

target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-09T07:14:15.780
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069399500605769856
 2Mass ID (if available) : 17573970-2304147

Jupiter 2043-06-09T07:14:15 K8.80 G14.93 Pgt

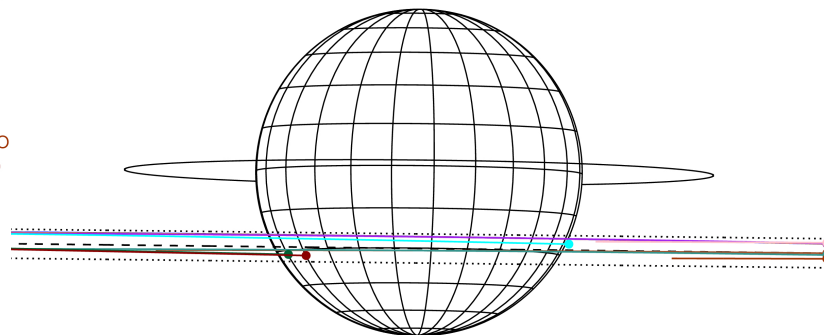
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.800
 G magnitude : 14.926
 RP magnitude : 13.492
 BP magnitude : 17.242
 DUPflag : 0
 Distance (au) : 4.272
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.81
 Sun-Target sep (deg) : 168.32
 Sun-Moon sep (deg) : 164.76
 B (ring opening deg) : -2.43
 PA of pole (deg) : -0.59
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 10.741
 C/A sky separation (km) : 33282.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-09T07:14:15 K8.80 G14.93
 Pgt



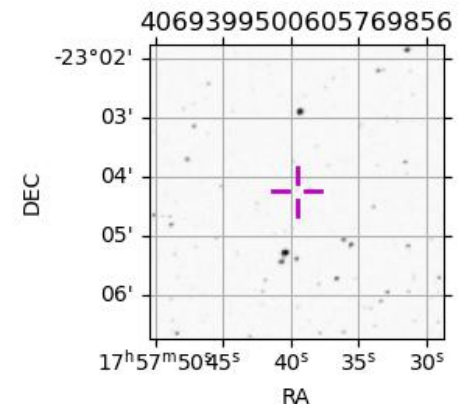
Earth
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-06-09T07:14:15.7800 a: 17 57 39.69189 s: -23 04 15.041 C/A ***** PA 359.33 deg v_sky -15.81 km/s D 04.27 AU
 Credit: Styled after SORA/Lucky Star

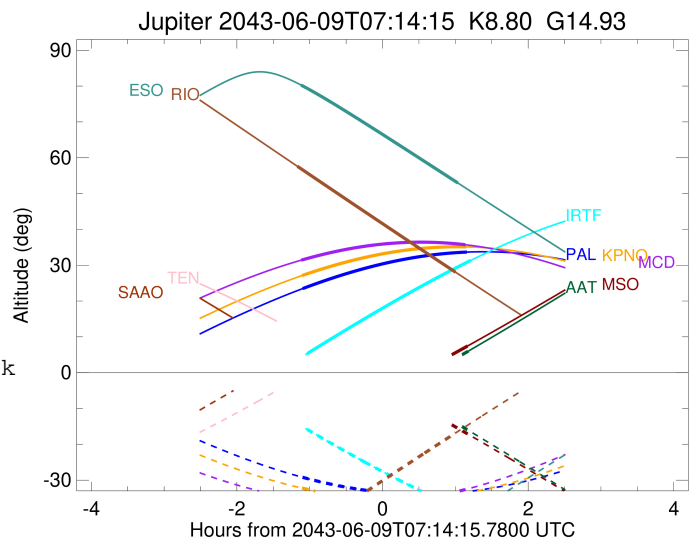
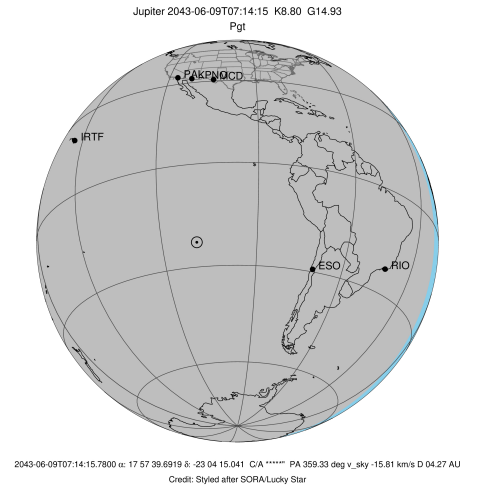
Observable events with sun below -5 deg and altitude above 5 deg

