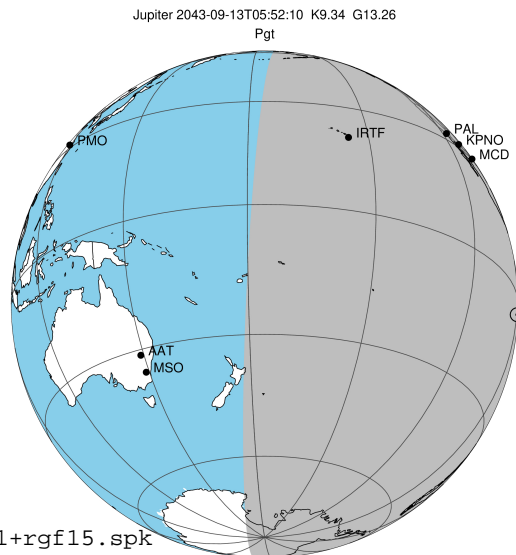


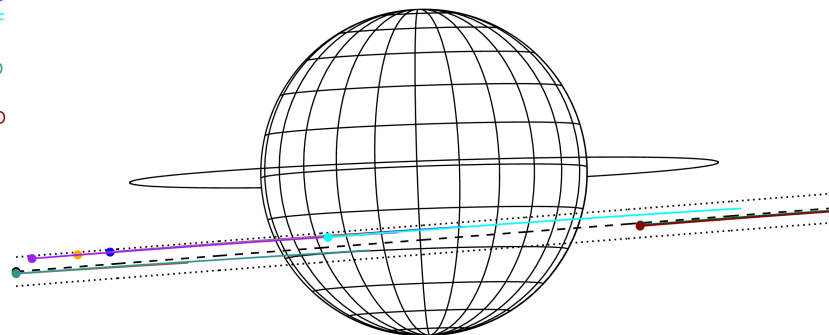
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-09-13T05:52:10.760
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116671074561080448
 2Mass ID (if available) : 17334958-2310285

Jupiter 2043-09-13T05:52:10 K9.34 G13.26 Pgt

ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 9.335
 G magnitude : 13.256
 RP magnitude : 12.175
 BP magnitude : 14.476
 DUPflag : 0
 Distance (au) : 5.065
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 10.89
 Sun-Target sep (deg) : 94.23
 Sun-Moon sep (deg) : 15.57
 B (ring opening deg) : -2.25
 PA of pole (deg) : 1.98
 Pole direction: RA (deg): 268.05673
 Dec (deg): 64.49731
 C/A sky separation (") : 8.003
 C/A sky separation (km) : 29401.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



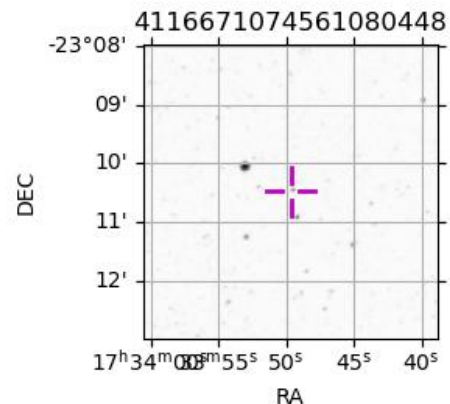
Earth
 PAL
 KPNO
 MCD
 IRTF
 RIO
 ESO
 AAT
 MSO



2043-09-13T05:52:10.7600 α: 17 33 49.5661 δ: -23 10 28.968 C/A 8.012" PA 4.44 deg v_sky +10.89 km/s D 05.07 AU
 Credit: Styled after SORA/Lucky Star

