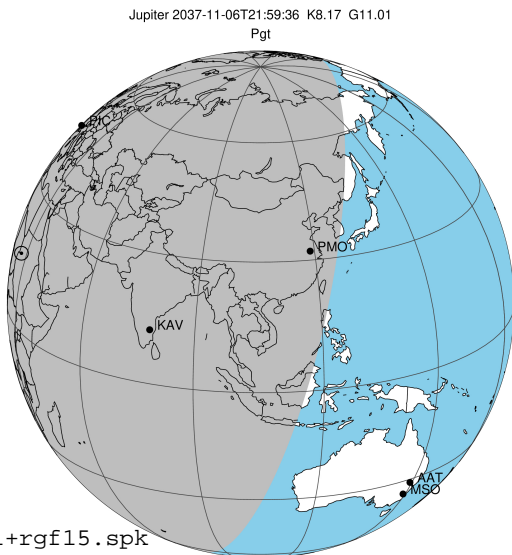


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2037-11-06T21:59:36.790
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 670686291760410752
 2Mass ID (if available) : 08051366+2031458

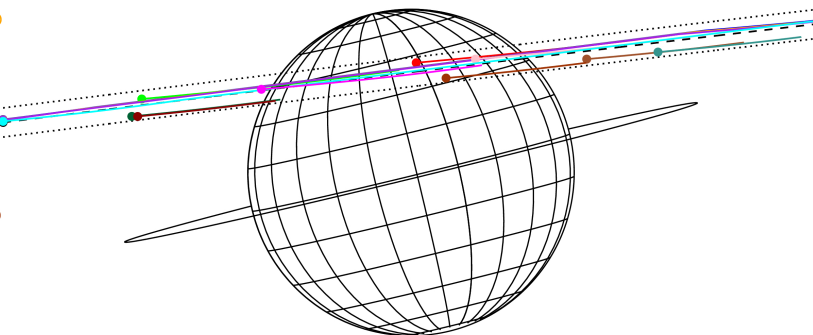
Jupiter 2037-11-06T21:59:36 K8.17 G11.01 Pgt

ICRS Star Coord at Epoch: 08h 05m 13.66896s +20°31'45.39256s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 8.172
 G magnitude : 11.006
 RP magnitude : 10.180
 BP magnitude : 11.737
 DUPflag : 0
 Distance (au) : 4.860
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 4.43
 Sun-Target sep (deg) : 105.19
 Sun-Moon sep (deg) : 97.00
 B (ring opening deg) : 1.19
 PA of pole (deg) : 13.66
 Pole direction: RA (deg): 268.05623
 Dec (deg): 64.49690
 C/A sky separation (") : 12.381
 C/A sky separation (km) : 43639.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



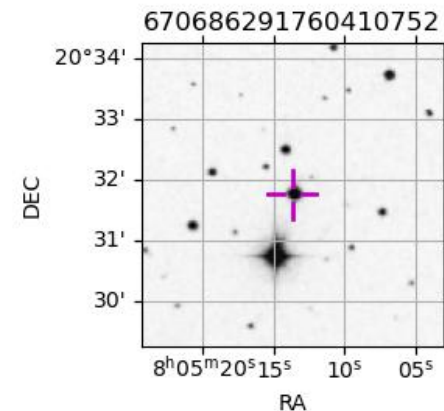
2037-11-06T21:59:36.7900 a: 08 05 13.66896 s: +20 31 45.393 C/A ***** PA 186.92 deg v_sky + 4.43 km/s D 04.86 AU
 Credit: Styled after SORA/Lucky Star

