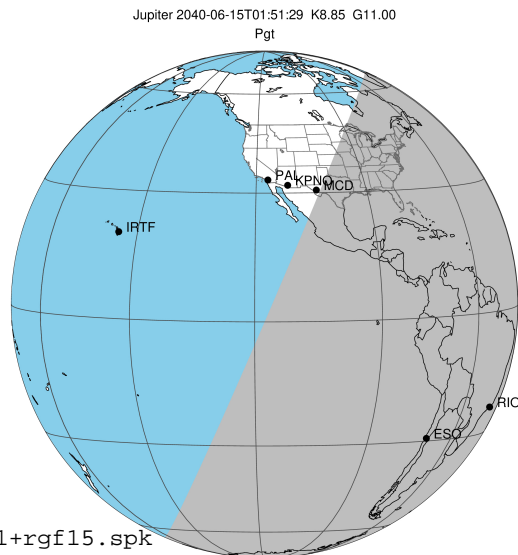


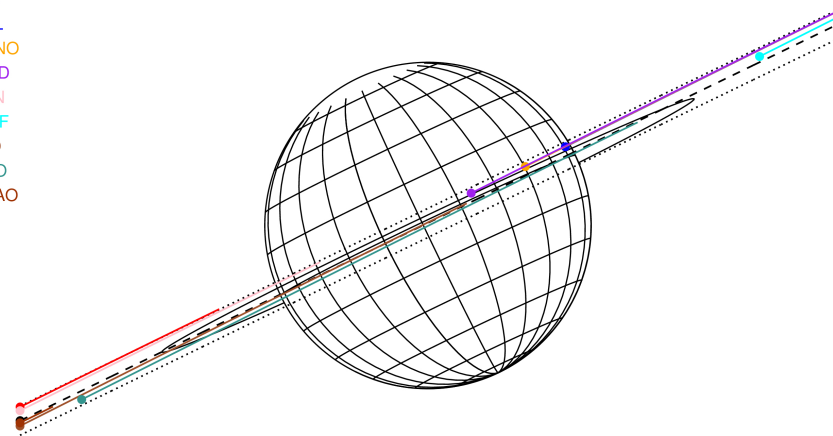
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2040-06-15T01:51:29.090
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3812907901933867392
 2Mass ID (if available) : 11342151+0411445

Jupiter 2040-06-15T01:51:29 K8.85 G11.00 Pgt

ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
 RUWE (>1.4 is poor) : 3.60
 K magnitude : 8.849
 G magnitude : 11.005
 RP magnitude : 10.320
 BP magnitude : 11.545
 DUPflag : 0
 Distance (au) : 5.380
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.94
 Sun-Target sep (deg) : 88.42
 Sun-Moon sep (deg) : 30.45
 B (ring opening deg) : -1.87
 PA of pole (deg) : 25.43
 Pole direction: RA (deg): 268.05617
 Dec (deg): 64.49711
 C/A sky separation (") : 0.265
 C/A sky separation (km) : 1034.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



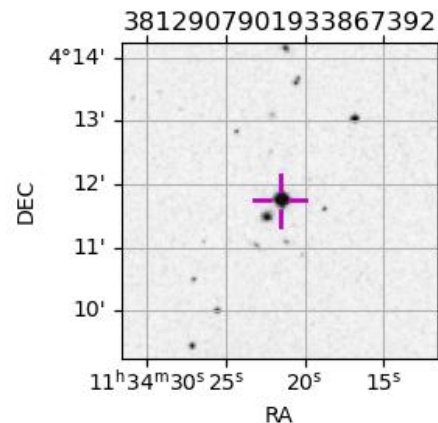
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 SAAO



2040-06-15T01:51:29.0900 ex: 11 34 21.5030 s: +04 11 44.832 C/A 0.259" PA 205.86 deg v_sky +12.94 km/s D 05.38 AU
 Credit: Styled after SORA/Lucky Star

