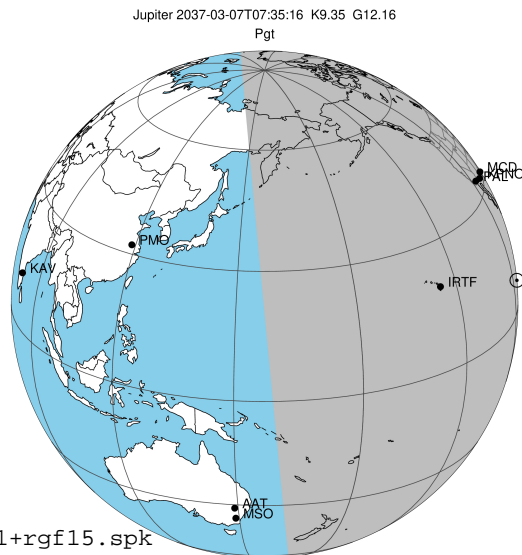


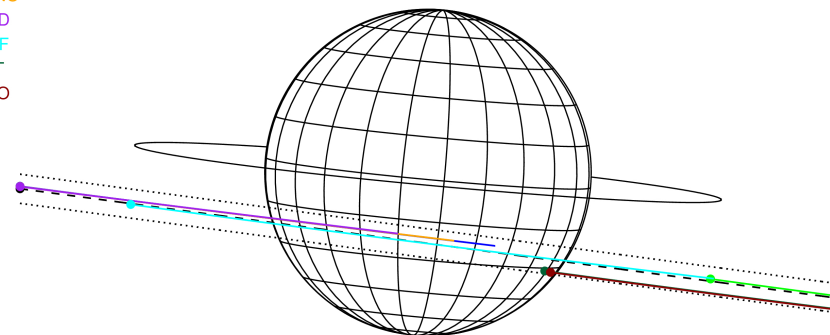
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2037-03-07T07:35:16.420  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 3418305926189992192  
 2Mass ID (if available) : 05023613+2229253

Jupiter 2037-03-07T07:35:16 K9.35 G12.16 Pgt

ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s  
 RUWE (>1.4 is poor) : 0.99  
 K magnitude : 9.353  
 G magnitude : 12.156  
 RP magnitude : 11.314  
 BP magnitude : 12.900  
 DUPflag : 0  
 Distance (au) : 5.020  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 12.56  
 Sun-Target sep (deg) : 90.21  
 Sun-Moon sep (deg) : 161.18  
 B (ring opening deg) : 2.48  
 PA of pole (deg) : -5.31  
 Pole direction: RA (deg): 268.05630  
 Dec (deg): 64.49687  
 C/A sky separation (") : 8.458  
 C/A sky separation (km) : 30795.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



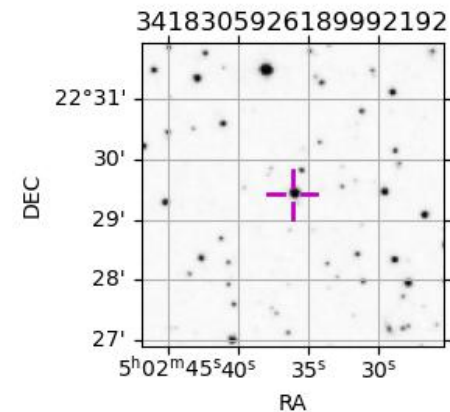
Earth  
 PAL  
 PMO  
 KPNO  
 MCD  
 IRTF  
 AAT  
 MSO



2037-03-07T07:35:16.4200 ex: 05 02 36.1434 s: +22 29 25.119 C/A 8.448" PA 352.38 deg v\_sky +12.56 km/s D 05.02 AU  
 Credit: Styled after SORA/Lucky Star

