

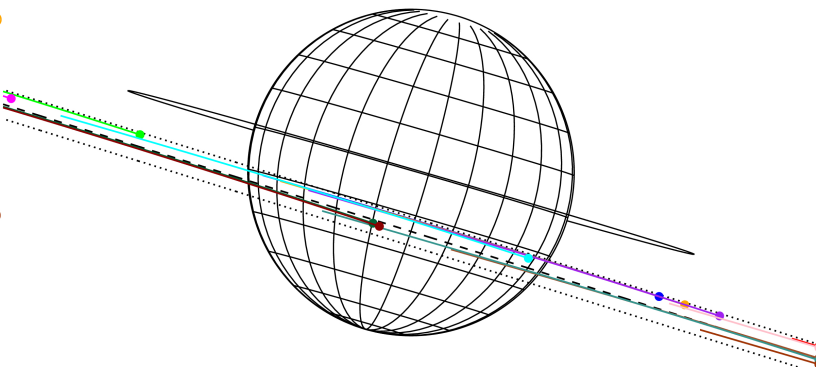
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2044-06-13T10:14:09.560
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6859788625482710656
 2Mass ID (if available) : 20324780-1917286

Jupiter 2044-06-13T10:14:09 K8.90 G10.19 Pgt

ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 8.900
 G magnitude : 10.191
 RP magnitude : 9.711
 BP magnitude : 10.503
 DUPflag : 1
 Distance (au) : 4.351
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -8.06
 Sun-Target sep (deg) : 136.72
 Sun-Moon sep (deg) : 13.26
 B (ring opening deg) : -0.71
 PA of pole (deg) : -16.12
 Pole direction: RA (deg): 268.05687
 Dec (deg): 64.49728
 C/A sky separation (") : 7.814
 C/A sky separation (km) : 24660.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



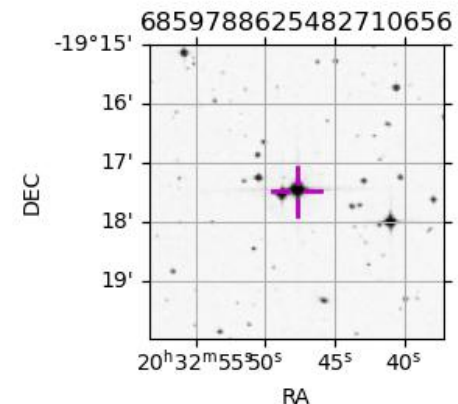
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2044-06-13T10:14:09.5600 a: 20 32 47.8291 s: -19 17 29.314 C/A 7.820" PA 342.66 deg v_sky - 8.06 km/s D 04.35 AU
 Credit: Styled after SORA/Lucky Star

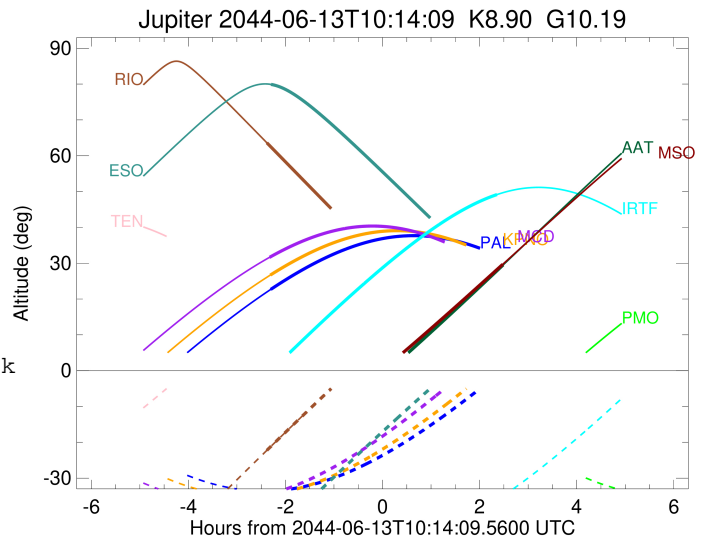
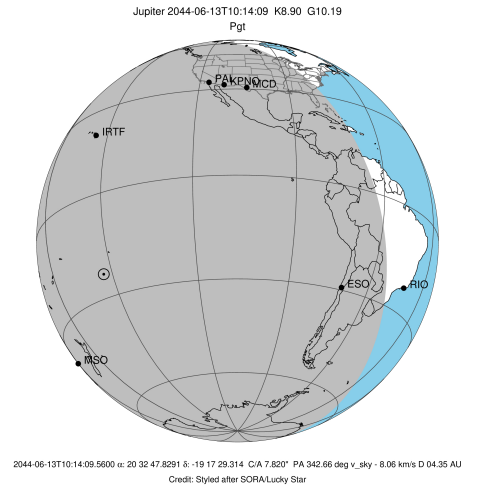
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUN 13 07:56 - JUN 13 07:56	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUN 13 07:55 - JUN 13 07:55	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	JUN 13 07:54 - JUN 13 07:54	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	JUN 13 12:35 - JUN 13 12:35	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	JUN 13 07:51 - JUN 13 07:51	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	JUN 13 07:56 - JUN 13 07:56	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 13 12:43 - JUN 13 12:43	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 13 12:42 - JUN 13 12:42	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T10:12:26.530
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       : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.900
G magnitude           : 10.191
RP magnitude          : 9.711
BP magnitude          : 10.503
DUPflag              : 1
Distance (au)        : 4.351
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)   : 13.64
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation ("): 6.209
C/A sky separation (km): 19594.4
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
    
