

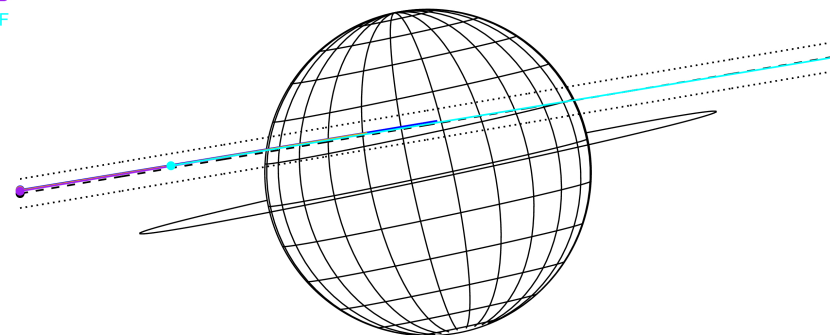
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2037-09-22T13:12:56.130  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 674444246408799360  
 2Mass ID (if available) : 07470470+2115147

Jupiter 2037-09-22T13:12:56 K8.64 G11.38 Pgt

ICRS Star Coord at Epoch: 07h 47m 04.71938s +21:15:14.70350s  
 RUWE (>1.4 is poor) : 1.56  
 K magnitude : 8.639  
 G magnitude : 11.378  
 RP magnitude : 10.576  
 BP magnitude : 12.075  
 DUPflag : 0  
 Distance (au) : 5.544  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 25.08  
 Sun-Target sep (deg) : 64.54  
 Sun-Moon sep (deg) : 136.37  
 B (ring opening deg) : 1.42  
 PA of pole (deg) : 11.94  
 Pole direction: RA (deg): 268.05624  
 Dec (deg): 64.49689  
 C/A sky separation (") : 5.110  
 C/A sky separation (km) : 20546.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



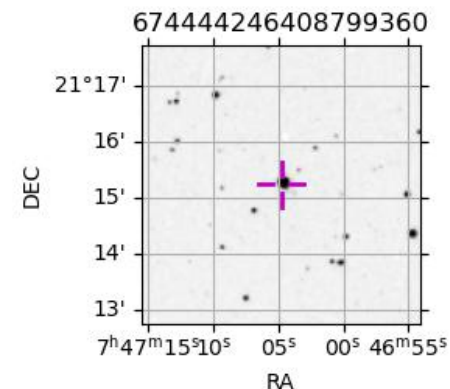
Earth  
 PAL  
 KPNO  
 MCD  
 IRTF



2037-09-22T13:12:56.1300 ex: 07 47 04.7194 s: +21 15 14.703 C/A 5.117" PA 189.55 deg v\_sky +25.08 km/s D 05.54 AU  
 Credit: Styled after SORA/Lucky Star

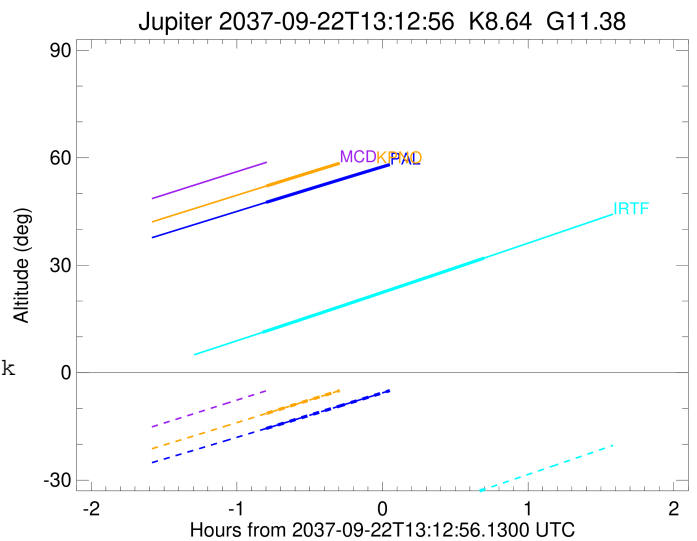
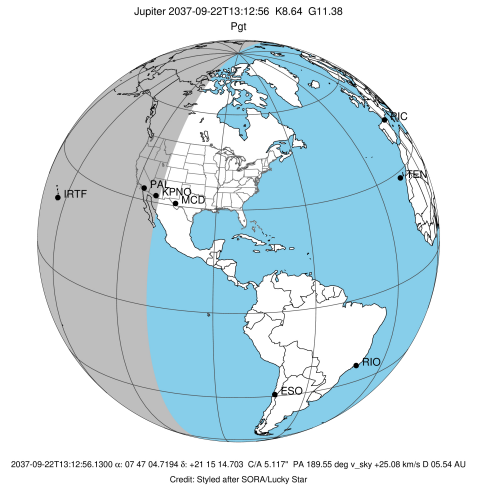
Observable events with sun below -5 deg and altitude above 5 deg

