

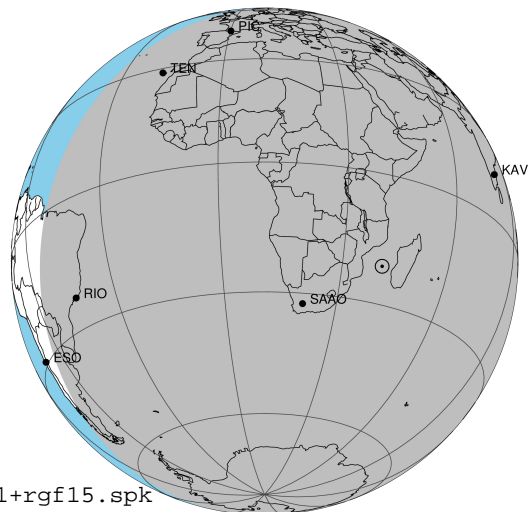
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-15T21:24:05.610
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116721858249318528
 2Mass ID (if available) : 17382753-2304036

Jupiter 2043-07-15T21:24:05 K8.81 G14.53 Pgt

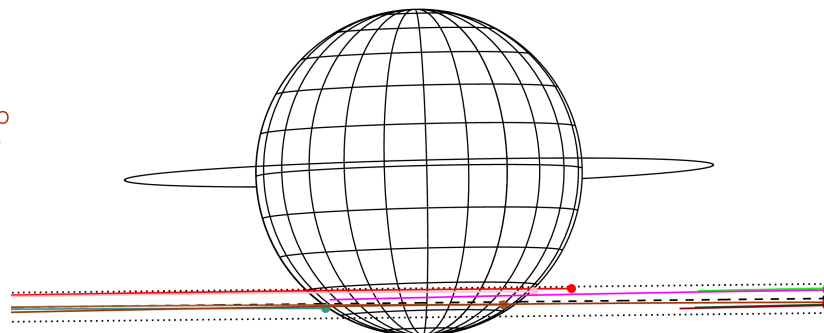
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.812
 G magnitude : 14.534
 RP magnitude : 13.077
 BP magnitude : 17.272
 DUPflag : 0
 Distance (au) : 4.336
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.10
 Sun-Target sep (deg) : 152.34
 Sun-Moon sep (deg) : 42.60
 B (ring opening deg) : -2.39
 PA of pole (deg) : 1.48
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 18.155
 C/A sky separation (km) : 57095.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-07-15T21:24:05 K8.81 G14.53
 Pgt



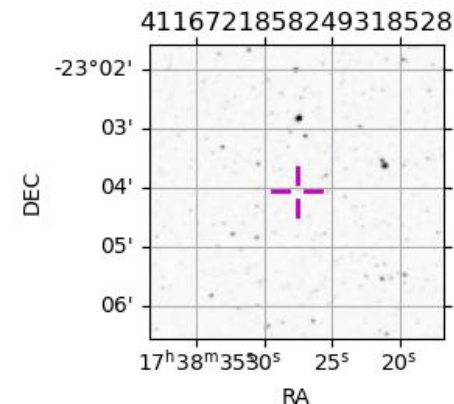
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-07-15T21:24:05.6100 α: 17 38 27.5192 δ: -23 04 03.932 C/A ***** PA 0.61 deg v_sky -13.10 km/s D 04.34 AU
 Credit: Styled after SORA/Lucky Star

