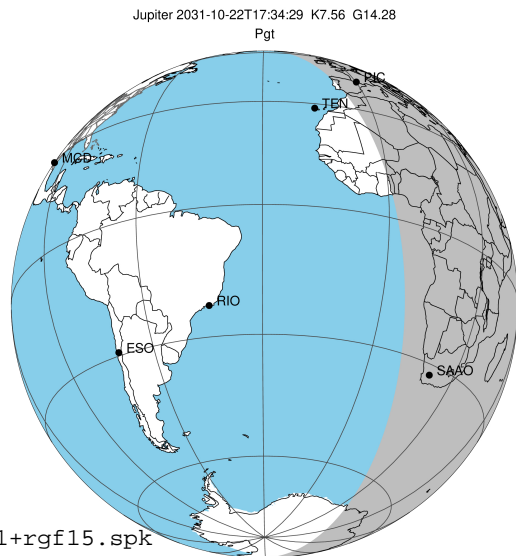


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-22T17:34:29.550
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116532020717382784
 2Mass ID (if available) : 17383072-2312488

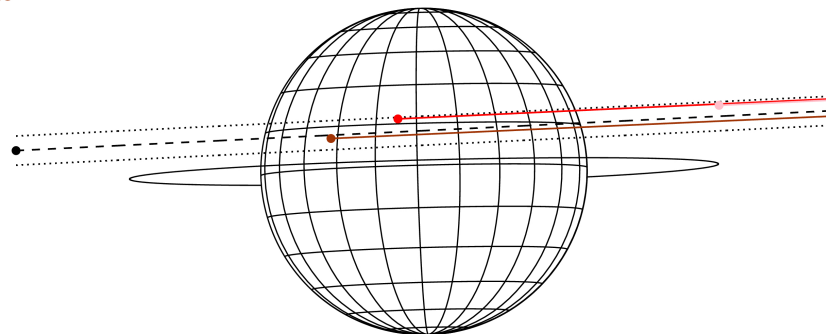
Jupiter 2031-10-22T17:34:29 K7.56 G14.28 Pgt

ICRS Star Coord at Epoch: 17h 38m 30.71174s -23:12:49.10615s
 RUWE (>1.4 is poor) : 0.92
 K magnitude : 7.557
 G magnitude : 14.277
 RP magnitude : 12.720
 BP magnitude : 17.846
 DUPflag : 0
 Distance (au) : 5.720
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 29.68
 Sun-Target sep (deg) : 56.39
 Sun-Moon sep (deg) : 26.25
 B (ring opening deg) : -2.25
 PA of pole (deg) : 1.48
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 4.308
 C/A sky separation (km) : 17871.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



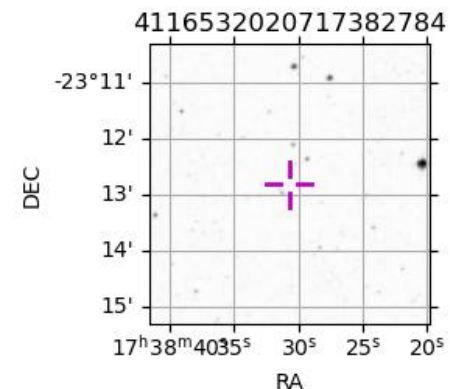
2031-10-22T17:34:29.5500 cc: 17 38 30.7117 s: -23 12 49.106 C/A 4.2997 PA 182.80 deg v_sky +29.68 km/s D 05.72 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 TEN
 SAAO



