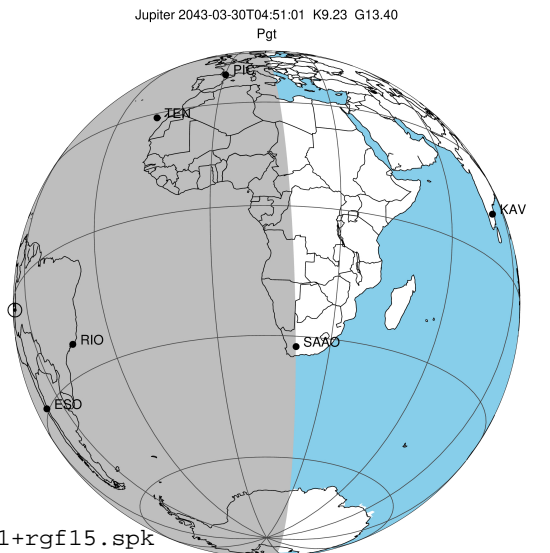


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-03-30T04:51:01.790
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066633228088837248
 2Mass ID (if available) : 18100090-2258367

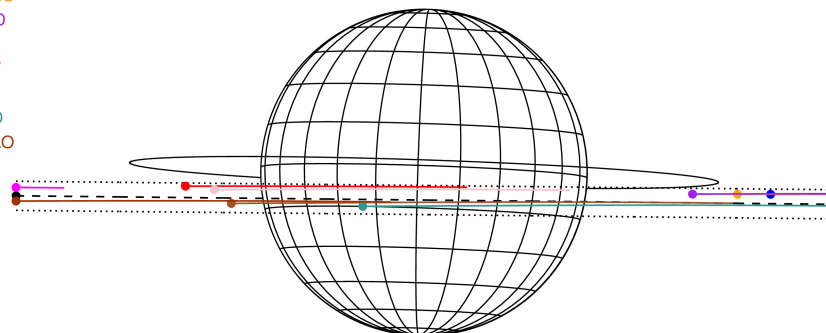
Jupiter 2043-03-30T04:51:01 K9.23 G13.40 Pgt

ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
 RUWE (>1.4 is poor) : 0.87
 K magnitude : 9.233
 G magnitude : 13.404
 RP magnitude : 12.297
 BP magnitude : 14.643
 DUPflag : 0
 Distance (au) : 5.088
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 9.84
 Sun-Target sep (deg) : 96.48
 Sun-Moon sep (deg) : 33.59
 B (ring opening deg) : -2.46
 PA of pole (deg) : -1.91
 Pole direction: RA (deg): 268.05664
 Dec (deg): 64.49732
 C/A sky separation (") : 3.271
 C/A sky separation (km) : 12069.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



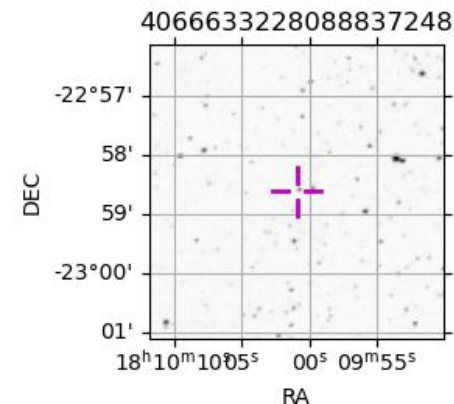
2043-03-30T04:51:01.7900 at: 18 10 00.9125 s: -22 58 36.782 C/A 3.281" PA 359.40 deg v_sky + 9.84 km/s D 05.09 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