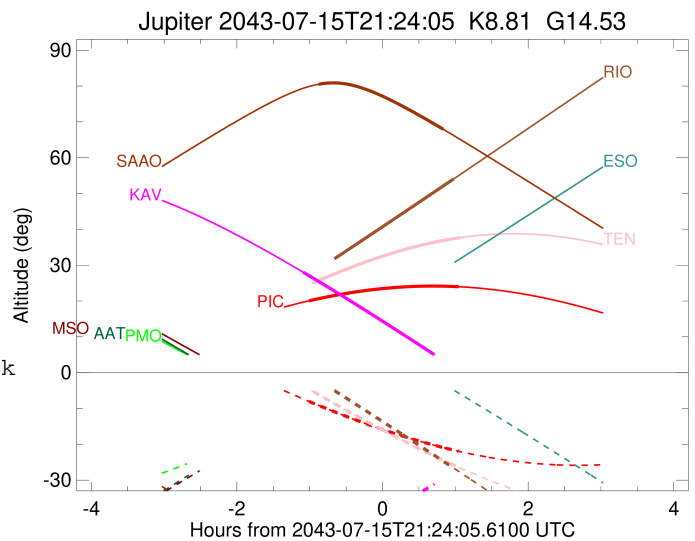
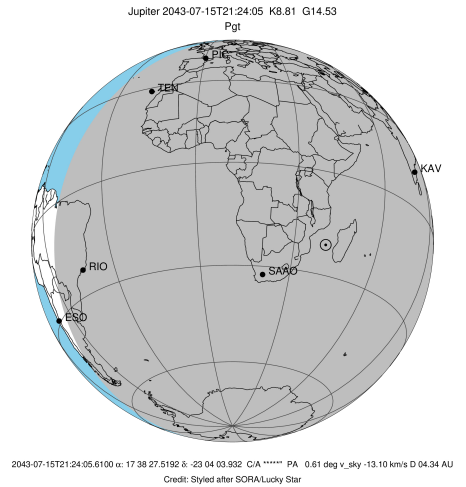
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUL 15 20:23 - JUL 15 22:26	Pie
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	+ +	JUL 15 20:27 - JUL 15 22:27	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	JUL 15 20:18 - JUL 15 20:18	Pin
RIO	Rio de Janeiro	-22.9	316.8	+	JUL 15 22:22 - JUL 15 22:22	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 15 20:31 - JUL 15 22:14	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-15T21:25:18.750
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        : 4116721858249318528
2Mass ID (if available) : 17382753-2304036
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 8.812
G magnitude           : 14.534
RP magnitude          : 13.077
BP magnitude          : 17.272
DUPflag              : 0
Distance (au)         : 4.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.10
Sun-Target sep (deg)  : 152.34
Sun-Moon sep (deg)    : 42.80
B (ring opening deg)  : -2.39
PA of pole (deg)      : 1.48
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 16.318
C/A sky separation (km) : 51316.7
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
    
```

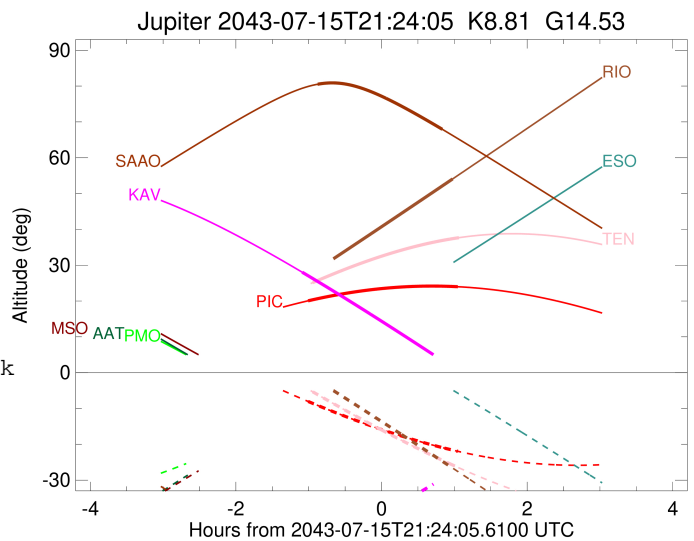
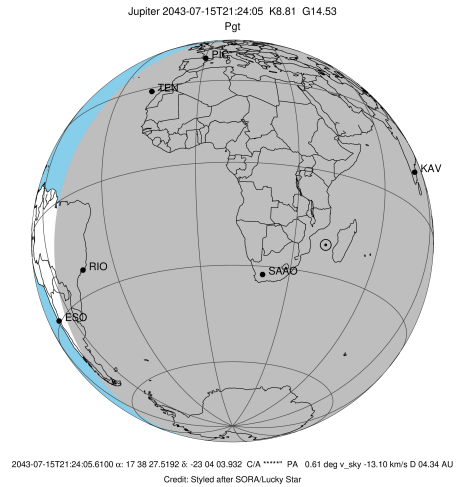


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-15T20:23:38.330	20.06	-8.03	71487.8	-46.87	-50.55
Jupiter	E	2043-07-15T22:26:57.269	23.99	-21.94	71488.1	-44.92	-48.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-15T21:27:39.080
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        : 4116721858249318528
2Mass ID (if available) : 17382753-2304036
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.812
G magnitude           : 14.534
RP magnitude          : 13.077
BP magnitude          : 17.272
DUPflag              : 0
Distance (au)         : 4.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.10
Sun-Target sep (deg)  : 152.34
Sun-Moon sep (deg)   : 42.70
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.48
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 16.652
C/A sky separation (km) : 52367.9
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
    
```