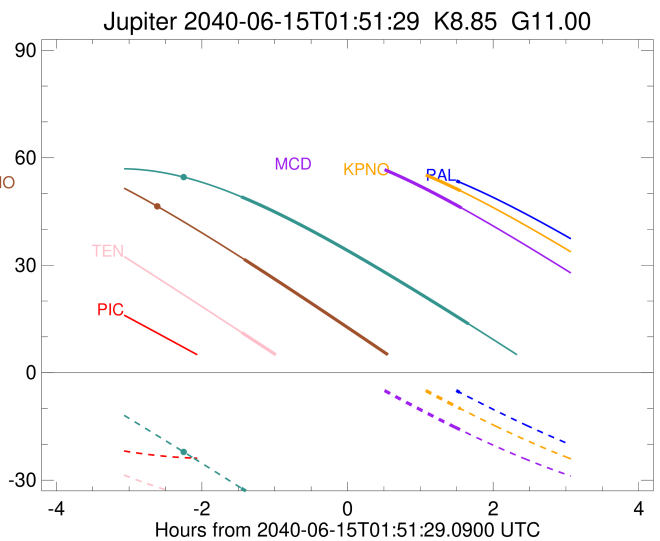
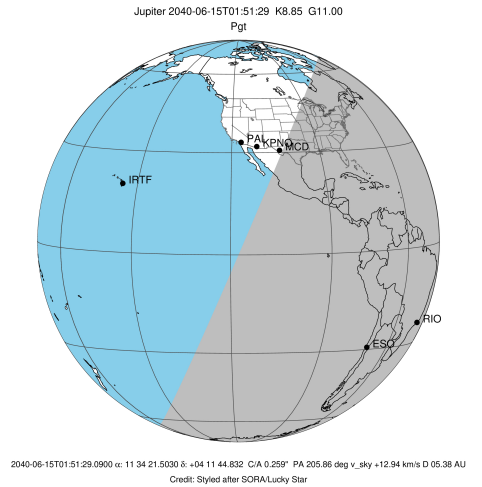
Observable events with sun below -5 deg and altitude above 5 deg

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 15 03:23 - JUN 15 03:23	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUN 15 03:24 - JUN 15 03:24	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	JUN 15 03:25 - JUN 15 03:25	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+	JUN 15 00:24 - JUN 15 00:24	Pin
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	+	JUN 15 00:26 - JUN 15 00:26	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	JUN 15 00:23 - JUN 15 03:31	Pie
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             : 2040-06-15T01:49:43.010
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       : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude           : 8.849
G magnitude           : 11.005
RP magnitude         : 10.320
BP magnitude         : 11.545
DUPflag              : 0
Distance (au)        : 5.380
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg) : 88.42
Sun-Moon sep (deg)   : 30.67
B (ring opening deg) : -1.87
PA of pole (deg)     : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation ("): 0.987
C/A sky separation (km): 3850.6
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
    
```

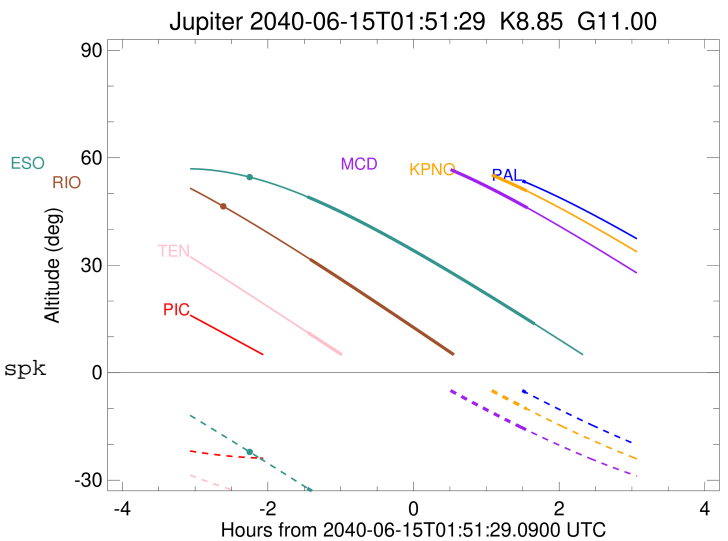
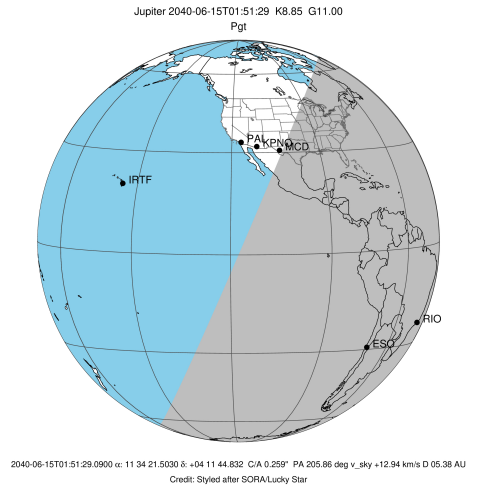


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2040-06-15T00:15:09.564	53.61	31.30x	71492.0	1.93	2.20
Jupiter	E	2040-06-15T03:23:59.401	53.15	-5.50	71492.0	4.28	4.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2040-06-15T01:50:22.980
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       : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude           : 8.849
G magnitude           : 11.005
RP magnitude          : 10.320
BP magnitude          : 11.545
DUPflag              : 0
Distance (au)         : 5.380
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg) : 88.42
Sun-Moon sep (deg)   : 30.73
B (ring opening deg) : -1.87
PA of pole (deg)     : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation (") : 1.014
C/A sky separation (km) : 3954.8
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
    
```

