

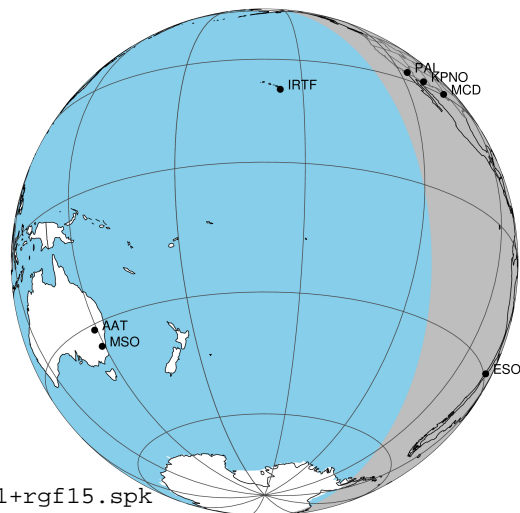
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-01T01:43:57.610
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068826689464976768
 2Mass ID (if available) : 17454768-2316552

Jupiter 2031-11-01T01:43:57 K9.85 G14.28 Pgt

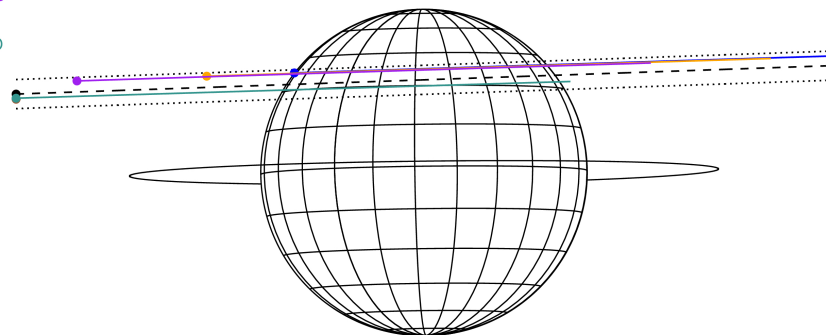
ICRS Star Coord at Epoch: 17h 45m 47.67974s -23:16:55.56734s

RUWE (>1.4 is poor) : 3.55
 K magnitude : 9.849
 G magnitude : 14.282
 RP magnitude : 13.099
 BP magnitude : 15.692
 DUPflag : 0
 Distance (au) : 5.833
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 32.86
 Sun-Target sep (deg) : 48.75
 Sun-Moon sep (deg) : 152.19
 B (ring opening deg) : -2.21
 PA of pole (deg) : 0.69
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 9.589
 C/A sky separation (km) : 40564.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-11-01T01:43:57 K9.85 G14.28
 Pgt



Earth
 PAL
 KPNO
 MCD
 RIO
 ESO

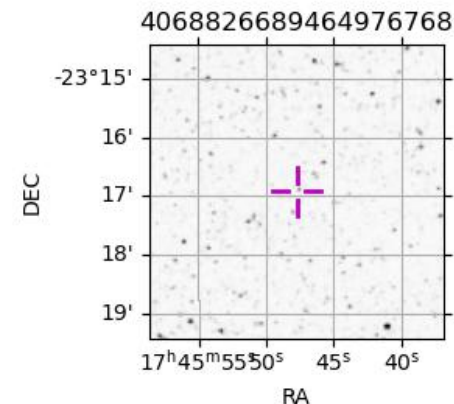


2031-11-01T01:43:57.6100 cc: 17 45 47.6797 s: -23 16 55.5673 C/A 9.581" PA 182.00 deg v_sky +32.86 km/s D 05.83 AU

