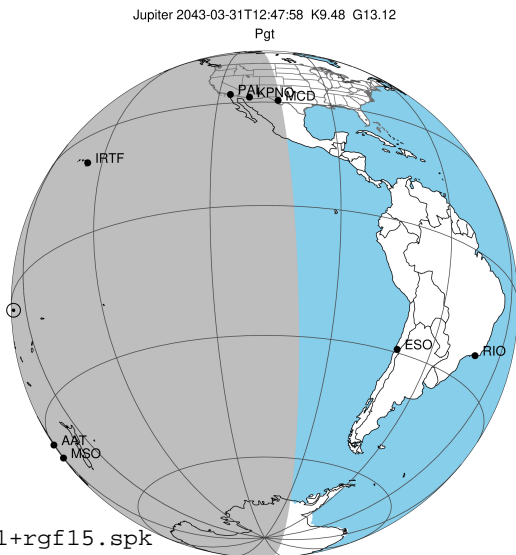


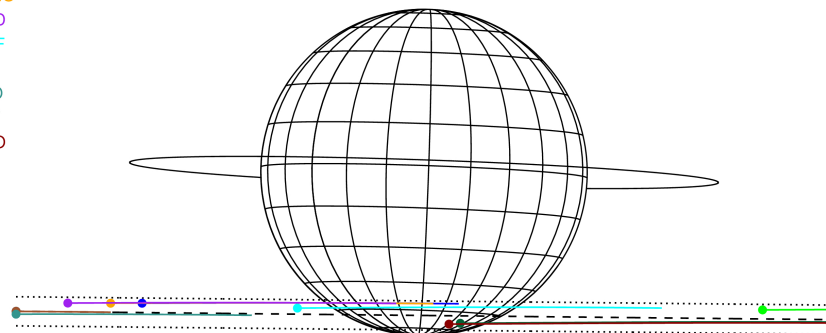
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-03-31T12:47:58.460
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066632678332440576
 2Mass ID (if available) : 18102244-2258474

Jupiter 2043-03-31T12:47:58 K9.48 G13.12 Pgt

ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
 RUWE (>1.4 is poor) : 1.76
 K magnitude : 9.483
 G magnitude : 13.123
 RP magnitude : 12.124
 BP magnitude : 14.111
 DUPflag : 0
 Distance (au) : 5.066
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 9.20
 Sun-Target sep (deg) : 97.72
 Sun-Moon sep (deg) : 18.32
 B (ring opening deg) : -2.45
 PA of pole (deg) : -1.95
 Pole direction: RA (deg): 268.05664
 Dec (deg): 64.49732
 C/A sky separation (") : 17.045
 C/A sky separation (km) : 62630.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



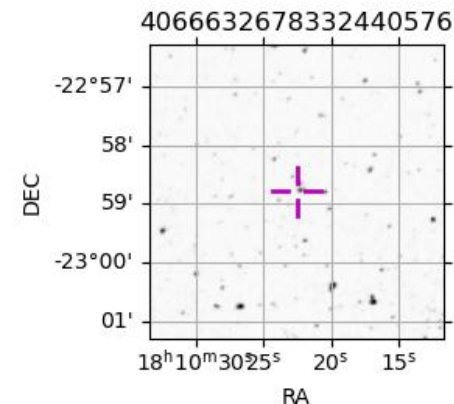
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 RIO
 ESO
 AAT
 MSO



2043-03-31T12:47:58.4600 α: 18 10 22.4546 δ: -22 58 47.434 C/A ***** PA 359.41 deg v_sky + 9.21 km/s D 05.07 AU
 Credit: Styled after SORA/Lucky Star