- Earth
- PIC
- PAL
- PMO
- KPNO
- MCD
- TEN
- IRTF
- KAV
- RIO
- ESO
- AAT
- SAAO
- MSO



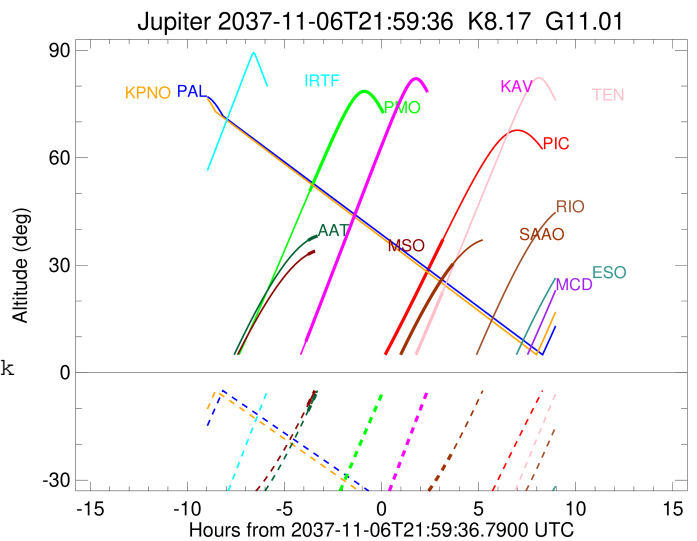
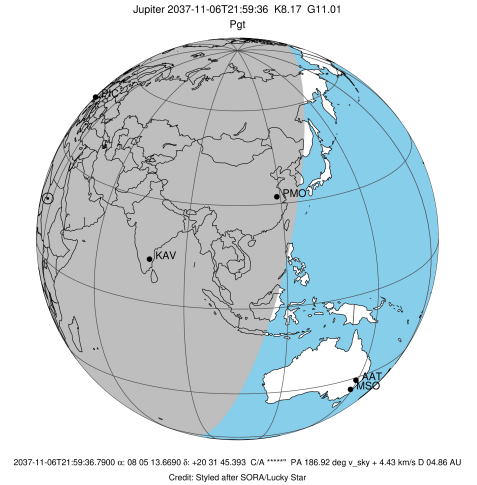
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	NOV 07 01:09 - NOV 07 01:09	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	NOV 06 18:17 - NOV 06 18:17	Pin
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	+	NOV 07 01:08 - NOV 07 01:08	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	NOV 06 18:05 - NOV 06 18:05	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	+	NOV 06 18:12 - NOV 06 18:12	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	NOV 07 01:40 - NOV 07 01:40	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	NOV 06 18:12 - NOV 06 18:12	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-11-06T21:45:53.630
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        : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude          : 10.180
BP magnitude          : 11.737
DUPflag              : 0
Distance (au)         : 4.860
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)   : 96.96
B (ring opening deg) : 1.19
PA of pole (deg)     : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 13.519
C/A sky separation (km) : 47652.7
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
    
```

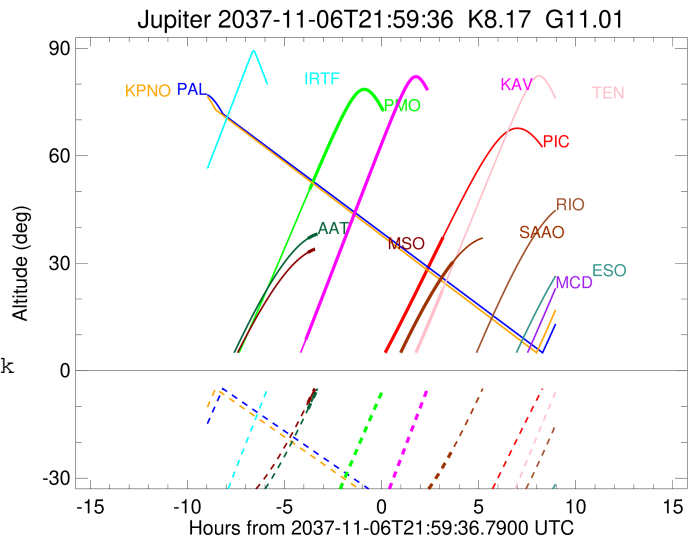


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:35:21.159	-23.24x	-20.45	71490.9	49.86	53.45
Jupiter	E	2037-11-07T01:09:55.008	37.24	-57.73	71491.4	33.58	37.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-11-06T22:00:24.120
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)        : 32.06667
E. Longitude (deg)    : 118.82089
Altitude (km)         : 0.364
Gaia source ID        : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude          : 10.180
BP magnitude          : 11.737
DUPflag              : 0
Distance (au)         : 4.860
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg)  : 105.19
Sun-Moon sep (deg)    : 97.98
B (ring opening deg) : 1.19
PA of pole (deg)      : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 12.799
C/A sky separation (km) : 45115.0
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
    
```