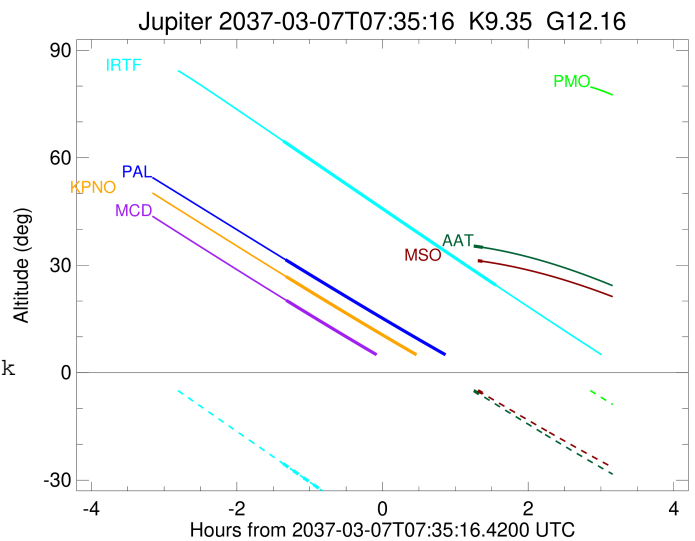
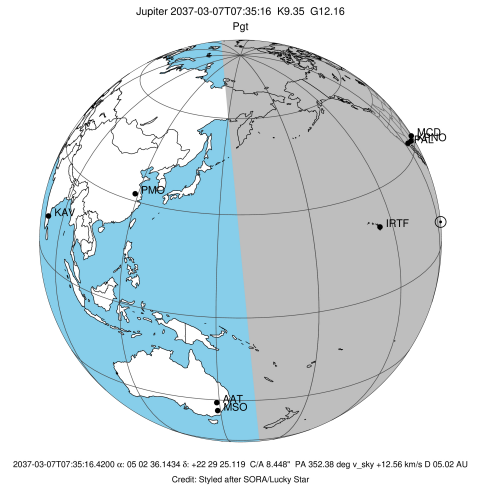
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+	MAR 07 06:15 - MAR 07 06:15	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 07 06:15 - MAR 07 06:15	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 07 06:15 - MAR 07 06:15	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAR 07 06:13 - MAR 07 09:08	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 07 08:57 - MAR 07 08:57	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAR 07 08:57 - MAR 07 08:57	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-03-07T07:43:15.940
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       : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.353
G magnitude          : 12.156
RP magnitude         : 11.314
BP magnitude         : 12.900
DUPflag             : 0
Distance (au)        : 5.020
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)  : 162.13
B (ring opening deg) : 2.48
PA of pole (deg)    : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation ("): 7.788
C/A sky separation (km): 28356.7
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
    
```

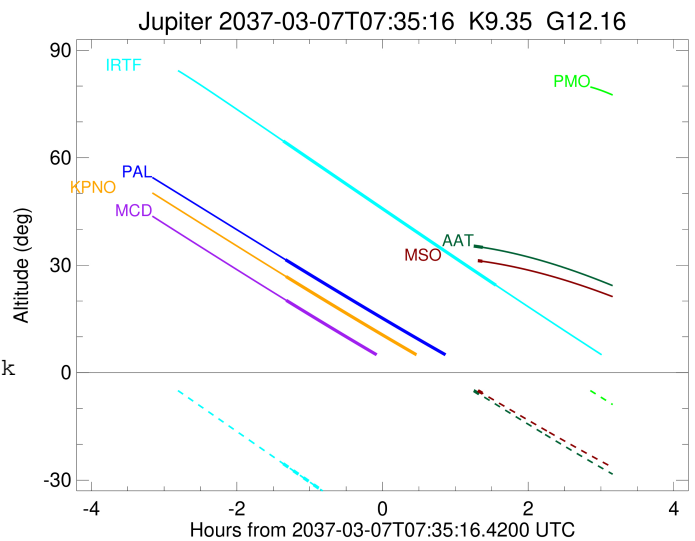
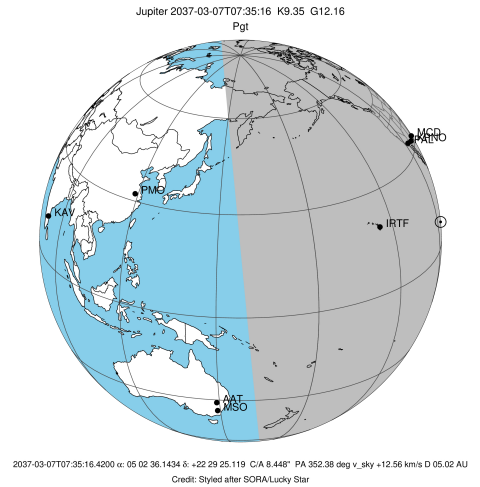


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-03-07T06:15:20.544	31.53	-53.10	71490.9	-21.64	-24.37
Jupiter	E	2037-03-07T09:09:56.226	-3.02x	-57.33	71490.5	-24.96	-27.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-03-07T07:43:23.820
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       : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.353
G magnitude           : 12.156
RP magnitude         : 11.314
BP magnitude         : 12.900
DUPflag              : 0
Distance (au)        : 5.020
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)   : 162.12
B (ring opening deg) : 2.48
PA of pole (deg)     : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation (") : 7.772
C/A sky separation (km) : 28296.4
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
    
```

