

target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2035-10-31T23:42:08.160  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 34080604149311488  
 2Mass ID (if available) : 02561328+1521538

Jupiter 2035-10-31T23:42:08 K7.92 G9.27 Pgt

ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s

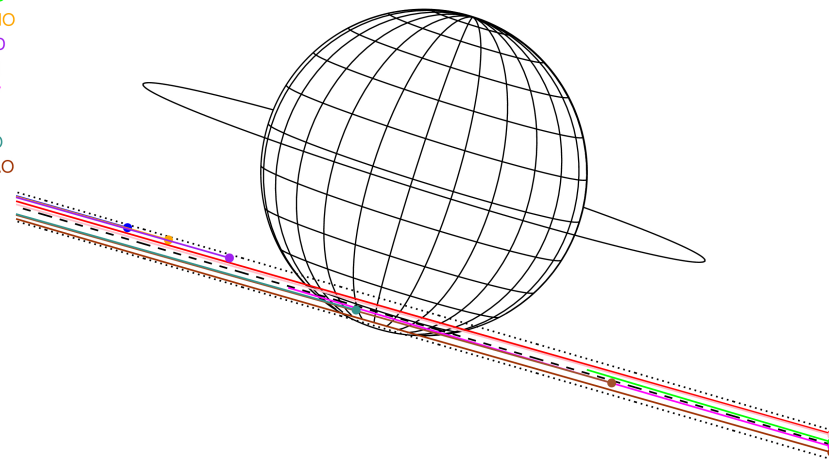
RUWE (>1.4 is poor) : 1.01  
 K magnitude : 7.920  
 G magnitude : 9.270  
 RP magnitude : 8.797  
 BP magnitude : 9.571  
 DUPflag : 0  
 Distance (au) : 3.999  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.16  
 Sun-Target sep (deg) : 171.66  
 Sun-Moon sep (deg) : 176.03  
 B (ring opening deg) : 3.41  
 PA of pole (deg) : -17.44  
 Pole direction: RA (deg): 268.05638  
 Dec (deg): 64.49682  
 C/A sky separation (") : 22.211  
 C/A sky separation (km) : 64421.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2035-10-31T23:42:08 K7.92 G9.27  
 Pgt



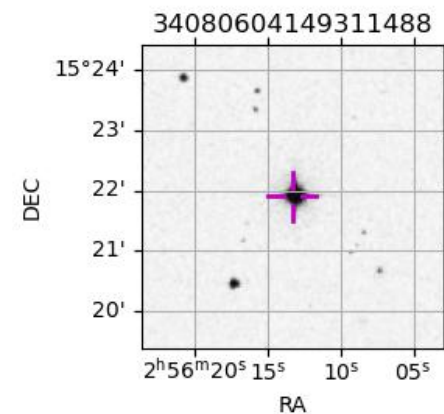
2035-10-31T23:42:08.1600 a: 02 56 13.3225 s: +15 21 53.840 C/A \*\*\*\*\* PA 343.72 deg v\_sky -16.16 km/s D 04.00 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PIC  
 PAL  
 PMO  
 KPNO  
 MCD  
 TEN  
 KAV  
 RIO  
 ESO  
 SAAO



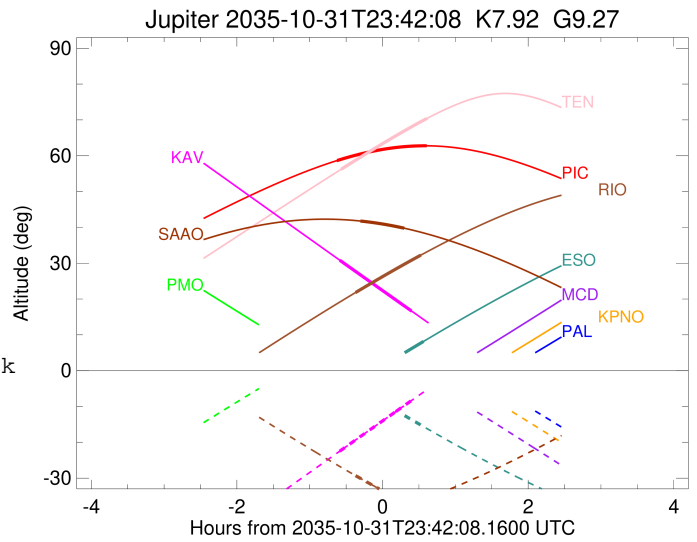
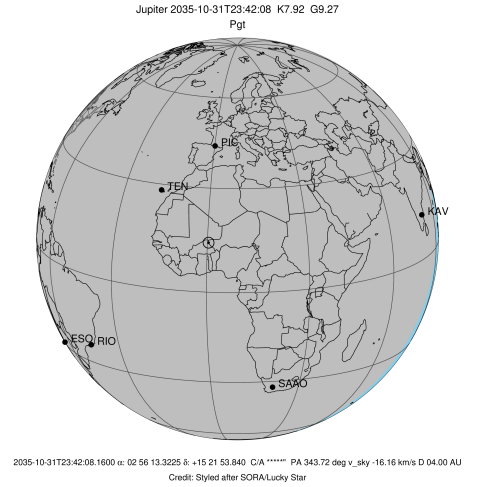
Observable events with sun below -5 deg and altitude above 5 deg