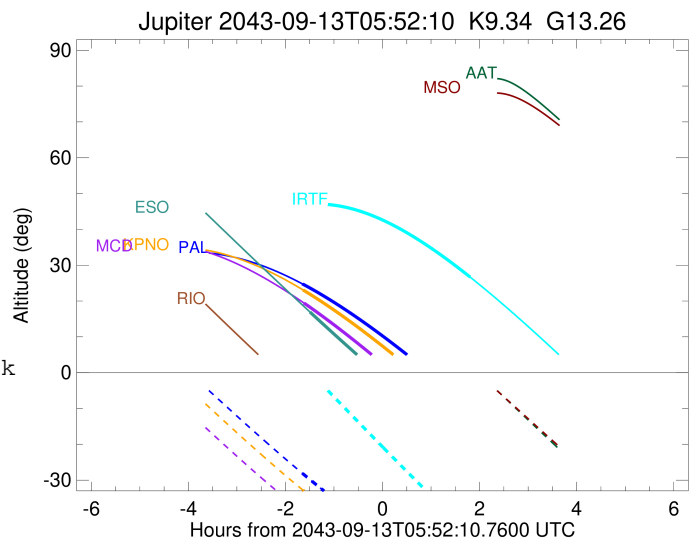
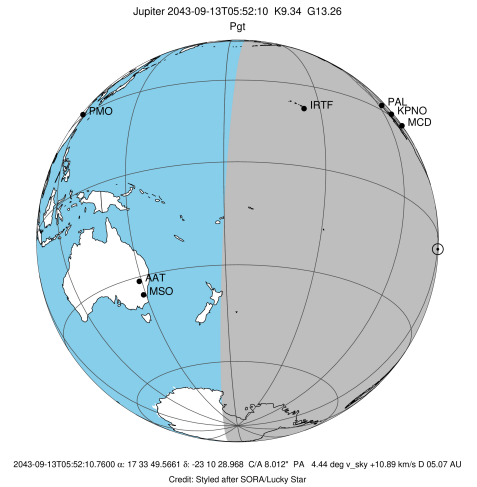
Observable events with sun below -5 deg and altitude above 5 deg

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	+	SEP 13 04:13 - SEP 13 04:13	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 13 04:13 - SEP 13 04:13	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	SEP 13 04:15 - SEP 13 04:15	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	SEP 13 07:40 - SEP 13 07:40	Pne
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	+	SEP 13 04:22 - SEP 13 04:22	Pin
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             : 2043-09-13T05:58:23.180
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       : 4116671074561080448
2Mass ID (if available) : 17334958-2310285
ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 9.335
G magnitude           : 13.256
RP magnitude          : 12.175
BP magnitude          : 14.476
DUPflag              : 0
Distance (au)        : 5.065
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.89
Sun-Target sep (deg) : 94.23
Sun-Moon sep (deg)   : 15.28
B (ring opening deg) : -2.25
PA of pole (deg)     : 1.98
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation ("): 6.762
C/A sky separation (km): 24842.8
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
    
```

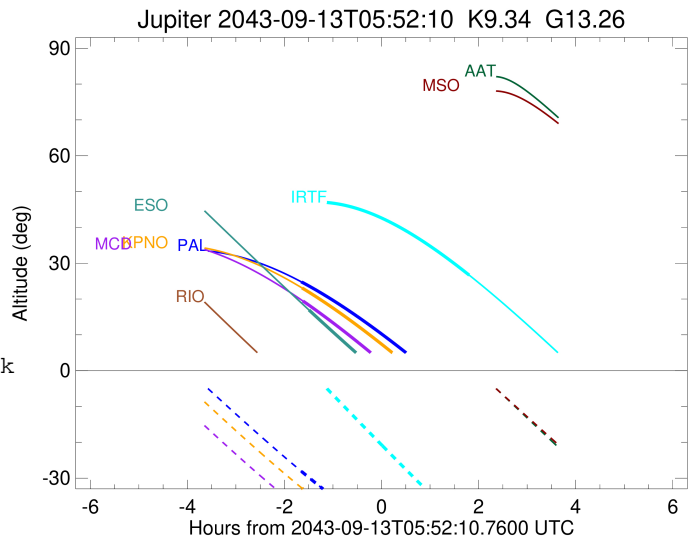
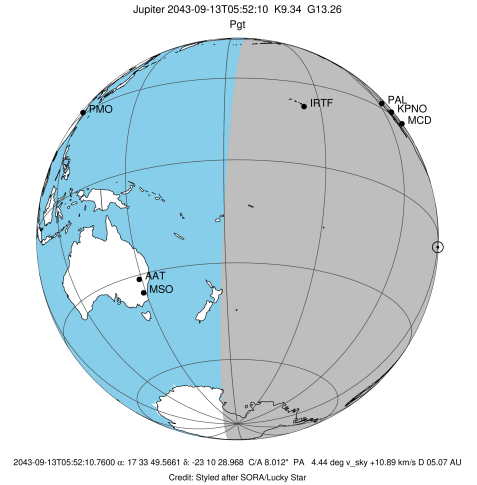


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-13T04:13:08.836	24.78	-28.09	71491.0	-22.28	-25.08
Jupiter	E	2043-09-13T07:41:50.723	-9.86x	-53.03	71491.3	-18.59	-21.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-13T05:58:50.050
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      : 4116671074561080448
2Mass ID (if available) : 17334958-2310285
ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
RUWE (>1.4 is poor) : 1.04
K magnitude         : 9.335
G magnitude         : 13.256
RP magnitude        : 12.175
BP magnitude        : 14.476
DUPflag            : 0
Distance (au)       : 5.065
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 10.89
Sun-Target sep (deg) : 94.23
Sun-Moon sep (deg)  : 15.21
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.98
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 6.833
C/A sky separation (km) : 25102.8
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
    
```