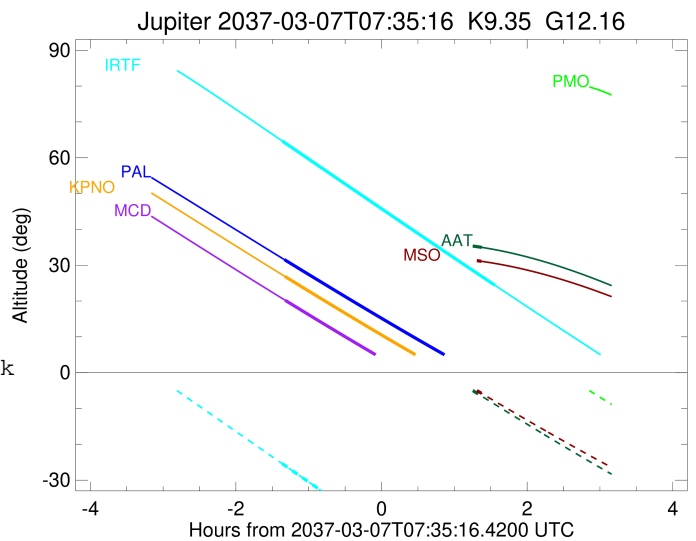
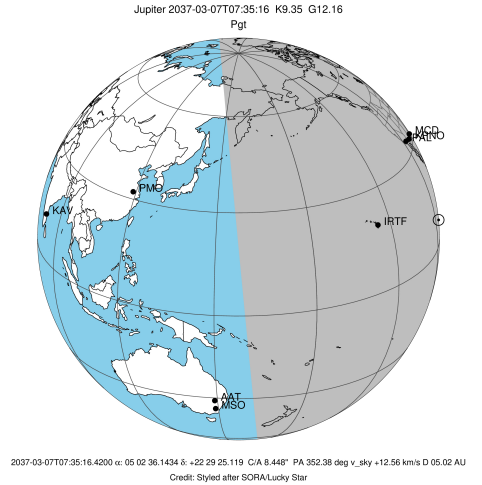


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-03-07T06:15:41.092	26.86	-57.20	71490.9	-21.63	-24.36
Jupiter	E	2037-03-07T09:09:50.848	-7.53x	-55.61	71490.5	-24.89	-27.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-03-07T07:43:25.030
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        : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.353
G magnitude           : 12.156
RP magnitude          : 11.314
BP magnitude          : 12.900
DUPflag              : 0
Distance (au)         : 5.020
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)   : 162.10
B (ring opening deg) : 2.48
PA of pole (deg)     : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation (") : 7.726
C/A sky separation (km) : 28130.8
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
    
