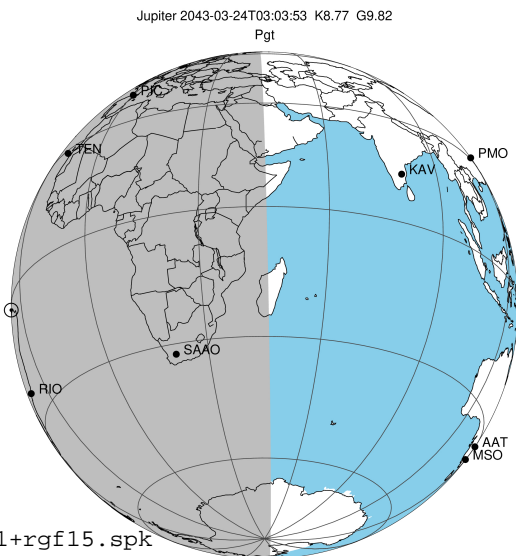


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-03-24T03:03:53.820
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066595982131860992
 2Mass ID (if available) : 18080595-2258458

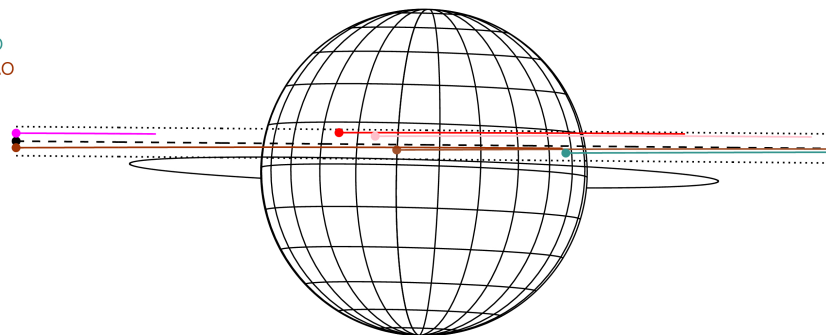
Jupiter 2043-03-24T03:03:53 K8.77 G9.82 Pgt

ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
 RUWE (>1.4 is poor) : 2.61
 K magnitude : 8.771
 G magnitude : 9.819
 RP magnitude : 9.424
 BP magnitude : 10.037
 DUPflag : 0
 Distance (au) : 5.186
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.71
 Sun-Target sep (deg) : 90.91
 Sun-Moon sep (deg) : 105.66
 B (ring opening deg) : -2.47
 PA of pole (deg) : -1.71
 Pole direction: RA (deg): 268.05664
 Dec (deg): 64.49732
 C/A sky separation (") : 3.227
 C/A sky separation (km) : 12135.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



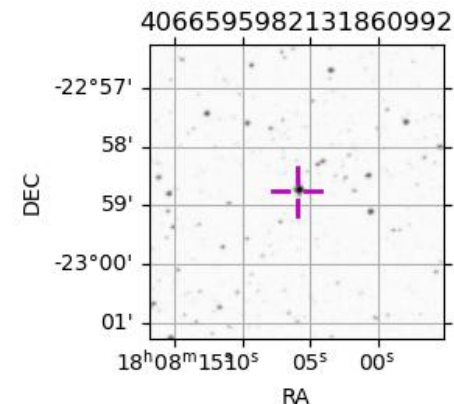
2043-03-24T03:03:53.8200 ca: 18 08 05.9540 ca: -22 58 45.855 C/A 3.216" PA 179.49 deg v_sky +12.71 km/s D 05.19 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 TEN
 KAV
 RIO
 ESO
 SAAO



