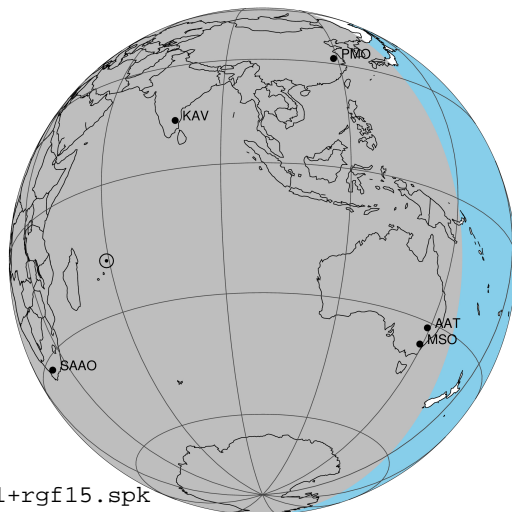


target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-05-10T19:59:23.320  
 Event type : Pt  
 : Jupiter occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4068878641343818240  
 2Mass ID (if available) : 17492325-2253209

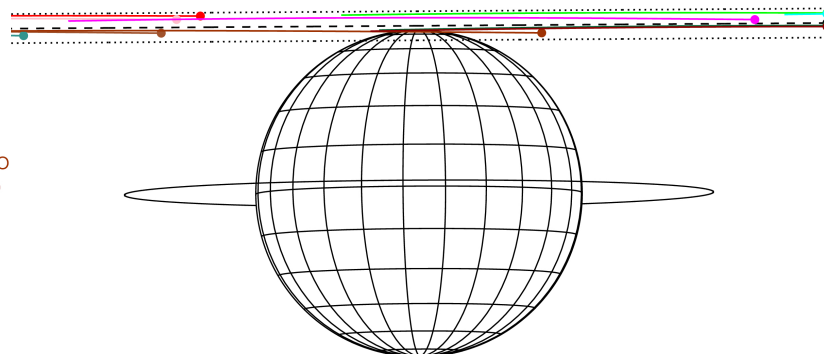
Jupiter 2031-05-10T19:59:23 K9.63 G14.79 Pt

ICRS Star Coord at Epoch: 17h 49m 23.24973s -22:53:21.25358s  
 RUWE (>1.4 is poor) : 0.90  
 K magnitude : 9.634  
 G magnitude : 14.790  
 RP magnitude : 13.516  
 BP magnitude : 16.653  
 DUPflag : 0  
 Distance (au) : 4.460  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -10.17  
 Sun-Target sep (deg) : 141.98  
 Sun-Moon sep (deg) : 12.78  
 B (ring opening deg) : -2.61  
 PA of pole (deg) : 0.31  
 Pole direction: RA (deg): 268.05695  
 Dec (deg): 64.49651  
 C/A sky separation (") : 22.711  
 C/A sky separation (km) : 73469.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



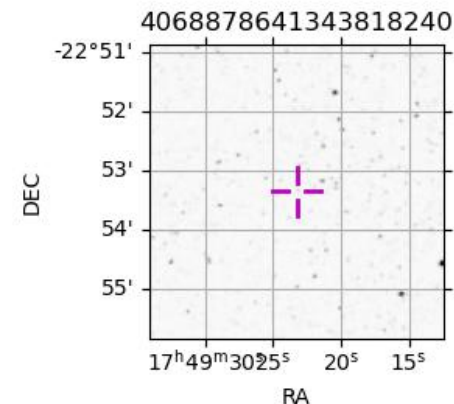
2031-05-10T19:59:23.3200 a: 17 49 23.2497 d: -22 53 21.254 C/A \*\*\*\*\* PA 180.39 deg v\_sky -10.17 km/s D 04.46 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PIC  
 PMO  
 TEN  
 IRTF  
 KAV  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