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 09 06:08 - JUN 09 08:23	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 09 06:08 - JUN 09 08:23	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 09 06:07 - JUN 09 08:22	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 09 06:12 - JUN 09 08:27	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 09 06:04 - JUN 09 08:14	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 09 06:07 - JUN 09 08:16	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 09 08:24 - JUN 09 08:24	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 09 08:24 - JUN 09 08:24	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-09T07:16:12.660
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      : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.800
G magnitude          : 14.926
RP magnitude         : 13.492
BP magnitude         : 17.242
DUPflag             : 0
Distance (au)       : 4.272
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)  : 165.42
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (" ) : 9.064
C/A sky separation (km) : 28083.6
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
    
```

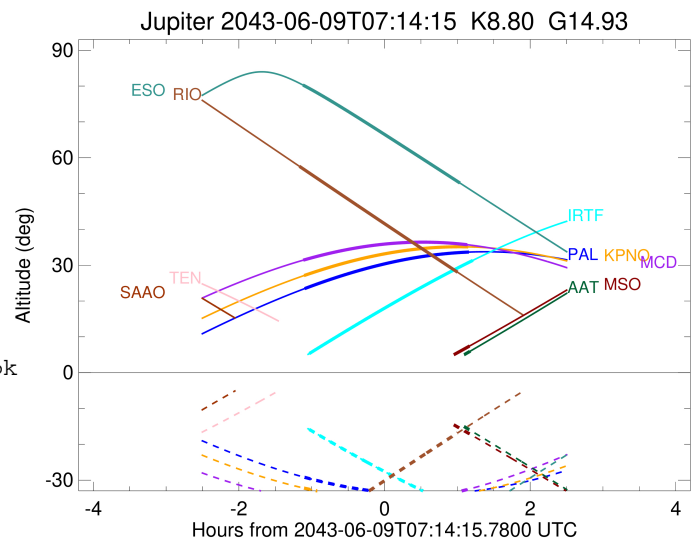
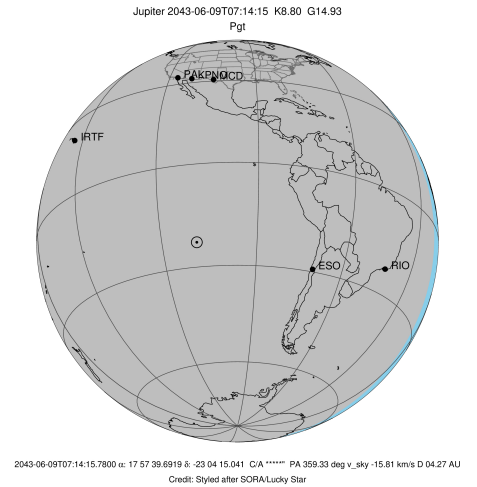


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:08:24.052	23.45	-29.21	71490.7	-23.43	-26.33
Jupiter	E	2043-06-09T08:23:50.180	33.66	-33.19	71490.8	-22.94	-25.79

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-09T07:15:43.850
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      : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.800
G magnitude          : 14.926
RP magnitude         : 13.492
BP magnitude         : 17.242
DUPflag             : 0
Distance (au)       : 4.272
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)  : 165.36
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 9.076
C/A sky separation (km) : 28121.2
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
    
```