| Obs  | Location                          | lat   | Elon  | Target | Observed Events Interval    | OCode |
|------|-----------------------------------|-------|-------|--------|-----------------------------|-------|
| PIC  | Pic du Midi                       | 42.9  | 0.1   | + +    | OCT 31 23:04 - NOV 01 00:18 | Pie   |
| 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 | + +    | OCT 31 23:08 - NOV 01 00:18 | Pie   |
| IRTF | Mauna Kea/IRTF                    | 19.8  | 204.5 |        |                             | Pnn   |
| KAV  | Kavalur Observatory               | 12.6  | 78.8  | + +    | OCT 31 23:06 - NOV 01 00:06 | Pie   |
| RIO  | Rio de Janeiro                    | -22.9 | 316.8 | + +    | OCT 31 23:20 - NOV 01 00:13 | Pie   |
| ESO  | European Southern Obs. (3.6m)     | -29.3 | 289.3 | +      | NOV 01 00:15 - NOV 01 00:15 | Pne   |
| AAT  | Siding Spring (AAT)               | -31.3 | 149.1 |        |                             | Pnn   |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8  | + +    | OCT 31 23:24 - OCT 31 23:59 | Pie   |
| MSO  | Mt. Stromlo Observatory           | -35.3 | 149.0 |        |                             | Pnn   |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2035-10-31T23:41:36.030
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PIC
Location              : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID        : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor)  : 1.01
K magnitude           : 7.920
G magnitude           : 9.270
RP magnitude          : 8.797
BP magnitude          : 9.571
DUPflag              : 0
Distance (au)         : 3.999
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -16.16
Sun-Target sep (deg)  : 171.66
Sun-Moon sep (deg)    : 176.46
B (ring opening deg)  : 3.41
PA of pole (deg)      : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation (") : 21.171
C/A sky separation (km) : 61406.2
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
    
```

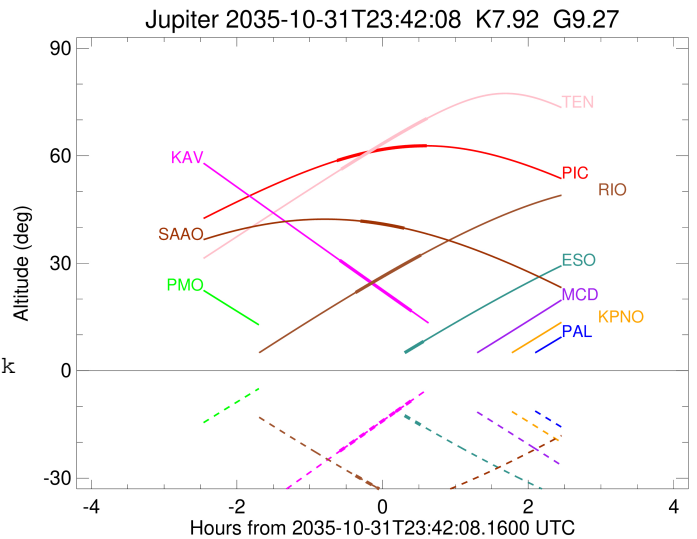
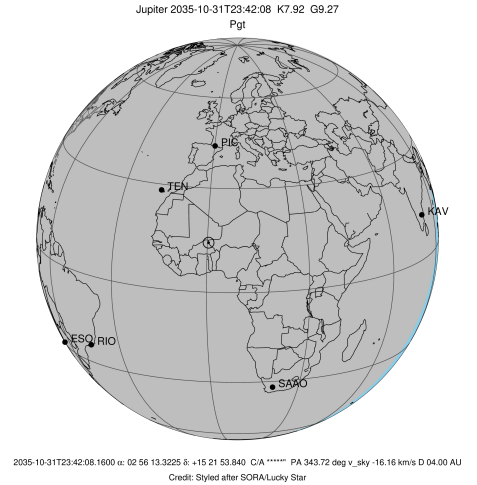


x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2035-10-31T23:04:33.169 | 58.63 | -60.36  | 71480.7 | -57.50  | -60.73       |
| Jupiter | E   | 2035-11-01T00:18:37.100 | 62.76 | -60.54  | 71480.0 | -60.54  | -63.56       |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2035-10-31T23:43:28.830
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 7.920
G magnitude           : 9.270
RP magnitude          : 8.797
BP magnitude          : 9.571
DUPflag              : 0
Distance (au)         : 3.999
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.16
Sun-Target sep (deg)  : 171.66
Sun-Moon sep (deg)   : 176.48
B (ring opening deg) : 3.41
PA of pole (deg)     : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation ("): 21.475
C/A sky separation (km): 62287.7
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
    
```