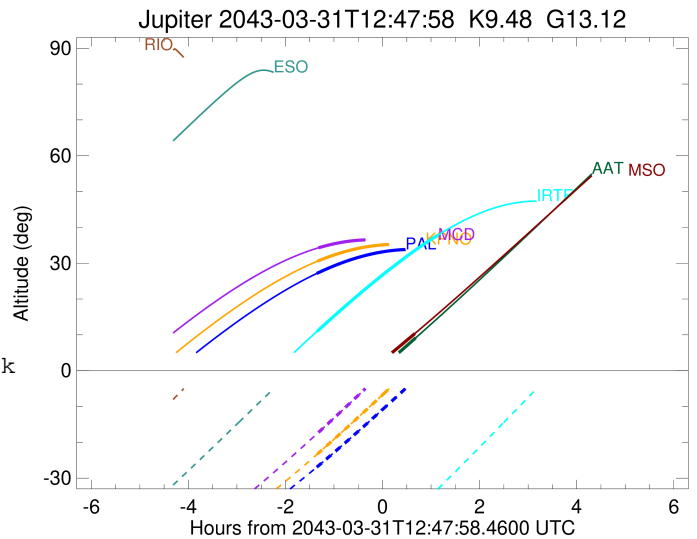
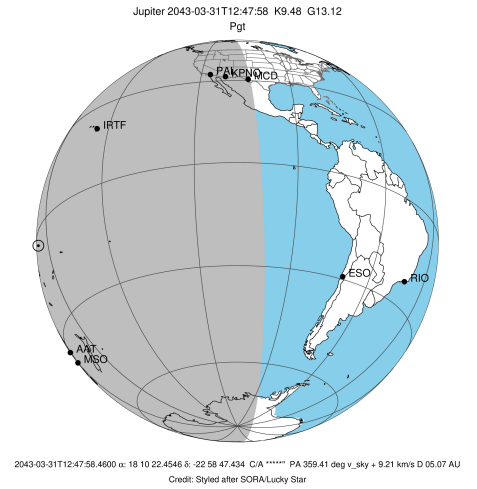
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 31 11:26 - MAR 31 11:26	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 31 11:27 - MAR 31 11:27	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 31 11:28 - MAR 31 11:28	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAR 31 11:26 - MAR 31 13:56	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 31 13:29 - MAR 31 13:29	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAR 31 13:28 - MAR 31 13:28	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-31T12:46:44.040
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        : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude           : 9.483
G magnitude           : 13.123
RP magnitude          : 12.124
BP magnitude          : 14.111
DUPflag              : 0
Distance (au)         : 5.066
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg)  : 97.72
Sun-Moon sep (deg)    : 18.60
B (ring opening deg) : -2.45
PA of pole (deg)      : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 15.609
C/A sky separation (km) : 57354.0
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
    
```

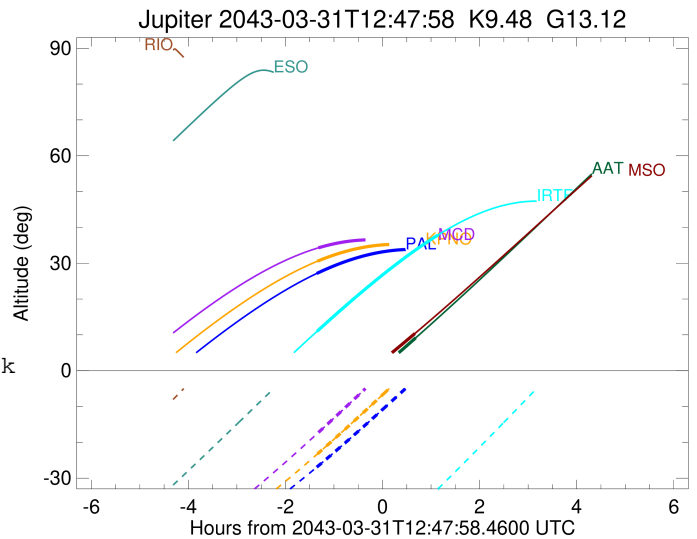
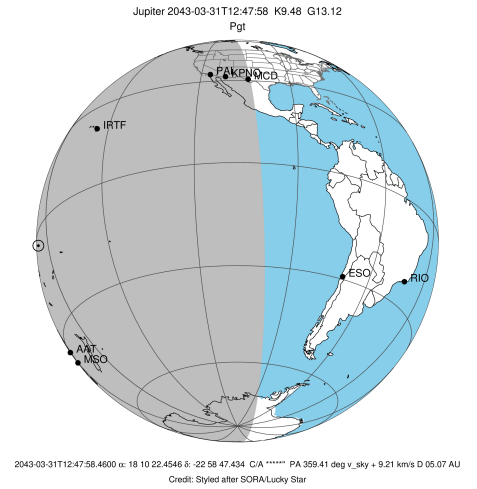


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-31T11:26:43.422	27.13	-26.93	71486.5	-54.93	-58.31
Jupiter	E	2043-03-31T14:07:11.110	32.96	5.60x	71486.9	-51.96	-55.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-31T12:47:27.850
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        : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude           : 9.483
G magnitude           : 13.123
RP magnitude          : 12.124
BP magnitude          : 14.111
DUPflag               : 0
Distance (au)         : 5.066
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg)  : 97.72
Sun-Moon sep (deg)   : 18.67
B (ring opening deg) : -2.45
PA of pole (deg)     : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 15.628
C/A sky separation (km) : 57424.4
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
    
```