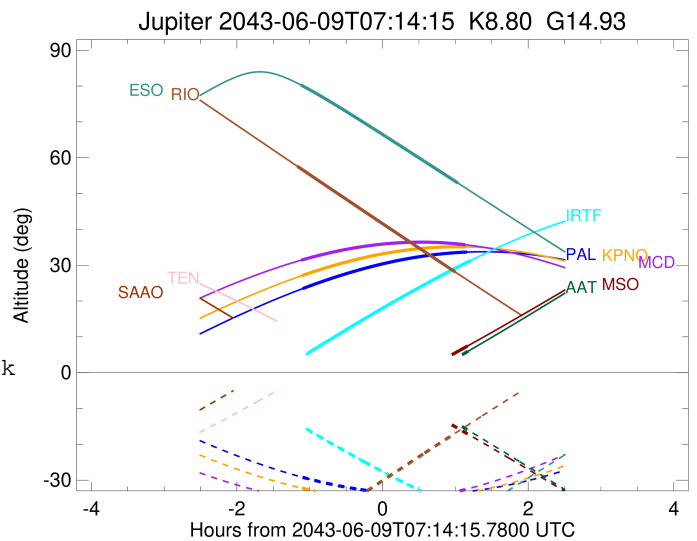
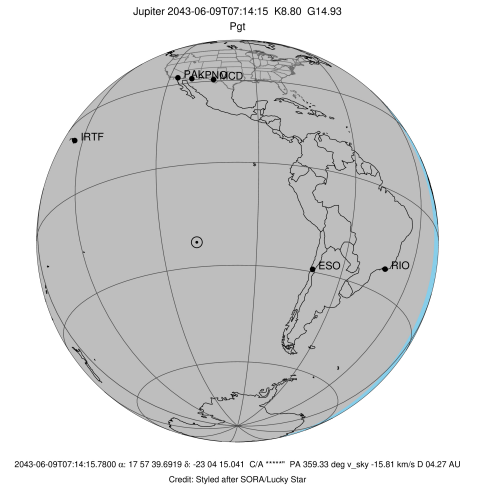


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:08:01.561	27.11	-32.23	71490.7	-23.42	-26.32
Jupiter	E	2043-06-09T08:23:17.460	35.11	-33.56	71490.8	-23.02	-25.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-09T07:14:59.090
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       : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.800
G magnitude           : 14.926
RP magnitude          : 13.492
BP magnitude          : 17.242
DUPflag              : 0
Distance (au)        : 4.272
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)   : 165.27
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 9.089
C/A sky separation (km) : 28161.5
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
    
```

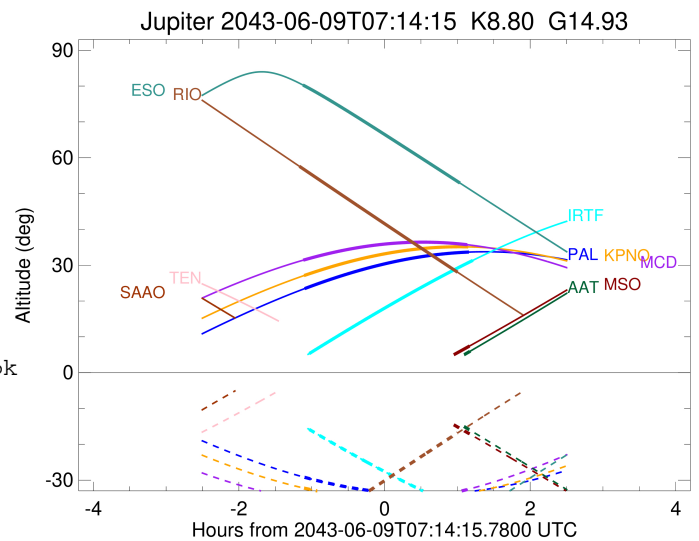
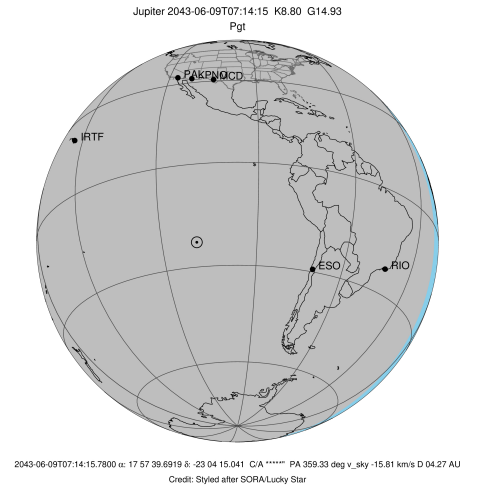


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:07:23.519	31.41	-35.35	71490.7	-23.39	-26.29
Jupiter	E	2043-06-09T08:22:29.659	35.71	-32.62	71490.8	-23.12	-25.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-09T07:19:51.310
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       : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.800
G magnitude           : 14.926
RP magnitude          : 13.492
BP magnitude          : 17.242
DUPflag              : 0
Distance (au)        : 4.272
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)   : 165.74
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 9.674
C/A sky separation (km): 29974.8
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
    
```

