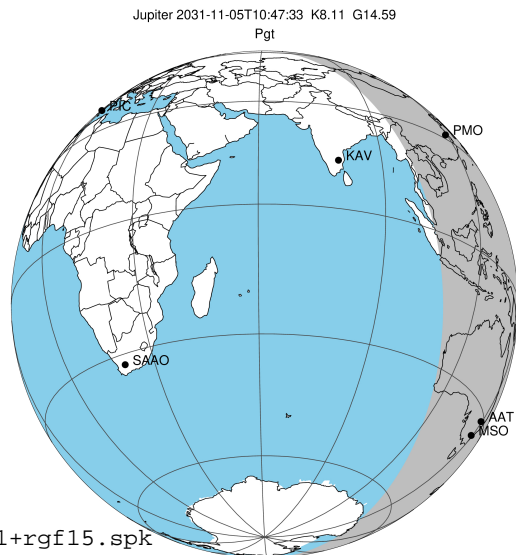


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-05T10:47:33.490
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068673204525946624
 2Mass ID (if available) : 17492443-2318287

Jupiter 2031-11-05T10:47:33 K8.11 G14.59 Pgt

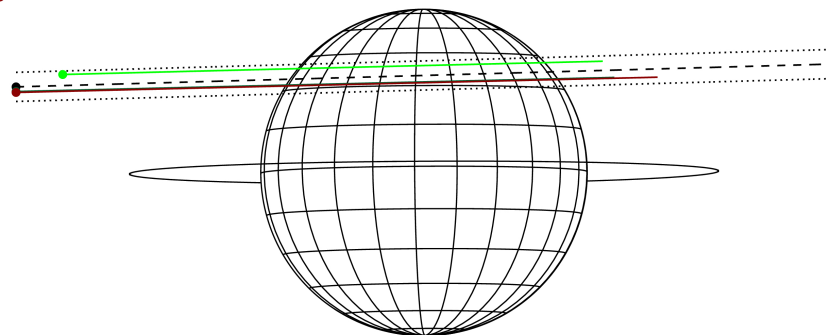
ICRS Star Coord at Epoch: 17h 49m 24.42199s -23°18'28.97223s

RUWE (>1.4 is poor) : 0.92
 K magnitude : 8.105
 G magnitude : 14.588
 RP magnitude : 12.974
 BP magnitude : 18.949
 DUPflag : 0
 Distance (au) : 5.881
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 34.24
 Sun-Target sep (deg) : 45.20
 Sun-Moon sep (deg) : 154.85
 B (ring opening deg) : -2.19
 PA of pole (deg) : 0.30
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 9.962
 C/A sky separation (km) : 42495.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



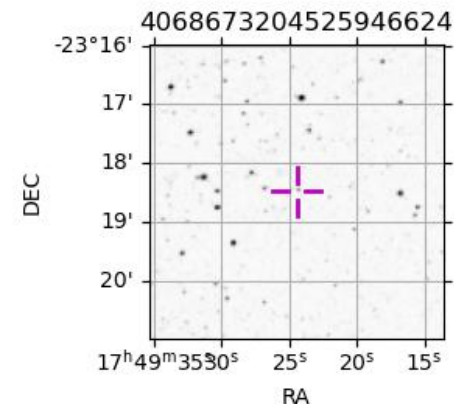
2031-11-05T10:47:33.4900 cc: 17 49 24.4220 s: -23 18 28.972 C/A 9.954" PA 181.60 deg v_sky +34.24 km/s D 05.88 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PMO
 AAT
 MSO



