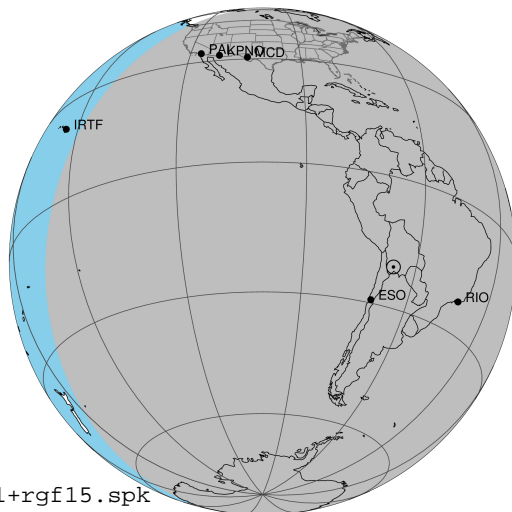


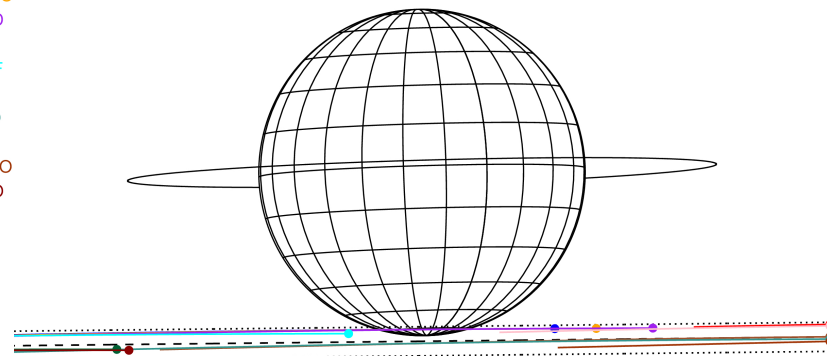
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-19T04:32:13.690
 Event type : Pt
 : Jupiter occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4116730658643977984
 2Mass ID (if available) : 17370453-2303565

Jupiter 2043-07-19T04:32:13 K6.64 G14.90 Pt

ICRS Star Coord at Epoch: 17h 37m 04.53099s -23°03:56.83983s
 RUWE (>1.4 is poor) : 0.83
 K magnitude : 6.638
 G magnitude : 14.897
 RP magnitude : 13.208
 BP magnitude : 19.518
 DUPflag : 0
 Distance (au) : 4.360
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.24
 Sun-Target sep (deg) : 148.88
 Sun-Moon sep (deg) : 5.95
 B (ring opening deg) : -2.39
 PA of pole (deg) : 1.63
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 23.380
 C/A sky separation (km) : 73932.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



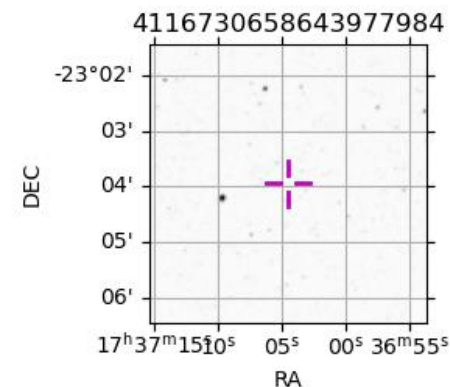
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-07-19T04:32:13.6900 α: 17 37 04.5310 δ: -23 03 56.840 C/A ***** PA 0.62 deg v_sky -12.24 km/s D 04.36 AU
 Credit: Styled after SORA/Lucky Star

