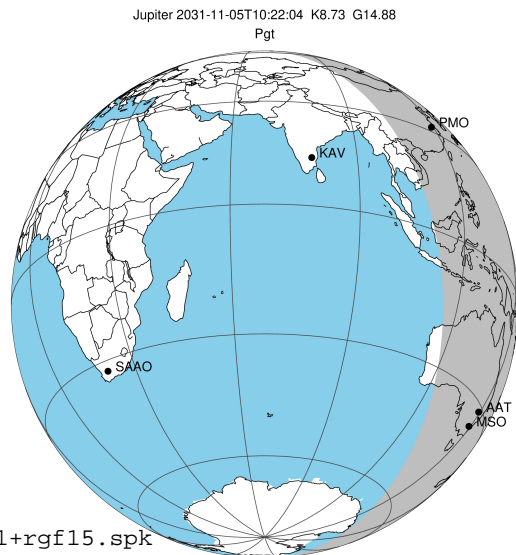


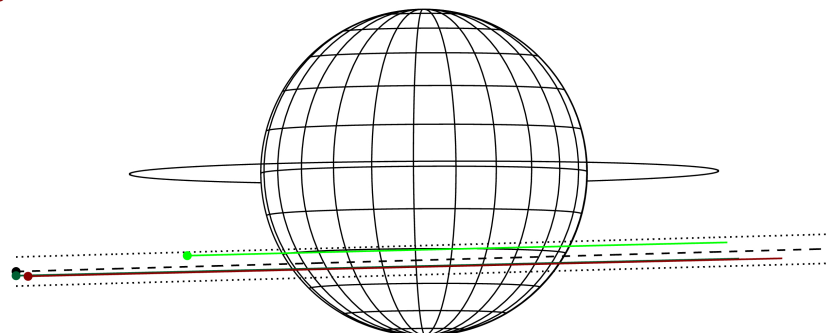
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-05T10:22:04.650
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068673135806463104
 2Mass ID (if available) : 17492350-2318474

Jupiter 2031-11-05T10:22:04 K8.73 G14.88 Pgt

ICRS Star Coord at Epoch: 17h 49m 23.49301s -23:18:47.57636s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 8.733
 G magnitude : 14.880
 RP magnitude : 13.397
 BP magnitude : 17.877
 DUPflag : 0
 Distance (au) : 5.881
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 34.24
 Sun-Target sep (deg) : 45.21
 Sun-Moon sep (deg) : 155.05
 B (ring opening deg) : -2.19
 PA of pole (deg) : 0.31
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 8.993
 C/A sky separation (km) : 38359.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



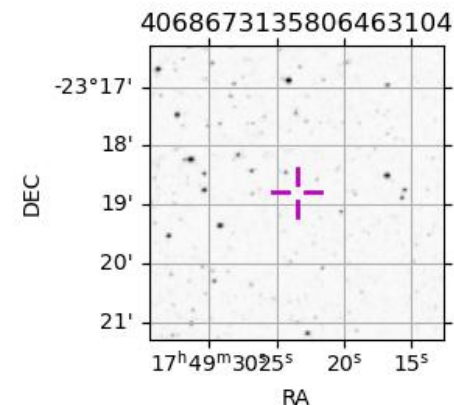
Earth
 PMO
 AAT
 MSO



2031-11-05T10:22:04.6500 a: 17 49 23.4930 s: -23 18 47.576 C/A 9.0011 PA 1.60 deg v_sky +34.24 km/s D 05.88 AU
 Credit: Styled after SORA/Lucky Star