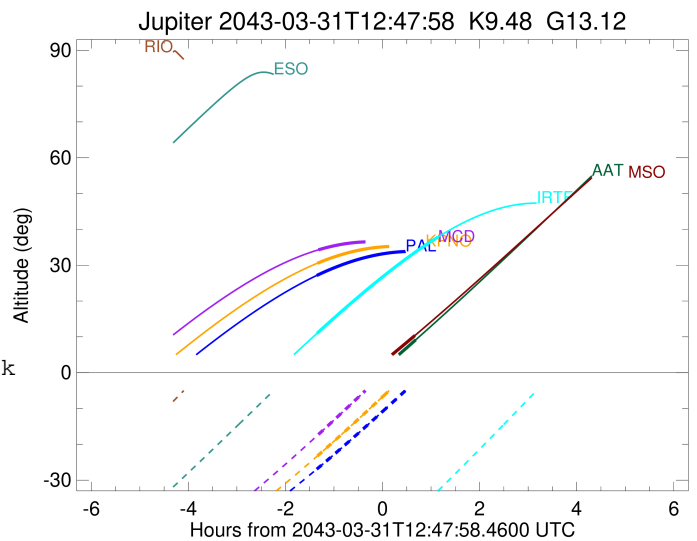
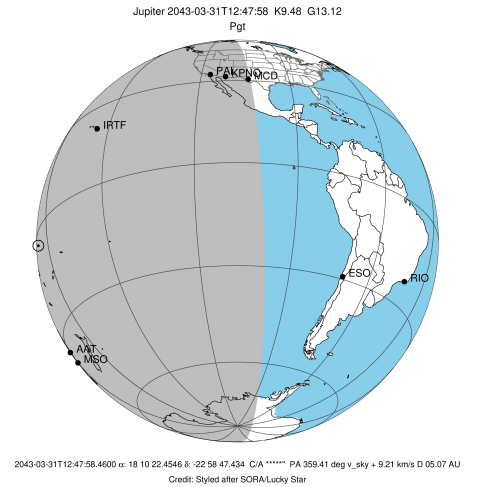


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-31T11:27:29.639	30.54	-23.25	71486.5	-54.94	-58.32
Jupiter	E	2043-03-31T14:07:46.068	33.15	10.16x	71486.9	-52.15	-55.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-31T12:48:33.710
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        : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude           : 9.483
G magnitude           : 13.123
RP magnitude          : 12.124
BP magnitude          : 14.111
DUPflag              : 0
Distance (au)         : 5.066
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg) : 97.72
Sun-Moon sep (deg)   : 18.76
B (ring opening deg) : -2.45
PA of pole (deg)     : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 15.654
C/A sky separation (km) : 57518.1
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
    