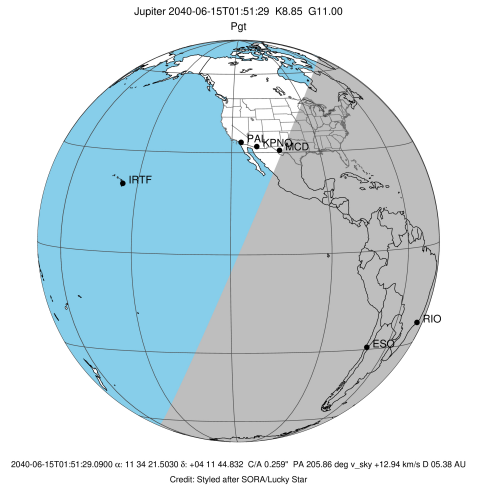


x: target alt < 5.0 deg or sun > -5.0 deg

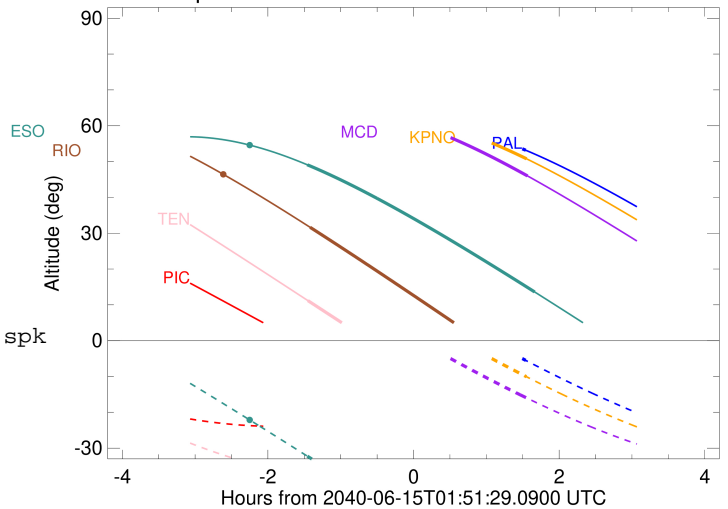
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2040-06-15T00:15:45.850	57.53	26.55x	71492.0	1.98	2.26
Jupiter	E	2040-06-15T03:24:36.926	50.76	-10.07	71492.0	4.36	4.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2040-06-15T01:51:18.490
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       : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude           : 8.849
G magnitude           : 11.005
RP magnitude          : 10.320
BP magnitude          : 11.545
DUPflag              : 0
Distance (au)        : 5.380
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg) : 88.42
Sun-Moon sep (deg)   : 30.81
B (ring opening deg) : -1.87
PA of pole (deg)     : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation (") : 1.070
C/A sky separation (km) : 4173.4
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
    