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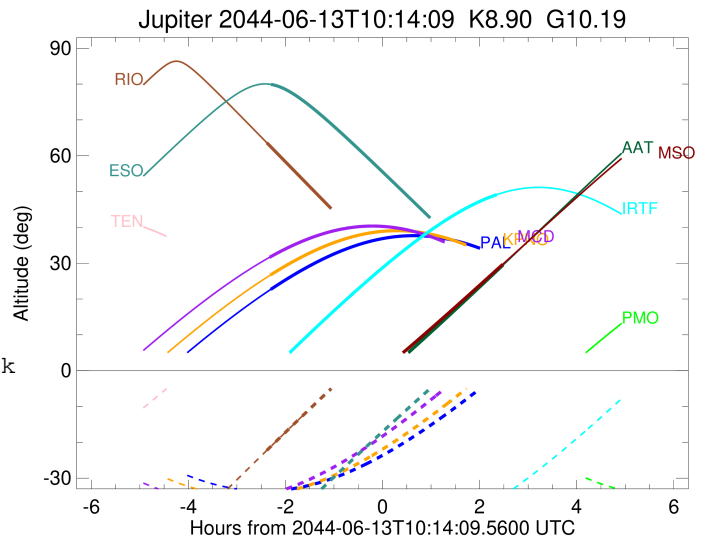
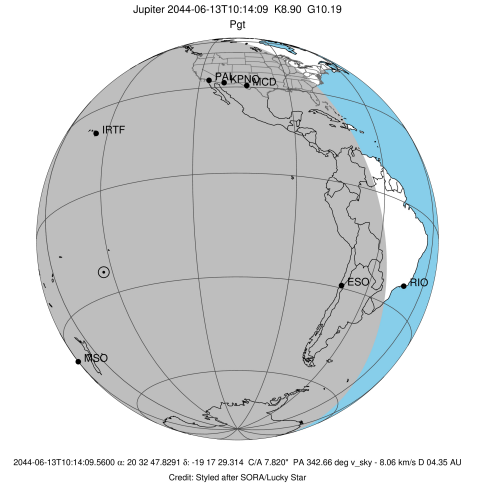


