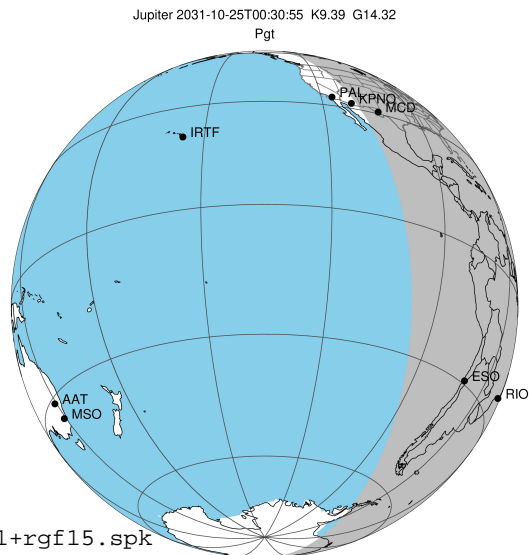


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-25T00:30:55.800
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116537690054266624
 2Mass ID (if available) : 17401441-2313530

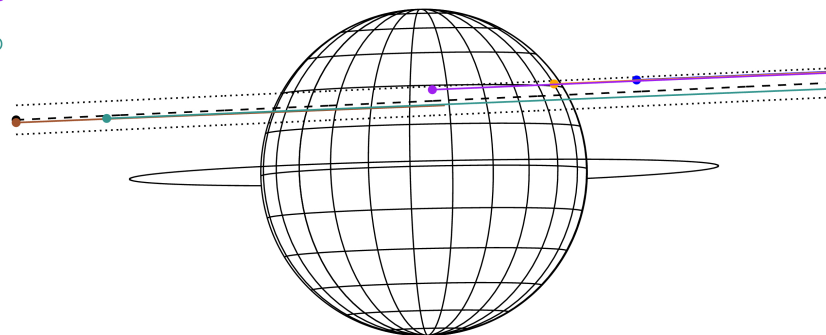
Jupiter 2031-10-25T00:30:55 K9.39 G14.32 Pgt

ICRS Star Coord at Epoch: 17h 40m 14.41064s -23:13:53.35488s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.391
 G magnitude : 14.318
 RP magnitude : 13.050
 BP magnitude : 16.061
 DUPflag : 0
 Distance (au) : 5.749
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 30.49
 Sun-Target sep (deg) : 54.51
 Sun-Moon sep (deg) : 58.10
 B (ring opening deg) : -2.24
 PA of pole (deg) : 1.29
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 7.471
 C/A sky separation (km) : 31151.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



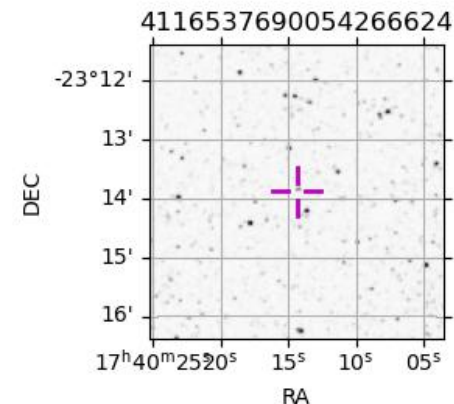
2031-10-25T00:30:55.8000 cr: 17 40 14.41064 s: -23 13 53.355 C/A 7.463" PA 182.61 deg v_sky +30.49 km/s D 05.75 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 RIO
 ESO