```

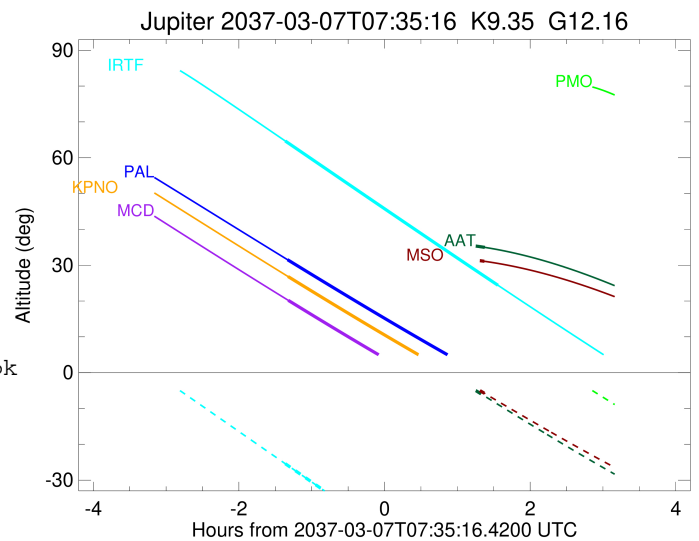
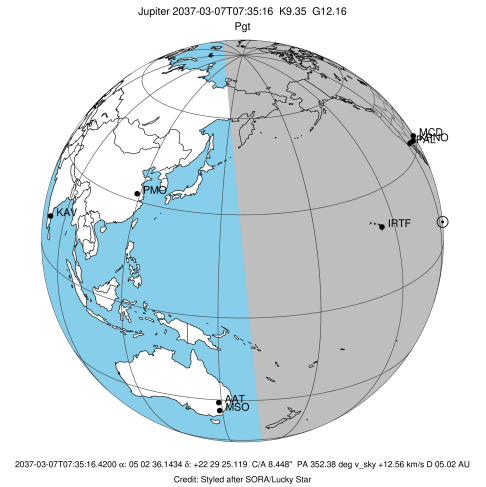


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-03-07T06:15:58.890	20.19	-61.93	71490.9	-21.53	-24.25
Jupiter	E	2037-03-07T09:09:36.023	-13.55x	-51.56	71490.5	-24.74	-27.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-03-07T07:41:37.590
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      : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.353
G magnitude          : 12.156
RP magnitude         : 11.314
BP magnitude         : 12.900
DUPflag             : 0
Distance (au)        : 5.020
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)  : 162.01
B (ring opening deg) : 2.48
PA of pole (deg)    : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation (") : 8.489
C/A sky separation (km) : 30906.4
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
    
```

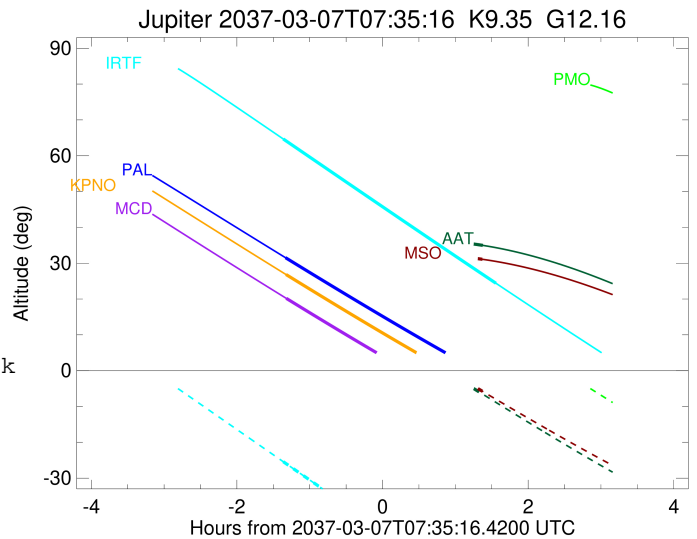
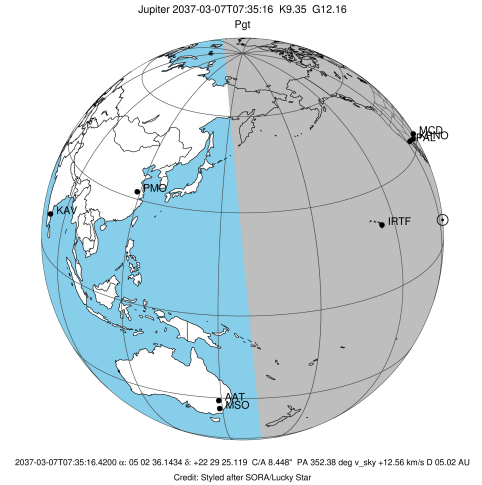


