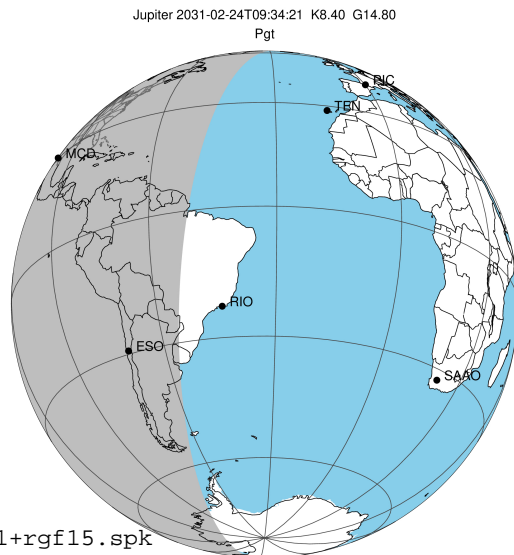


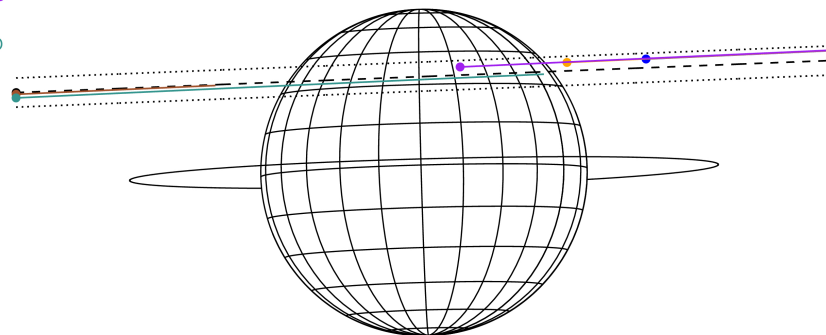
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-24T09:34:21.650  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116742787702620800  
 2Mass ID (if available) : 17374568-2247478

Jupiter 2031-02-24T09:34:21 K8.40 G14.80 Pgt

ICRS Star Coord at Epoch: 17h 37m 45.68174s -22:47:48.10230s  
 RUWE (>1.4 is poor) : 0.92  
 K magnitude : 8.400  
 G magnitude : 14.798  
 RP magnitude : 13.263  
 BP magnitude : 18.433  
 DUPflag : 0  
 Distance (au) : 5.569  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 23.19  
 Sun-Target sep (deg) : 70.27  
 Sun-Moon sep (deg) : 105.49  
 B (ring opening deg) : -2.66  
 PA of pole (deg) : 1.56  
 Pole direction: RA (deg): 268.05701  
 Dec (deg): 64.49651  
 C/A sky separation (") : 10.402  
 C/A sky separation (km) : 42012.3  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



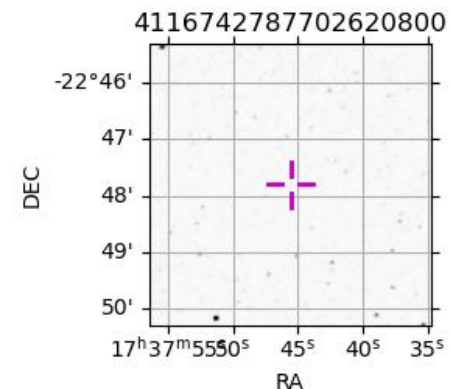
Earth  
 PAL  
 KPNO  
 MCD  
 RIO  
 ESO



2031-02-24T09:34:21.6500 a: 17 37 45.6817 s: -22 47 48.102 C/A \*\*\*\*\* PA 182.25 deg v\_sky +23.19 km/s D 05.57 AU  
 Credit: Styled after SORA/Lucky Star

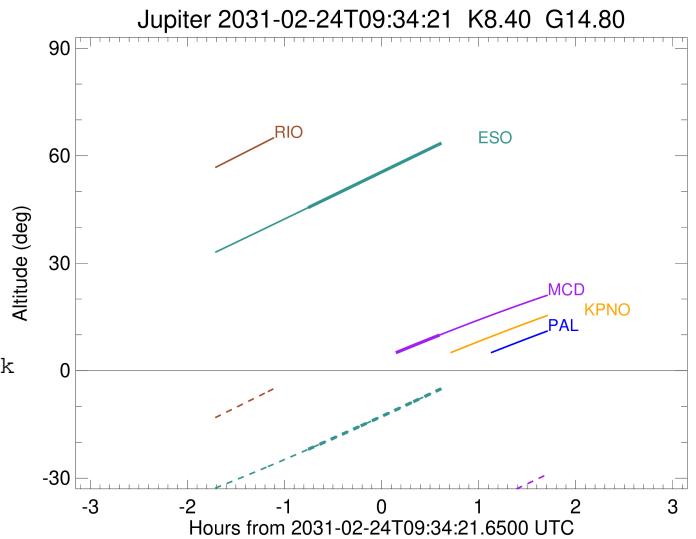
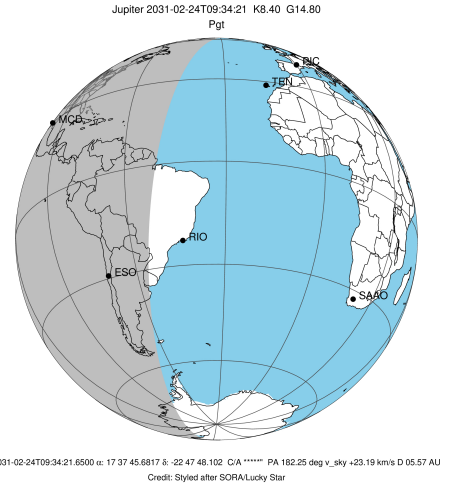
Observable events with sun below -5 deg and altitude above 5 deg

