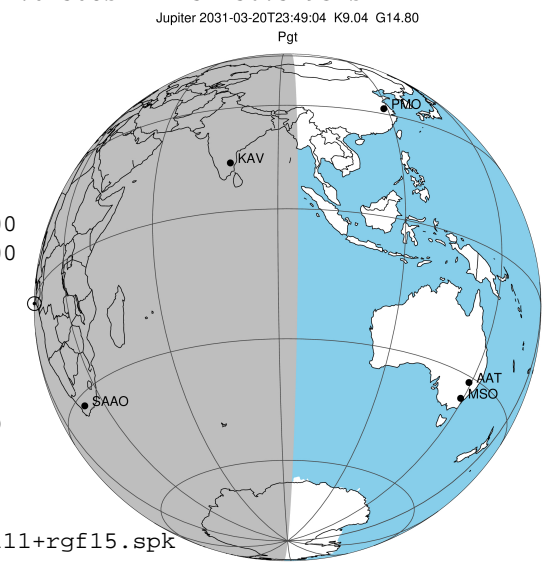


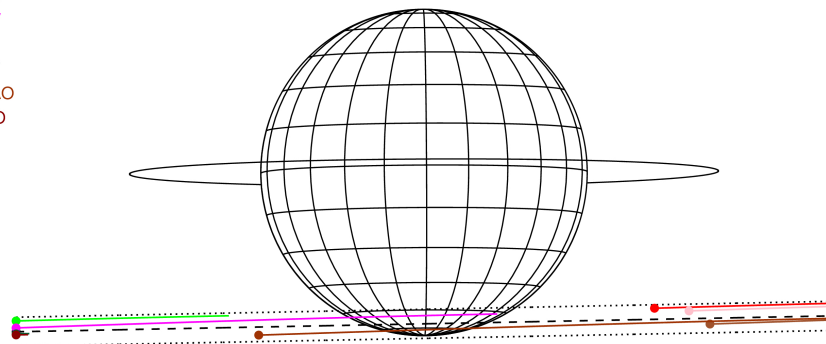
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-20T23:49:04.550
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068878847502336128
 2Mass ID (if available) : 17492104-2252563

Jupiter 2031-03-20T23:49:04 K9.04 G14.80 Pgt

ICRS Star Coord at Epoch: 17h 49m 21.04508s -22:52:56.51932s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.045
 G magnitude : 14.796
 RP magnitude : 13.368
 BP magnitude : 17.275
 DUPflag : 0
 Distance (au) : 5.177
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.01
 Sun-Target sep (deg) : 92.19
 Sun-Moon sep (deg) : 64.43
 B (ring opening deg) : -2.62
 PA of pole (deg) : 0.31
 Pole direction: RA (deg): 268.05699
 Dec (deg): 64.49651
 C/A sky separation (") : 17.651
 C/A sky separation (km) : 66274.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



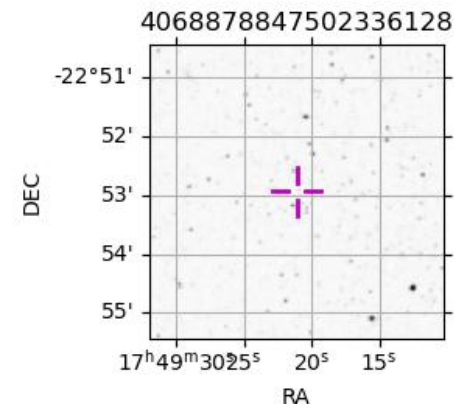
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 AAT
 SAAO
 MSO



2031-03-20T23:49:04.5500 α: 17 49 21.0451 δ: -22 52 56.519 C/A ***** PA 1.12 deg v_sky +12.01 km/s D 05.18 AU
 Credit: Styled after SORA/Lucky Star

