag             : 0
Distance (au)       : 5.409
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.70
Sun-Target sep (deg) : 79.21
Sun-Moon sep (deg)  : 131.50
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.96
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation ("): 0.857
C/A sky separation (km) : 3361.1
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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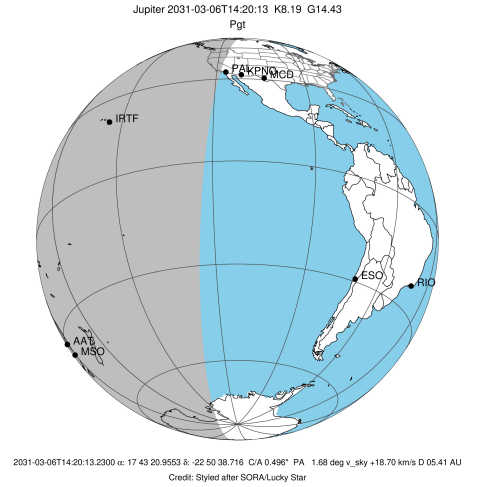


x: target alt < 5.0 deg or sun > -5.0 deg

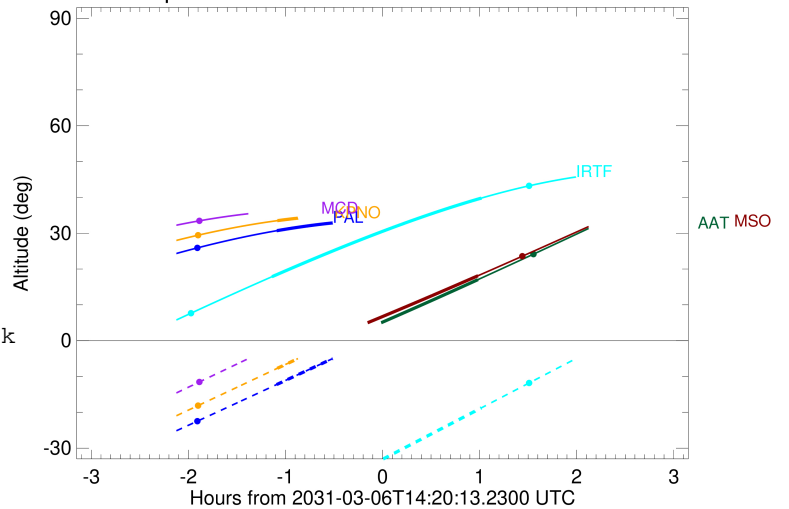
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-06T13:14:50.668 | 30.69 | -12.24 | 71492.0 | 1.83 | 2.09 |
| Jupiter | E | 2031-03-06T15:24:46.559 | 32.77 | 14.62x | 71492.0 | 3.42 | 3.91 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-06T14:20:12.300
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: 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        : 4116882730553857792
2Mass ID (if available) : 17432096-2250384
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.194
G magnitude           : 14.429
RP magnitude          : 12.916
BP magnitude          : 17.739
DUPflag               : 0
Distance (au)         : 5.409
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 18.70
Sun-Target sep (deg) : 79.21
Sun-Moon sep (deg)   : 131.47
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.96
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 0.839
C/A sky separation (km) : 3291.9
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
    
