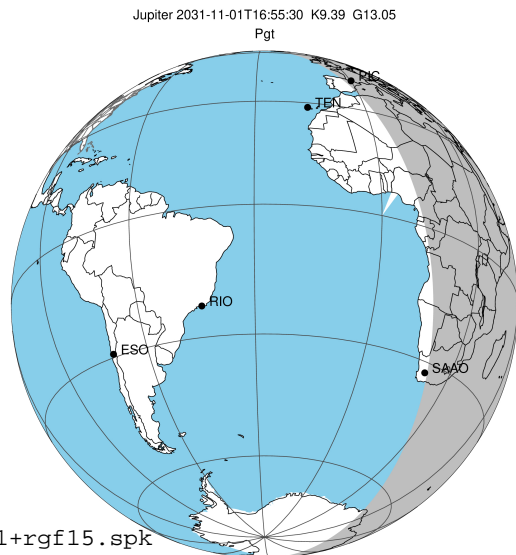


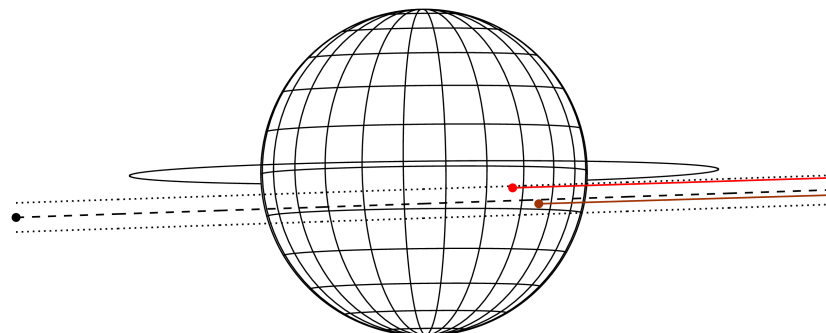
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-01T16:55:30.990
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068779715305929728
 2Mass ID (if available) : 17461855-2317229

Jupiter 2031-11-01T16:55:30 K9.39 G13.05 Pgt

ICRS Star Coord at Epoch: 17h 46m 18.54269s -23:17:22.98372s
 RUWE (>1.4 is poor) : 1.38
 K magnitude : 9.387
 G magnitude : 13.052
 RP magnitude : 12.032
 BP magnitude : 14.123
 DUPflag : 0
 Distance (au) : 5.840
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.07
 Sun-Target sep (deg) : 48.23
 Sun-Moon sep (deg) : 159.99
 B (ring opening deg) : -2.21
 PA of pole (deg) : 0.64
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 3.218
 C/A sky separation (km) : 13631.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



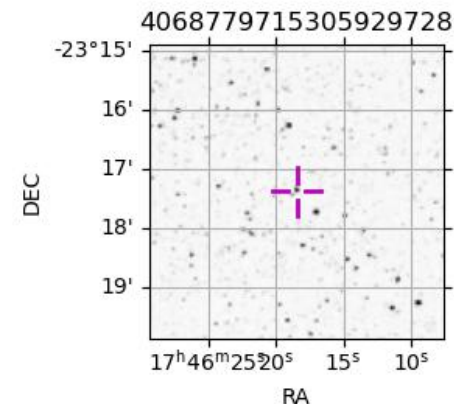
Earth
 PIC
 SAAO



2031-11-01T16:55:30.9900 α: 17 46 18.5427 δ: -23 17 22.984 C/A 3.226" PA 1.94 deg v_sky +33.07 km/s D 05.84 AU
 Credit: Styled after SORA/Lucky Star