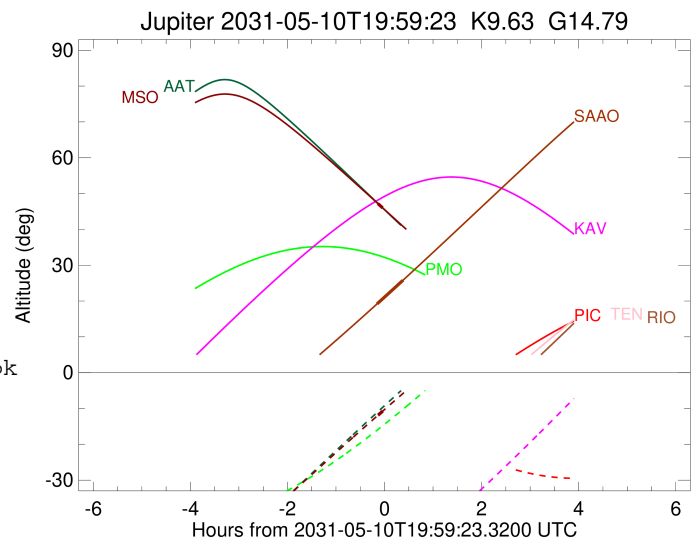
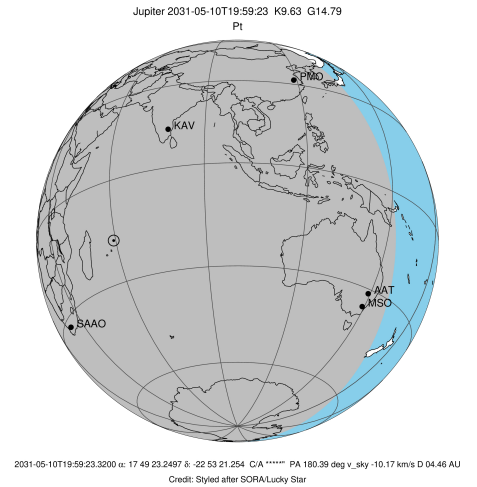
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	MAY 10 19:50 - MAY 10 20:22	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 10 19:51 - MAY 10 19:57	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-10T20:06:17.700
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 4068878641343818240
2Mass ID (if available) : 17492325-2253209
ICRS Star Coord at Epoch: 17h 49m 23.24973s -22:53:21.25358s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.634
G magnitude           : 14.790
RP magnitude          : 13.516
BP magnitude          : 16.653
DUPflag              : 0
Distance (au)        : 4.460
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.17
Sun-Target sep (deg) : 141.98
Sun-Moon sep (deg)   : 13.75
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.31
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation ("): 21.887
C/A sky separation (km): 70801.2
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
    
```

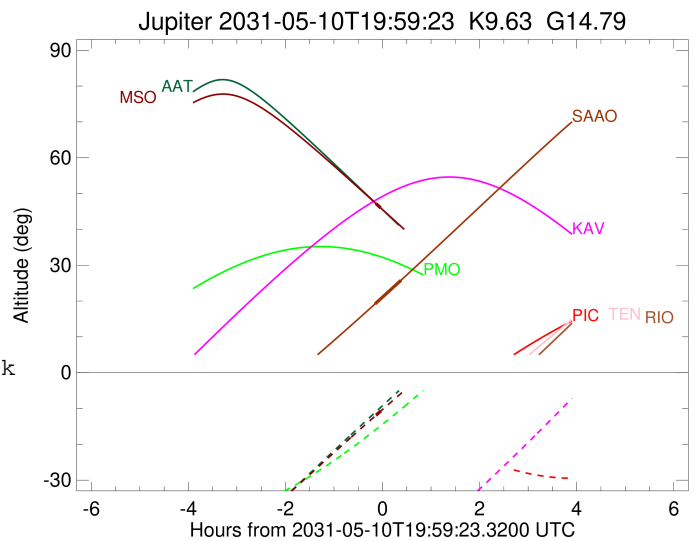
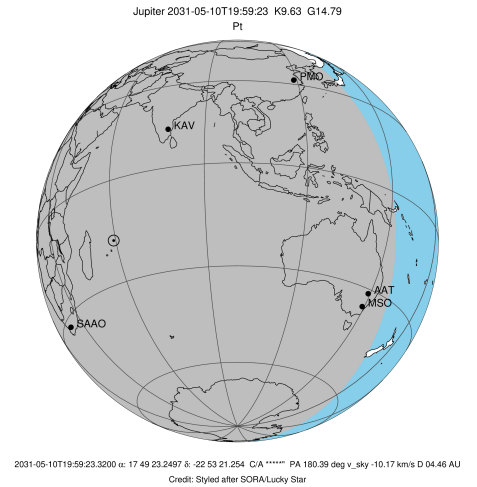


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-10T19:50:15.655	19.21	-50.63	71482.9	80.94	82.00
Jupiter	E	2031-05-10T20:22:17.036	25.81	-57.18	71482.9	82.37	83.26

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-10T19:54:14.550
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code        : MSO
Location             : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)   : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 4068878641343818240
2Mass ID (if available) : 17492325-2253209
ICRS Star Coord at Epoch: 17h 49m 23.24973s -22:53:21.25358s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.634
G magnitude          : 14.790
RP magnitude         : 13.516
BP magnitude         : 16.653
DUPflag             : 0
Distance (au)        : 4.460
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.17
Sun-Target sep (deg) : 141.98
Sun-Moon sep (deg)   : 12.43
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.31
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation (") : 22.090
C/A sky separation (km) : 71460.7
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	2031-05-10T19:51:24.044	47.16	-11.88	71482.7	87.29	87.61
Jupiter	E	2031-05-10T19:57:05.146	46.00	-10.75	71482.7	86.65	87.04