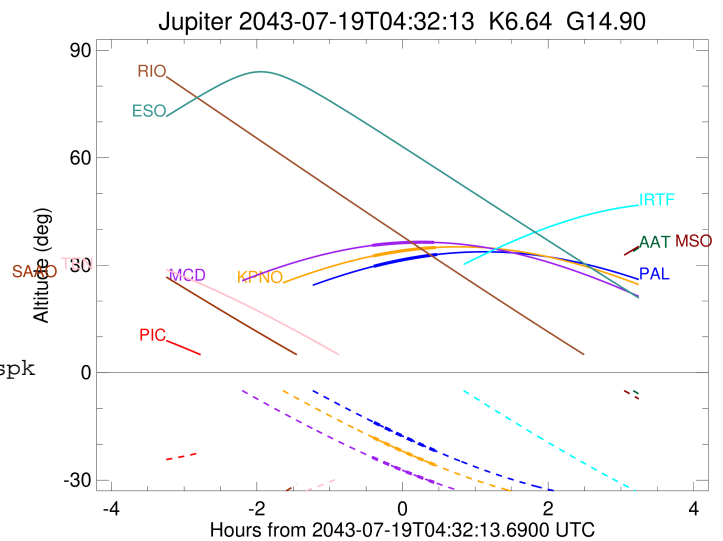
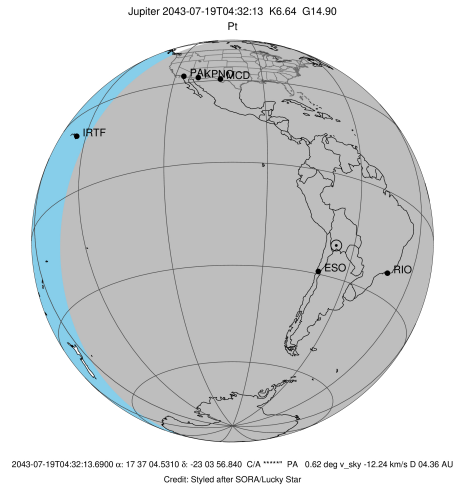
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUL 19 04:08 - JUL 19 05:00	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUL 19 04:08 - JUL 19 04:59	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUL 19 04:07 - JUL 19 04:58	Pie
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			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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-19T04:34:38.330
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 4116730658643977984
2Mass ID (if available) : 17370453-2303565
ICRS Star Coord at Epoch: 17h 37m 04.53099s -23:03:56.83983s
RUWE (>1.4 is poor) : 0.83
K magnitude          : 6.638
G magnitude          : 14.897
RP magnitude         : 13.208
BP magnitude         : 19.518
DUPflag             : 0
Distance (au)        : 4.360
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.24
Sun-Target sep (deg) : 148.88
Sun-Moon sep (deg)   : 6.55
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.63
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 21.733
C/A sky separation (km): 68725.6
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
    
```

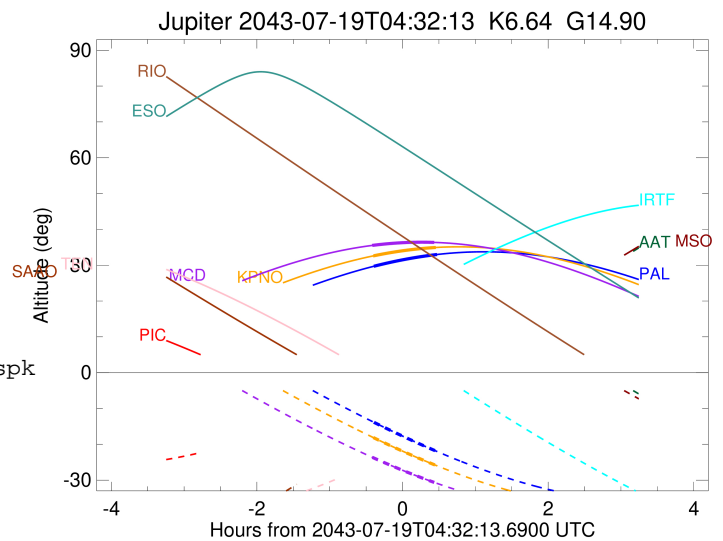
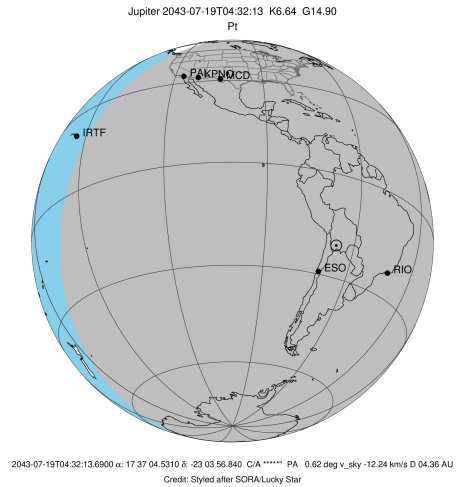


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-19T04:08:41.320	29.70	-13.86	71484.7	-75.09	-76.79
Jupiter	E	2043-07-19T05:00:34.351	32.98	-21.99	71484.8	-72.69	-74.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-19T04:33:56.400
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: 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        : 4116730658643977984
2Mass ID (if available) : 17370453-2303565
ICRS Star Coord at Epoch: 17h 37m 04.53099s -23:03:56.83983s
RUWE (>1.4 is poor) : 0.83
K magnitude           : 6.638
G magnitude           : 14.897
RP magnitude          : 13.208
BP magnitude          : 19.518
DUPflag              : 0
Distance (au)         : 4.360
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.24
Sun-Target sep (deg)  : 148.88
Sun-Moon sep (deg)    : 6.58
B (ring opening deg) : -2.39
PA of pole (deg)      : 1.63
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 21.746
C/A sky separation (km) : 68765.8
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
    
```