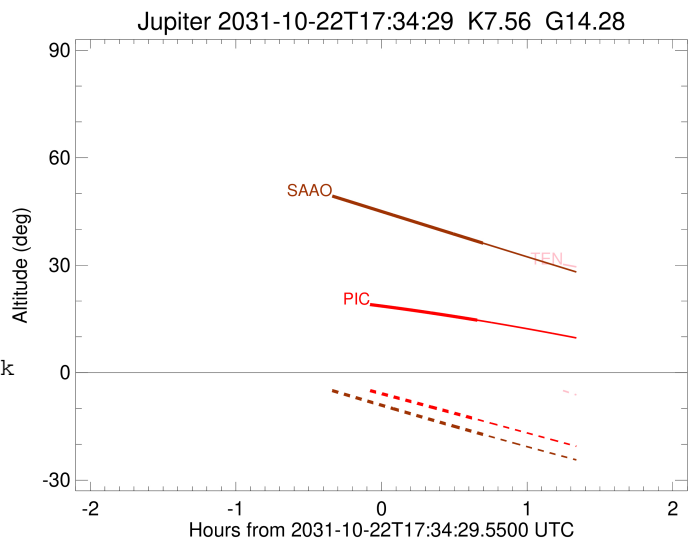
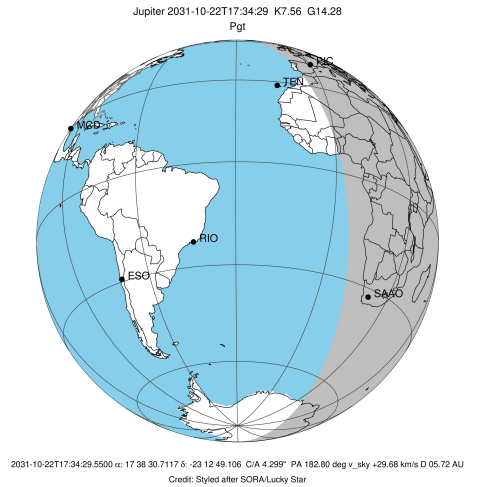
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	OCT 22 18:13 - OCT 22 18:13	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	+	OCT 22 18:16 - OCT 22 18:16	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-22T17:35:40.990
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      : 4116532020717382784
2Mass ID (if available) : 17383072-2312488
ICRS Star Coord at Epoch: 17h 38m 30.71174s -23:12:49.10615s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 7.557
G magnitude          : 14.277
RP magnitude         : 12.720
BP magnitude         : 17.846
DUPflag             : 0
Distance (au)        : 5.720
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 29.68
Sun-Target sep (deg) : 56.39
Sun-Moon sep (deg)  : 25.97
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.48
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 5.675
C/A sky separation (km) : 23545.0
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
    
```

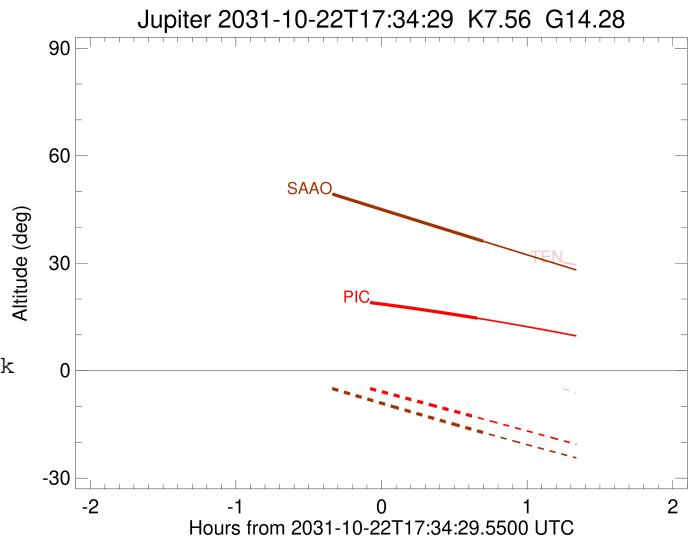
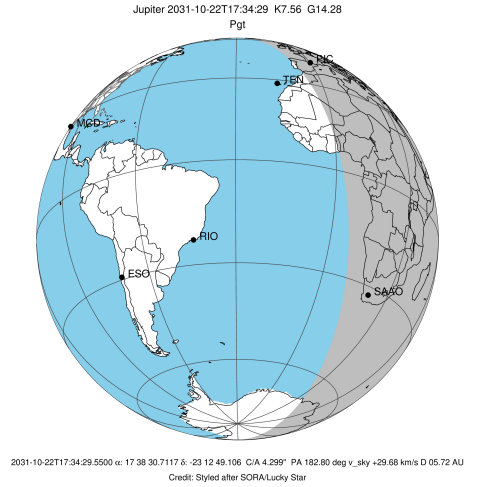


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-22T16:57:21.918	21.42	0.80x	71491.3	17.98	20.34
Jupiter	E	2031-10-22T18:13:57.016	14.66	-13.05	71491.2	20.41	23.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-22T17:36:55.150
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        : 4116532020717382784
2Mass ID (if available) : 17383072-2312488
ICRS Star Coord at Epoch: 17h 38m 30.71174s -23:12:49.10615s
RUWE (>1.4 is poor)  : 0.92
K magnitude           : 7.557
G magnitude           : 14.277
RP magnitude          : 12.720
BP magnitude          : 17.846
DUPflag              : 0
Distance (au)         : 5.720
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 29.68
Sun-Target sep (deg)  : 56.39
Sun-Moon sep (deg)    : 26.03
B (ring opening deg) : -2.25
PA of pole (deg)      : 1.48
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 3.925
C/A sky separation (km) : 16283.6
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	2031-10-22T16:57:27.015	52.85	-1.59x	71491.7	12.03	13.69
Jupiter	E	2031-10-22T18:16:18.161	36.16	-17.24	71491.6	14.24	16.18