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

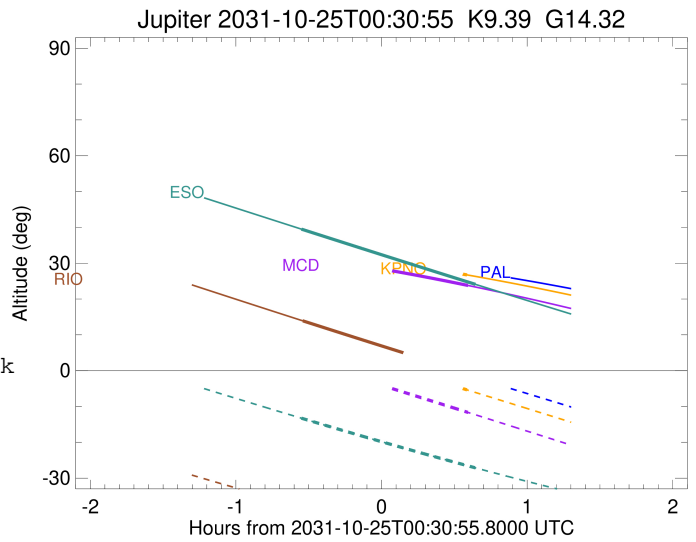
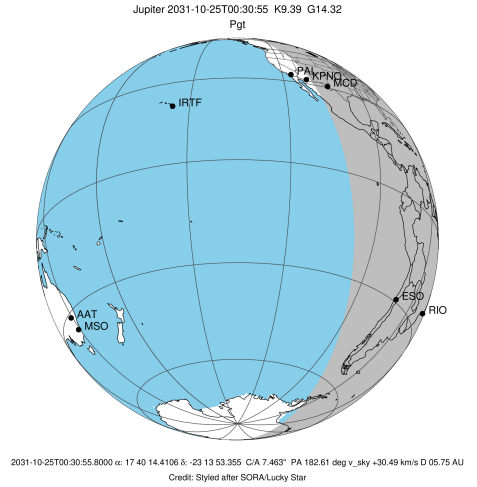
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 25 01:06 - OCT 25 01:06	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 25 01:06 - OCT 25 01:06	Pne
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	+	OCT 24 23:58 - OCT 24 23:58	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	OCT 24 23:57 - OCT 25 01:09	Pie
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



4116537690054266624

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-25T00:32:03.200
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      : 4116537690054266624
2Mass ID (if available) : 17401441-2313530
ICRS Star Coord at Epoch: 17h 40m 14.41064s -23:13:53.35488s
RUWE (>1.4 is poor) : 0.93
K magnitude         : 9.391
G magnitude         : 14.318
RP magnitude        : 13.050
BP magnitude        : 16.061
DUPflag            : 0
Distance (au)       : 5.749
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 30.49
Sun-Target sep (deg) : 54.51
Sun-Moon sep (deg)  : 58.32
B (ring opening deg) : -2.24
PA of pole (deg)    : 1.29
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 8.701
C/A sky separation (km) : 36277.6
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
    