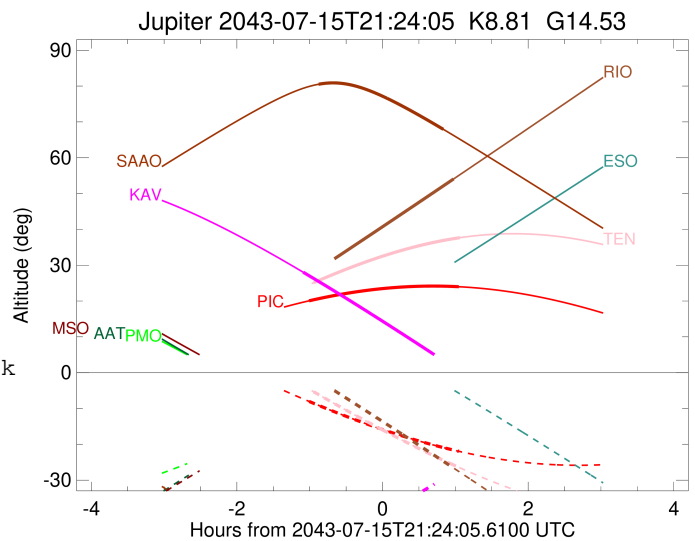
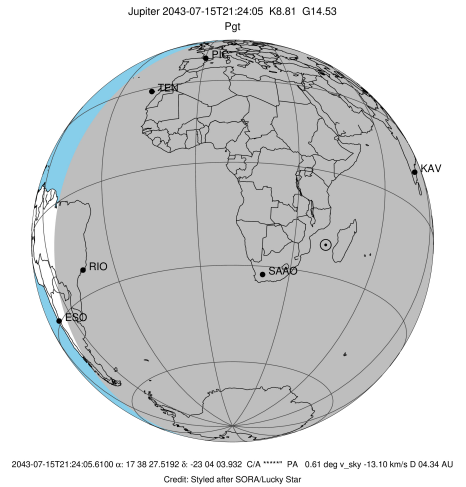


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-15T20:27:25.617	25.12	-5.34	71487.6	-48.30	-51.94
Jupiter	E	2043-07-15T22:27:41.997	37.66	-26.53	71487.9	-45.95	-49.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-15T21:16:00.970
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 4116721858249318528
2Mass ID (if available) : 17382753-2304036
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.812
G magnitude          : 14.534
RP magnitude         : 13.077
BP magnitude         : 17.272
DUPflag             : 0
Distance (au)       : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.10
Sun-Target sep (deg) : 152.34
Sun-Moon sep (deg)  : 43.36
B (ring opening deg) : -2.39
PA of pole (deg)    : 1.48
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 17.429
C/A sky separation (km) : 54810.1
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
    
```

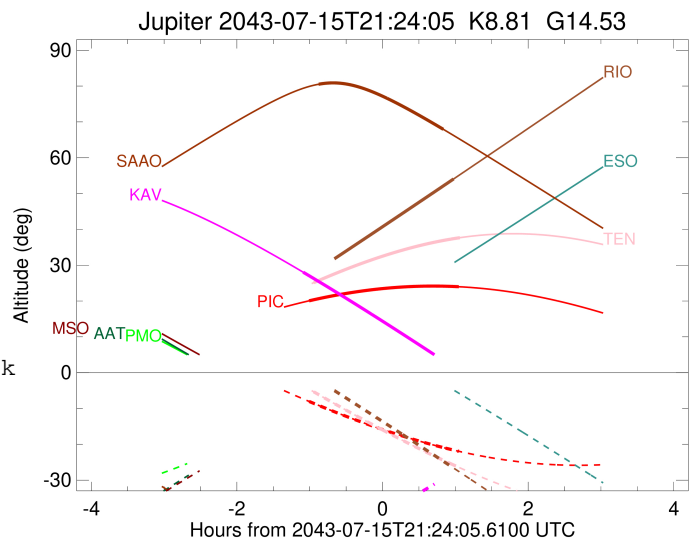
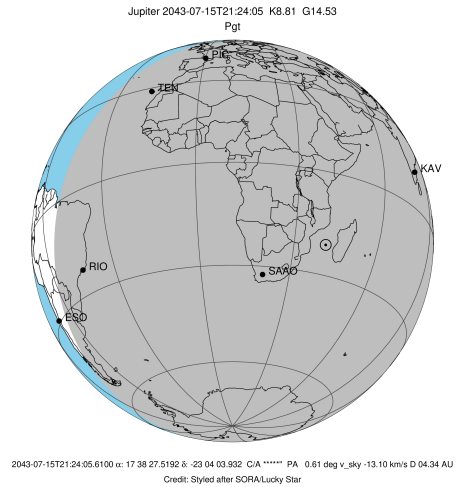


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-15T20:18:45.356	28.04	-49.77	71487.4	-50.22	-53.80
Jupiter	E	2043-07-15T22:13:46.879	3.47x	-29.72	71487.4	-49.87	-53.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-15T21:30:44.020
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       : 4116721858249318528
2Mass ID (if available) : 17382753-2304036
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.812
G magnitude           : 14.534
RP magnitude          : 13.077
BP magnitude          : 17.272
DUPflag              : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.10
Sun-Target sep (deg) : 152.34
Sun-Moon sep (deg)   : 42.50
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.48
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 18.437
C/A sky separation (km): 57981.1
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
    
```