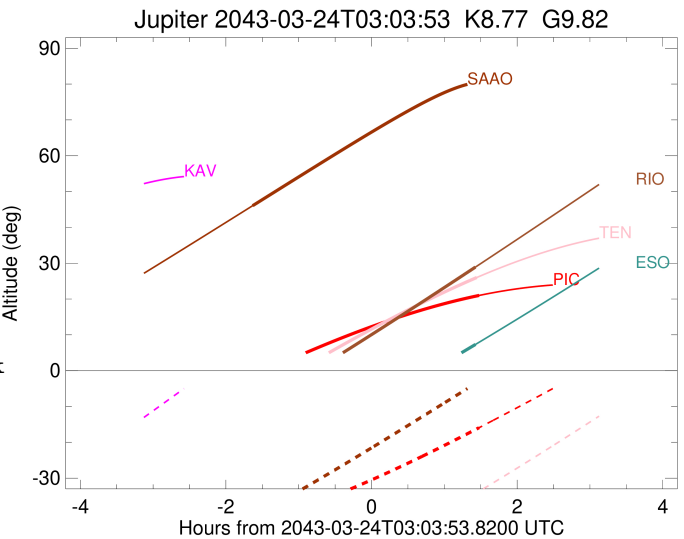
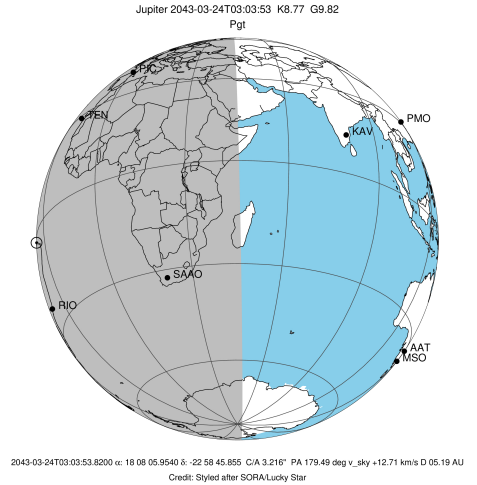
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAR 24 04:32 - MAR 24 04:32	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAR 24 04:30 - MAR 24 04:30	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	MAR 24 04:29 - MAR 24 04:29	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 24 04:29 - MAR 24 04:29	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAR 24 01:25 - MAR 24 01:25	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-24T02:59:23.580
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PIC
Location            : Pic du Midi
Latitude (deg)      : 42.93656
E. Longitude (deg)  : 0.14231
Altitude (km)       : 2.890
Gaia source ID      : 4066595982131860992
2Mass ID (if available) : 18080595-2258458
ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
RUWE (>1.4 is poor) : 2.61
K magnitude          : 8.771
G magnitude          : 9.819
RP magnitude         : 9.424
BP magnitude         : 10.037
DUPflag             : 0
Distance (au)        : 5.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.71
Sun-Target sep (deg) : 90.91
Sun-Moon sep (deg)  : 105.98
B (ring opening deg) : -2.47
PA of pole (deg)    : -1.71
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (" ) : 4.633
C/A sky separation (km) : 17426.7
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
    
```

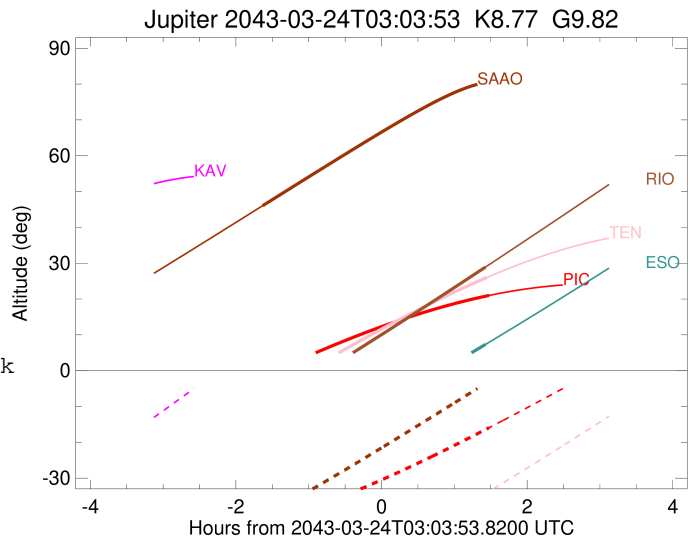
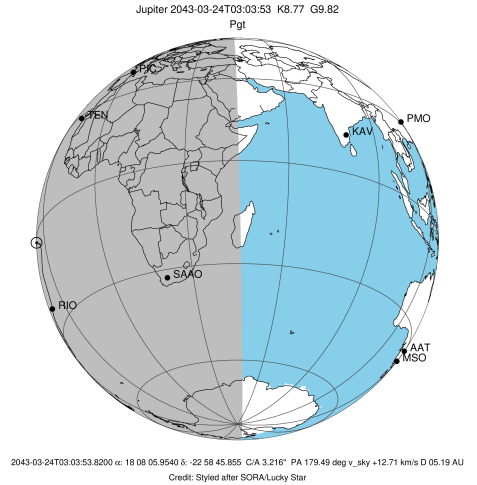


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T01:27:14.005	-1.47x	-42.28	71491.6	12.40	14.11
Jupiter	E	2043-03-24T04:32:31.989	20.99	-15.92	71491.4	15.62	17.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-24T02:57:08.230
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : TEN
Location            : Teide Obs./Tenerife
Latitude (deg)      : 28.30050
E. Longitude (deg)  : 343.48909
Altitude (km)       : 2.395
Gaia source ID      : 4066595982131860992
2Mass ID (if available) : 18080595-2258458
ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
RUWE (>1.4 is poor) : 2.61
K magnitude          : 8.771
G magnitude          : 9.819
RP magnitude         : 9.424
BP magnitude         : 10.037
DUPflag             : 0
Distance (au)       : 5.186
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 12.71
Sun-Target sep (deg) : 90.91
Sun-Moon sep (deg)  : 106.03
B (ring opening deg) : -2.47
PA of pole (deg)    : -1.71
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 4.242
C/A sky separation (km) : 15954.8
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
    
```