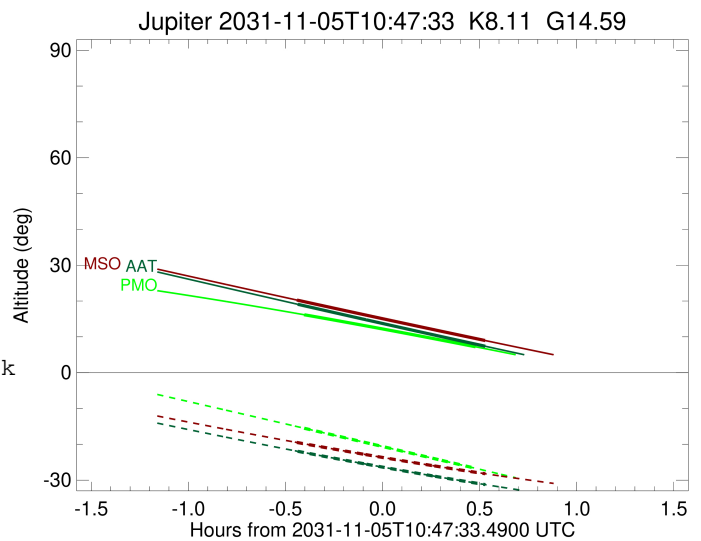
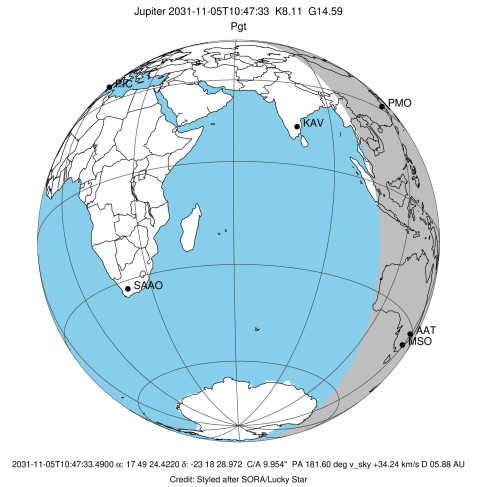
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	NOV 05 10:23 - NOV 05 11:16	Pie
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			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			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	NOV 05 10:21 - NOV 05 11:19	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	NOV 05 10:21 - NOV 05 11:19	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-05T10:49:49.410
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      : 4068673204525946624
2Mass ID (if available) : 17492443-2318287
ICRS Star Coord at Epoch: 17h 49m 24.42199s -23:18:28.97223s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 8.105
G magnitude          : 14.588
RP magnitude         : 12.974
BP magnitude         : 18.949
DUPflag             : 0
Distance (au)       : 5.882
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.20
Sun-Moon sep (deg)  : 154.26
B (ring opening deg) : -2.19
PA of pole (deg)    : 0.30
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 10.980
C/A sky separation (km) : 46836.8
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
    
```

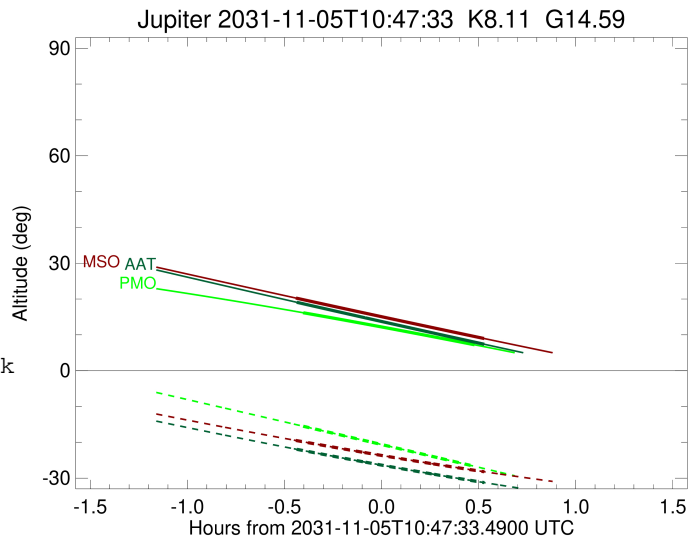
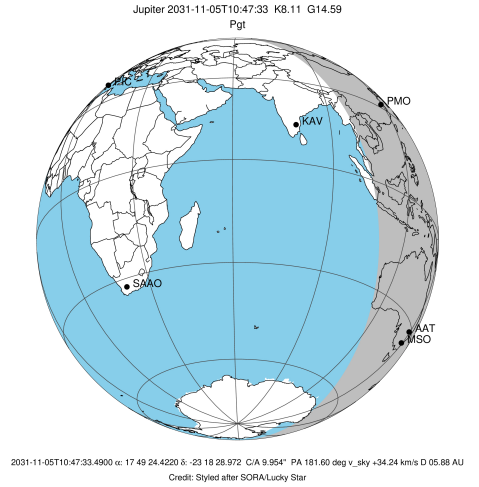


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-05T10:23:20.965	16.17	-15.51	71489.3	39.80	43.50
Jupiter	E	2031-11-05T11:16:15.715	7.24	-26.69	71489.1	41.97	45.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-05T10:50:20.190
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      : 4068673204525946624
2Mass ID (if available) : 17492443-2318287
ICRS Star Coord at Epoch: 17h 49m 24.42199s -23:18:28.97223s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 8.105
G magnitude          : 14.588
RP magnitude         : 12.974
BP magnitude         : 18.949
DUPflag             : 0
Distance (au)       : 5.882
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.20
Sun-Moon sep (deg)   : 154.31
B (ring opening deg) : -2.19
PA of pole (deg)     : 0.30
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 9.300
C/A sky separation (km): 39671.6
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
    
```