```



Jupiter 2040-06-15T01:51:29 K8.85 G11.00

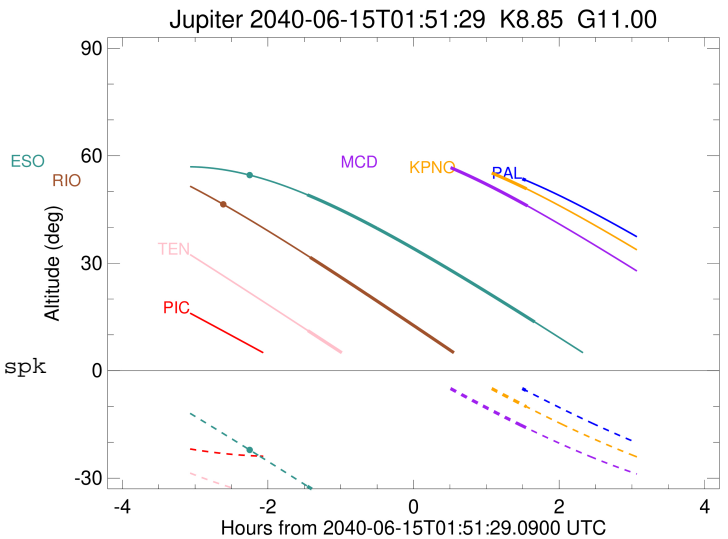
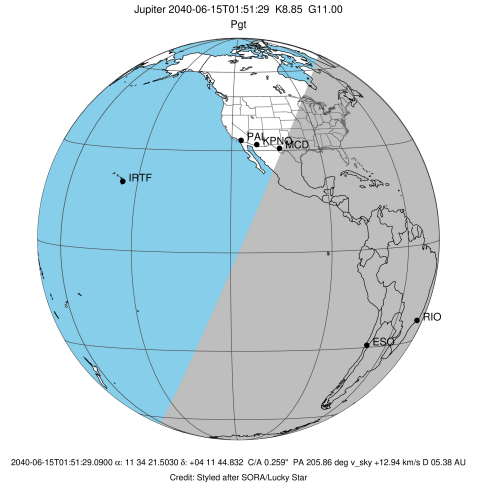


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2040-06-15T00:16:40.160	61.83	19.76x	71492.0	2.12	2.43
Jupiter	E	2040-06-15T03:25:24.838	45.98	-16.10	71492.0	4.52	5.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2040-06-15T01:56:07.330
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude           : 8.849
G magnitude           : 11.005
RP magnitude          : 10.320
BP magnitude          : 11.545
DUPflag              : 0
Distance (au)         : 5.380
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg)  : 88.42
Sun-Moon sep (deg)   : 30.78
B (ring opening deg) : -1.87
PA of pole (deg)     : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation (") : 1.590
C/A sky separation (km) : 6205.0
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
    
```

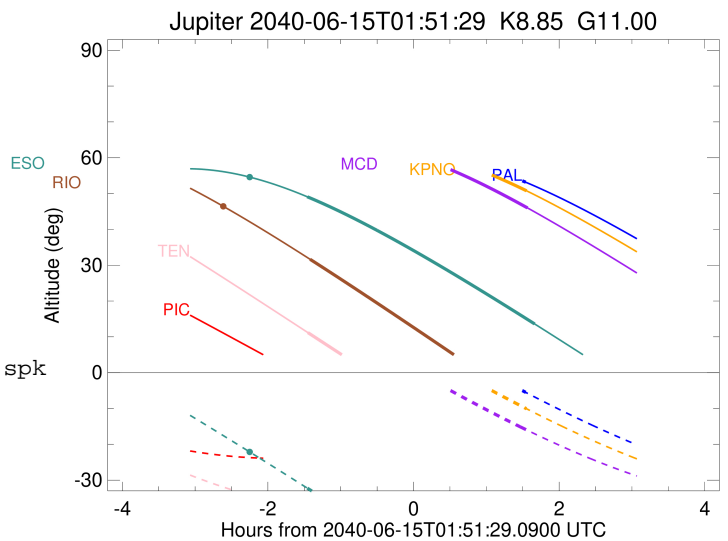
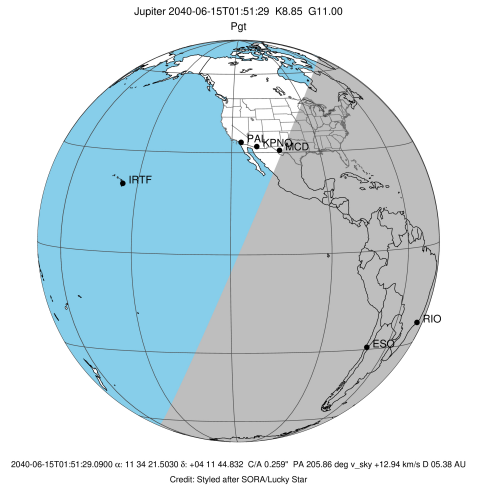


