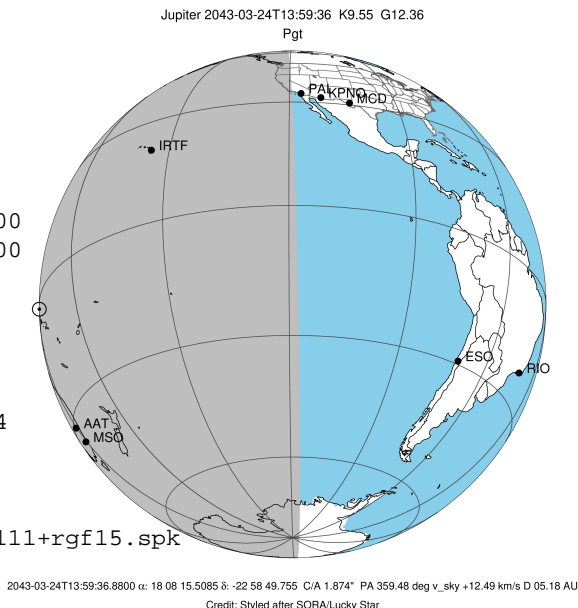


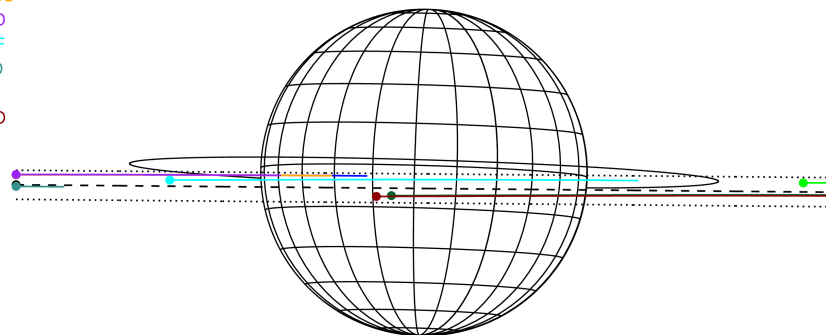
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-03-24T13:59:36.880
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066595299286227712
 2Mass ID (if available) : 18081550-2258497

Jupiter 2043-03-24T13:59:36 K9.55 G12.36 Pgt

ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 9.548
 G magnitude : 12.361
 RP magnitude : 11.469
 BP magnitude : 13.156
 DUPflag : 0
 Distance (au) : 5.178
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.49
 Sun-Target sep (deg) : 91.33
 Sun-Moon sep (deg) : 100.09
 B (ring opening deg) : -2.47
 PA of pole (deg) : -1.73
 Pole direction: RA (deg): 268.05664
 Dec (deg): 64.49732
 C/A sky separation (") : 1.864
 C/A sky separation (km) : 6999.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