```



Jupiter 2031-03-06T14:20:13 K8.19 G14.43

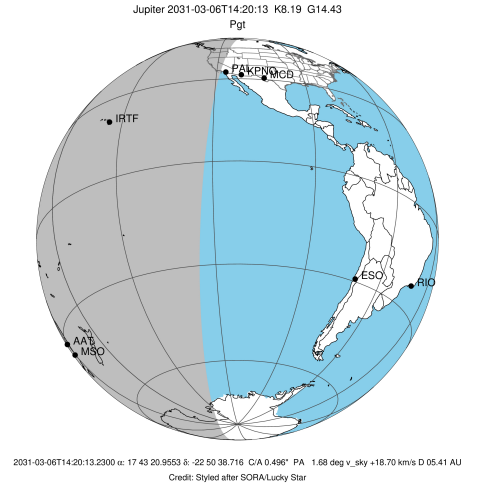


x: target alt < 5.0 deg or sun > -5.0 deg

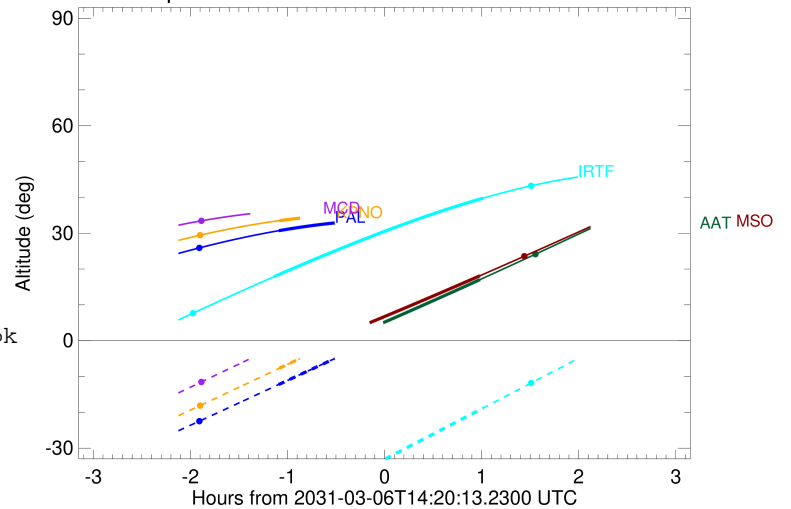
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-06T13:15:14.902 | 33.50 | -7.71 | 71492.0 | 1.81 | 2.07 |
| Jupiter | E | 2031-03-06T15:25:14.309 | 32.83 | 19.36x | 71492.0 | 3.32 | 3.80 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-06T14:16:26.330
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        : 4116882730553857792
2Mass ID (if available) : 17432096-2250384
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.194
G magnitude           : 14.429
RP magnitude          : 12.916
BP magnitude          : 17.739
DUPflag              : 0
Distance (au)         : 5.409
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 18.70
Sun-Target sep (deg) : 79.21
Sun-Moon sep (deg)   : 131.83
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.96
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 0.422
C/A sky separation (km) : 1655.8
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 2031-03-06T14:20:13 K8.19 G14.43

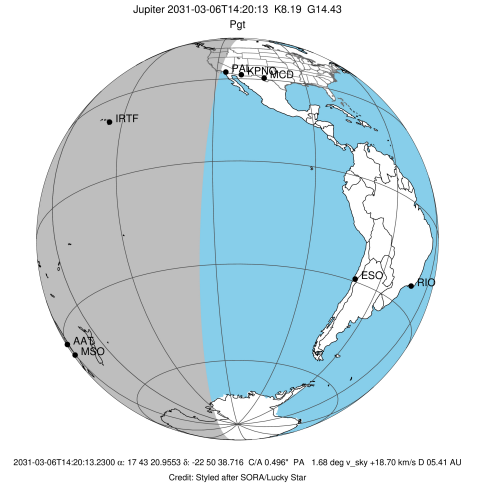


x: target alt < 5.0 deg or sun > -5.0 deg

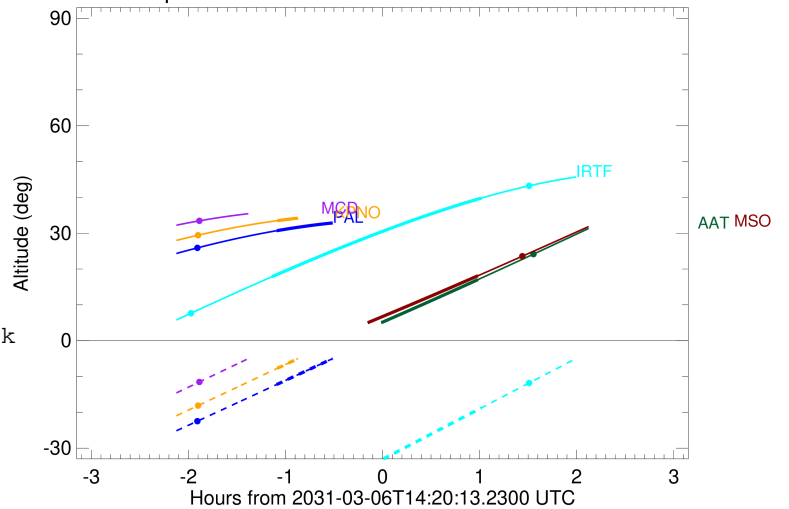
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-06T13:11:52.356 | 17.84 | -48.94 | 71492.0 | 0.16 | 0.18 |
| Jupiter | E | 2031-03-06T15:21:23.312 | 39.80 | -18.74 | 71492.0 | 2.39 | 2.73 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-06T14:15:32.410
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       : 4116882730553857792
2Mass ID (if available) : 17432096-2250384
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.194
G magnitude           : 14.429
RP magnitude         : 12.916
BP magnitude         : 17.739
DUPflag              : 0
Distance (au)        : 5.409
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.70
Sun-Target sep (deg) : 79.21
Sun-Moon sep (deg)  : 131.73
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.96
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation ("): 1.382
C/A sky separation (km) : 5422.1
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
    
```