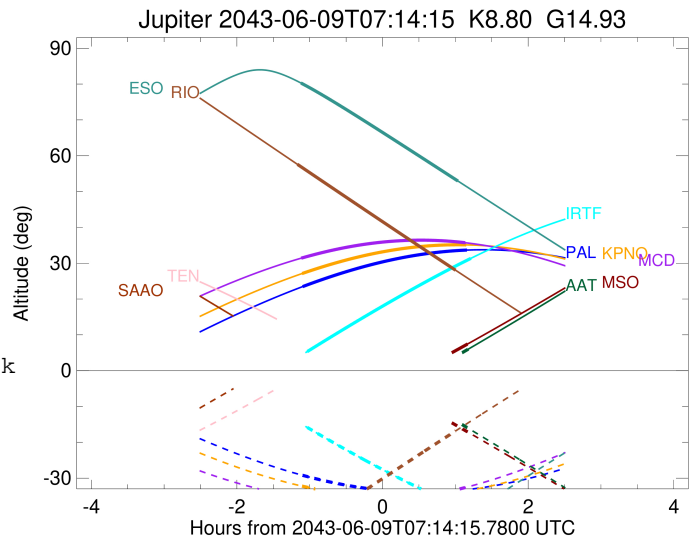
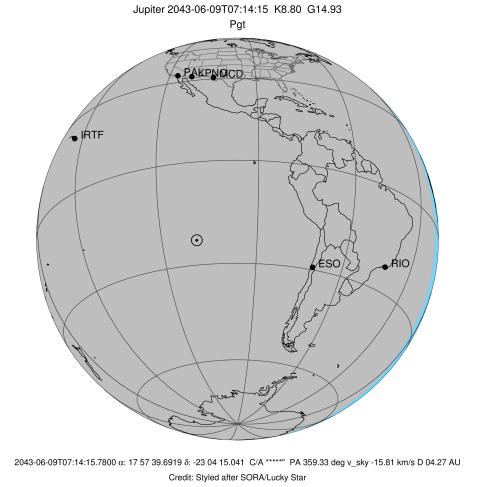


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:12:12.990	5.32	-15.84	71490.5	-25.40	-28.46
Jupiter	E	2043-06-09T08:27:00.763	31.33	-39.08	71490.6	-24.24	-27.20

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-09T07:09:07.160
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        : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.800
G magnitude           : 14.926
RP magnitude          : 13.492
BP magnitude          : 17.242
DUPflag              : 0
Distance (au)         : 4.272
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg)  : 168.32
Sun-Moon sep (deg)    : 164.23
B (ring opening deg) : -2.43
PA of pole (deg)      : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.036
C/A sky separation (km) : 34195.0
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
    