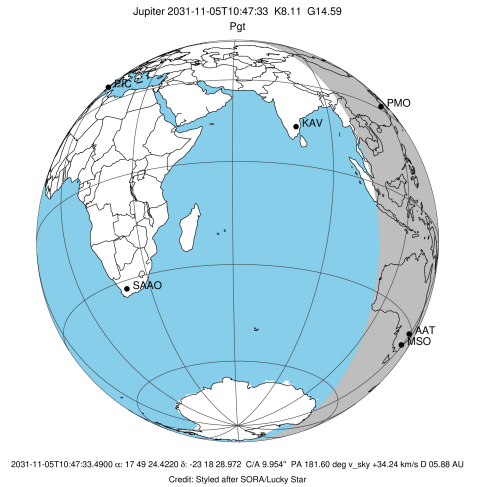


x: target alt < 5.0 deg or sun > -5.0 deg

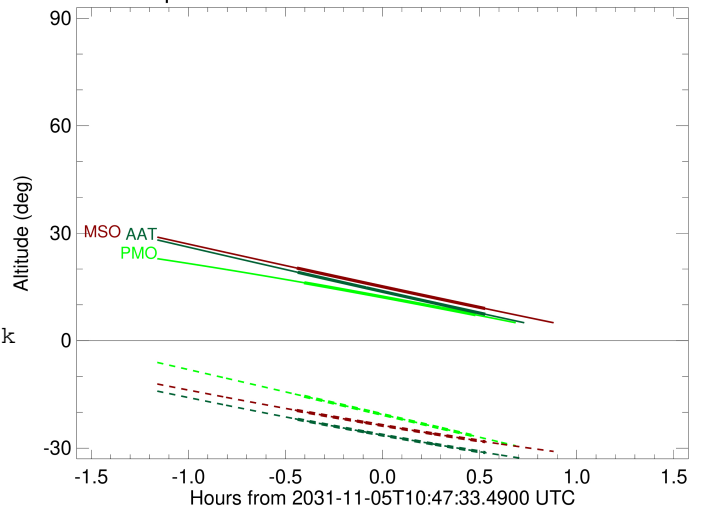
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-05T10:21:21.029	19.09	-21.95	71490.1	32.64	36.14
Jupiter	E	2031-11-05T11:19:16.392	7.38	-31.24	71489.9	34.71	38.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-05T10:50:12.950
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      : 4068673204525946624
2Mass ID (if available) : 17492443-2318287
ICRS Star Coord at Epoch: 17h 49m 24.42199s -23:18:28.97223s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 8.105
G magnitude          : 14.588
RP magnitude         : 12.974
BP magnitude         : 18.949
DUPflag             : 0
Distance (au)       : 5.882
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.20
Sun-Moon sep (deg)  : 154.36
B (ring opening deg) : -2.19
PA of pole (deg)    : 0.30
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 9.218
C/A sky separation (km) : 39321.9
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 2031-11-05T10:47:33 K8.11 G14.59



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	2031-11-05T10:21:07.068	20.26	-19.49	71490.1	32.29	35.78
Jupiter	E	2031-11-05T11:19:15.970	8.97	-28.21	71489.9	34.39	37.97