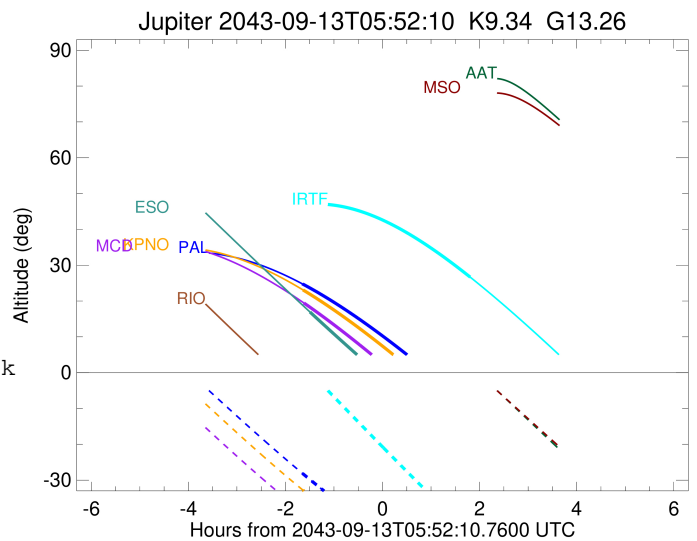
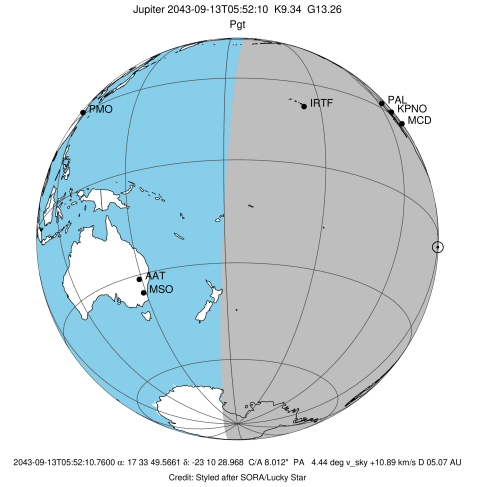


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-13T04:13:58.556	23.09	-32.82	71491.0	-22.44	-25.24
Jupiter	E	2043-09-13T07:41:50.107	-13.55x	-54.12	71491.3	-18.85	-21.31

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-13T05:59:18.860
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      : 4116671074561080448
2Mass ID (if available) : 17334958-2310285
ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
RUWE (>1.4 is poor) : 1.04
K magnitude         : 9.335
G magnitude         : 13.256
RP magnitude        : 12.175
BP magnitude        : 14.476
DUPflag            : 0
Distance (au)       : 5.065
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 10.89
Sun-Target sep (deg) : 94.23
Sun-Moon sep (deg)  : 15.13
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.98
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (" ) : 6.928
C/A sky separation (km) : 25452.5
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
    