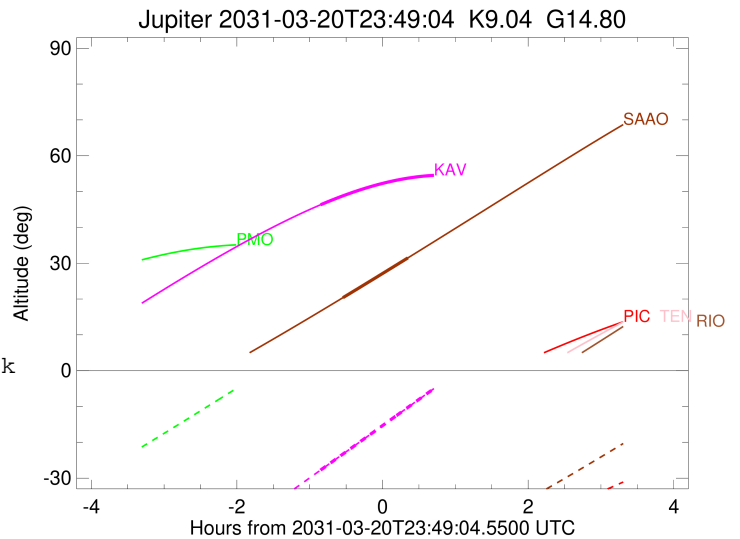
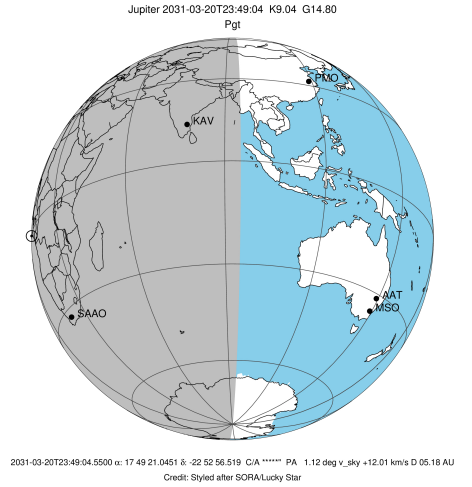
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	MAR 20 22:58 - MAR 20 22:58	Pin
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	+ +	MAR 20 23:16 - MAR 21 00:10	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-20T23:47:17.930
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 4068878847502336128
2Mass ID (if available) : 17492104-2252563
ICRS Star Coord at Epoch: 17h 49m 21.04508s -22:52:56.51932s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 9.045
G magnitude          : 14.796
RP magnitude         : 13.368
BP magnitude         : 17.275
DUPflag             : 0
Distance (au)       : 5.177
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.01
Sun-Target sep (deg) : 92.19
Sun-Moon sep (deg)  : 65.21
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.31
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (") : 16.693
C/A sky separation (km) : 62677.2
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
    
```

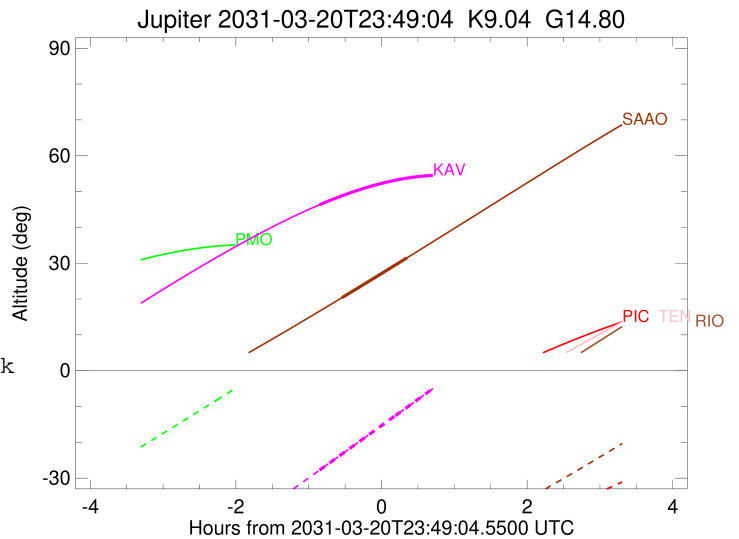
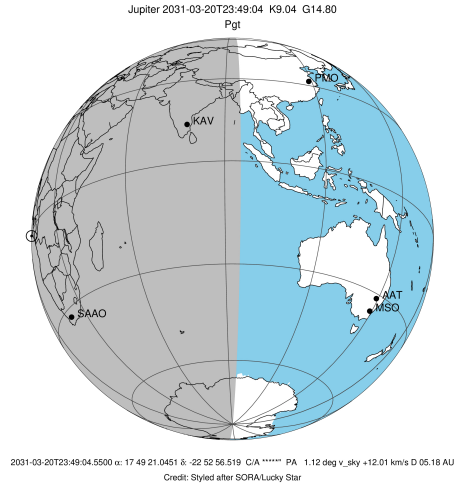


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-20T22:58:02.006	46.31	-27.76	71484.6	-62.28	-65.18
Jupiter	E	2031-03-21T00:36:44.171	54.59	-3.72x	71484.9	-60.20	-63.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-20T23:43:10.180
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      : 4068878847502336128
2Mass ID (if available) : 17492104-2252563
ICRS Star Coord at Epoch: 17h 49m 21.04508s -22:52:56.51932s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 9.045
G magnitude          : 14.796
RP magnitude         : 13.368
BP magnitude         : 17.275
DUPflag             : 0
Distance (au)       : 5.177
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 12.01
Sun-Target sep (deg) : 92.19
Sun-Moon sep (deg)  : 65.17
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.31
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (") : 18.343
C/A sky separation (km) : 68875.5
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	2031-03-20T23:16:27.173	20.37	-56.96	71483.2	-75.76	-77.40
Jupiter	E	2031-03-21T00:10:00.197	31.48	-52.01	71483.4	-72.77	-74.72