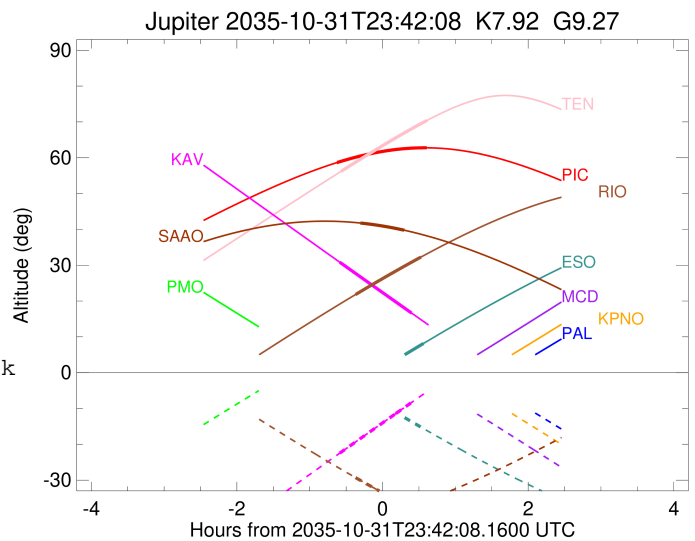
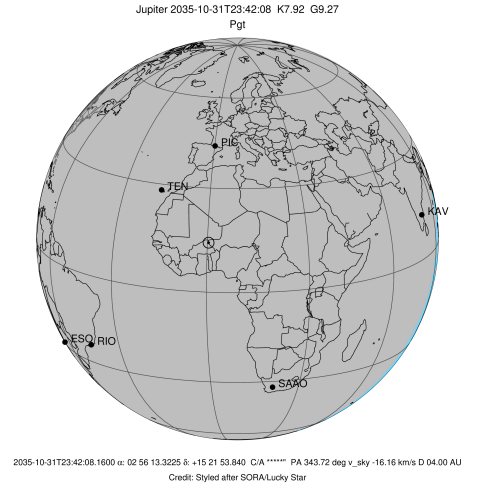


x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2035-10-31T23:08:00.882 | 56.20 | -62.68  | 71480.4 | -58.77  | -61.92       |
| Jupiter | E   | 2035-11-01T00:18:52.822 | 70.42 | -74.45  | 71479.6 | -62.09  | -65.00       |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2035-10-31T23:36:26.740
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       : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 7.920
G magnitude           : 9.270
RP magnitude         : 8.797
BP magnitude         : 9.571
DUPflag              : 0
Distance (au)        : 3.999
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.16
Sun-Target sep (deg) : 171.66
Sun-Moon sep (deg)   : 175.51
B (ring opening deg) : 3.41
PA of pole (deg)     : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation (") : 22.528
C/A sky separation (km) : 65340.8
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
    