```

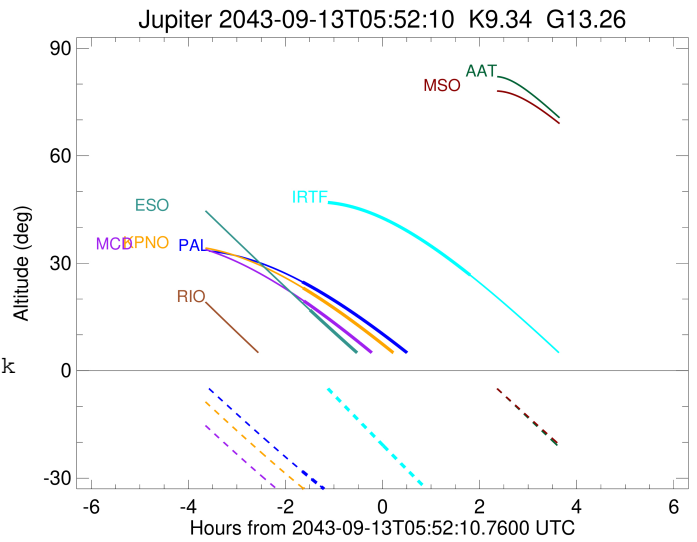
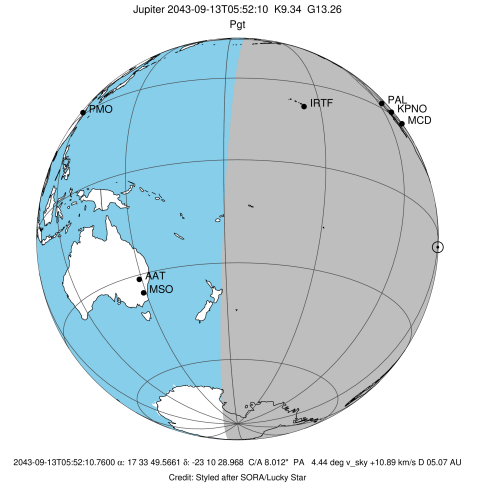


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-13T04:15:03.249	19.44	-39.17	71491.0	-22.65	-25.48
Jupiter	E	2043-09-13T07:41:38.724	-19.30x	-53.72	71491.2	-19.19	-21.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-13T05:54:55.270
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      : 4116671074561080448
2Mass ID (if available) : 17334958-2310285
ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 9.335
G magnitude          : 13.256
RP magnitude         : 12.175
BP magnitude         : 14.476
DUPflag             : 0
Distance (au)       : 5.065
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.89
Sun-Target sep (deg) : 94.23
Sun-Moon sep (deg)  : 15.71
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.98
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation ("): 6.825
C/A sky separation (km): 25071.8
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
    
```

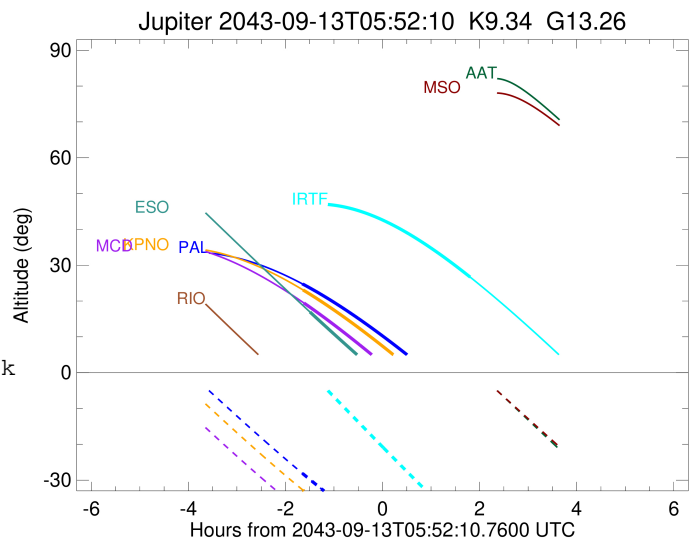
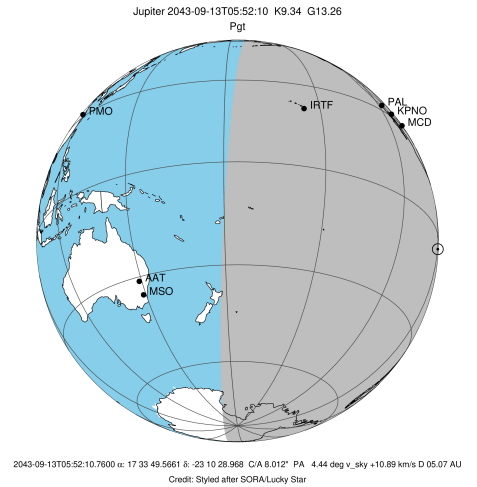


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-13T04:08:13.037	46.77	3.57x	71490.9	-23.02	-25.88
Jupiter	E	2043-09-13T07:40:35.211	26.66	-44.79	71491.3	-18.44	-20.85

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-13T05:59:57.520
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       : 4116671074561080448
2Mass ID (if available) : 17334958-2310285
ICRS Star Coord at Epoch: 17h 33m 49.56607s -23:10:28.96840s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 9.335
G magnitude           : 13.256
RP magnitude         : 12.175
BP magnitude         : 14.476
DUPflag              : 0
Distance (au)        : 5.065
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.89
Sun-Target sep (deg) : 94.23
Sun-Moon sep (deg)   : 14.70
B (ring opening deg) : -2.25
PA of pole (deg)     : 1.98
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation ("): 8.849
C/A sky separation (km): 32510.0
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	2043-09-13T04:22:36.719	16.91	-64.45	71490.4	-28.65	-31.94
Jupiter	E	2043-09-13T07:35:37.696	-19.77x	-41.10	71490.7	-25.36	-28.41