```

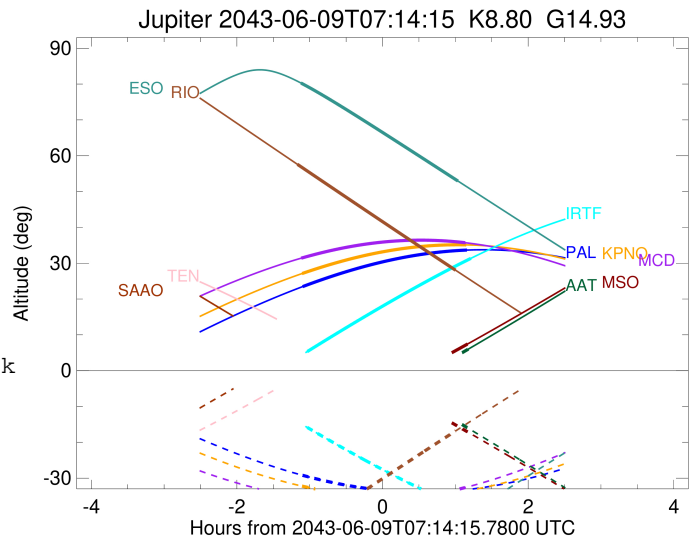
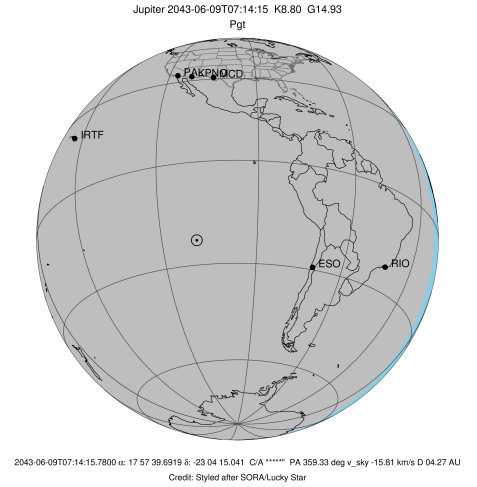


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:04:14.021	57.57	-45.94	71490.2	-28.21	-31.47
Jupiter	E	2043-06-09T08:14:22.790	28.06	-16.85	71490.1	-28.99	-32.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-09T07:11:39.830
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      : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.800
G magnitude          : 14.926
RP magnitude         : 13.492
BP magnitude         : 17.242
DUPflag             : 0
Distance (au)       : 4.272
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)  : 164.62
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.034
C/A sky separation (km) : 34189.2
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
    
```

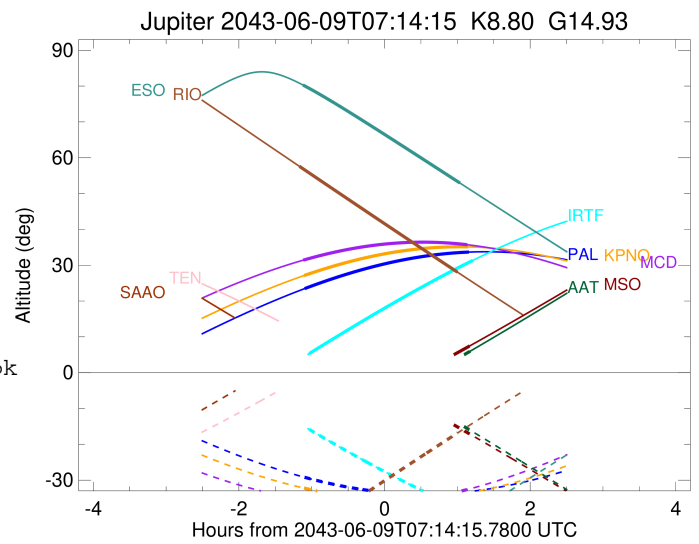
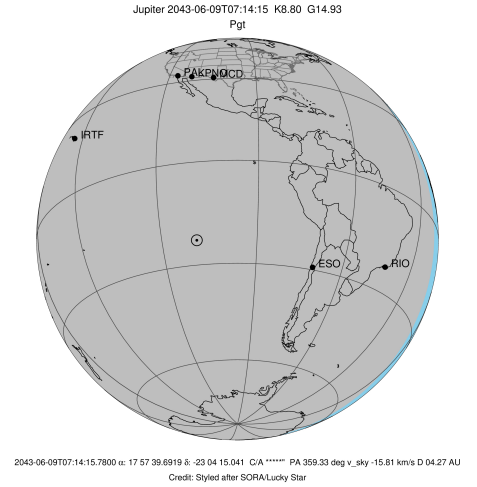