```

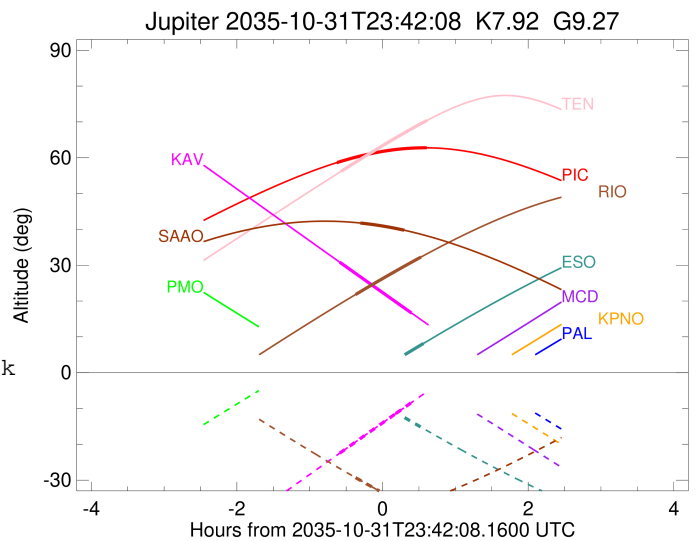
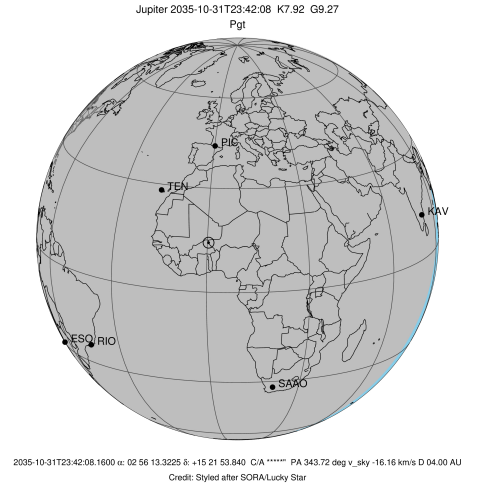


x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2035-10-31T23:06:54.163 | 30.83 | -22.47  | 71479.0 | -64.89  | -67.57       |
| Jupiter | E   | 2035-11-01T00:06:04.544 | 16.64 | -8.33   | 71478.6 | -66.75  | -69.27       |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2035-10-31T23:46:57.110
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: 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       : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 7.920
G magnitude          : 9.270
RP magnitude         : 8.797
BP magnitude         : 9.571
DUPflag             : 0
Distance (au)        : 3.999
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.16
Sun-Target sep (deg) : 171.66
Sun-Moon sep (deg)  : 176.09
B (ring opening deg) : 3.41
PA of pole (deg)    : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation ("): 22.890
C/A sky separation (km): 66391.3
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
    
```

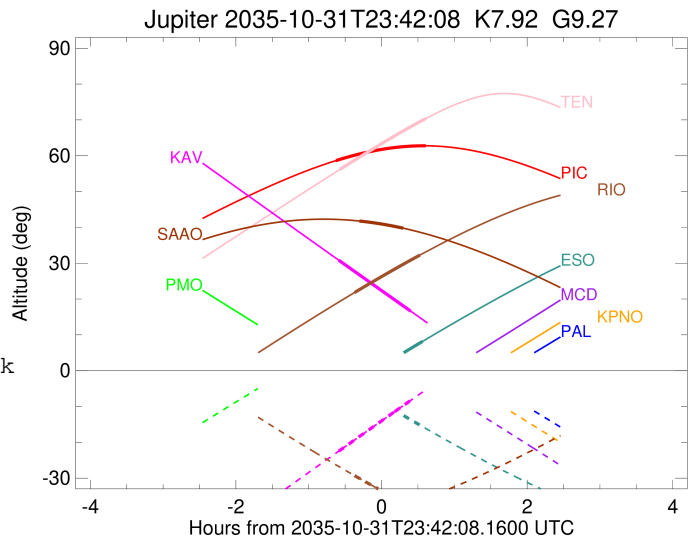
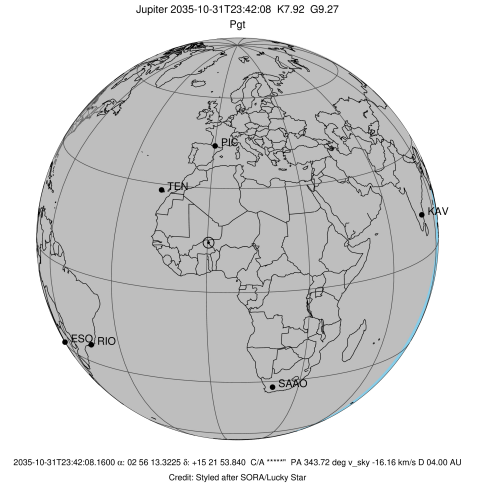


x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt   | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|-------|---------|---------|---------|--------------|
| Jupiter | I   | 2035-10-31T23:19:59.892 | 21.82 | -29.31  | 71478.7 | -66.31  | -68.87       |
| Jupiter | E   | 2035-11-01T00:13:50.325 | 32.27 | -39.09  | 71478.0 | -69.70  | -71.95       |