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T07:56:00.503	22.68	-33.54	71491.9	-16.81	-19.05
Jupiter	E	2044-06-13T12:28:07.990	32.95	-2.60x	71492.0	-15.57	-17.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T10:11:31.080
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      : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude         : 8.900
G magnitude         : 10.191
RP magnitude        : 9.711
BP magnitude        : 10.503
DUPflag            : 1
Distance (au)       : 4.351
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)  : 13.70
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (" ) : 6.275
C/A sky separation (km) : 19803.9
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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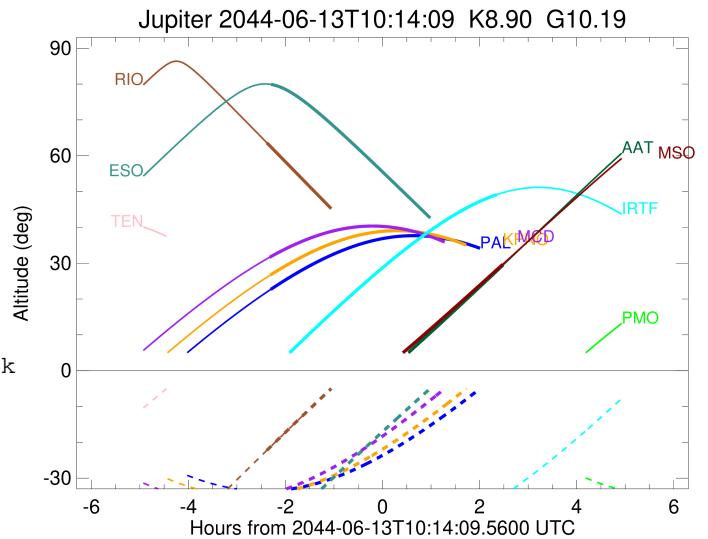
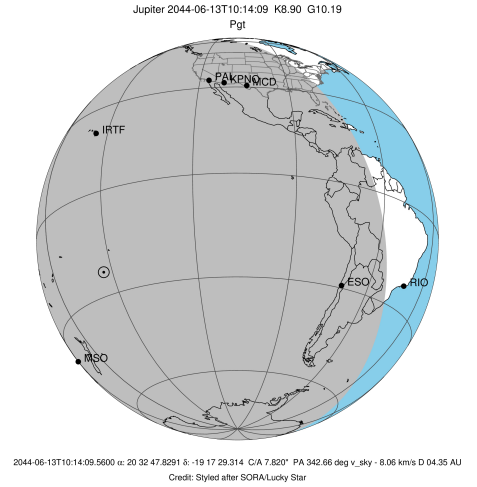


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T07:55:27.550	26.68	-34.53	71491.9	-16.89	-19.13
Jupiter	E	2044-06-13T12:27:08.952	32.05	0.44x	71492.0	-15.81	-17.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T10:10:07.490
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : 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      : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 8.900
G magnitude          : 10.191
RP magnitude         : 9.711
BP magnitude         : 10.503
DUPflag             : 1
Distance (au)       : 4.351
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)  : 13.78
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation ("): 6.366
C/A sky separation (km): 20092.4
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
    
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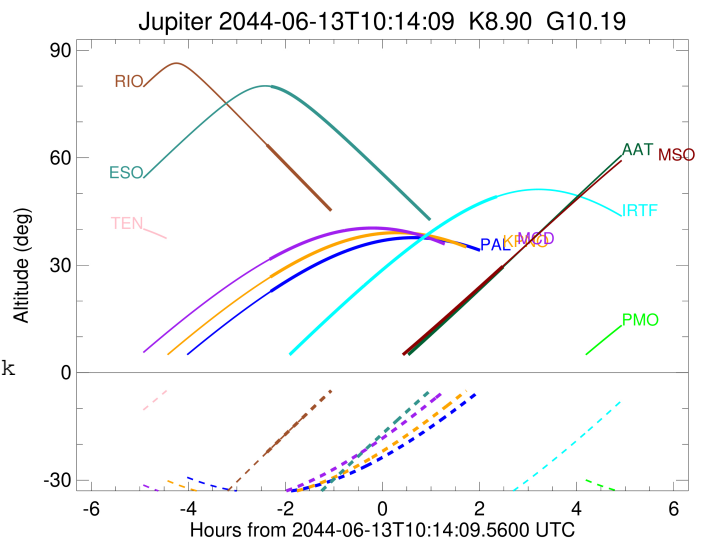
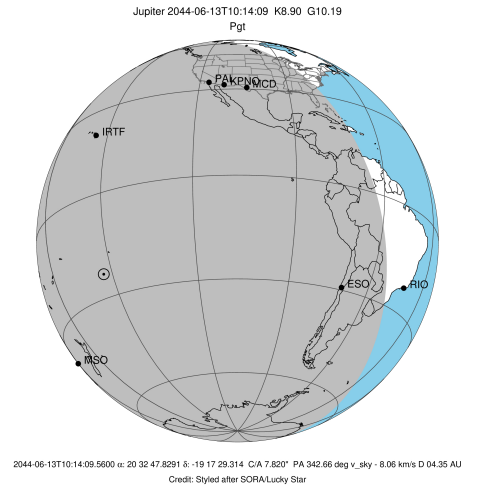