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2040-06-15T00:24:24.141	11.19	-37.56	71492.0	4.45	5.08
Jupiter	E	2040-06-15T03:26:38.213	-28.24x	-28.45	71492.0	5.19	5.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2040-06-15T01:59:32.180
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      : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude         : 8.849
G magnitude         : 11.005
RP magnitude        : 10.320
BP magnitude        : 11.545
DUPflag            : 0
Distance (au)       : 5.380
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg) : 88.42
Sun-Moon sep (deg)  : 31.30
B (ring opening deg) : -1.87
PA of pole (deg)    : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation (") : 0.316
C/A sky separation (km) : 1231.7
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
    
```

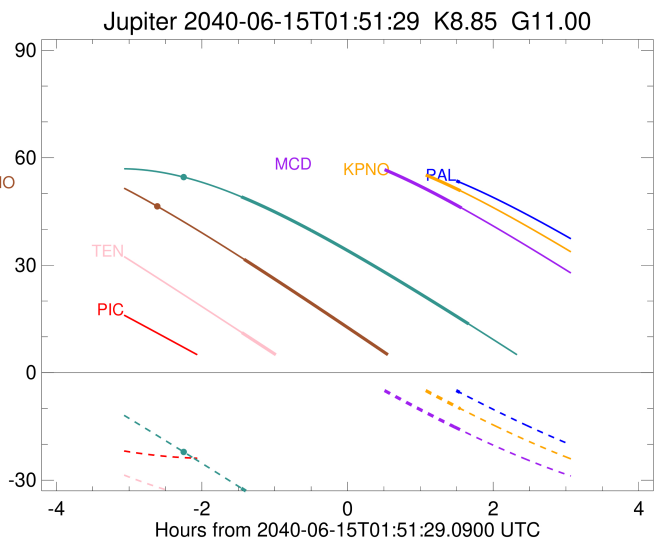
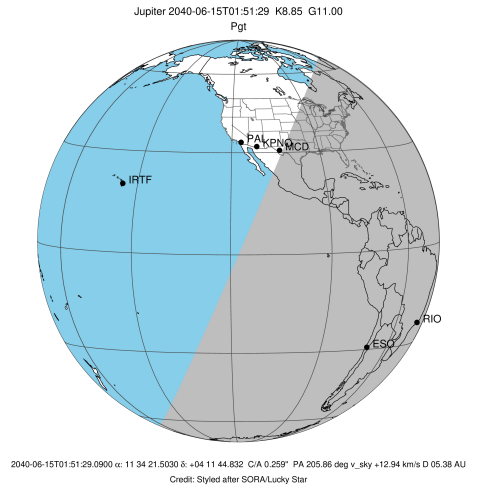


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2040-06-15T00:26:17.482	31.64	-56.24	71492.0	0.10	0.11
Jupiter	E	2040-06-15T03:31:28.095	-10.37x	-81.23	71492.0	1.55	1.78

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2040-06-15T01:58:13.080
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      : 3812907901933867392
2Mass ID (if available) : 11342151+0411445
ICRS Star Coord at Epoch: 11h 34m 21.50298s +04:11:44.83199s
RUWE (>1.4 is poor) : 3.60
K magnitude         : 8.849
G magnitude         : 11.005
RP magnitude        : 10.320
BP magnitude        : 11.545
DUPflag            : 0
Distance (au)       : 5.380
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 12.94
Sun-Target sep (deg) : 88.42
Sun-Moon sep (deg)  : 31.35
B (ring opening deg) : -1.87
PA of pole (deg)    : 25.43
Pole direction: RA (deg): 268.05617
Dec (deg): 64.49711
C/A sky separation (") : 0.039
C/A sky separation (km) : 150.4
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
    
```



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	2040-06-15T00:23:59.485	49.09	-32.24	71492.0	-1.25	-1.43
Jupiter	E	2040-06-15T03:31:22.188	13.59	-72.85	71492.0	0.79	0.90