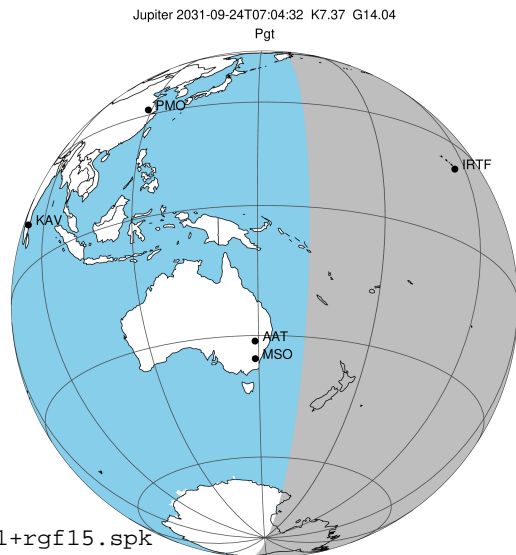


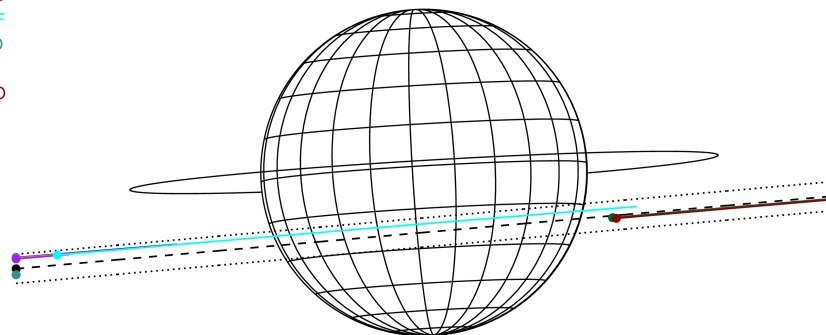
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-24T07:04:32.160
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114628151949072384
 2Mass ID (if available) : 17204682-2256257

Jupiter 2031-09-24T07:04:32 K7.37 G14.04 Pgt

ICRS Star Coord at Epoch: 17h 20m 46.80994s -22:56:25.80126s
 RUWE (>1.4 is poor) : 1.11
 K magnitude : 7.370
 G magnitude : 14.045
 RP magnitude : 12.464
 BP magnitude : 17.790
 DUPflag : 0
 Distance (au) : 5.319
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 18.05
 Sun-Target sep (deg) : 80.37
 Sun-Moon sep (deg) : 13.20
 B (ring opening deg) : -2.35
 PA of pole (deg) : 3.38
 Pole direction: RA (deg): 268.05684
 Dec (deg): 64.49652
 C/A sky separation (") : 6.783
 C/A sky separation (km) : 26169.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



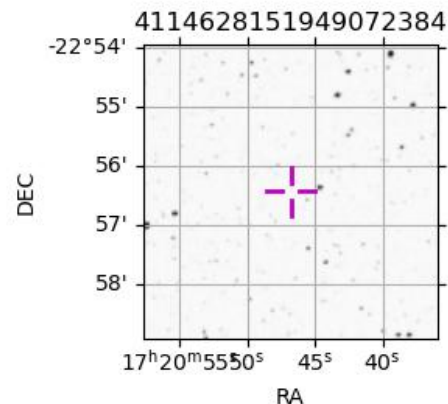
Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO
 AAT
 MSO



2031-09-24T07:04:32.1600 a: 17 20 46.8099 s: -22 56 25.801 C/A 6.792" PA 5.08 deg v_sky +18.05 km/s D 05.32 AU
 Credit: Styled after SORA/Lucky Star

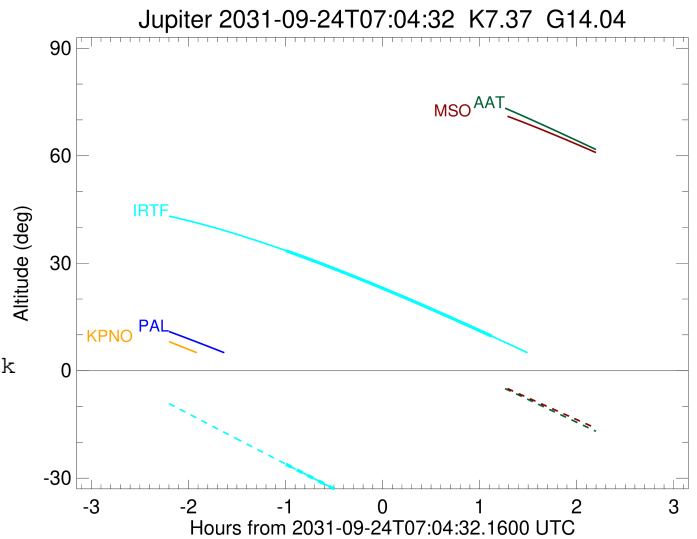
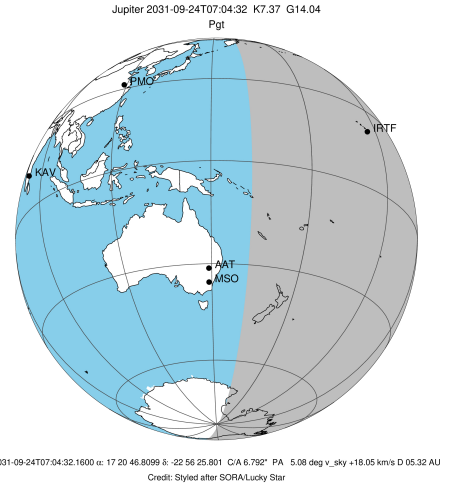
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	SEP 24 06:04 - SEP 24 08:11	Pie
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			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-24T07:08:36.150
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4114628151949072384
2Mass ID (if available) : 17204682-2256257
ICRS Star Coord at Epoch: 17h 20m 46.80994s -22:56:25.80126s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 7.370
G magnitude           : 14.045
RP magnitude          : 12.464
BP magnitude          : 17.790
DUPflag              : 0
Distance (au)         : 5.319
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 18.05
Sun-Target sep (deg)  : 80.37
Sun-Moon sep (deg)    : 12.48
B (ring opening deg) : -2.35
PA of pole (deg)      : 3.38
Pole direction: RA (deg): 268.05684
Dec (deg): 64.49652
C/A sky separation (") : 5.808
C/A sky separation (km) : 22407.4
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	2031-09-24T06:04:48.900	33.50	-26.10	71491.1	-19.64	-22.18
Jupiter	E	2031-09-24T08:11:58.527	9.64	-54.46	71491.4	-16.97	-19.23