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T07:54:28.222	31.62	-34.46	71491.9	-16.99	-19.24
Jupiter	E	2044-06-13T12:25:48.729	29.43	5.48x	71491.9	-16.14	-18.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T10:20:43.070
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       : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.900
G magnitude           : 10.191
RP magnitude          : 9.711
BP magnitude          : 10.503
DUPflag              : 1
Distance (au)        : 4.351
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)   : 13.07
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 6.375
C/A sky separation (km) : 20117.8
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
    
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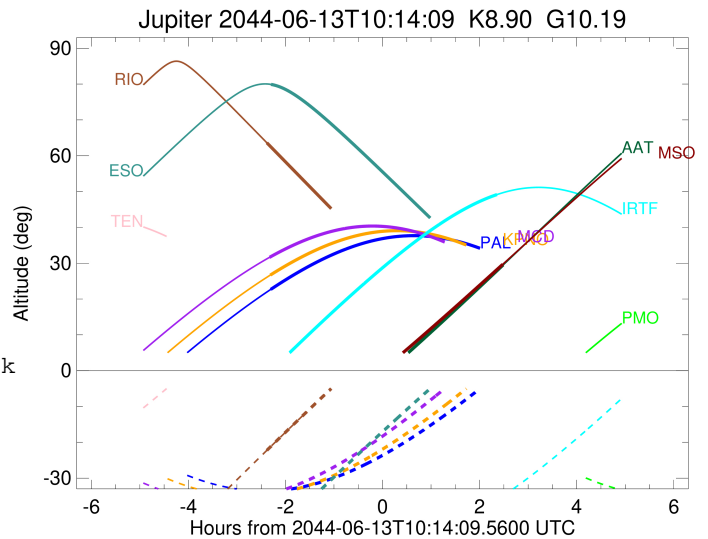
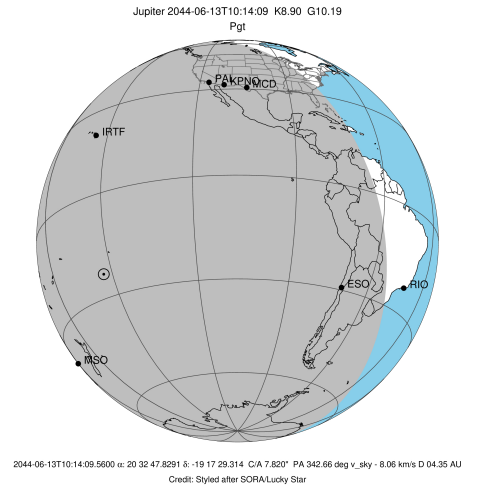