```

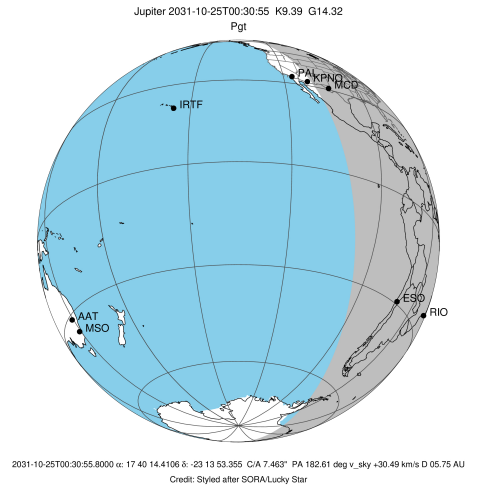


x: target alt < 5.0 deg or sun > -5.0 deg

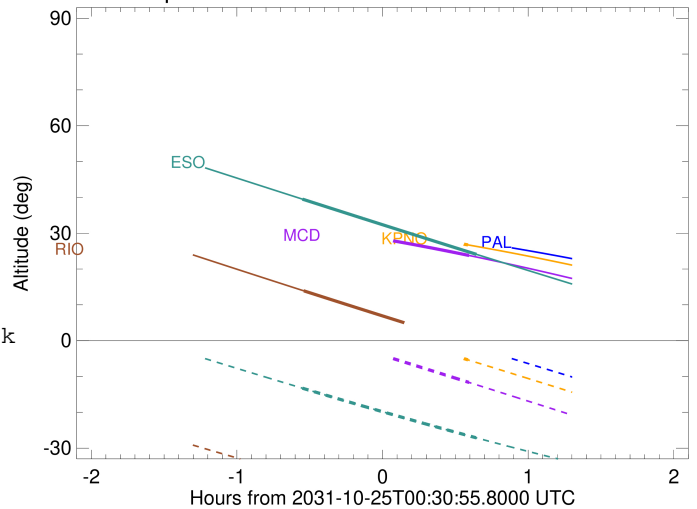
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-24T23:57:57.192	32.99	8.62x	71490.4	29.22	32.55
Jupiter	E	2031-10-25T01:06:06.949	26.73	-5.35	71490.1	31.67	35.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-25T00:32:26.580
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: 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       : 4116537690054266624
2Mass ID (if available) : 17401441-2313530
ICRS Star Coord at Epoch: 17h 40m 14.41064s -23:13:53.35488s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.391
G magnitude           : 14.318
RP magnitude         : 13.050
BP magnitude         : 16.061
DUPflag              : 0
Distance (au)        : 5.749
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 30.49
Sun-Target sep (deg) : 54.51
Sun-Moon sep (deg)   : 58.24
B (ring opening deg) : -2.24
PA of pole (deg)     : 1.29
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 8.655
C/A sky separation (km) : 36084.9
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 2031-10-25T00:30:55 K9.39 G14.32

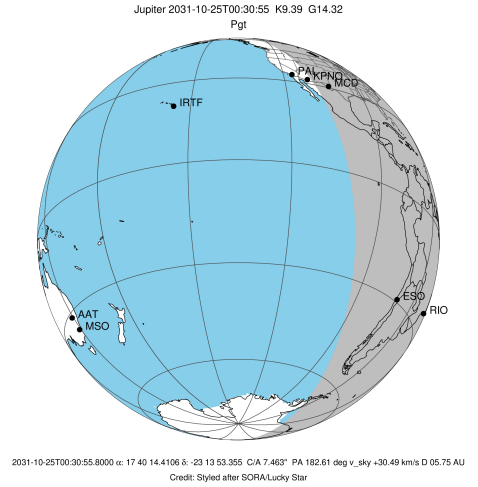


x: target alt < 5.0 deg or sun > -5.0 deg

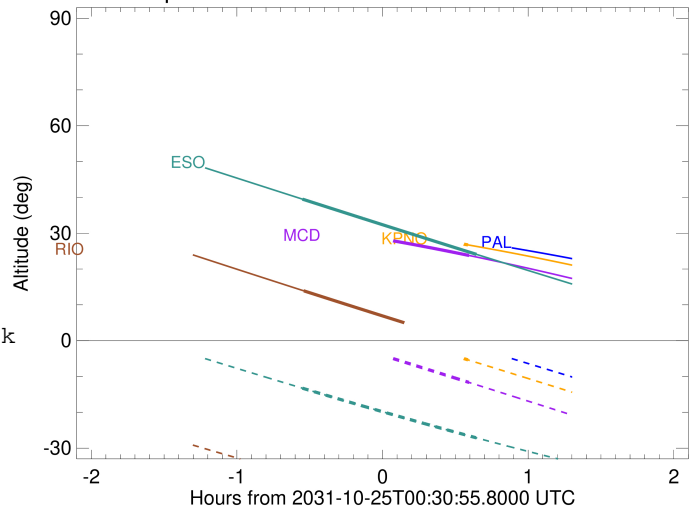
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-24T23:58:17.895	31.82	2.76x	71490.4	29.09	32.40
Jupiter	E	2031-10-25T01:06:32.485	23.79	-11.65	71490.1	31.45	34.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-25T00:34:16.730
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       : 4116537690054266624
2Mass ID (if available) : 17401441-2313530
ICRS Star Coord at Epoch: 17h 40m 14.41064s -23:13:53.35488s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.391
G magnitude          : 14.318