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2035-10-31T23:47:57.350
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : ESO
Location             : European Southern Obs. (3.6m)
Latitude (deg)       : -29.26097
E. Longitude (deg)   : 289.26831
Altitude (km)        : 2.400
Gaia source ID       : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 7.920
G magnitude           : 9.270
RP magnitude          : 8.797
BP magnitude          : 9.571
DUPflag              : 0
Distance (au)        : 3.999
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.16
Sun-Target sep (deg) : 171.66
Sun-Moon sep (deg)   : 176.13
B (ring opening deg) : 3.41
PA of pole (deg)     : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation (") : 22.780
C/A sky separation (km) : 66071.5
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
    
```



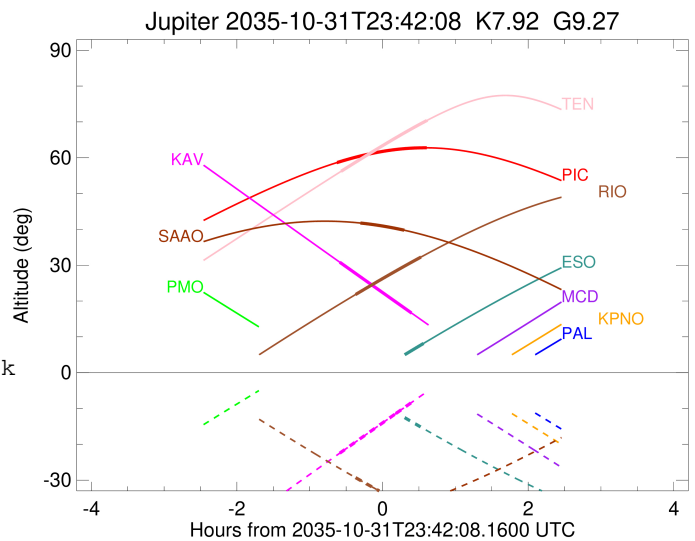
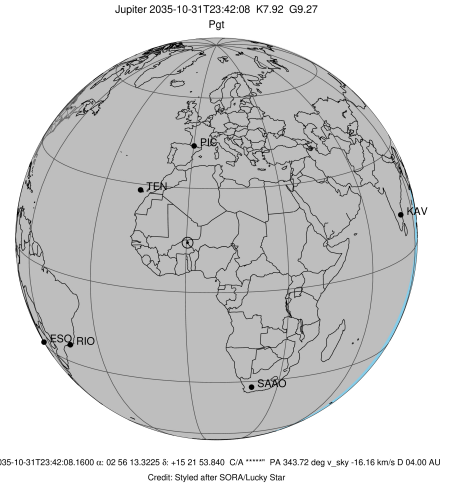
x: target alt < 5.0 deg or sun > -5.0 deg

| Target  | I/E | UTC                     | alt    | alt-sun | radius  | lat-geo | lat-geodetic |
|---------|-----|-------------------------|--------|---------|---------|---------|--------------|
| Jupiter | I   | 2035-10-31T23:19:53.650 | -3.42x | -4.33x  | 71478.8 | -65.77  | -68.38       |
| Jupiter | E   | 2035-11-01T00:15:56.020 | 8.16   | -15.61  | 71478.2 | -68.92  | -71.25       |



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2035-10-31T23:42:00.410
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       : 34080604149311488
2Mass ID (if available) : 02561328+1521538
ICRS Star Coord at Epoch: 02h 56m 13.32251s +15:21:53.84048s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 7.920
G magnitude          : 9.270
RP magnitude         : 8.797
BP magnitude         : 9.571
DUPflag             : 0
Distance (au)        : 3.999
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.16
Sun-Target sep (deg) : 171.66
Sun-Moon sep (deg)   : 175.47
B (ring opening deg) : 3.41
PA of pole (deg)     : -17.44
Pole direction: RA (deg): 268.05638
Dec (deg): 64.49682
C/A sky separation ("): 23.869
C/A sky separation (km): 69230.8
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   | 2035-10-31T23:24:03.945 | 41.76 | -41.06  | 71477.3 | -73.77  | -75.62       |
| Jupiter | E   | 2035-10-31T23:59:57.017 | 39.77 | -37.74  | 71477.0 | -76.60  | -78.15       |