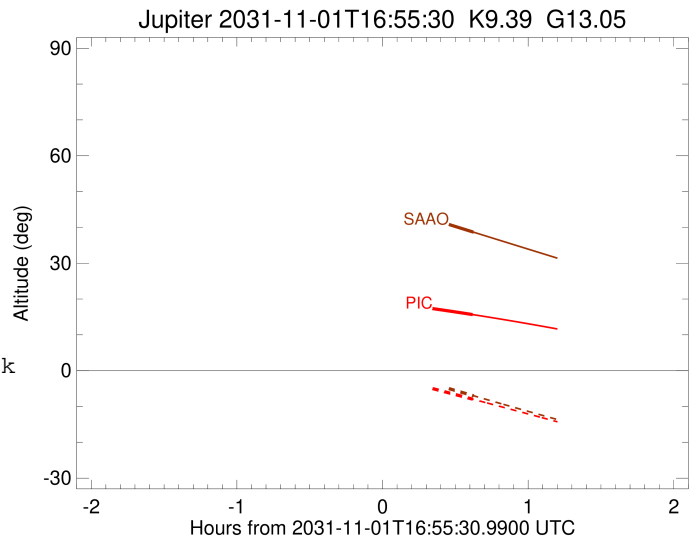
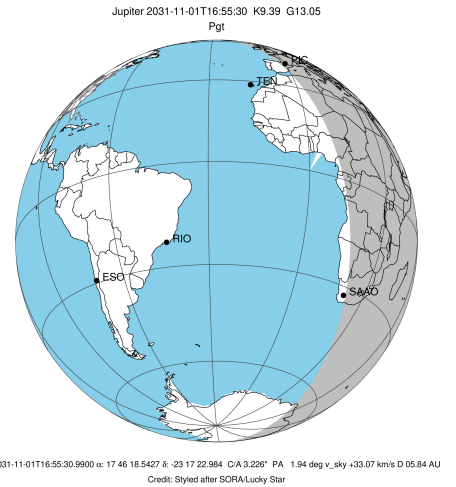
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	NOV 01 17:32 - NOV 01 17:32	Pne
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	NOV 01 17:33 - NOV 01 17:33	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-01T16:56:31.840
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PIC
Location              : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID        : 4068779715305929728
2Mass ID (if available) : 17461855-2317229
ICRS Star Coord at Epoch: 17h 46m 18.54269s -23:17:22.98372s
RUWE (>1.4 is poor)  : 1.38
K magnitude           : 9.387
G magnitude           : 13.052
RP magnitude          : 12.032
BP magnitude          : 14.123
DUPflag              : 0
Distance (au)         : 5.840
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.07
Sun-Target sep (deg)  : 48.23
Sun-Moon sep (deg)    : 160.30
B (ring opening deg) : -2.21
PA of pole (deg)      : 0.64
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 1.880
C/A sky separation (km) : 7961.5
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
    
```

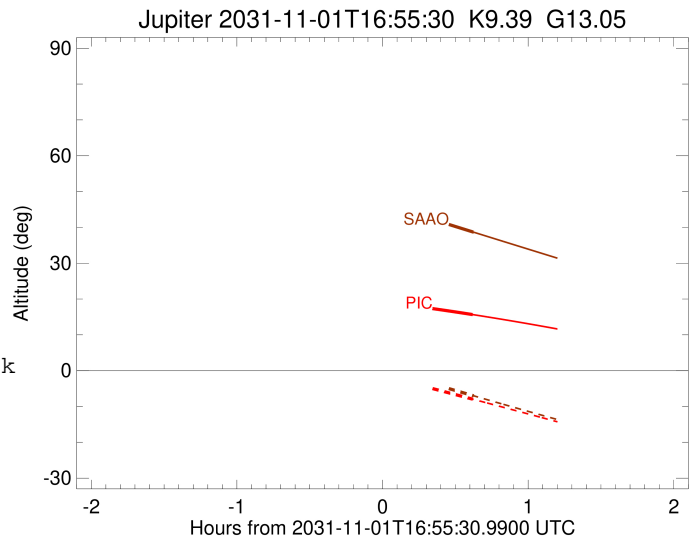
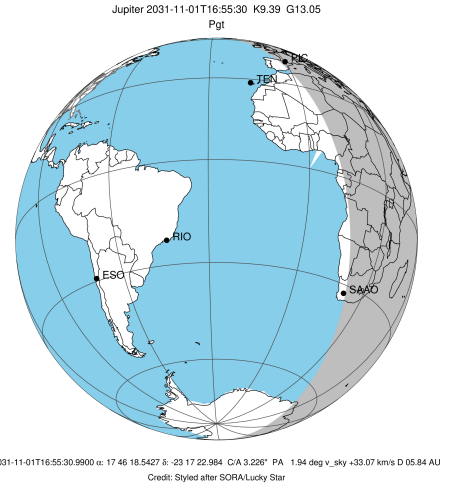


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T16:20:22.427	21.69	4.63x	71491.9	-7.61	-8.69
Jupiter	E	2031-11-01T17:32:38.992	15.66	-7.95	71491.9	-5.20	-5.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-01T16:57:33.940
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : SAAO
Location              : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)        : -32.37953
E. Longitude (deg)    : 20.81070
Altitude (km)         : 1.768
Gaia source ID        : 4068779715305929728
2Mass ID (if available) : 17461855-2317229
ICRS Star Coord at Epoch: 17h 46m 18.54269s -23:17:22.98372s
RUWE (>1.4 is poor) : 1.38
K magnitude           : 9.387
G magnitude           : 13.052
RP magnitude          : 12.032
BP magnitude          : 14.123
DUPflag              : 0
Distance (au)         : 5.840
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.07
Sun-Target sep (deg)  : 48.23
Sun-Moon sep (deg)    : 160.79
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.64
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 3.595
C/A sky separation (km) : 15225.6
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	2031-11-01T16:22:03.118	53.69	7.31x	71491.6	-13.41	-15.25
Jupiter	E	2031-11-01T17:33:01.219	38.66	-7.00	71491.7	-11.19	-12.75