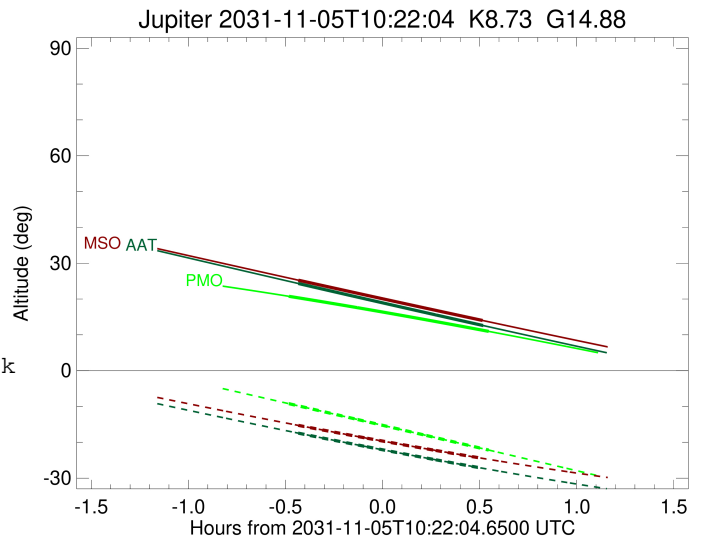
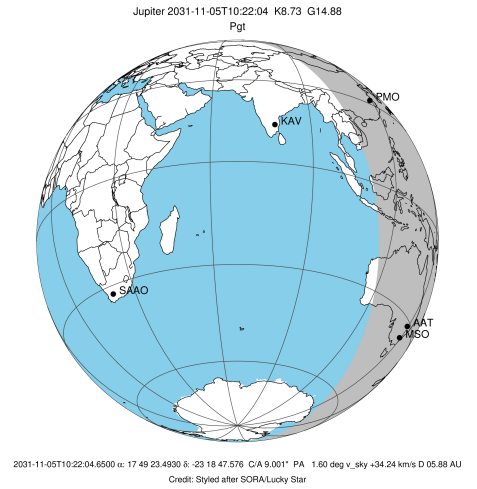
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	NOV 05 09:53 - NOV 05 10:54	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 09:56 - NOV 05 10:53	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	NOV 05 09:56 - NOV 05 10:52	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-05T10:24:01.670
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        : 4068673135806463104
2Mass ID (if available) : 17492350-2318474
ICRS Star Coord at Epoch: 17h 49m 23.49301s -23:18:47.57636s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 8.733
G magnitude           : 14.880
RP magnitude          : 13.397
BP magnitude          : 17.877
DUPflag              : 0
Distance (au)         : 5.881
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.21
Sun-Moon sep (deg)   : 154.53
B (ring opening deg) : -2.19
PA of pole (deg)     : 0.31
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 7.931
C/A sky separation (km): 33830.6
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
    
```

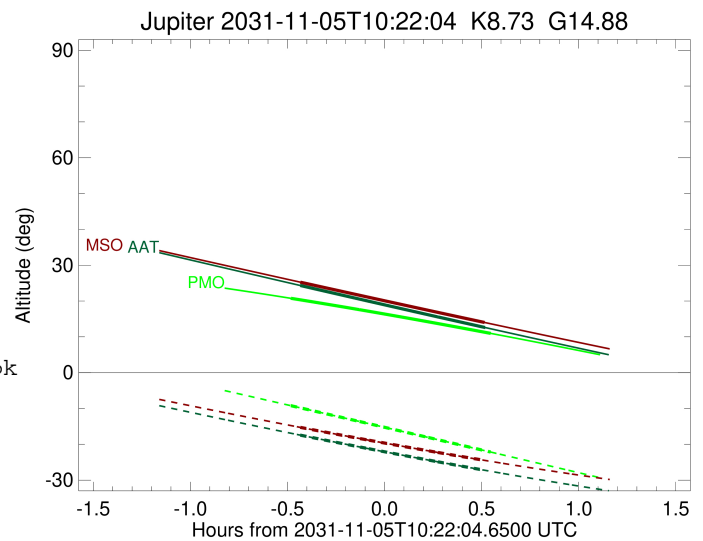
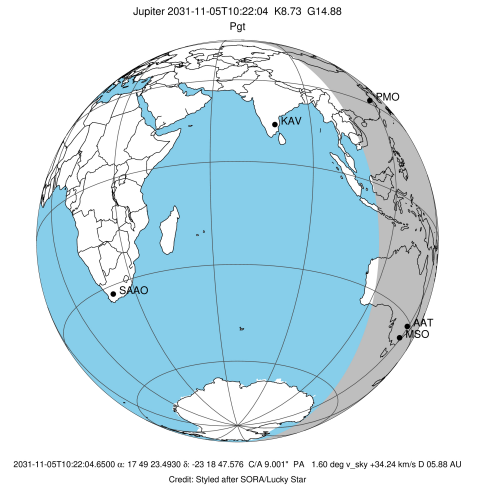


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-05T09:53:07.578	20.76	-9.21	71490.4	-29.34	-32.67
Jupiter	E	2031-11-05T10:54:53.102	10.96	-22.16	71490.6	-27.13	-30.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-05T10:24:38.940
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      : 4068673135806463104
2Mass ID (if available) : 17492350-2318474
ICRS Star Coord at Epoch: 17h 49m 23.49301s -23:18:47.57636s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 8.733
G magnitude          : 14.880
RP magnitude         : 13.397
BP magnitude         : 17.877
DUPflag             : 0
Distance (au)       : 5.881
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.21
Sun-Moon sep (deg)  : 154.55
B (ring opening deg) : -2.19
PA of pole (deg)    : 0.31
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 9.599
C/A sky separation (km) : 40944.1
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
    
```