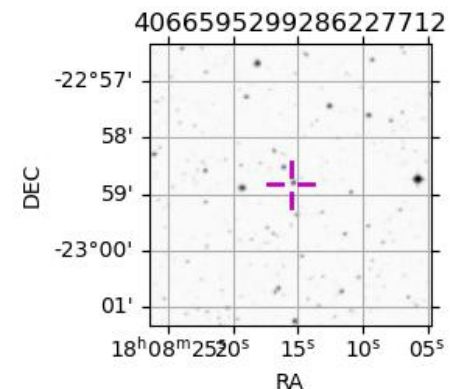


Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 ESO
 AAT
 MSO



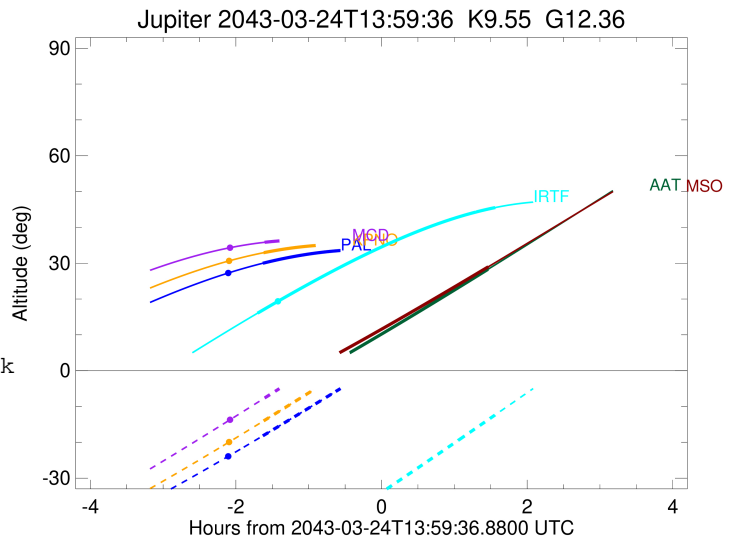
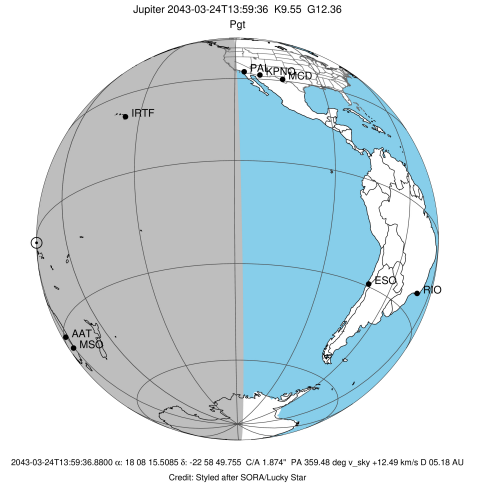
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 24 12:21 - MAR 24 12:21	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 24 12:22 - MAR 24 12:22	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 24 12:23 - MAR 24 12:23	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAR 24 12:17 - MAR 24 15:33	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	+	MAR 24 15:27 - MAR 24 15:27	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAR 24 15:27 - MAR 24 15:27	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-24T14:00:00.270
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        : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.548
G magnitude           : 12.361
RP magnitude          : 11.469
BP magnitude          : 13.156
DUPflag              : 0
Distance (au)         : 5.178
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg)  : 91.33
Sun-Moon sep (deg)   : 100.58
B (ring opening deg) : -2.47
PA of pole (deg)     : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 0.456
C/A sky separation (km): 1711.7
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
    
```

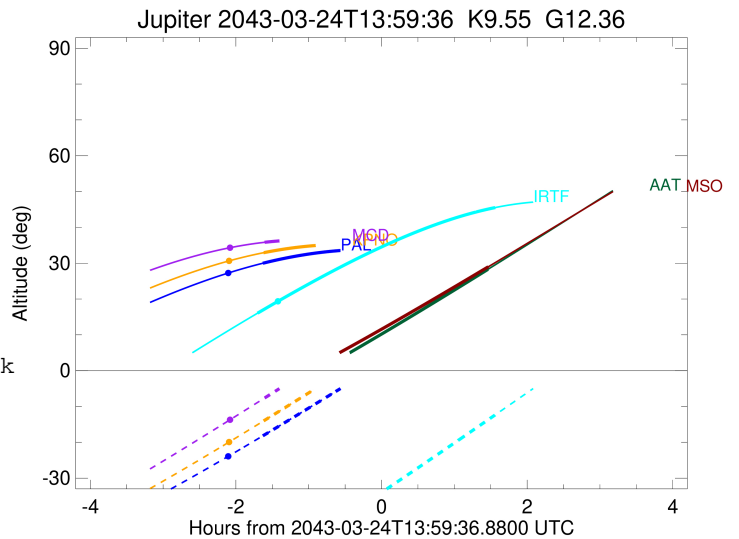
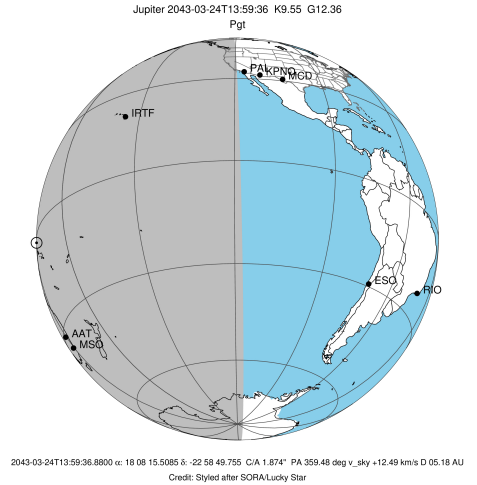


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T12:21:48.787	29.98	-18.19	71492.0	-2.67	-3.06
Jupiter	E	2043-03-24T15:38:24.873	28.21	22.59x	71492.0	-0.37	-0.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-24T14:00:41.200
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        : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.548
G magnitude           : 12.361
RP magnitude          : 11.469
BP magnitude          : 13.156
DUPflag              : 0
Distance (au)         : 5.178
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg)  : 91.33
Sun-Moon sep (deg)   : 100.58
B (ring opening deg) : -2.47
PA of pole (deg)     : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 0.486
C/A sky separation (km) : 1823.6
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
    
```