Jupiter 2031-03-06T14:20:13 K8.19 G14.43

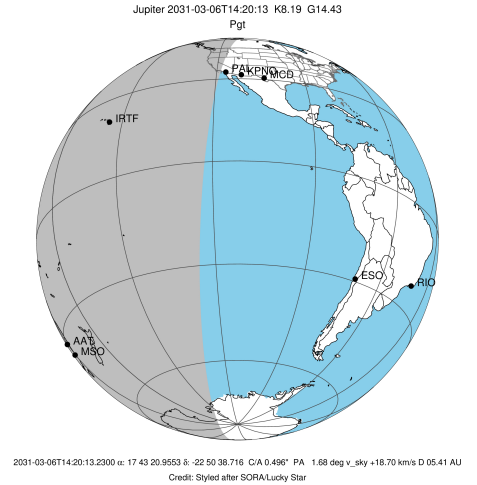


x: target alt < 5.0 deg or sun > -5.0 deg

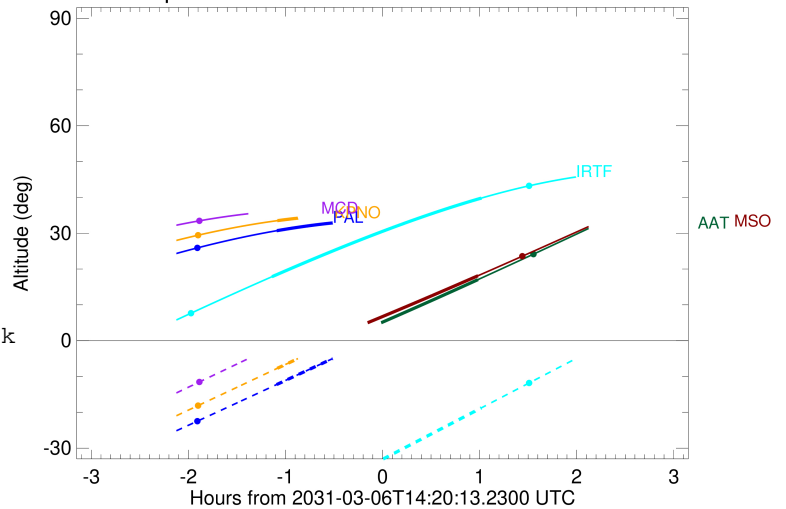
| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I | 2031-03-06T13:12:28.135 | -7.66x | -50.36 | 71491.9 | -5.52 | -6.30 |
| Jupiter | E | 2031-03-06T15:19:02.957 | 17.01 | -50.26 | 71492.0 | -3.14 | -3.59 |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-06T14:15:45.900
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       : 4116882730553857792
2Mass ID (if available) : 17432096-2250384
ICRS Star Coord at Epoch: 17h 43m 20.95529s -22:50:38.71632s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.194
G magnitude           : 14.429
RP magnitude         : 12.916
BP magnitude         : 17.739
DUPflag              : 0
Distance (au)        : 5.409
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.70
Sun-Target sep (deg) : 79.21
Sun-Moon sep (deg)   : 131.72
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.96
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 1.464
C/A sky separation (km) : 5745.5
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
    
```



Jupiter 2031-03-06T14:20:13 K8.19 G14.43



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 | 2031-03-06T13:12:41.852 | -5.47x | -46.68 | 71491.9 | -5.76 | -6.57 |
| Jupiter | E | 2031-03-06T15:19:15.234 | 18.13 | -46.59 | 71492.0 | -3.42 | -3.91 |