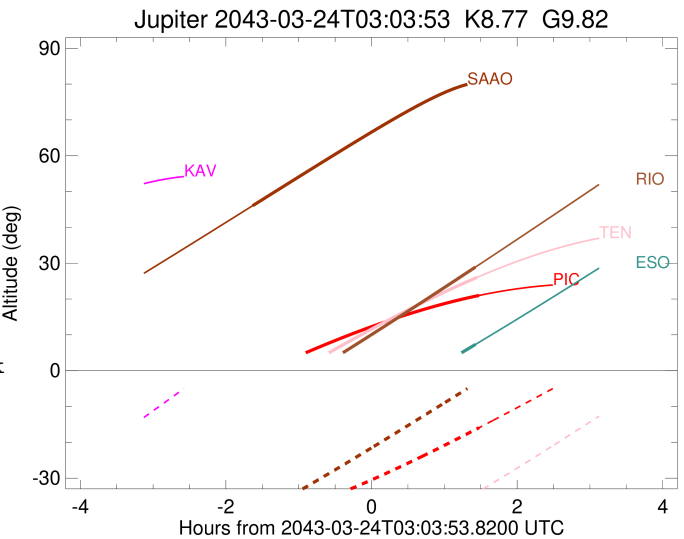
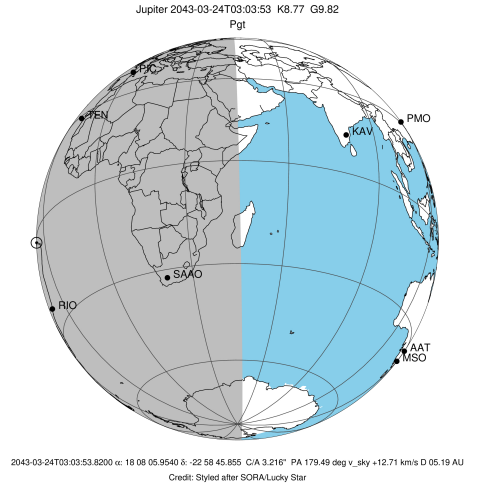


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T01:25:04.498	-7.69x	-60.39	71491.7	11.00	12.53
Jupiter	E	2043-03-24T04:30:32.315	25.99	-34.10	71491.5	14.63	16.62

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-24T02:55:58.580
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        : 4066595982131860992
2Mass ID (if available) : 18080595-2258458
ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
RUWE (>1.4 is poor) : 2.61
K magnitude           : 8.771
G magnitude           : 9.819
RP magnitude          : 9.424
BP magnitude          : 10.037
DUPflag              : 0
Distance (au)         : 5.186
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.71
Sun-Target sep (deg)  : 90.91
Sun-Moon sep (deg)    : 106.04
B (ring opening deg) : -2.47
PA of pole (deg)      : -1.71
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 2.640
C/A sky separation (km) : 9929.4
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
    
```

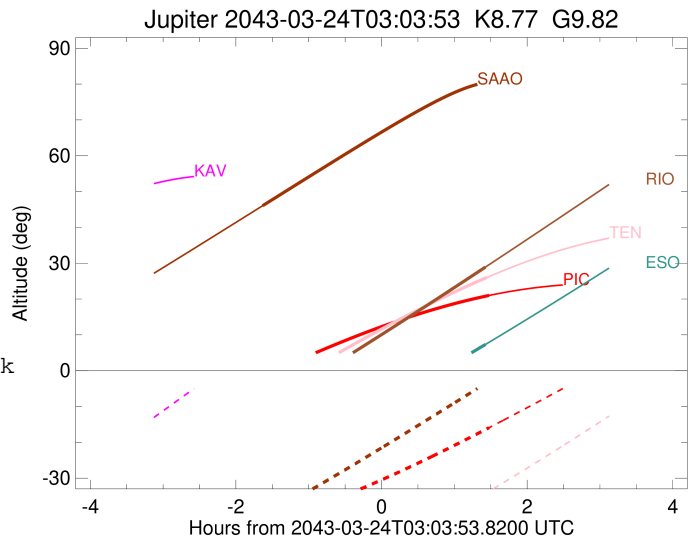
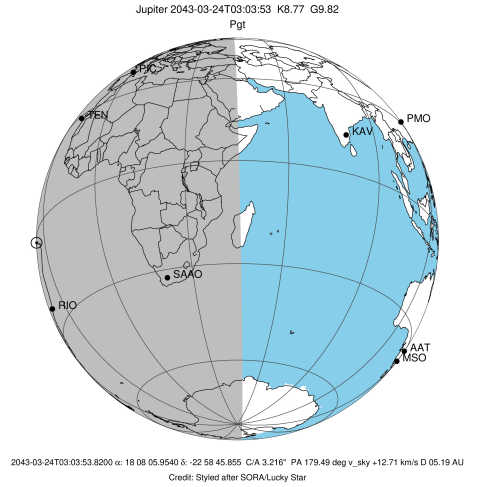


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T01:23:53.348	-10.79x	-58.45	71491.9	6.05	6.91
Jupiter	E	2043-03-24T04:29:33.954	28.92	-59.36	71491.8	9.90	11.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-24T02:57:13.960
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      : 4066595982131860992
2Mass ID (if available) : 18080595-2258458
ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
RUWE (>1.4 is poor) : 2.61
K magnitude          : 8.771
G magnitude          : 9.819
RP magnitude         : 9.424
BP magnitude         : 10.037
DUPflag             : 0
Distance (au)       : 5.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.71
Sun-Target sep (deg) : 90.91
Sun-Moon sep (deg)  : 105.70
B (ring opening deg) : -2.47
PA of pole (deg)    : -1.71
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (" ) : 2.218
C/A sky separation (km) : 8341.3
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
    
```