```

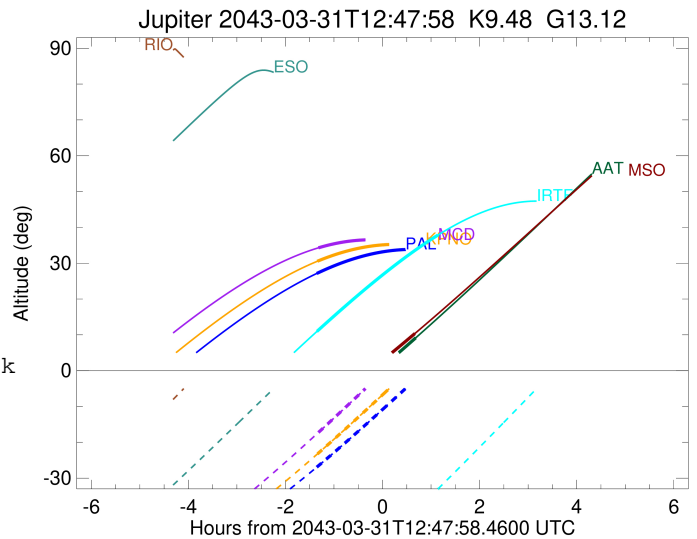
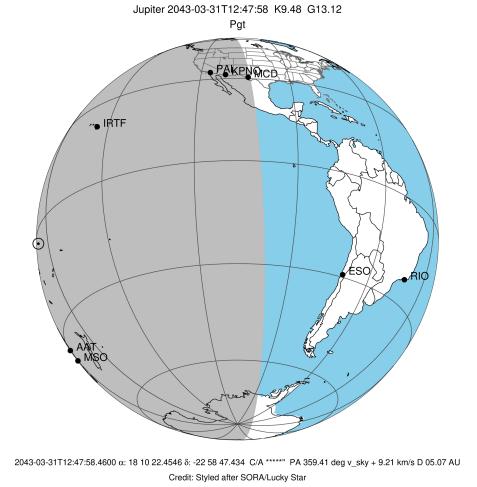


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-31T11:28:42.197	34.28	-17.26	71486.5	-54.93	-58.31
Jupiter	E	2043-03-31T14:08:35.578	31.88	16.88x	71486.8	-52.41	-55.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-31T12:41:17.940
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       : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude          : 9.483
G magnitude          : 13.123
RP magnitude         : 12.124
BP magnitude         : 14.111
DUPflag             : 0
Distance (au)        : 5.066
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg) : 97.72
Sun-Moon sep (deg)   : 18.03
B (ring opening deg) : -2.45
PA of pole (deg)     : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 16.075
C/A sky separation (km) : 59068.7
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
    
```

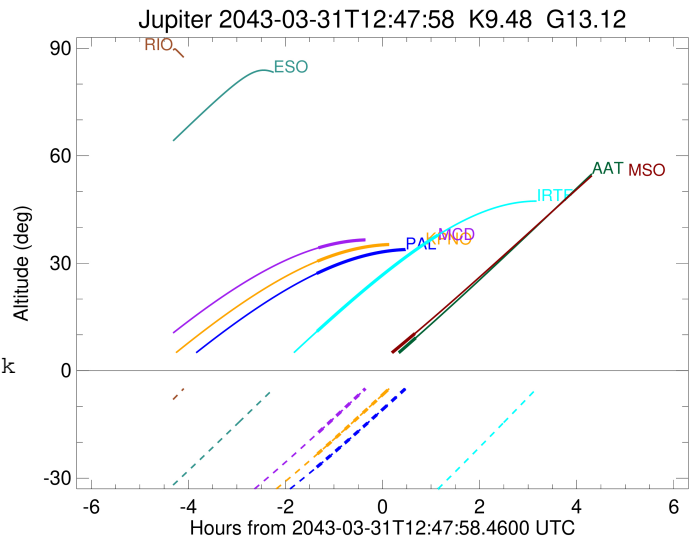
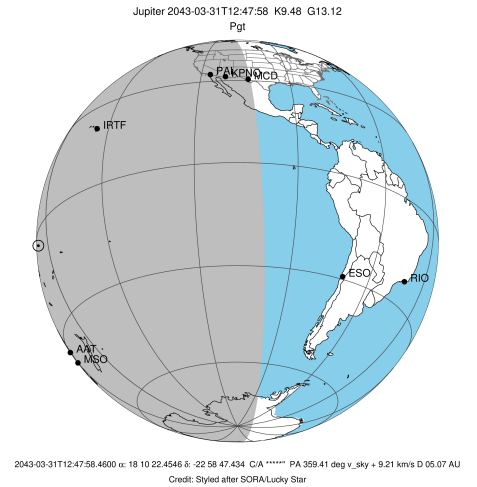