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	+	SEP 22 12:24 - SEP 22 12:24	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 22 12:25 - SEP 22 12:25	Pin
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	+ +	SEP 22 12:23 - SEP 22 13:54	Pie
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			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            : 2037-09-22T13:10:46.250
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg) : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 674444246408799360
2Mass ID (if available) : 07470470+2115147
ICRS Star Coord at Epoch: 07h 47m 04.71938s +21:15:14.70350s
RUWE (>1.4 is poor) : 1.56
K magnitude          : 8.639
G magnitude          : 11.378
RP magnitude         : 10.576
BP magnitude         : 12.075
DUPflag             : 0
Distance (au)       : 5.544
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.08
Sun-Target sep (deg) : 64.54
Sun-Moon sep (deg)  : 137.21
B (ring opening deg) : 1.42
PA of pole (deg)    : 11.94
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49689
C/A sky separation (") : 5.392
C/A sky separation (km) : 21677.9
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
    
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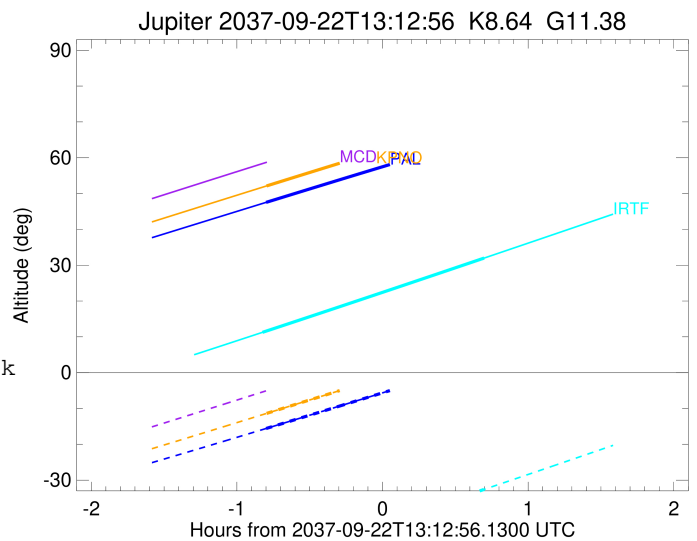
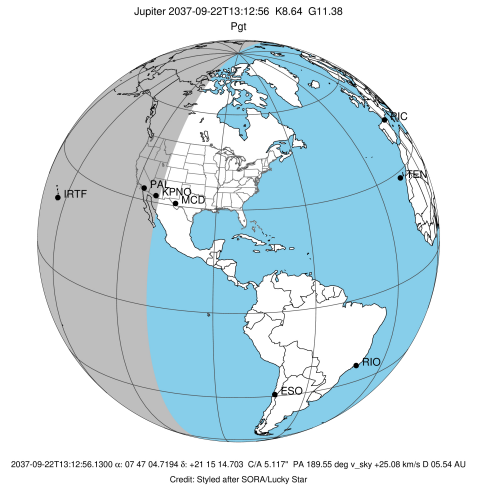


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-09-22T12:24:57.445	47.53	-15.59	71491.7	20.13	22.72
Jupiter	E	2037-09-22T13:56:41.059	66.17	3.51x	71491.8	15.23	17.28