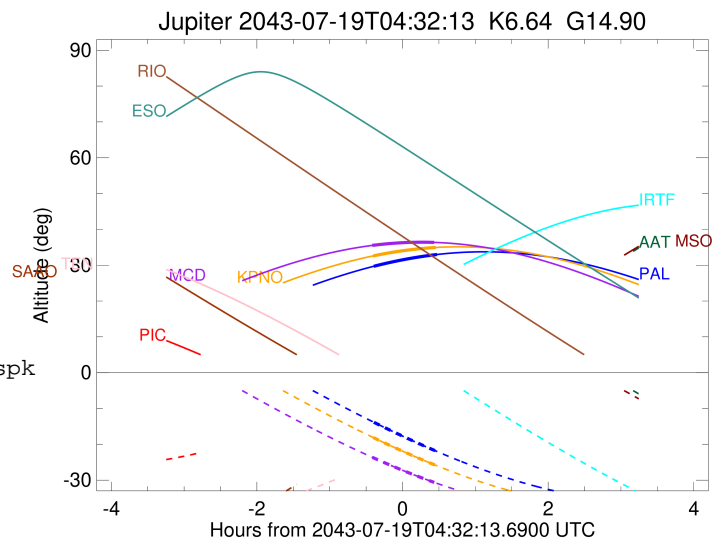
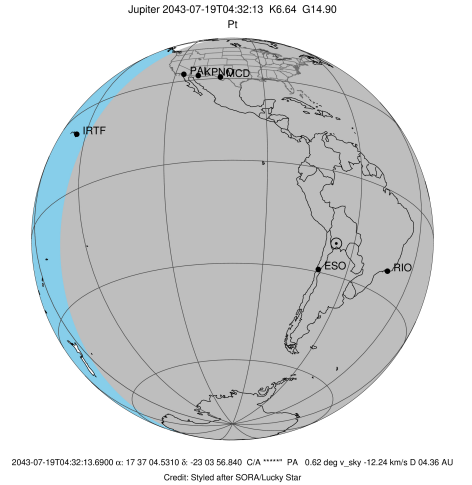


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-19T04:08:12.688	32.60	-18.12	71484.7	-75.15	-76.85
Jupiter	E	2043-07-19T04:59:39.595	34.94	-25.86	71484.8	-72.87	-74.80

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-19T04:32:52.170
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: 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        : 4116730658643977984
2Mass ID (if available) : 17370453-2303565
ICRS Star Coord at Epoch: 17h 37m 04.53099s -23:03:56.83983s
RUWE (>1.4 is poor) : 0.83
K magnitude           : 6.638
G magnitude           : 14.897
RP magnitude          : 13.208
BP magnitude          : 19.518
DUPflag              : 0
Distance (au)         : 4.360
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.24
Sun-Target sep (deg)  : 148.88
Sun-Moon sep (deg)    : 6.62
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.63
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 21.759
C/A sky separation (km) : 68809.5
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	2043-07-19T04:07:22.629	35.52	-23.63	71484.7	-75.19	-76.88
Jupiter	E	2043-07-19T04:58:21.914	36.36	-30.63	71484.8	-73.08	-75.00