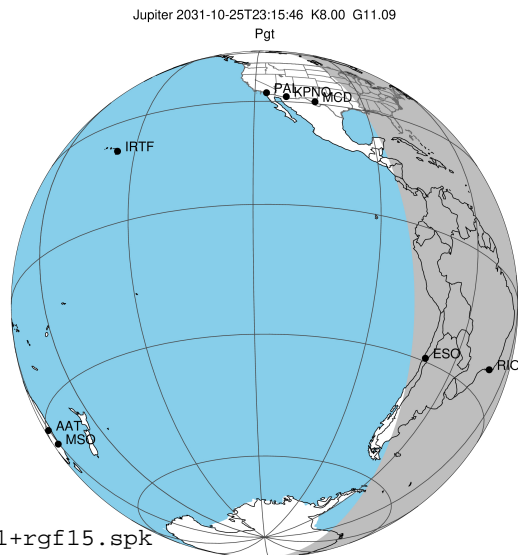


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-25T23:15:46.340
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116491441848571648
 2Mass ID (if available) : 17405801-2314230

Jupiter 2031-10-25T23:15:46 K8.00 G11.09 Pgt

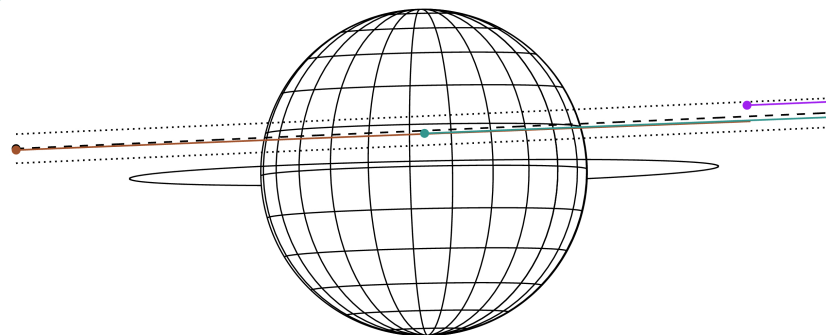
ICRS Star Coord at Epoch: 17h 40m 57.99987s -23:14:23.34992s

RUWE (>1.4 is poor) : 0.78
 K magnitude : 8.001
 G magnitude : 11.090
 RP magnitude : 10.182
 BP magnitude : 11.945
 DUPflag : 0
 Distance (au) : 5.761
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 30.82
 Sun-Target sep (deg) : 53.73
 Sun-Moon sep (deg) : 71.23
 B (ring opening deg) : -2.24
 PA of pole (deg) : 1.21
 Pole direction: RA (deg): 268.05681
 Dec (deg): 64.49652
 C/A sky separation (") : 4.381
 C/A sky separation (km) : 18302.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



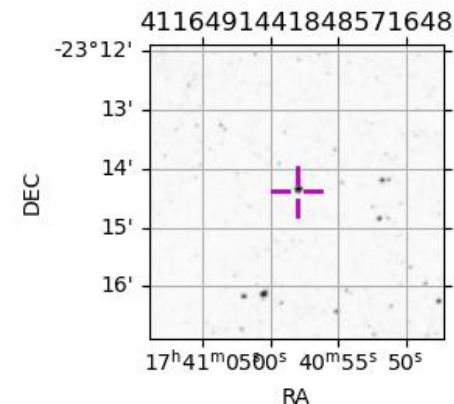
2031-10-25T23:15:46.3400 cc: 17 40 57.9999 s: -23 14 23.350 C/A 4.373" PA 182.53 deg v_sky +30.82 km/s D 05.76 AU
 Credit: Styled after SORA/Lucky Star

Earth
 MCD
 RIO
 ESO



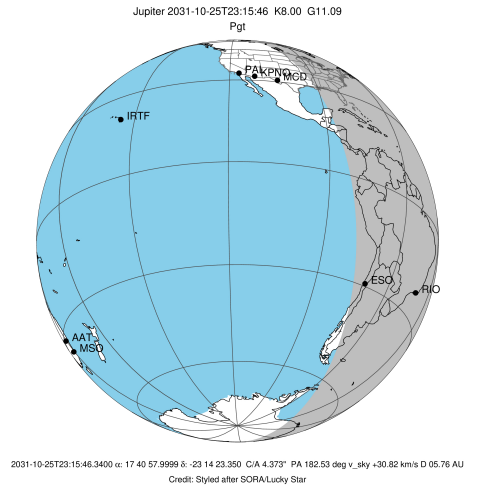
Observable events with sun below -5 deg and altitude above 5 deg

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 25 22:41 - OCT 25 23:56	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	OCT 25 23:55 - OCT 25 23:55	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

