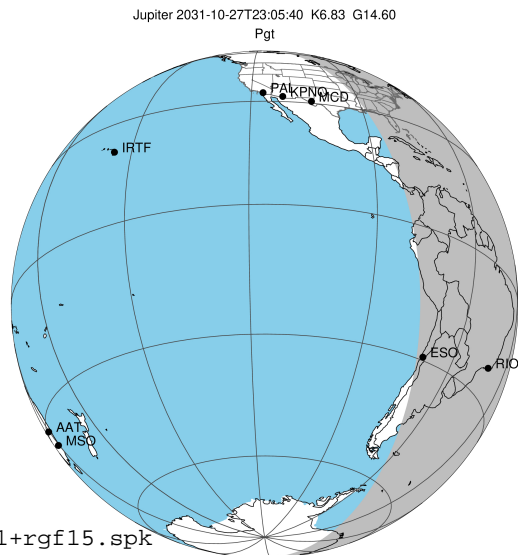


target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-10-27T23:05:40.690  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116481992919640576  
 2Mass ID (if available) : 17423090-2315232

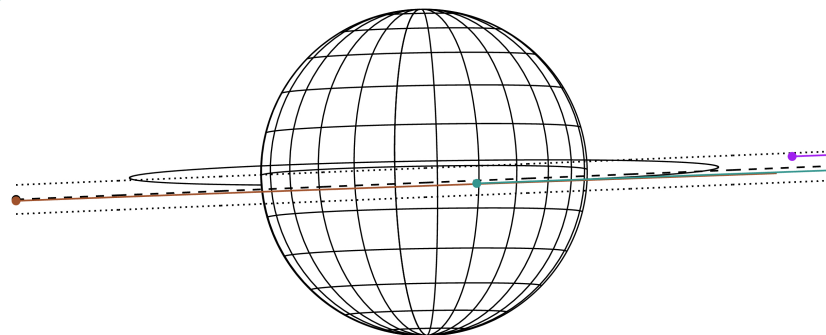
Jupiter 2031-10-27T23:05:40 K6.83 G14.60 Pgt

ICRS Star Coord at Epoch: 17h 42m 30.90556s -23:15:23.31975s  
 RUWE (>1.4 is poor) : 1.72  
 K magnitude : 6.828  
 G magnitude : 14.601  
 RP magnitude : 12.908  
 BP magnitude : 17.997  
 DUPflag : 0  
 Distance (au) : 5.785  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 31.51  
 Sun-Target sep (deg) : 52.10  
 Sun-Moon sep (deg) : 98.53  
 B (ring opening deg) : -2.23  
 PA of pole (deg) : 1.05  
 Pole direction: RA (deg): 268.05681  
 Dec (deg): 64.49652  
 C/A sky separation (") : 1.063  
 C/A sky separation (km) : 4461.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



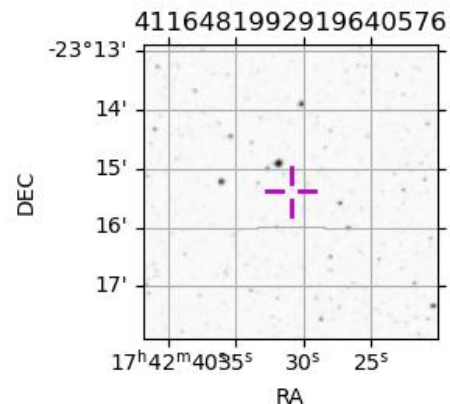
2031-10-27T23:05:40.6900 @: 17 42 30.9056 @: -23 15 23.320 C/A 1.072" PA 2.36 deg v\_sky +31.51 km/s D 05.78 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 MCD  
 RIO  
 ESO