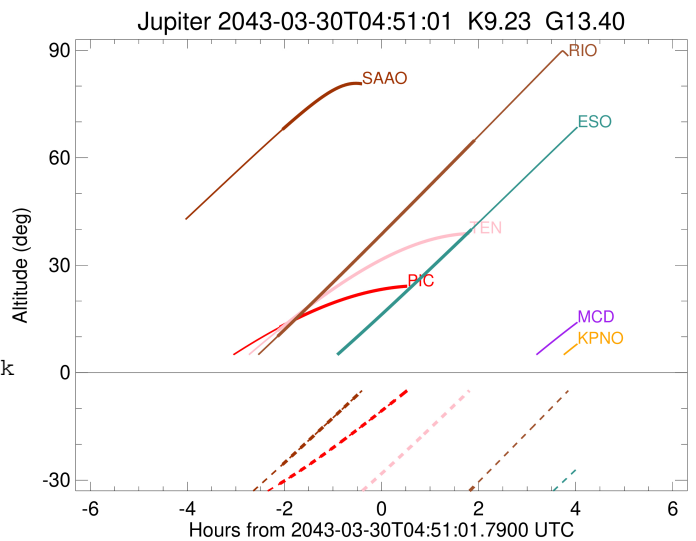
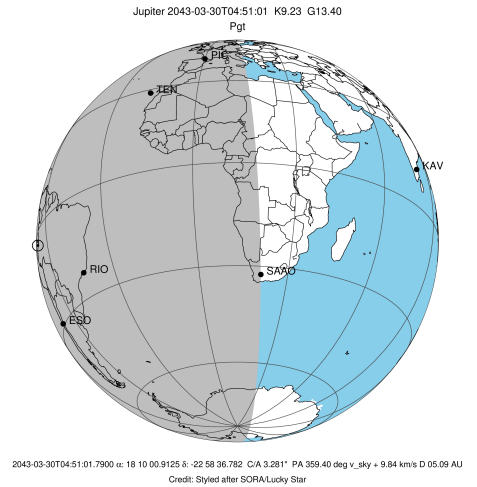
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAR 30 02:45 - MAR 30 02:45	Pin
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 30 02:42 - MAR 30 02:42	Pin
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 30 02:42 - MAR 30 06:46	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 30 06:42 - MAR 30 06:42	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAR 30 02:48 - MAR 30 02:48	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-30T04:49:23.940
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        : 4066633228088837248
2Mass ID (if available) : 18100090-2258367
ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.233
G magnitude           : 13.404
RP magnitude          : 12.297
BP magnitude          : 14.643
DUPflag              : 0
Distance (au)         : 5.088
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.84
Sun-Target sep (deg)  : 96.48
Sun-Moon sep (deg)    : 33.78
B (ring opening deg) : -2.46
PA of pole (deg)      : -1.91
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 1.706
C/A sky separation (km) : 6294.7
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
    
```

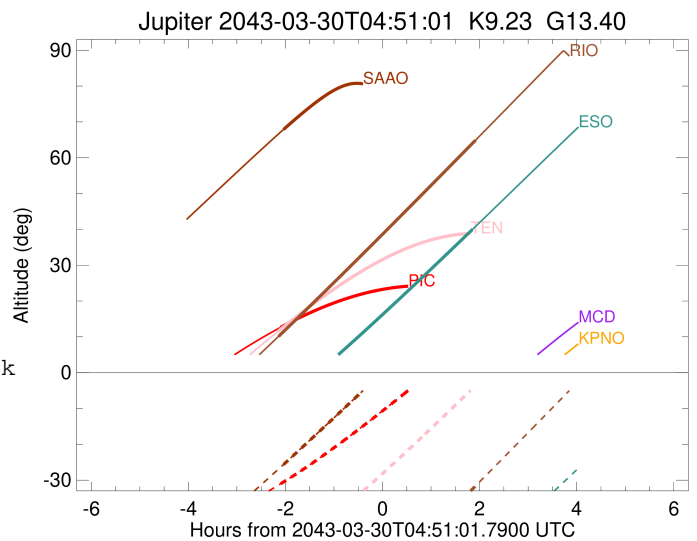
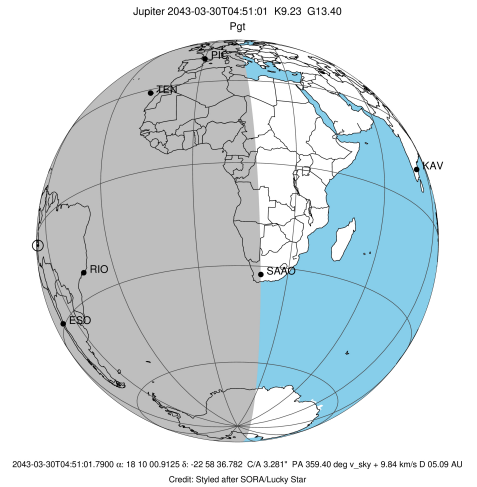


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-30T02:45:19.547	12.67	-31.00	71491.9	-6.72	-7.67
Jupiter	E	2043-03-30T06:54:34.130	22.18	11.83x	71492.0	-3.79	-4.34

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-30T04:46:24.370
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        : 4066633228088837248
2Mass ID (if available) : 18100090-2258367
ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.233
G magnitude           : 13.404
RP magnitude          : 12.297
BP magnitude          : 14.643
DUPflag              : 0
Distance (au)         : 5.088
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.84
Sun-Target sep (deg)  : 96.48
Sun-Moon sep (deg)   : 33.62
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 1.997
C/A sky separation (km) : 7370.1
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
    
```