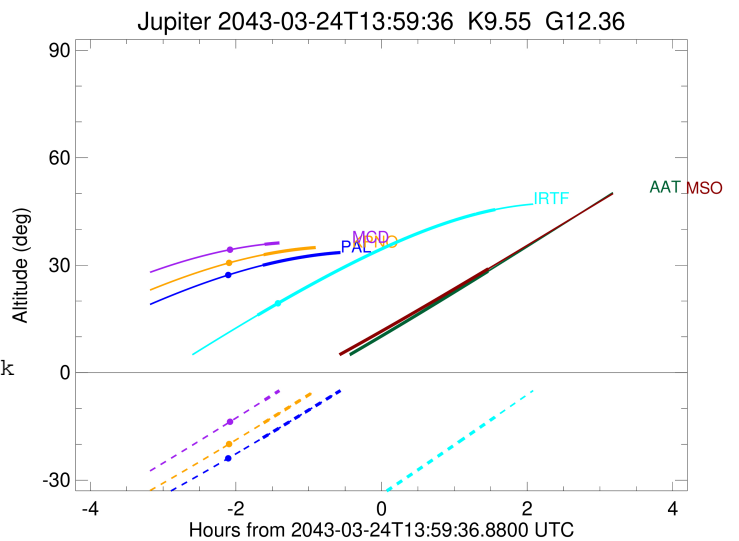
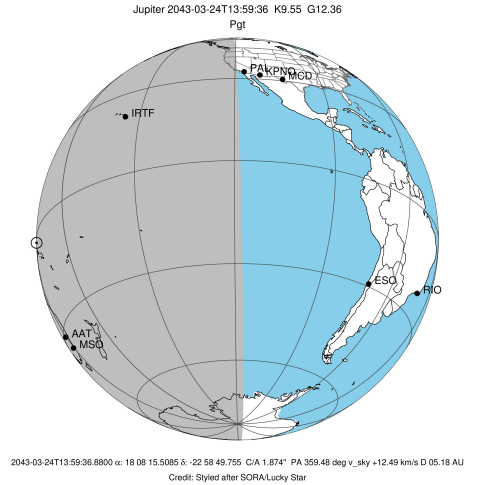


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T12:22:24.792	32.92	-14.04	71492.0	-2.70	-3.08
Jupiter	E	2043-03-24T15:39:02.982	27.04	27.36x	71492.0	-0.53	-0.61

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-24T14:01:40.290
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       : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 9.548
G magnitude           : 12.361
RP magnitude          : 11.469
BP magnitude          : 13.156
DUPflag              : 0
Distance (au)        : 5.178
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg) : 91.33
Sun-Moon sep (deg)   : 100.56
B (ring opening deg) : -2.47
PA of pole (deg)     : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 0.526
C/A sky separation (km): 1977.0
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
    