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:07:06.023	80.28	-69.97	71490.2	-28.44	-31.72
Jupiter	E	2043-06-09T08:16:24.342	52.93	-41.87	71490.1	-28.78	-32.08


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-09T07:19:58.230
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       : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.800
G magnitude           : 14.926
RP magnitude          : 13.492
BP magnitude          : 17.242
DUPflag              : 0
Distance (au)        : 4.272
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)   : 165.19
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 11.968
C/A sky separation (km): 37082.0
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
    
```

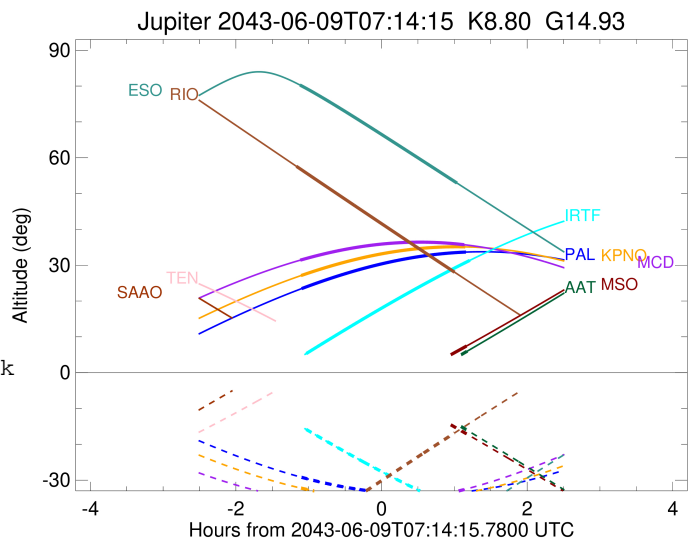
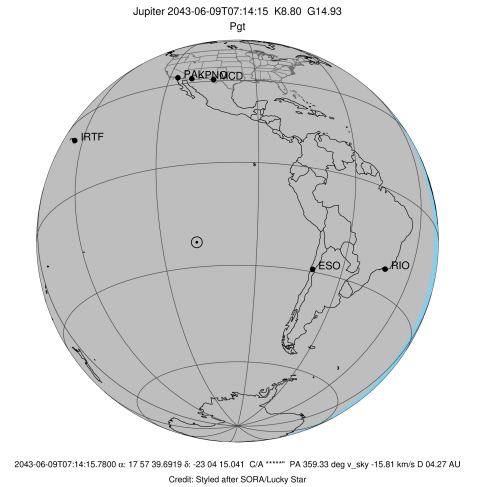


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-09T06:14:39.882	-17.57x	9.06x	71489.8	-31.80	-35.26
Jupiter	E	2043-06-09T08:24:49.003	5.98	-16.05	71489.9	-30.58	-33.98


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-09T07:19:43.140
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       : 4069399500605769856
2Mass ID (if available) : 17573970-2304147
ICRS Star Coord at Epoch: 17h 57m 39.69189s -23:04:15.04064s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.800
G magnitude           : 14.926
RP magnitude          : 13.492
BP magnitude          : 17.242
DUPflag              : 0
Distance (au)         : 4.272
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.81
Sun-Target sep (deg) : 168.32
Sun-Moon sep (deg)   : 165.15
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.59
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 12.069
C/A sky separation (km) : 37395.7
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	2043-06-09T06:14:39.289	-14.87x	6.84x	71489.7	-32.07	-35.55
Jupiter	E	2043-06-09T08:24:20.817	7.44	-17.09	71489.9	-30.90	-34.32