

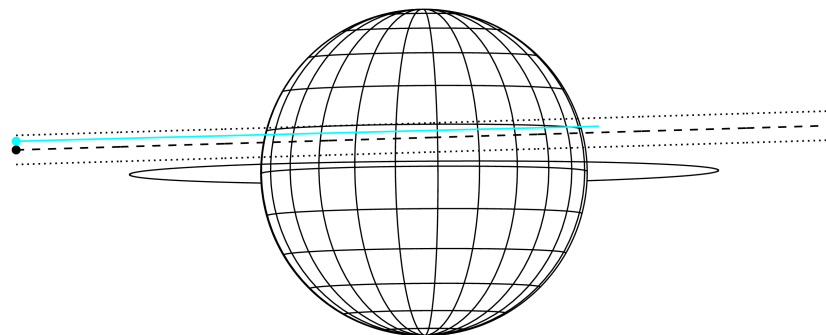
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-11-04T05:39:03.270  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068768617137798656  
 2Mass ID (if available) : 17482357-2318107

Jupiter 2031-11-04T05:39:03 K9.21 G14.82 Pgt

ICRS Star Coord at Epoch: 17h 48m 23.57106s -23:18:11.09155s  
 RUWE (>1.4 is poor) : 1.09  
 K magnitude : 9.212  
 G magnitude : 14.819  
 RP magnitude : 13.413  
 BP magnitude : 17.292  
 DUPflag : 0  
 Distance (au) : 5.868  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 33.87  
 Sun-Target sep (deg) : 46.18  
 Sun-Moon sep (deg) : 168.80  
 B (ring opening deg) : -2.20  
 PA of pole (deg) : 0.41  
 Pole direction: RA (deg): 268.05680  
 Dec (deg): 64.49652  
 C/A sky separation (") : 3.578  
 C/A sky separation (km) : 15227.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp



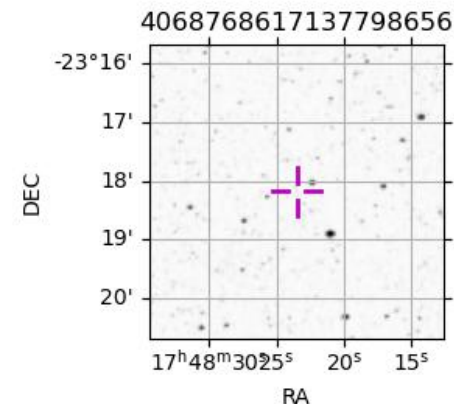
Earth  
 IRTF



2031-11-04T05:39:03.2700 cc: 17 48 23.5711 s: -23 18 11.092 C/A 3.578" PA 181.72 deg v\_sky +33.87 km/s D 05.87 AU  
 Credit: Styled after SORA/Lucky Star

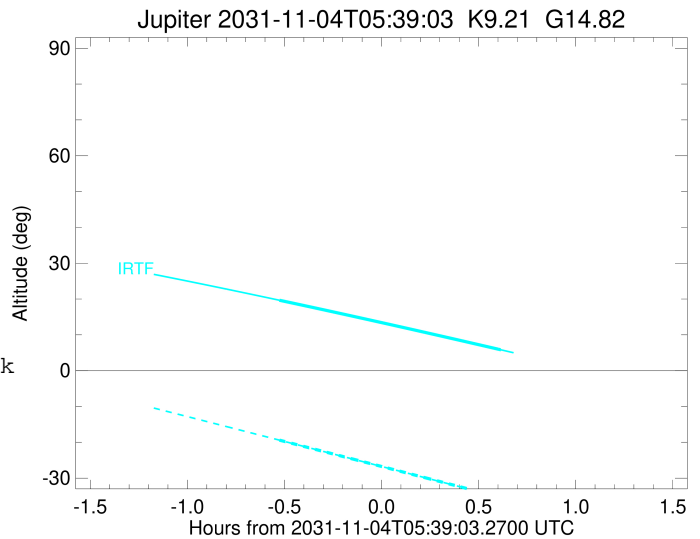
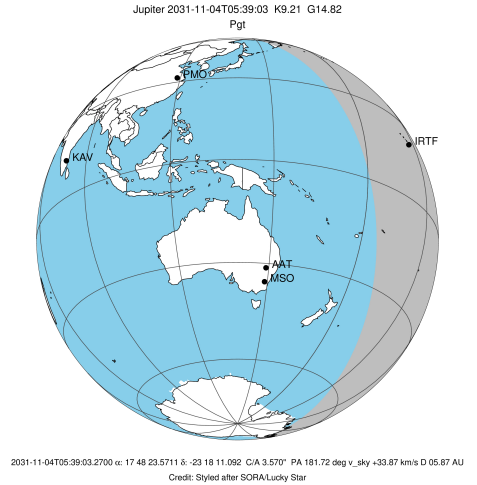
Observable events with sun below -5 deg and altitude above 5 deg

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			Pie
KAV	Kavalur Observatory	12.6	78.8	+	NOV 04 05:07 - NOV 04 06:15	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			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-04T05:41:44.960
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 4068768617137798656
2Mass ID (if available) : 17482357-2318107
ICRS Star Coord at Epoch: 17h 48m 23.57106s -23:18:11.09155s
RUWE (>1.4 is poor) : 1.09
K magnitude          : 9.212
G magnitude          : 14.819
RP magnitude         : 13.413
BP magnitude         : 17.292
DUPflag             : 0
Distance (au)        : 5.868
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.87
Sun-Target sep (deg) : 46.18
Sun-Moon sep (deg)   : 167.99
B (ring opening deg) : -2.20
PA of pole (deg)     : 0.41
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 4.306
C/A sky separation (km) : 18326.0
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	2031-11-04T05:07:31.167	19.65	-19.40	71491.6	13.79	15.67
Jupiter	E	2031-11-04T06:15:54.572	5.83	-35.35	71491.5	15.87	18.00