```

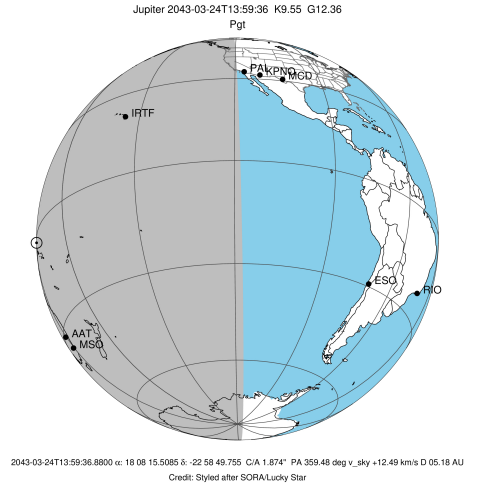


x: target alt < 5.0 deg or sun > -5.0 deg

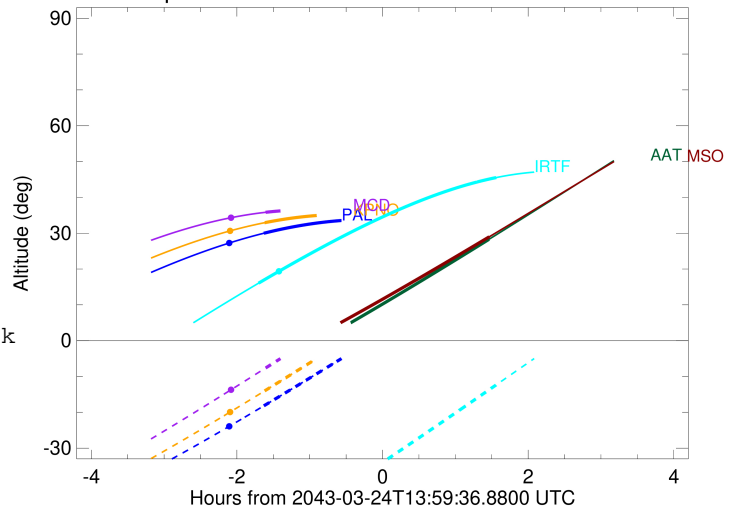
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T12:23:21.347	35.83	-7.61	71492.0	-2.72	-3.11
Jupiter	E	2043-03-24T15:39:53.424	24.03	34.09x	71492.0	-0.75	-0.85

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-24T13:54:50.360
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      : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 9.548
G magnitude          : 12.361
RP magnitude         : 11.469
BP magnitude         : 13.156
DUPflag             : 0
Distance (au)       : 5.178
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg) : 91.33
Sun-Moon sep (deg)  : 100.70
B (ring opening deg) : -2.47
PA of pole (deg)    : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 0.828
C/A sky separation (km) : 3110.5
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
    
```



Jupiter 2043-03-24T13:59:36 K9.55 G12.36

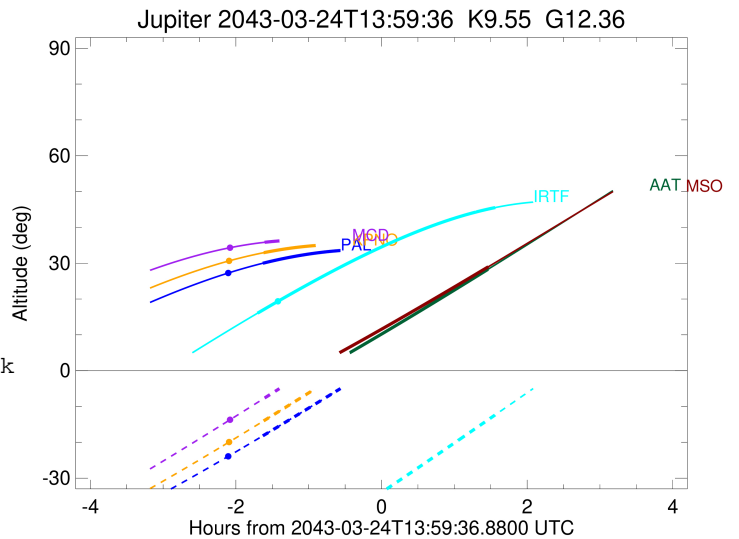
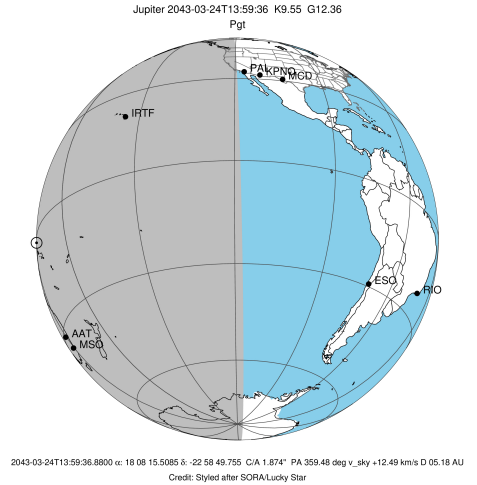


