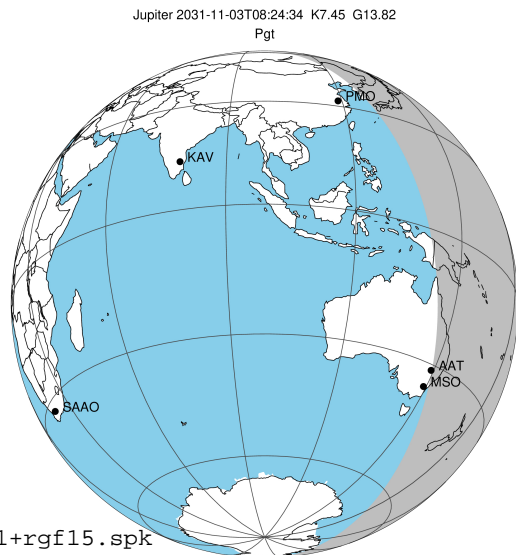


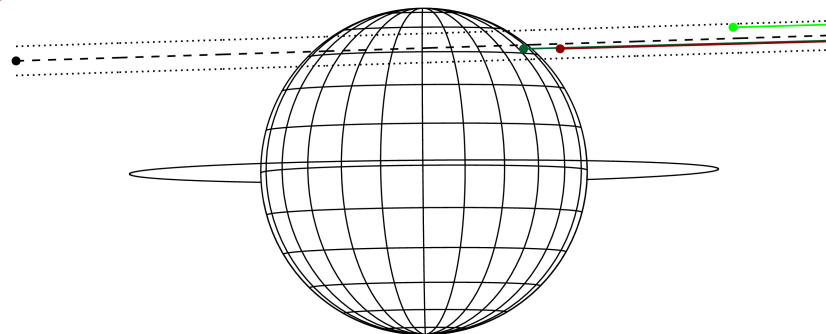
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-03T08:24:34.570
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068770889229717760
 2Mass ID (if available) : 17473959-2317433

Jupiter 2031-11-03T08:24:34 K7.45 G13.82 Pgt

ICRS Star Coord at Epoch: 17h 47m 39.58928s -23:17:43.41135s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 7.447
 G magnitude : 13.824
 RP magnitude : 12.291
 BP magnitude : 17.274
 DUPflag : 0
 Distance (au) : 5.859
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.59
 Sun-Target sep (deg) : 46.90
 Sun-Moon sep (deg) : 176.80
 B (ring opening deg) : -2.20
 PA of pole (deg) : 0.49
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 12.714
 C/A sky separation (km) : 54022.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



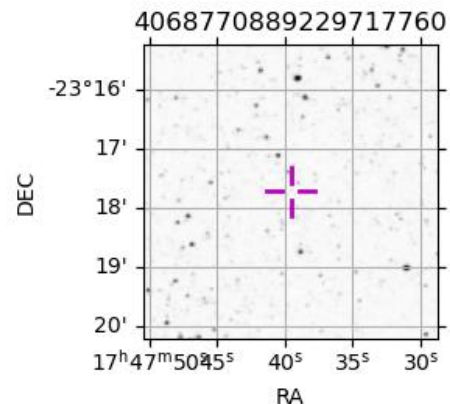
Earth
 PMO
 AAT
 MSO



2031-11-03T08:24:34.5700 @: 17 47 39.5893 @: -23 17 43.411 C/A ***** PA 181.79 deg v_sky +33.59 km/s D 05.86 AU
 Credit: Styled after SORA/Lucky Star

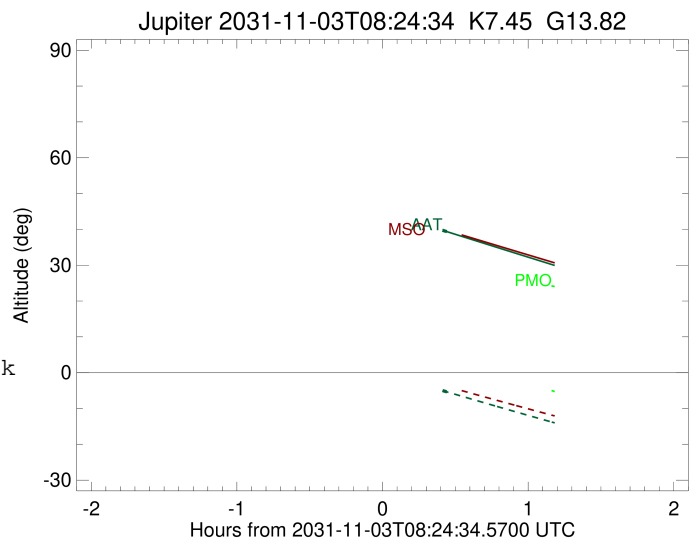
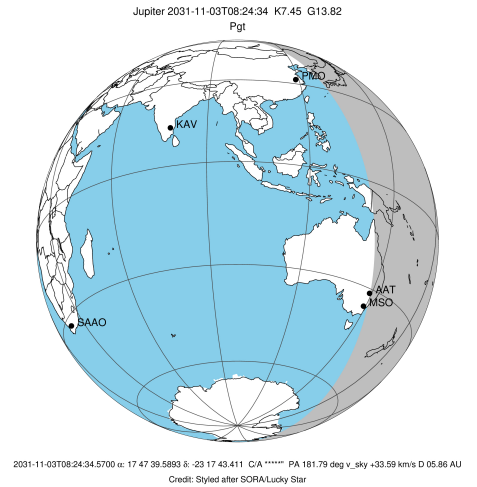
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
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 03 08:51 - NOV 03 08:51	Pne
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             : 2031-11-03T08:26:47.130
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        : 4068770889229717760
2Mass ID (if available) : 17473959-2317433
ICRS Star Coord at Epoch: 17h 47m 39.58928s -23:17:43.41135s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 7.447
G magnitude           : 13.824
RP magnitude          : 12.291
BP magnitude          : 17.274
DUPflag              : 0
Distance (au)         : 5.859
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.59
Sun-Target sep (deg)  : 46.90
Sun-Moon sep (deg)    : 177.00
B (ring opening deg)  : -2.20
PA of pole (deg)      : 0.49
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 12.351
C/A sky separation (km) : 52481.9
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	2031-11-03T08:02:29.885	49.77	4.53x	71488.6	46.07	49.76
Jupiter	E	2031-11-03T08:51:02.651	39.37	-5.34	71488.3	48.28	51.92