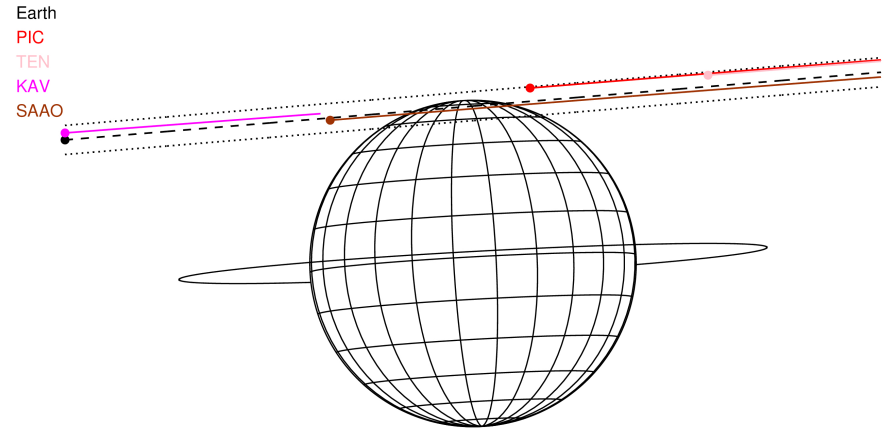
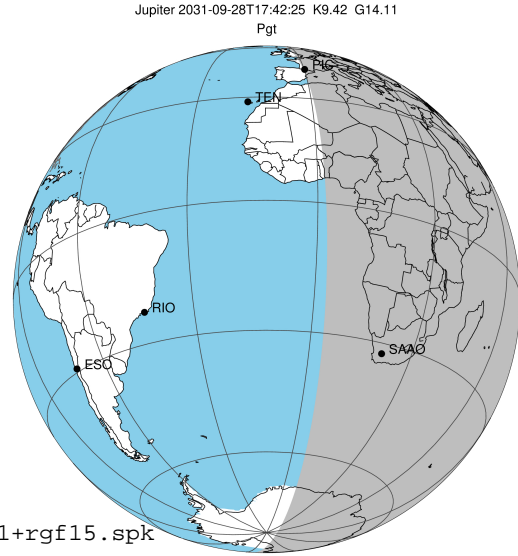


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-28T17:42:25.080
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4111632047131659776
 2Mass ID (if available) : 17230273-2258422

Jupiter 2031-09-28T17:42:25 K9.42 G14.11 Pgt

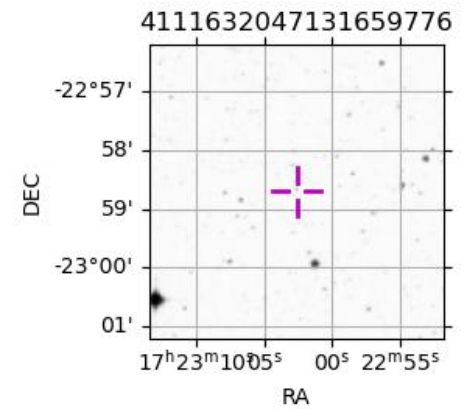
ICRS Star Coord at Epoch: 17h 23m 02.73530s -22:58:42.49279s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 9.417
 G magnitude : 14.106
 RP magnitude : 12.865
 BP magnitude : 15.798
 DUPflag : 0
 Distance (au) : 5.386
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 20.01
 Sun-Target sep (deg) : 76.53
 Sun-Moon sep (deg) : 76.25
 B (ring opening deg) : -2.34
 PA of pole (deg) : 3.14
 Pole direction: RA (deg): 268.05683
 Dec (deg): 64.49652
 C/A sky separation (") : 17.593
 C/A sky separation (km) : 68721.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



2031-09-28T17:42:25.0800 a: 17 23 02.7353 s: -22 58 42.493 C/A ***** PA 184.74 deg v_sky +20.01 km/s D 05.39 AU
 Credit: Styled after SORA/Lucky Star

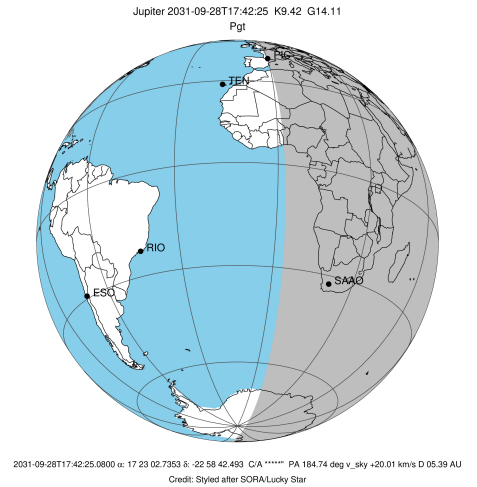
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	SEP 28 17:25 - SEP 28 18:04	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

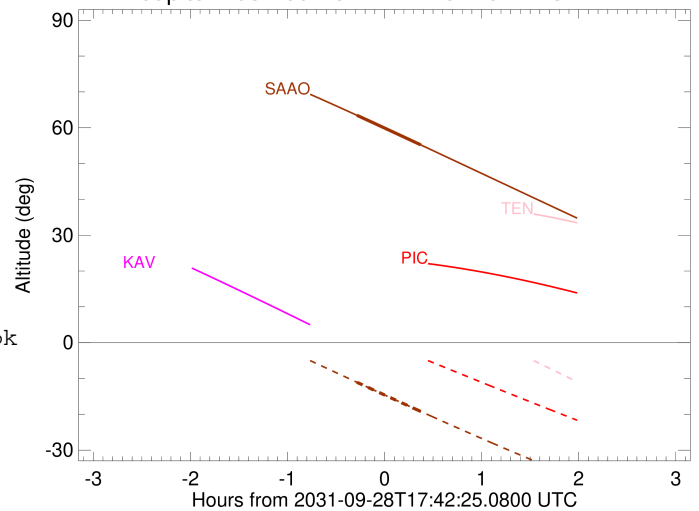


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-28T17:45:07.330
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       : 4111632047131659776
2Mass ID (if available) : 17230273-2258422
ICRS Star Coord at Epoch: 17h 23m 02.73530s -22:58:42.49279s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.417
G magnitude           : 14.106
RP magnitude          : 12.865
BP magnitude          : 15.798
DUPflag              : 0
Distance (au)        : 5.386
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.01
Sun-Target sep (deg) : 76.53
Sun-Moon sep (deg)   : 76.99
B (ring opening deg) : -2.34
PA of pole (deg)     : 3.14
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 17.306
C/A sky separation (km) : 67597.8
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
    
```



Jupiter 2031-09-28T17:42:25 K9.42 G14.11



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	2031-09-28T17:25:23.755	63.46	-11.06	71485.5	69.44	71.71
Jupiter	E	2031-09-28T18:04:49.368	55.21	-19.20	71485.2	72.28	74.28