Credit: Styled after SORA/Lucky Star

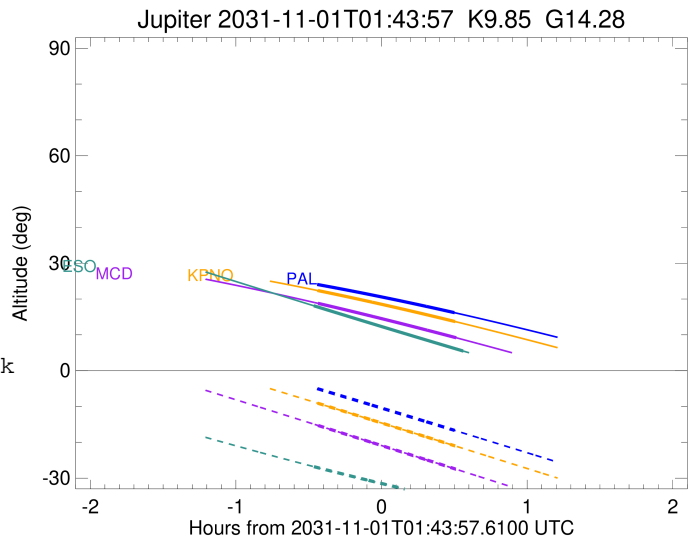
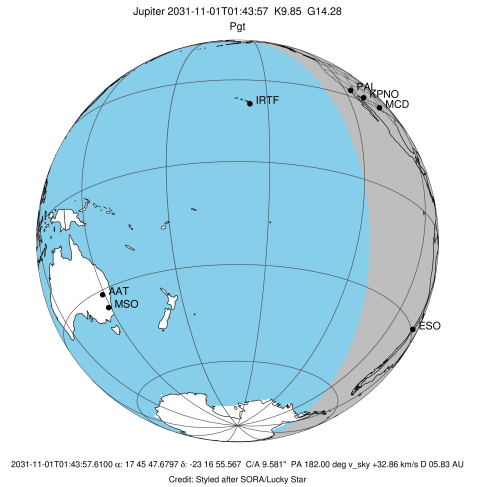
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	NOV 01 01:17 - NOV 01 02:14	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	NOV 01 01:17 - NOV 01 02:14	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	NOV 01 01:17 - NOV 01 02:14	Pie
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	NOV 01 01:16 - NOV 01 02:17	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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-01T01:45:47.380
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      : 4068826689464976768
2Mass ID (if available) : 17454768-2316552
ICRS Star Coord at Epoch: 17h 45m 47.67974s -23:16:55.56734s
RUWE (>1.4 is poor) : 3.55
K magnitude          : 9.849
G magnitude          : 14.282
RP magnitude         : 13.099
BP magnitude         : 15.692
DUPflag             : 0
Distance (au)       : 5.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.86
Sun-Target sep (deg) : 48.75
Sun-Moon sep (deg)  : 152.76
B (ring opening deg) : -2.21
PA of pole (deg)    : 0.69
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 10.738
C/A sky separation (km): 45427.5
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
    