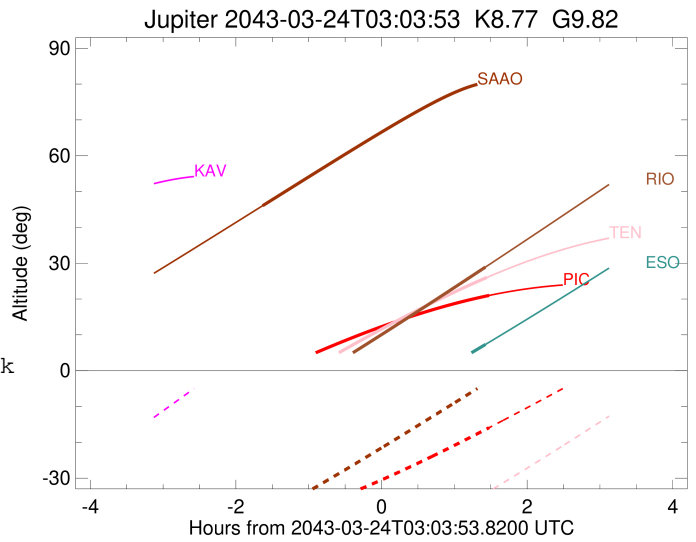
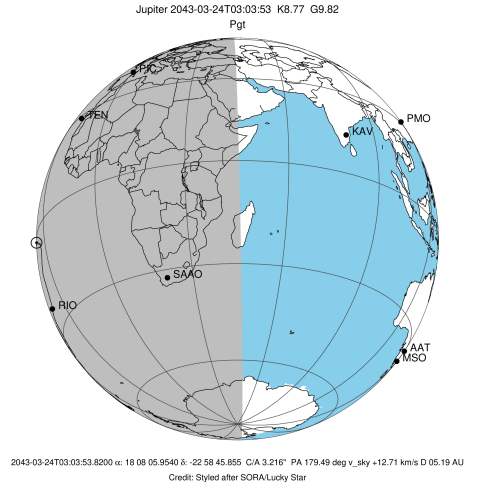


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-24T01:26:04.008	-25.49x	-34.28	71491.9	4.94	5.65
Jupiter	E	2043-03-24T04:29:39.121	7.34	-61.88	71491.8	8.57	9.78

```

target          : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2043-03-24T03:00:47.910
Event type      : Pgt
                : Jupiter occs: geocentric, topocentric
                : Not a ringed target
Observer code   : SAAO
Location        : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)  : -32.37953
E. Longitude (deg) : 20.81070
Altitude (km)   : 1.768
Gaia source ID  : 4066595982131860992
2Mass ID (if available) : 18080595-2258458
ICRS Star Coord at Epoch: 18h 08m 05.95403s -22:58:45.85509s
RUWE (>1.4 is poor) : 2.61
K magnitude     : 8.771
G magnitude     : 9.819
RP magnitude    : 9.424
BP magnitude    : 10.037
DUPflag        : 0
Distance (au)  : 5.186
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : 12.71
Sun-Target sep (deg) : 90.91
Sun-Moon sep (deg) : 106.56
B (ring opening deg) : -2.47
PA of pole (deg) : -1.71
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 2.910
C/A sky separation (km) : 10944.1
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	2043-03-24T01:25:54.176	46.03	-40.82	71491.9	7.20	8.22
Jupiter	E	2043-03-24T04:36:28.909	80.71	-2.13x	71491.7	10.13	11.54