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	+	FEB 24 10:10 - FEB 24 10:10	Pne
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	+	FEB 24 08:49 - FEB 24 08:49	Pin
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            : 2031-02-24T09:30:17.660
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MCD
Location            : McDonald Obs. 2.7m
Latitude (deg)      : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)       : 2.075
Gaia source ID      : 4116742787702620800
2Mass ID (if available) : 17374568-2247478
ICRS Star Coord at Epoch: 17h 37m 45.68174s -22:47:48.10230s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 8.400
G magnitude          : 14.798
RP magnitude         : 13.263
BP magnitude         : 18.433
DUPflag             : 0
Distance (au)       : 5.569
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.19
Sun-Target sep (deg) : 70.27
Sun-Moon sep (deg)  : 105.34
B (ring opening deg) : -2.66
PA of pole (deg)    : 1.56
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 11.253
C/A sky separation (km) : 45452.9
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
    
```

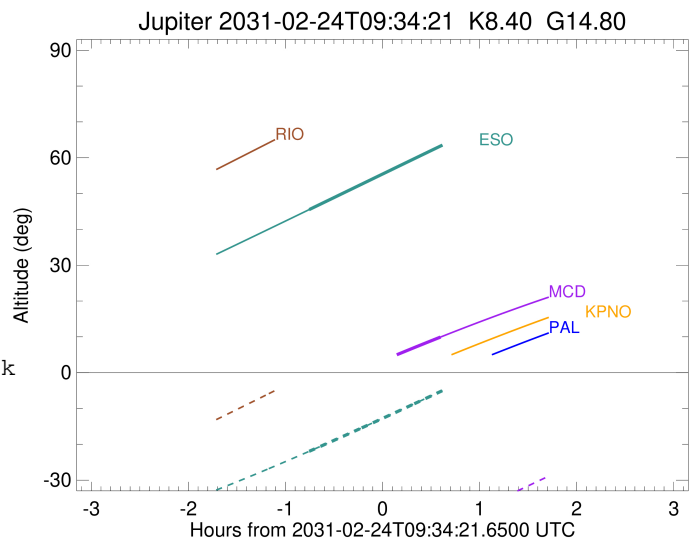
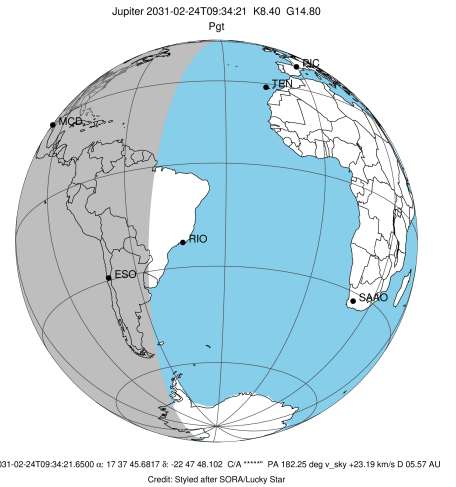


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-24T08:50:30.903	-5.15x	-58.42	71488.3	38.35	42.04
Jupiter	E	2031-02-24T10:10:12.852	9.94	-43.00	71487.9	40.49	44.20

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-24T09:31:45.190
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : ESO
Location              : European Southern Obs. (3.6m)
Latitude (deg)        : -29.26097
E. Longitude (deg)    : 289.26831
Altitude (km)         : 2.400
Gaia source ID        : 4116742787702620800
2Mass ID (if available) : 17374568-2247478
ICRS Star Coord at Epoch: 17h 37m 45.68174s -22:47:48.10230s
RUWE (>1.4 is poor)  : 0.92
K magnitude           : 8.400
G magnitude           : 14.798
RP magnitude          : 13.263
BP magnitude          : 18.433
DUPflag              : 0
Distance (au)         : 5.569
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 23.19
Sun-Target sep (deg)  : 70.27
Sun-Moon sep (deg)    : 106.10
B (ring opening deg)  : -2.66
PA of pole (deg)      : 1.56
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 10.081
C/A sky separation (km) : 40717.6
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	2031-02-24T08:49:00.123	45.51	-21.96	71489.0	33.68	37.23
Jupiter	E	2031-02-24T10:14:37.413	64.22	-4.33x	71488.7	35.62	39.24