```

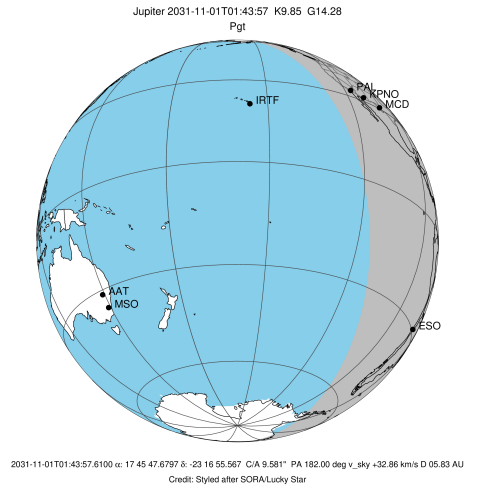


x: target alt < 5.0 deg or sun > -5.0 deg

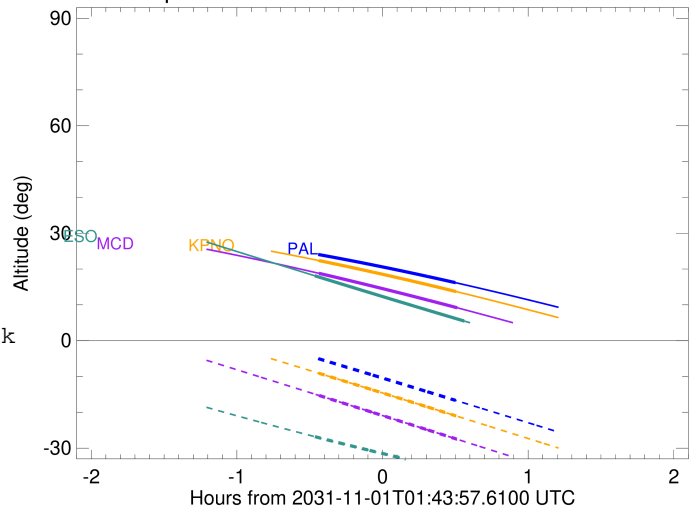
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T01:17:31.451	24.05	-5.02	71489.4	38.27	41.95
Jupiter	E	2031-11-01T02:14:01.210	16.19	-16.66	71489.2	40.54	44.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-01T01:46:00.570
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       : 4068826689464976768
2Mass ID (if available) : 17454768-2316552
ICRS Star Coord at Epoch: 17h 45m 47.67974s -23:16:55.56734s
RUWE (>1.4 is poor) : 3.55
K magnitude          : 9.849
G magnitude          : 14.282
RP magnitude         : 13.099
BP magnitude         : 15.692
DUPflag             : 0
Distance (au)        : 5.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.86
Sun-Target sep (deg) : 48.75
Sun-Moon sep (deg)   : 152.80
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.69
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 10.685
C/A sky separation (km) : 45203.8
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 2031-11-01T01:43:57 K9.85 G14.28

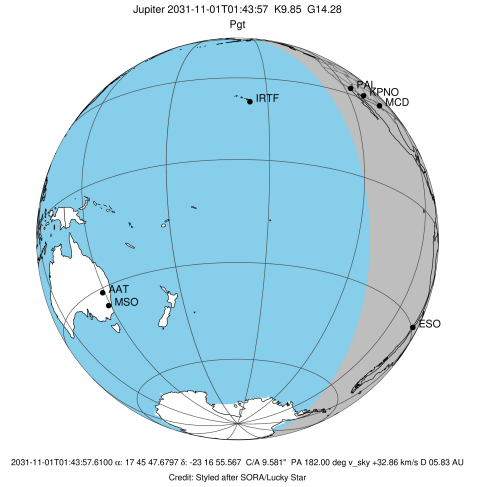


x: target alt < 5.0 deg or sun > -5.0 deg

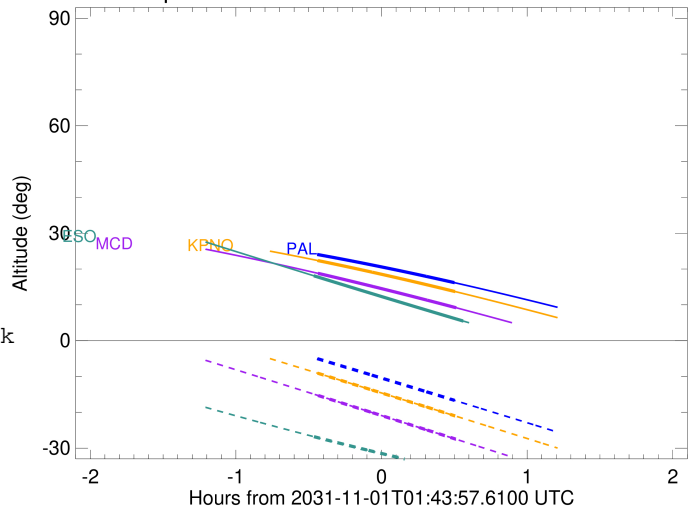
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T01:17:40.038	22.37	-9.08	71489.5	38.06	41.74
Jupiter	E	2031-11-01T02:14:18.786	13.70	-21.01	71489.2	40.29	44.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-01T01:46:16.910
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       : 4068826689464976768
2Mass ID (if available) : 17454768-2316552
ICRS Star Coord at Epoch: 17h 45m 47.67974s -23:16:55.56734s
RUWE (>1.4 is poor) : 3.55