RP magnitude         : 13.050
BP magnitude         : 16.061
DUPflag             : 0
Distance (au)        : 5.749
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 30.49
Sun-Target sep (deg) : 54.51
Sun-Moon sep (deg)   : 57.73
B (ring opening deg) : -2.24
PA of pole (deg)     : 1.29
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 6.958
C/A sky separation (km) : 29012.8
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 2031-10-25T00:30:55 K9.39 G14.32

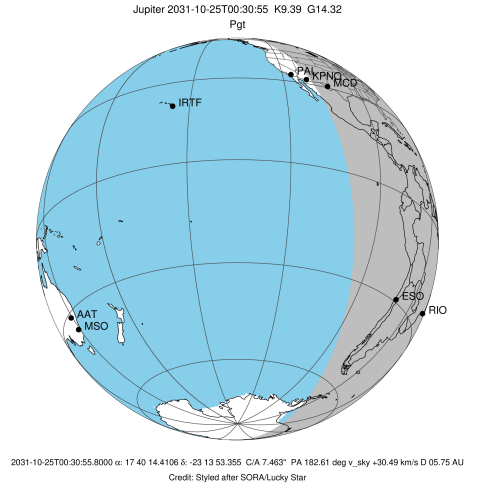


x: target alt < 5.0 deg or sun > -5.0 deg

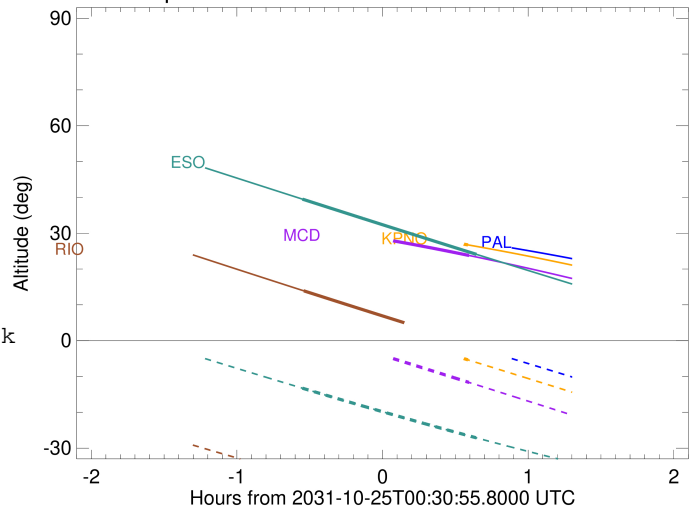
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-24T23:58:32.393	13.90	-37.94	71491.0	22.93	25.78
Jupiter	E	2031-10-25T01:09:55.608	-1.31x	-49.25	71490.8	24.92	27.94

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2031-10-25T00:33:48.830
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        : 4116537690054266624
2Mass ID (if available) : 17401441-2313530
ICRS Star Coord at Epoch: 17h 40m 14.41064s -23:13:53.35488s
RUWE (>1.4 is poor)  : 0.93
K magnitude           : 9.391
G magnitude           : 14.318
RP magnitude          : 13.050
BP magnitude          : 16.061
DUPflag               : 0
Distance (au)         : 5.749
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 30.49
Sun-Target sep (deg)  : 54.51
Sun-Moon sep (deg)    : 58.15
B (ring opening deg)  : -2.24
PA of pole (deg)      : 1.29
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 7.059
C/A sky separation (km) : 29433.2
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
    
```



Jupiter 2031-10-25T00:30:55 K9.39 G14.32



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	2031-10-24T23:57:57.399	39.50	-13.27	71490.9	23.23	26.10
Jupiter	E	2031-10-25T01:09:35.412	24.10	-27.12	71490.7	25.33	28.39