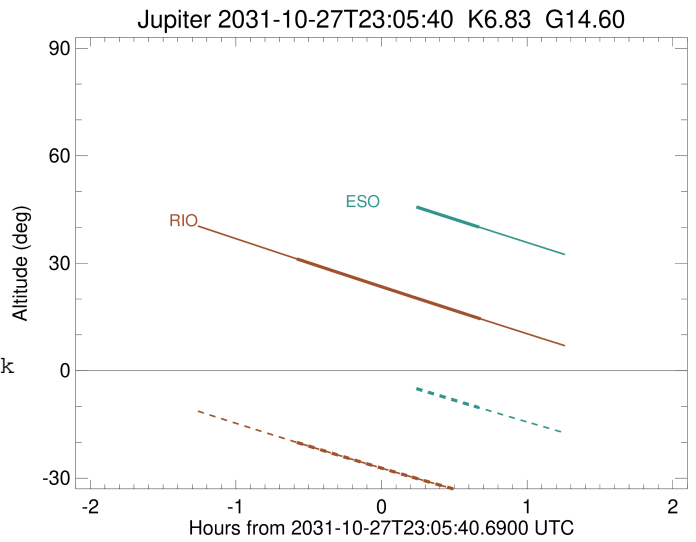
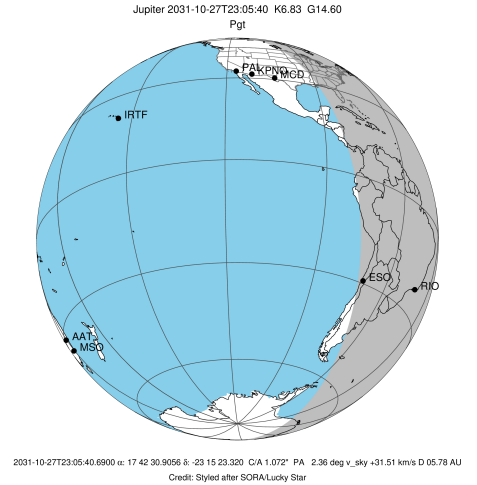
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	OCT 27 22:30 - OCT 27 23:46	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	OCT 27 23:45 - OCT 27 23:45	Pne
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            : 2031-10-27T23:08:40.870
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4116481992919640576
2Mass ID (if available) : 17423090-2315232
ICRS Star Coord at Epoch: 17h 42m 30.90556s -23:15:23.31975s
RUWE (>1.4 is poor) : 1.72
K magnitude          : 6.828
G magnitude           : 14.601
RP magnitude         : 12.908
BP magnitude         : 17.997
DUPflag             : 0
Distance (au)        : 5.785
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.51
Sun-Target sep (deg) : 52.10
Sun-Moon sep (deg)   : 99.04
B (ring opening deg) : -2.23
PA of pole (deg)     : 1.05
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 1.399
C/A sky separation (km): 5871.4
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
    
```

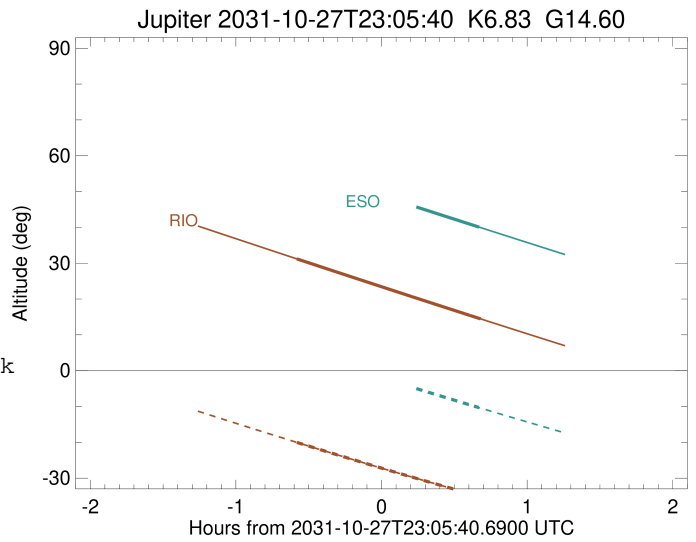
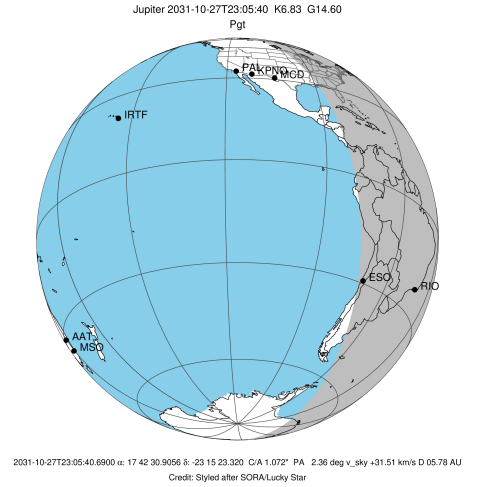


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-27T22:30:47.762	31.20	-20.02	71491.9	-5.74	-6.55
Jupiter	E	2031-10-27T23:46:28.328	14.47	-35.11	71492.0	-3.70	-4.23

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-27T23:07:49.250
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      : 4116481992919640576
2Mass ID (if available) : 17423090-2315232
ICRS Star Coord at Epoch: 17h 42m 30.90556s -23:15:23.31975s
RUWE (>1.4 is poor) : 1.72
K magnitude          : 6.828
G magnitude          : 14.601
RP magnitude         : 12.908
BP magnitude         : 17.997
DUPflag             : 0
Distance (au)       : 5.785
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 31.51
Sun-Target sep (deg) : 52.10
Sun-Moon sep (deg)  : 99.34
B (ring opening deg) : -2.23
PA of pole (deg)    : 1.05
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (" ) : 1.343
C/A sky separation (km) : 5635.1
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	2031-10-27T22:29:44.588	56.70	5.62x	71491.9	-5.65	-6.45
Jupiter	E	2031-10-27T23:45:49.632	40.08	-10.31	71492.0	-3.42	-3.91