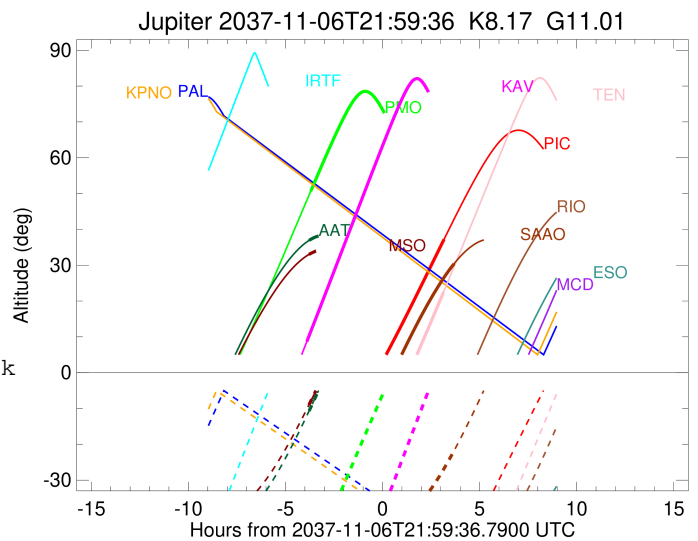
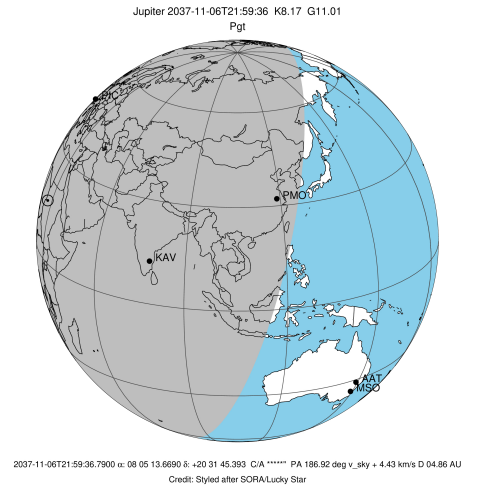


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:17:42.811	50.62	-52.73	71491.0	45.63	49.32
Jupiter	E	2037-11-07T01:43:05.920	27.69	33.20x	71491.4	34.03	37.59

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-11-06T21:46:09.160
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        : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude          : 10.180
BP magnitude          : 11.737
DUPflag              : 0
Distance (au)         : 4.860
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)   : 96.63
B (ring opening deg) : 1.19
PA of pole (deg)     : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 13.338
C/A sky separation (km) : 47016.9
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
    