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T08:02:38.067	1.33x	-35.23	71491.9	-18.02	-20.39
Jupiter	E	2044-06-13T12:35:40.631	49.15	-36.08	71491.9	-15.44	-17.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T10:03:37.620
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        : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.900
G magnitude           : 10.191
RP magnitude          : 9.711
BP magnitude          : 10.503
DUPflag              : 1
Distance (au)         : 4.352
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg)  : 136.72
Sun-Moon sep (deg)    : 13.91
B (ring opening deg) : -0.71
PA of pole (deg)      : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 8.732
C/A sky separation (km) : 27558.3
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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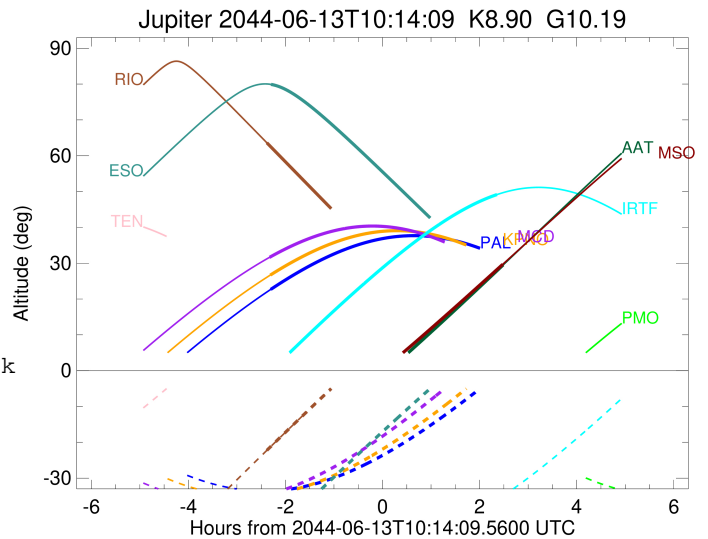
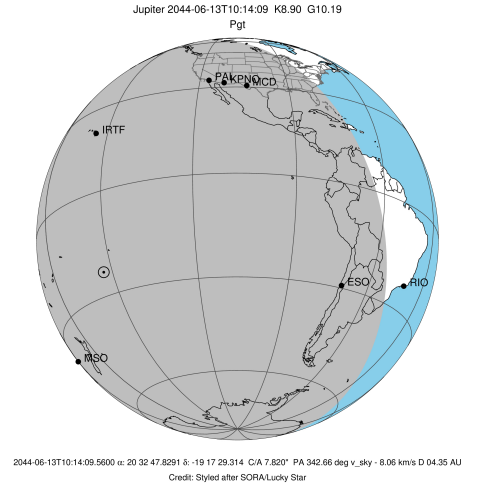


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T07:51:10.630	63.61	-22.25	71491.9	-22.64	-25.46
Jupiter	E	2044-06-13T12:19:14.490	2.71x	30.71x	71491.9	-22.55	-25.37

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-06-13T10:07:38.190
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       : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.900
G magnitude           : 10.191
RP magnitude          : 9.711
BP magnitude          : 10.503
DUPflag              : 1
Distance (au)        : 4.351
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)   : 13.74
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (") : 8.550
C/A sky separation (km) : 26985.2
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
    
```

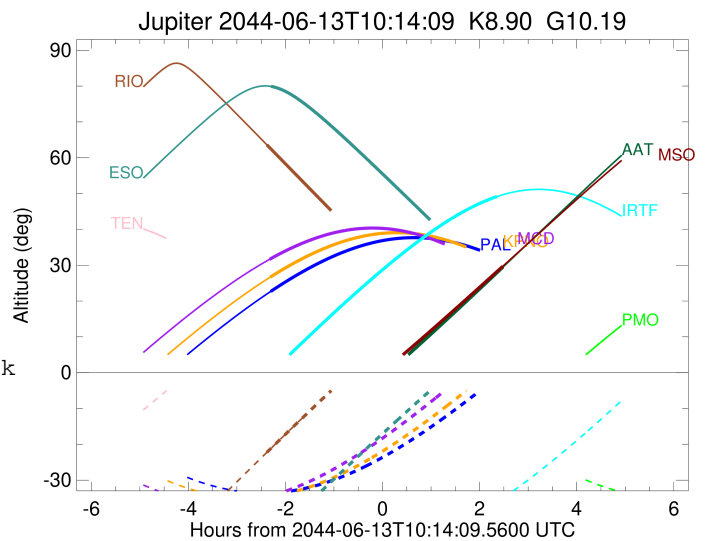
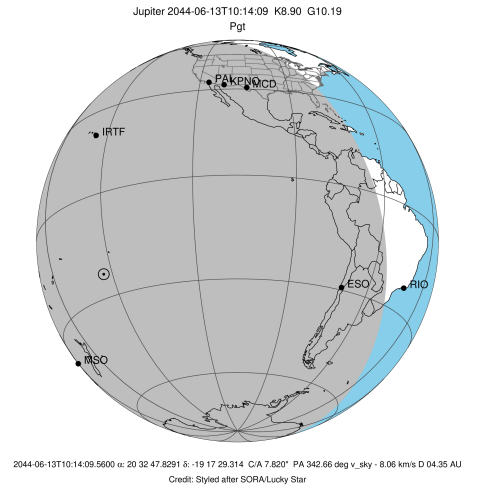


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T07:56:19.797	79.90	-46.54	71491.9	-22.36	-25.16
Jupiter	E	2044-06-13T12:20:49.943	27.83	8.04x	71491.9	-22.16	-24.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T10:27:51.270
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 8.900
G magnitude          : 10.191
RP magnitude         : 9.711
BP magnitude         : 10.503
DUPflag             : 1
Distance (au)       : 4.351
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)  : 12.38
B (ring opening deg) : -0.71
PA of pole (deg)    : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation (" ) : 8.340
C/A sky separation (km) : 26320.8
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
    
```