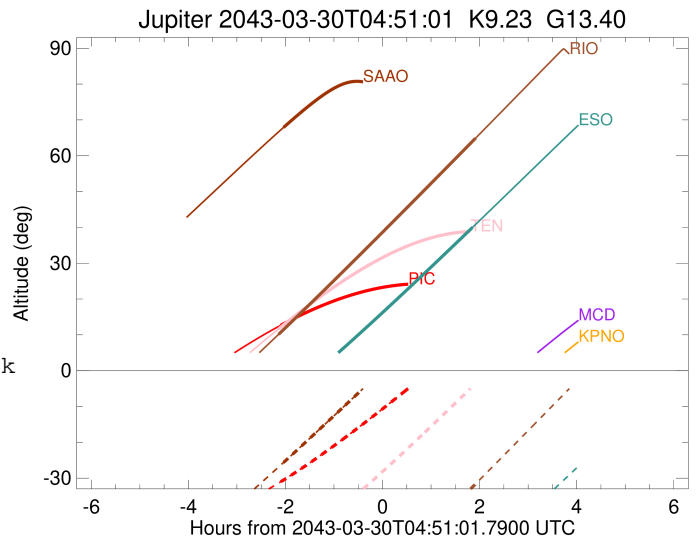
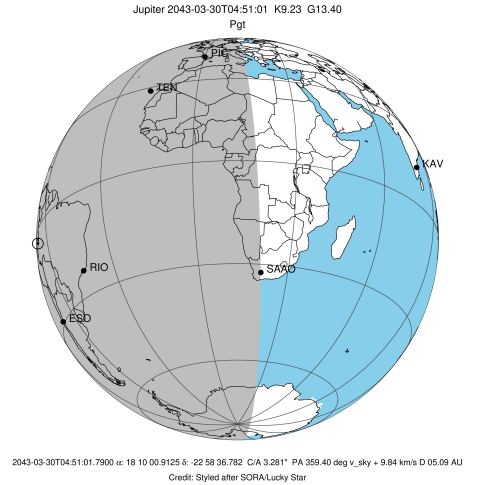


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-30T02:42:42.910	11.70	-51.21	71491.8	-7.88	-9.00
Jupiter	E	2043-03-30T06:52:06.152	38.89	-2.27x	71492.0	-4.38	-5.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-30T04:42:51.720
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      : 4066633228088837248
2Mass ID (if available) : 18100090-2258367
ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.233
G magnitude          : 13.404
RP magnitude         : 12.297
BP magnitude         : 14.643
DUPflag             : 0
Distance (au)        : 5.088
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 9.84
Sun-Target sep (deg) : 96.48
Sun-Moon sep (deg)  : 33.31
B (ring opening deg) : -2.46
PA of pole (deg)    : -1.91
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 3.538
C/A sky separation (km): 13056.5
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
    
```

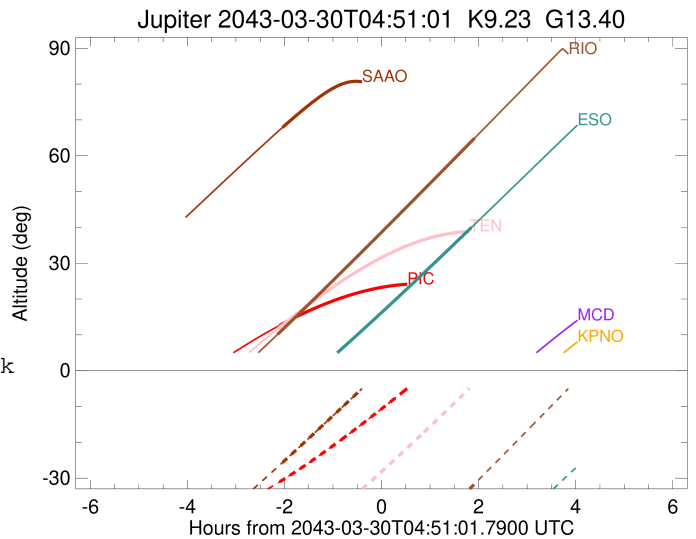
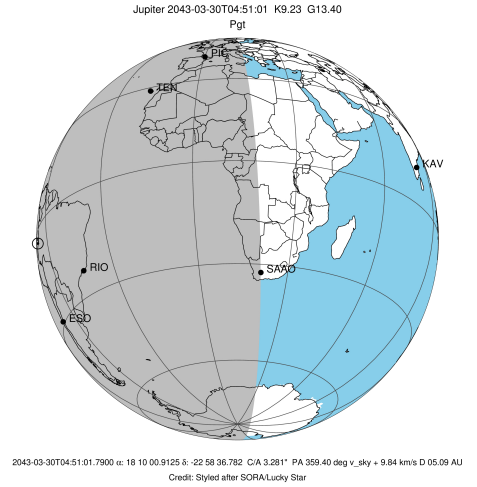


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-30T02:42:35.791	10.13	-70.60	71491.6	-12.75	-14.50
Jupiter	E	2043-03-30T06:46:01.500	64.88	-31.62	71491.8	-8.55	-9.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-30T04:41:56.960
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       : 4066633228088837248
2Mass ID (if available) : 18100090-2258367
ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.233
G magnitude           : 13.404
RP magnitude         : 12.297
BP magnitude         : 14.643
DUPflag              : 0
Distance (au)        : 5.088
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 9.84
Sun-Target sep (deg) : 96.48
Sun-Moon sep (deg)   : 33.03
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 3.980
C/A sky separation (km) : 14687.1
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
    
```