```

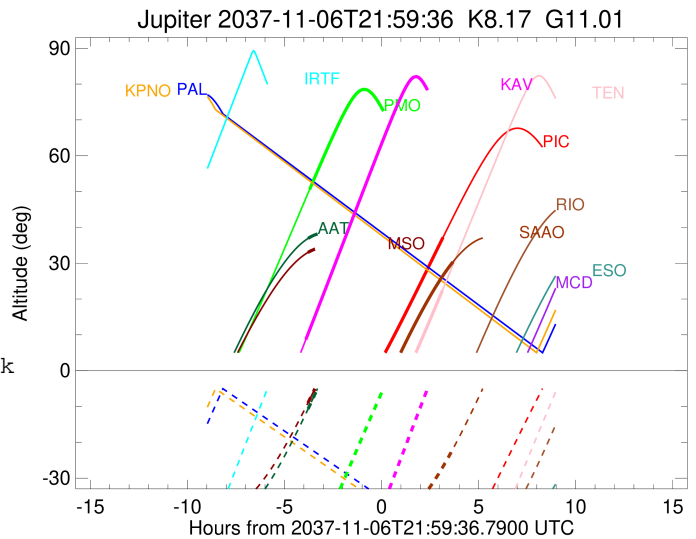


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:37:42.095	-40.93x	-5.05	71490.9	49.16	52.78
Jupiter	E	2037-11-07T01:08:06.050	22.47	-77.44	71491.4	32.49	35.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-11-06T21:49:39.360
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        : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude          : 10.180
BP magnitude          : 11.737
DUPflag              : 0
Distance (au)         : 4.860
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)   : 97.84
B (ring opening deg) : 1.19
PA of pole (deg)     : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation ("): 12.104
C/A sky separation (km): 42665.8
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
    
```

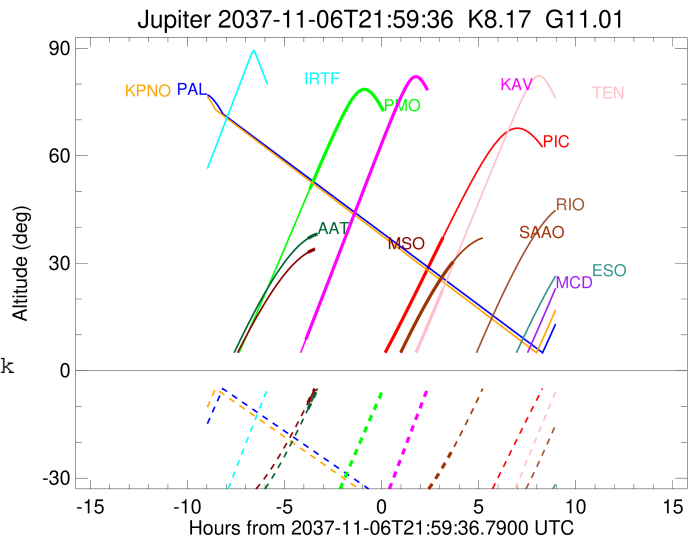


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:05:46.568	8.69	-83.39	71491.0	44.64	48.35
Jupiter	E	2037-11-07T01:47:31.739	59.77	14.87x	71491.5	30.64	34.04

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-11-06T22:11:40.580
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       : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude         : 10.180
BP magnitude         : 11.737
DUPflag              : 0
Distance (au)        : 4.860
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)   : 97.49
B (ring opening deg) : 1.19
PA of pole (deg)     : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 11.289
C/A sky separation (km) : 39790.4
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
    