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-31T11:26:52.520	10.94	-61.79	71486.1	-57.91	-61.11
Jupiter	E	2043-03-31T13:56:47.379	37.88	-32.95	71486.7	-53.61	-57.05

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-31T12:40:17.740
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       : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude           : 9.483
G magnitude           : 13.123
RP magnitude          : 12.124
BP magnitude          : 14.111
DUPflag              : 0
Distance (au)         : 5.066
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg) : 97.72
Sun-Moon sep (deg)   : 17.49
B (ring opening deg) : -2.45
PA of pole (deg)     : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 18.004
C/A sky separation (km) : 66154.2
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
    
```

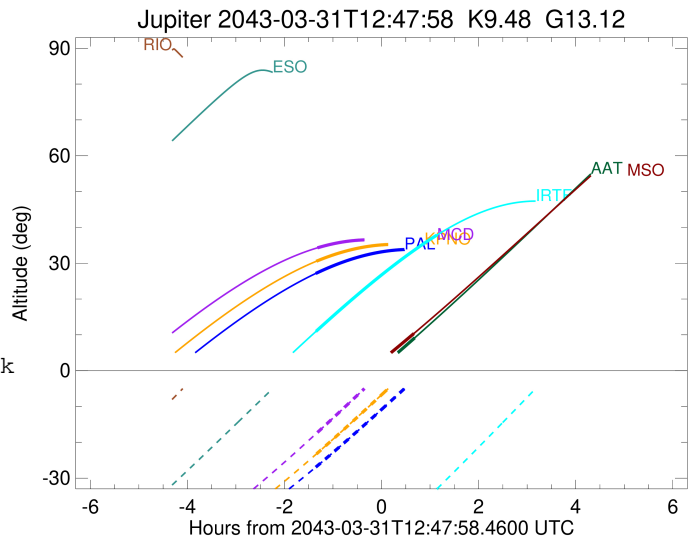
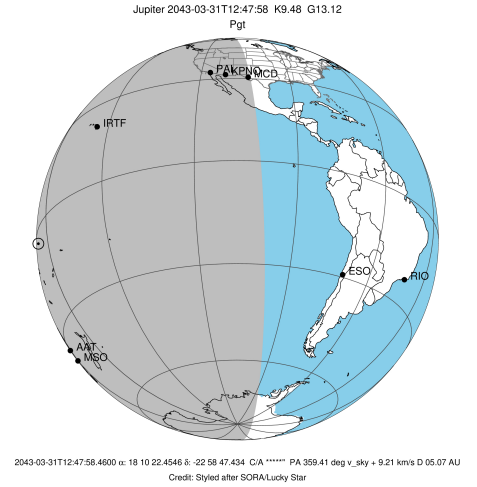


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-31T11:51:59.506	-9.28x	-48.27	71484.7	-69.85	-72.09
Jupiter	E	2043-03-31T13:29:05.190	9.17	-61.64	71485.2	-65.30	-67.95

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-31T12:40:38.310
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        : 4066632678332440576
2Mass ID (if available) : 18102244-2258474
ICRS Star Coord at Epoch: 18h 10m 22.45460s -22:58:47.43415s
RUWE (>1.4 is poor) : 1.76
K magnitude           : 9.483
G magnitude           : 13.123
RP magnitude          : 12.124
BP magnitude          : 14.111
DUPflag              : 0
Distance (au)         : 5.066
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.20
Sun-Target sep (deg)  : 97.72
Sun-Moon sep (deg)   : 17.52
B (ring opening deg) : -2.45
PA of pole (deg)     : -1.95
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 18.091
C/A sky separation (km) : 66475.5
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	2043-03-31T11:53:43.276	-6.75x	-46.20	71484.7	-70.50	-72.67
Jupiter	E	2043-03-31T13:27:59.902	10.37	-57.75	71485.1	-66.03	-68.62