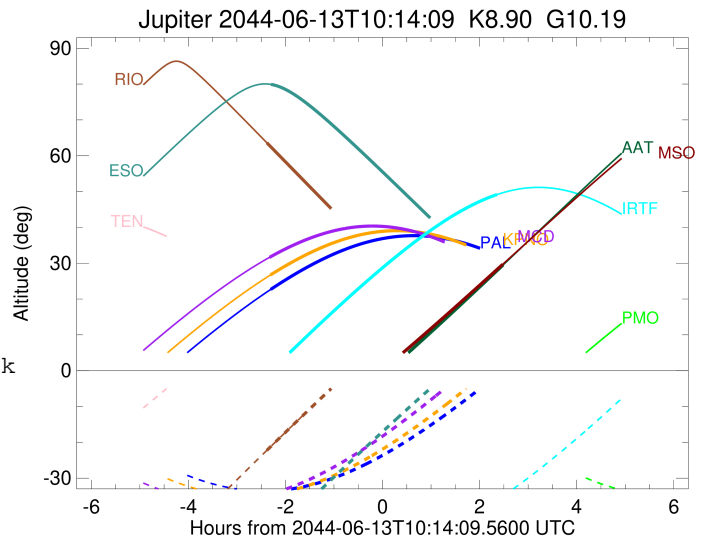
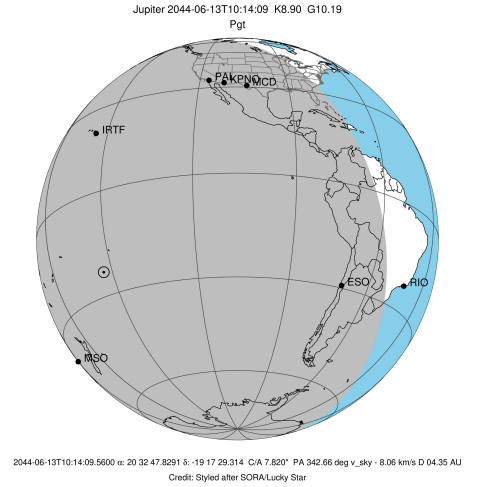


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-06-13T08:07:54.965	-24.04x	-12.58	71491.9	-24.02	-26.96
Jupiter	E	2044-06-13T12:43:20.763	29.53	-70.48	71491.9	-19.63	-22.16


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-06-13T10:27:33.450
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : MSO
Location             : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)   : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 6859788625482710656
2Mass ID (if available) : 20324780-1917286
ICRS Star Coord at Epoch: 20h 32m 47.82908s -19:17:29.31435s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 8.900
G magnitude           : 10.191
RP magnitude         : 9.711
BP magnitude         : 10.503
DUPflag              : 1
Distance (au)        : 4.351
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -8.06
Sun-Target sep (deg) : 136.72
Sun-Moon sep (deg)   : 12.39
B (ring opening deg) : -0.71
PA of pole (deg)     : -16.12
Pole direction: RA (deg): 268.05687
Dec (deg): 64.49728
C/A sky separation ("): 8.467
C/A sky separation (km): 26721.5
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	2044-06-13T08:08:03.083	-21.25x	-13.89	71491.9	-24.31	-27.28
Jupiter	E	2044-06-13T12:42:48.678	29.69	-68.71	71491.9	-20.00	-22.58