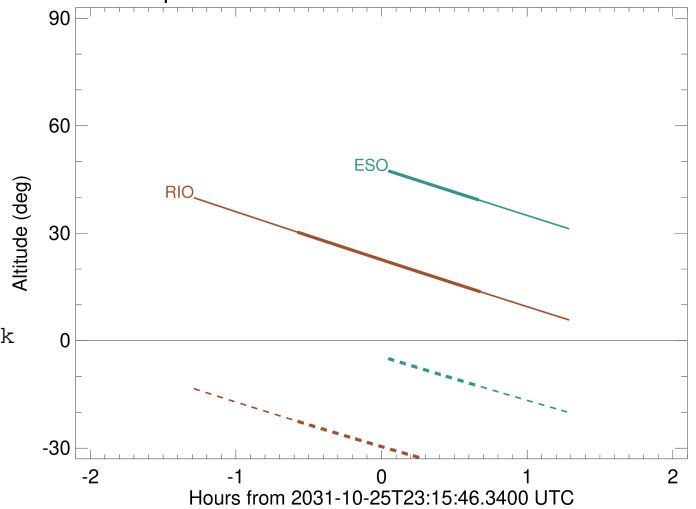


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-25T23:18:55.370
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       : 4116491441848571648
2Mass ID (if available) : 17405801-2314230
ICRS Star Coord at Epoch: 17h 40m 57.99987s -23:14:23.34992s
RUWE (>1.4 is poor) : 0.78
K magnitude           : 8.001
G magnitude           : 11.090
RP magnitude         : 10.182
BP magnitude         : 11.945
DUPflag              : 0
Distance (au)        : 5.761
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 30.82
Sun-Target sep (deg) : 53.73
Sun-Moon sep (deg)   : 71.31
B (ring opening deg) : -2.24
PA of pole (deg)     : 1.21
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation (") : 4.038
C/A sky separation (km) : 16872.7
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
    
```



Jupiter 2031-10-25T23:15:46 K8.00 G11.09

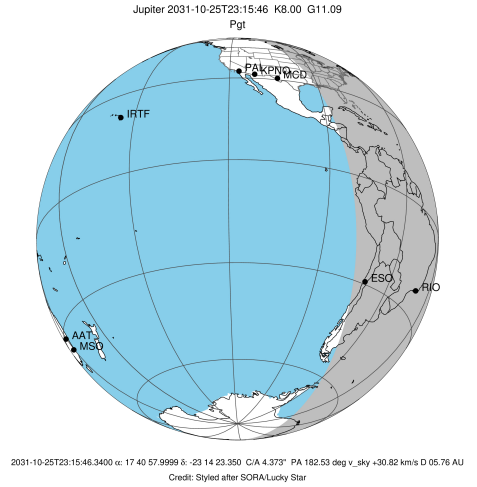


x: target alt < 5.0 deg or sun > -5.0 deg

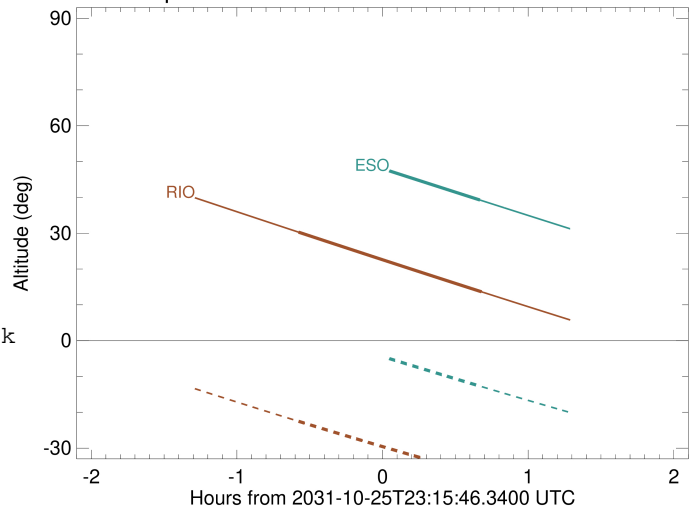
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-25T22:41:09.974	30.29	-22.50	71491.7	12.61	14.35
Jupiter	E	2031-10-25T23:56:34.959	13.64	-37.37	71491.6	14.65	16.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-25T23:18:02.570
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       : 4116491441848571648
2Mass ID (if available) : 17405801-2314230
ICRS Star Coord at Epoch: 17h 40m 57.99987s -23:14:23.34992s
RUWE (>1.4 is poor) : 0.78
K magnitude          : 8.001
G magnitude          : 11.090
RP magnitude         : 10.182
BP magnitude         : 11.945
DUPflag             : 0
Distance (au)        : 5.761
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 30.82
Sun-Target sep (deg) : 53.73
Sun-Moon sep (deg)  : 71.73
B (ring opening deg) : -2.24
PA of pole (deg)    : 1.21
Pole direction: RA (deg): 268.05681
Dec (deg): 64.49652
C/A sky separation ("): 4.097
C/A sky separation (km): 17115.8
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
    
```



Jupiter 2031-10-25T23:15:46 K8.00 G11.09



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	2031-10-25T22:40:07.694	55.81	3.11x	71491.7	12.71	14.45
Jupiter	E	2031-10-25T23:55:53.008	39.26	-12.68	71491.5	14.93	16.95