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-09-22T13:11:02.310
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KPNO
Location            : Kitt Peak Natl Obs
Latitude (deg)      : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)       : 2.120
Gaia source ID      : 674444246408799360
2Mass ID (if available) : 07470470+2115147
ICRS Star Coord at Epoch: 07h 47m 04.71938s +21:15:14.70350s
RUWE (>1.4 is poor) : 1.56
K magnitude         : 8.639
G magnitude         : 11.378
RP magnitude        : 10.576
BP magnitude        : 12.075
DUPflag            : 0
Distance (au)       : 5.544
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 25.08
Sun-Target sep (deg) : 64.54
Sun-Moon sep (deg)  : 137.19
B (ring opening deg) : 1.42
PA of pole (deg)    : 11.94
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49689
C/A sky separation (") : 5.348
C/A sky separation (km) : 21503.1
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
    
```

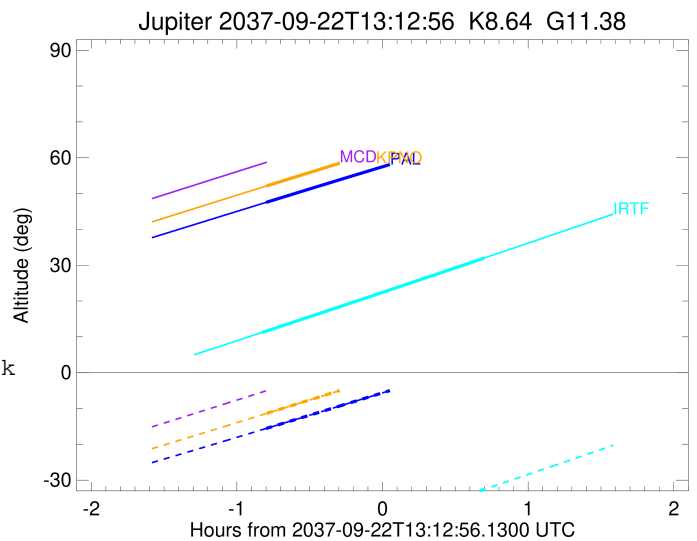
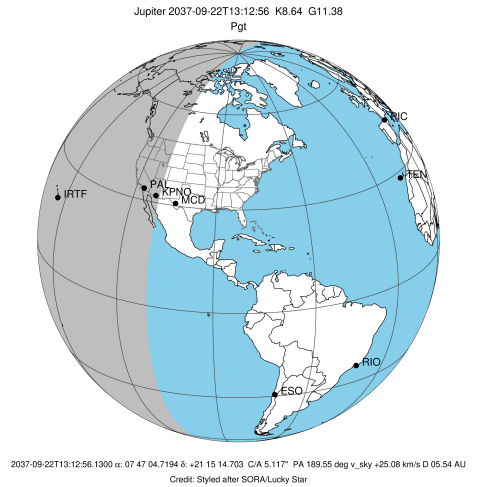


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-09-22T12:25:08.470	52.11	-11.38	71491.7	19.95	22.52
Jupiter	E	2037-09-22T13:57:01.527	70.83	8.10x	71491.8	15.12	17.16

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-09-22T13:09:04.350
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       : 674444246408799360
2Mass ID (if available) : 07470470+2115147
ICRS Star Coord at Epoch: 07h 47m 04.71938s +21:15:14.70350s
RUWE (>1.4 is poor) : 1.56
K magnitude           : 8.639
G magnitude           : 11.378
RP magnitude         : 10.576
BP magnitude         : 12.075
DUPflag              : 0
Distance (au)        : 5.544
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.08
Sun-Target sep (deg) : 64.54
Sun-Moon sep (deg)  : 137.21
B (ring opening deg) : 1.42
PA of pole (deg)    : 11.94
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49689
C/A sky separation (") : 5.211
C/A sky separation (km) : 20949.9
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	2037-09-22T12:23:28.545	11.26	-52.73	71491.7	19.75	22.30
Jupiter	E	2037-09-22T13:54:50.589	31.99	-32.58	71491.8	14.37	16.32