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-03-07T06:13:25.281	64.68	-25.39	71490.7	-23.55	-26.45
Jupiter	E	2037-03-07T09:08:44.328	24.40	-64.86	71490.2	-27.36	-30.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2037-03-07T07:33:03.190
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        : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.353
G magnitude           : 12.156
RP magnitude          : 11.314
BP magnitude          : 12.900
DUPflag              : 0
Distance (au)         : 5.020
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)   : 161.01
B (ring opening deg) : 2.48
PA of pole (deg)     : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation (") : 9.822
C/A sky separation (km) : 35759.9
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
    
```

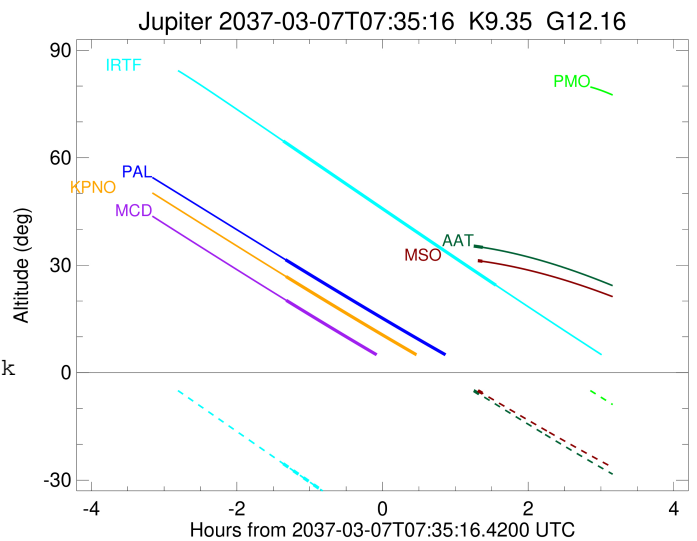
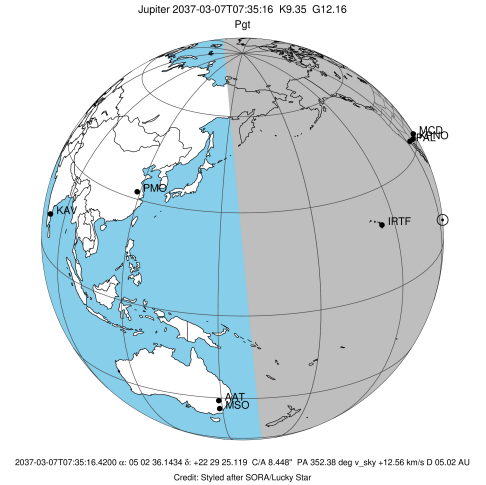


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2037-03-07T06:08:15.796	29.24	29.53x	71490.2	-27.21	-30.40
Jupiter	E	2037-03-07T08:57:50.805	34.98	-6.56	71489.6	-32.50	-36.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2037-03-07T07:33:03.730
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      : 3418305926189992192
2Mass ID (if available) : 05023613+2229253
ICRS Star Coord at Epoch: 05h 02m 36.14341s +22:29:25.11876s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.353
G magnitude          : 12.156
RP magnitude         : 11.314
BP magnitude         : 12.900
DUPflag             : 0
Distance (au)       : 5.020
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.56
Sun-Target sep (deg) : 90.21
Sun-Moon sep (deg)  : 160.98
B (ring opening deg) : 2.48
PA of pole (deg)    : -5.31
Pole direction: RA (deg): 268.05630
Dec (deg): 64.49687
C/A sky separation (" ) : 9.892
C/A sky separation (km) : 36014.0
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	2037-03-07T06:08:35.568	25.80	28.54x	71490.2	-27.47	-30.68
Jupiter	E	2037-03-07T08:57:31.595	31.09	-5.73	71489.5	-32.73	-36.24