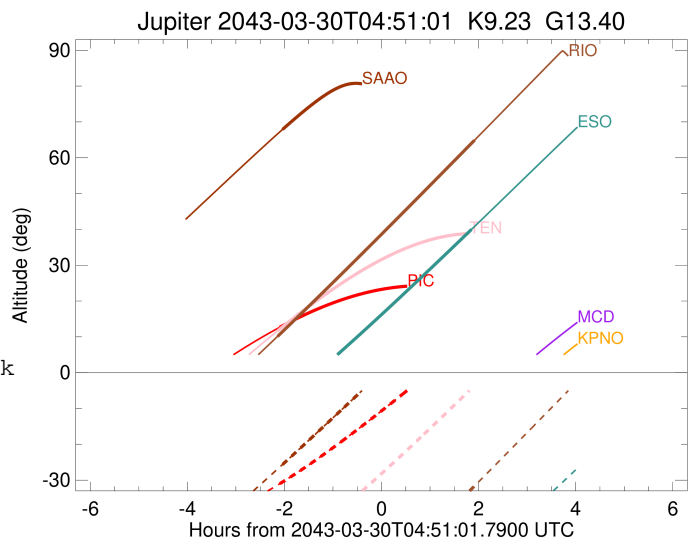
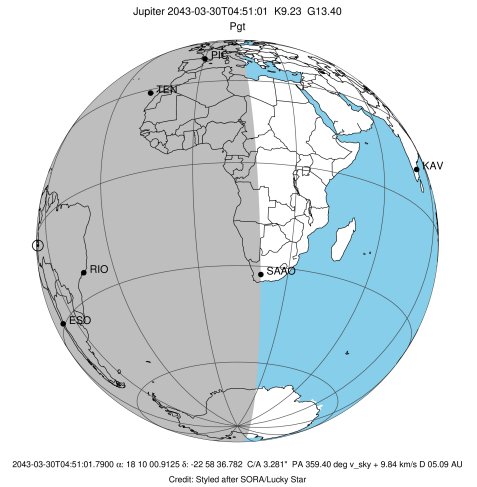


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-30T02:44:33.092	-8.88x	-51.34	71491.5	-14.06	-15.97
Jupiter	E	2043-03-30T06:42:18.870	39.99	-52.79	71491.8	-9.66	-11.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-30T04:52:14.610
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      : 4066633228088837248
2Mass ID (if available) : 18100090-2258367
ICRS Star Coord at Epoch: 18h 10m 00.91247s -22:58:36.78185s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.233
G magnitude          : 13.404
RP magnitude         : 12.297
BP magnitude         : 14.643
DUPflag             : 0
Distance (au)       : 5.088
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 9.84
Sun-Target sep (deg) : 96.48
Sun-Moon sep (deg)  : 34.15
B (ring opening deg) : -2.46
PA of pole (deg)    : -1.91
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 3.557
C/A sky separation (km) : 13125.6
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	2043-03-30T02:48:41.884	67.88	-25.64	71491.6	-11.97	-13.62
Jupiter	E	2043-03-30T06:55:57.437	54.24	25.68x	71491.8	-9.65	-11.00