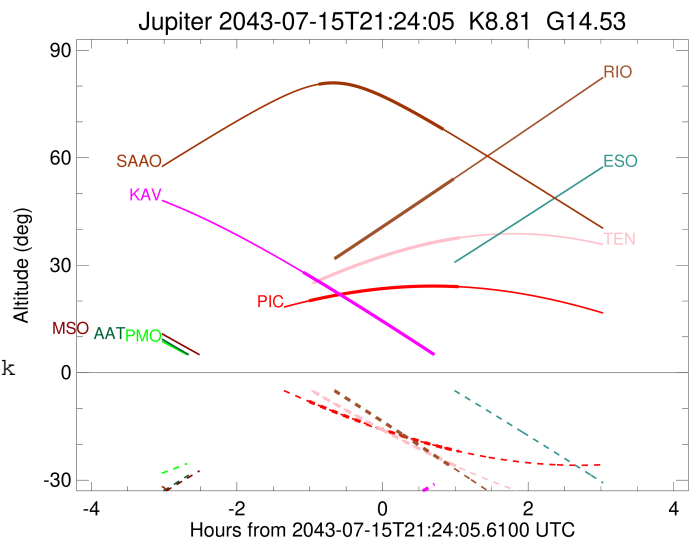
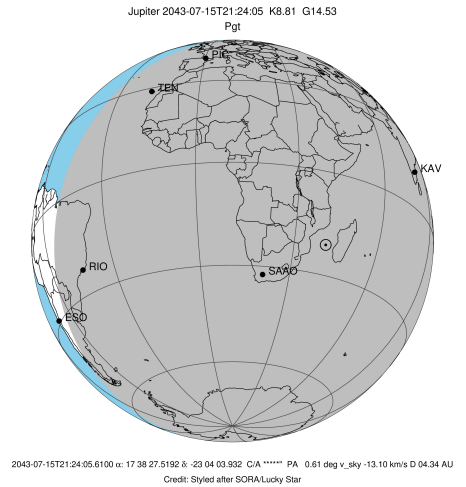


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-15T20:38:30.336	30.45	-3.73x	71486.6	-55.62	-58.95
Jupiter	E	2043-07-15T22:22:41.063	54.07	-26.62	71487.0	-52.75	-56.22

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-15T21:22:46.620
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        : 4116721858249318528
2Mass ID (if available) : 17382753-2304036
ICRS Star Coord at Epoch: 17h 38m 27.51917s -23:04:03.93190s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.812
G magnitude           : 14.534
RP magnitude          : 13.077
BP magnitude          : 17.272
DUPflag              : 0
Distance (au)         : 4.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.10
Sun-Target sep (deg) : 152.34
Sun-Moon sep (deg)   : 43.30
B (ring opening deg) : -2.39
PA of pole (deg)     : 1.48
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 18.485
C/A sky separation (km): 58131.0
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	2043-07-15T20:31:30.096	80.51	-58.94	71486.7	-55.17	-58.53
Jupiter	E	2043-07-15T22:14:08.525	67.94	-77.47	71486.9	-53.64	-57.08