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T12:17:31.097	16.05	-55.81	71492.0	-4.28	-4.90
Jupiter	E	2043-03-24T15:33:20.314	45.52	-12.33	71492.0	-0.97	-1.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-24T13:52:27.600
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      : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 9.548
G magnitude          : 12.361
RP magnitude         : 11.469
BP magnitude         : 13.156
DUPflag             : 0
Distance (au)       : 5.178
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg) : 91.33
Sun-Moon sep (deg)  : 100.39
B (ring opening deg) : -2.47
PA of pole (deg)    : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (" ) : 2.687
C/A sky separation (km) : 10090.4
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
    
```

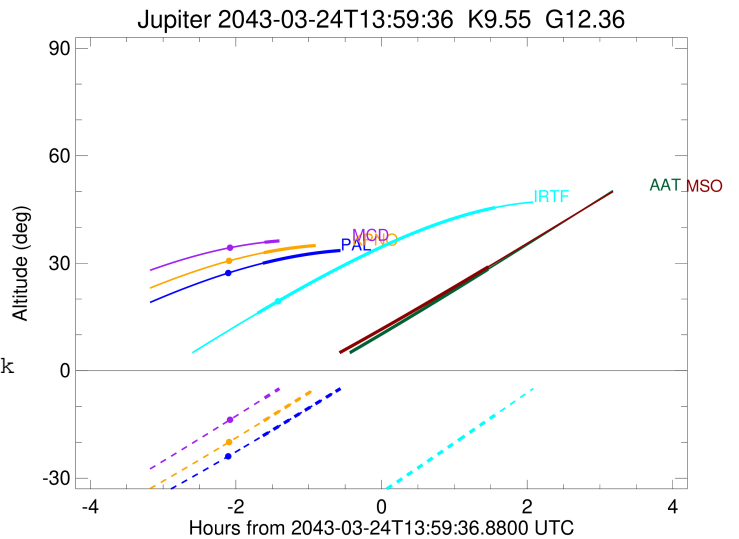
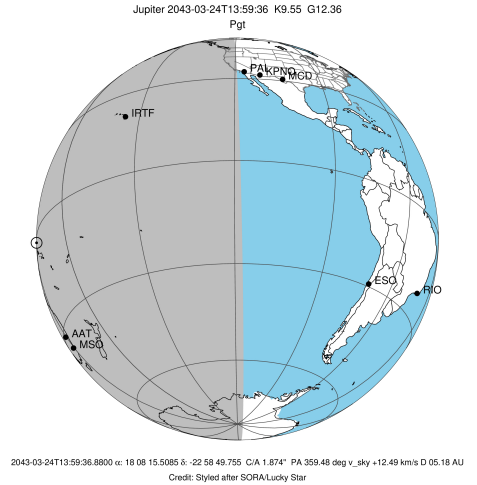


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T12:18:57.192	-9.00x	-50.44	71491.7	-9.99	-11.39
Jupiter	E	2043-03-24T15:27:25.436	28.30	-55.22	71491.9	-6.20	-7.08

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-24T13:52:46.770
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       : 4066595299286227712
2Mass ID (if available) : 18081550-2258497
ICRS Star Coord at Epoch: 18h 08m 15.50852s -22:58:49.75531s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 9.548
G magnitude          : 12.361
RP magnitude         : 11.469
BP magnitude         : 13.156
DUPflag             : 0
Distance (au)        : 5.178
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.49
Sun-Target sep (deg) : 91.33
Sun-Moon sep (deg)   : 100.40
B (ring opening deg) : -2.47
PA of pole (deg)     : -1.73
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 2.778
C/A sky separation (km): 10431.7
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	2043-03-24T12:19:18.089	-6.72x	-47.62	71491.7	-10.24	-11.67
Jupiter	E	2043-03-24T15:27:39.517	29.01	-51.88	71491.9	-6.51	-7.43