K magnitude           : 9.849
G magnitude           : 14.282
RP magnitude          : 13.099
BP magnitude          : 15.692
DUPflag              : 0
Distance (au)        : 5.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.86
Sun-Target sep (deg) : 48.75
Sun-Moon sep (deg)   : 152.84
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.69
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 10.613
C/A sky separation (km) : 44899.1
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 2031-11-01T01:43:57 K9.85 G14.28

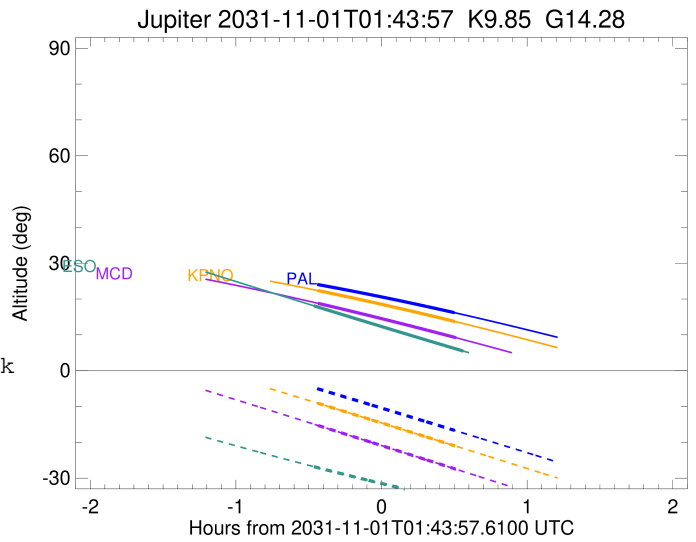
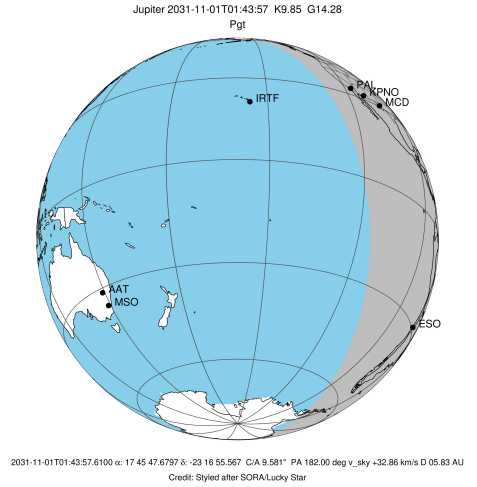


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T01:17:50.693	18.78	-15.30	71489.5	37.78	41.45
Jupiter	E	2031-11-01T02:14:40.567	9.20	-27.51	71489.2	39.95	43.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-01T01:46:55.360
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       : 4068826689464976768
2Mass ID (if available) : 17454768-2316552
ICRS Star Coord at Epoch: 17h 45m 47.67974s -23:16:55.56734s
RUWE (>1.4 is poor) : 3.55
K magnitude          : 9.849
G magnitude          : 14.282
RP magnitude         : 13.099
BP magnitude         : 15.692
DUPflag             : 0
Distance (au)        : 5.833
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.86
Sun-Target sep (deg) : 48.75
Sun-Moon sep (deg)  : 153.02
B (ring opening deg) : -2.21
PA of pole (deg)    : 0.69
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 8.964
C/A sky separation (km) : 37923.5
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	2031-11-01T01:16:08.879	18.09	-26.80	71490.2	30.98	34.41
Jupiter	E	2031-11-01T02:17:38.264	5.48	-36.59	71490.0	33.03	36.55