```

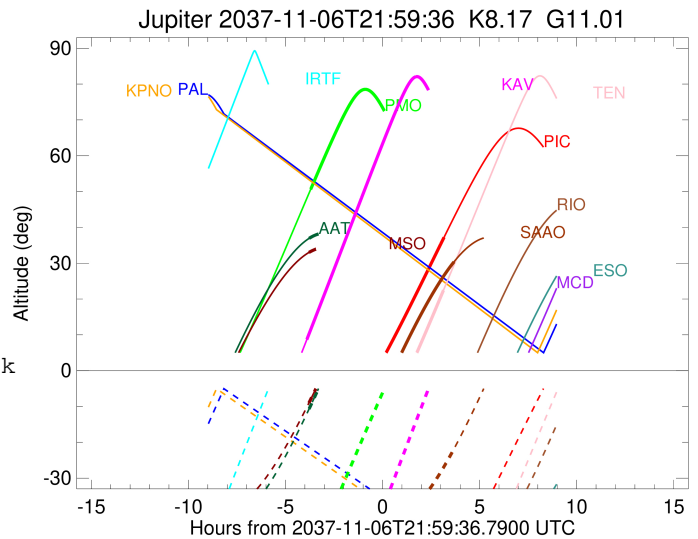
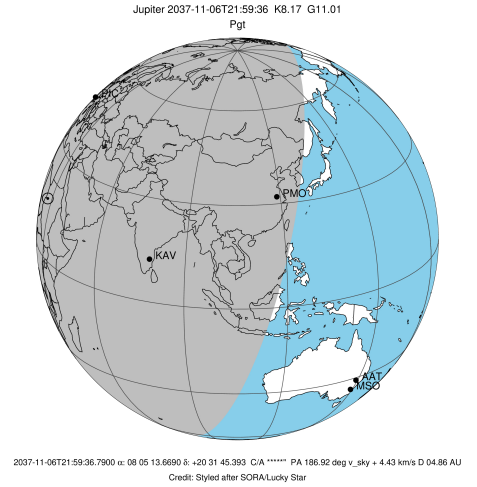


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:12:36.030	36.91	-10.71	71491.2	39.35	43.05
Jupiter	E	2037-11-07T02:01:36.745	-22.19x	74.87x	71491.6	28.88	32.18

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-11-06T21:45:33.300
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        : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.172
G magnitude           : 11.006
RP magnitude          : 10.180
BP magnitude          : 11.737
DUPflag              : 0
Distance (au)         : 4.860
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)   : 96.80
B (ring opening deg) : 1.19
PA of pole (deg)     : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 11.283
C/A sky separation (km) : 39773.3
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
    
```

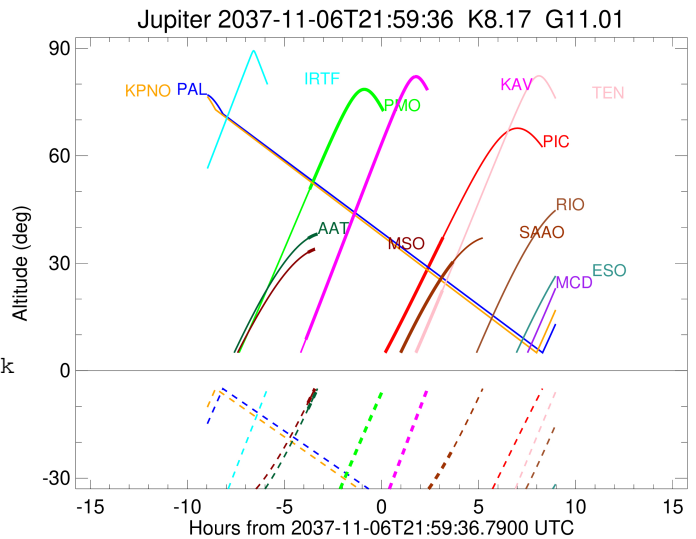


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-11-06T18:10:56.368	-54.17x	-13.18	71491.1	42.21	45.93
Jupiter	E	2037-11-07T01:40:43.368	30.40	-21.79	71491.6	25.82	28.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-11-06T22:11:23.030
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      : 670686291760410752
2Mass ID (if available) : 08051366+2031458
ICRS Star Coord at Epoch: 08h 05m 13.66896s +20:31:45.39256s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 8.172
G magnitude          : 11.006
RP magnitude         : 10.180
BP magnitude         : 11.737
DUPflag             : 0
Distance (au)       : 4.860
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 4.43
Sun-Target sep (deg) : 105.19
Sun-Moon sep (deg)  : 97.44
B (ring opening deg) : 1.19
PA of pole (deg)    : 13.66
Pole direction: RA (deg): 268.05623
Dec (deg): 64.49690
C/A sky separation (") : 11.199
C/A sky separation (km) : 39472.5
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	2037-11-06T18:12:16.546	33.00	-8.99	71491.2	39.11	42.80
Jupiter	E	2037-11-07T02:01:57.807	-22.94x	70.92x	71491.6	28.49	31.76