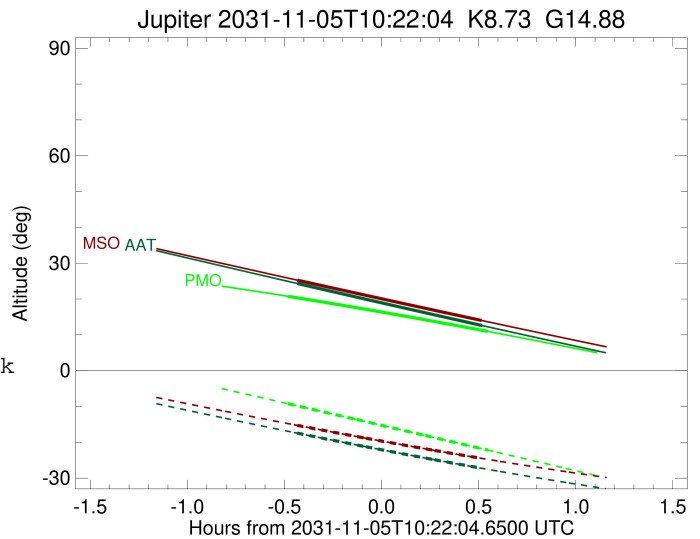
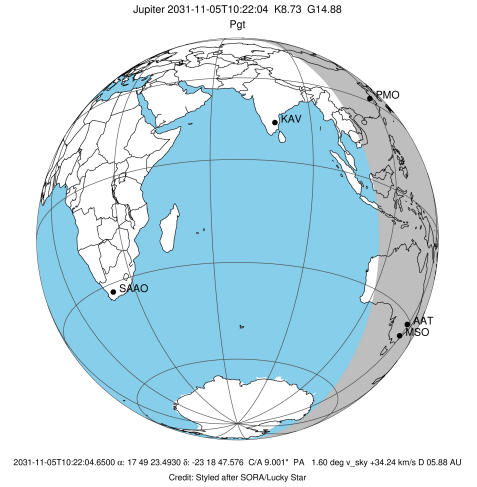


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-05T09:56:02.884	24.33	-17.44	71489.7	-35.95	-39.58
Jupiter	E	2031-11-05T10:53:12.197	12.59	-27.27	71490.0	-33.88	-37.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-05T10:24:32.230
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      : 4068673135806463104
2Mass ID (if available) : 17492350-2318474
ICRS Star Coord at Epoch: 17h 49m 23.49301s -23:18:47.57636s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 8.733
G magnitude          : 14.880
RP magnitude         : 13.397
BP magnitude         : 17.877
DUPflag             : 0
Distance (au)       : 5.881
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 34.24
Sun-Target sep (deg) : 45.21
Sun-Moon sep (deg)  : 154.60
B (ring opening deg) : -2.19
PA of pole (deg)    : 0.31
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 9.683
C/A sky separation (km) : 41304.7
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	2031-11-05T09:56:03.773	25.26	-15.27	71489.7	-36.32	-39.96
Jupiter	E	2031-11-05T10:52:58.038	14.02	-24.47	71489.9	-34.22	-37.79