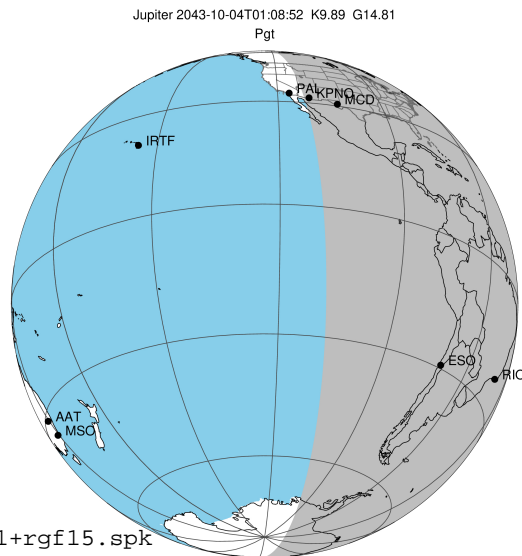


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-10-04T01:08:52.580
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116478733180318080
 2Mass ID (if available) : 17424646-2317369

Jupiter 2043-10-04T01:08:52 K9.89 G14.81 Pgt

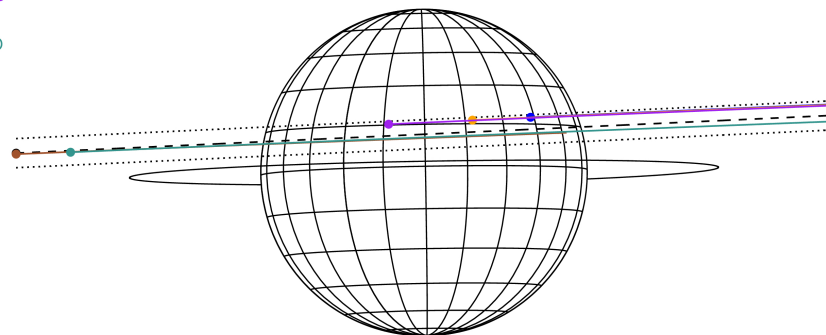
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 9.895
 G magnitude : 14.809
 RP magnitude : 13.558
 BP magnitude : 16.533
 DUPflag : 0
 Distance (au) : 5.382
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 20.36
 Sun-Target sep (deg) : 75.94
 Sun-Moon sep (deg) : 65.58
 B (ring opening deg) : -2.19
 PA of pole (deg) : 1.02
 Pole direction: RA (deg): 268.05674
 Dec (deg): 64.49731
 C/A sky separation (") : 4.286
 C/A sky separation (km) : 16728.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



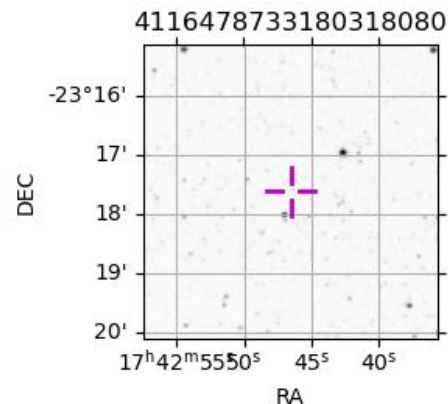
2043-10-04T01:08:52.5800 cc: 17 42 46.4599 s: -23 17 37.3699 C/A 4.2777 PA 182.65 deg v_sky +20.36 km/s D 05.38 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 RIO
 ESO



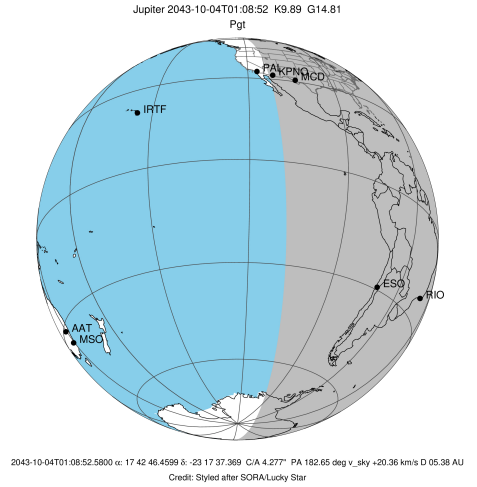
Observable events with sun below -5 deg and altitude above 5 deg

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	+	OCT 04 02:05 - OCT 04 02:05	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 04 02:06 - OCT 04 02:06	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 04 02:06 - OCT 04 02:06	Pne
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
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	+	OCT 04 00:16 - OCT 04 00:16	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	OCT 04 00:14 - OCT 04 02:10	Pie
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

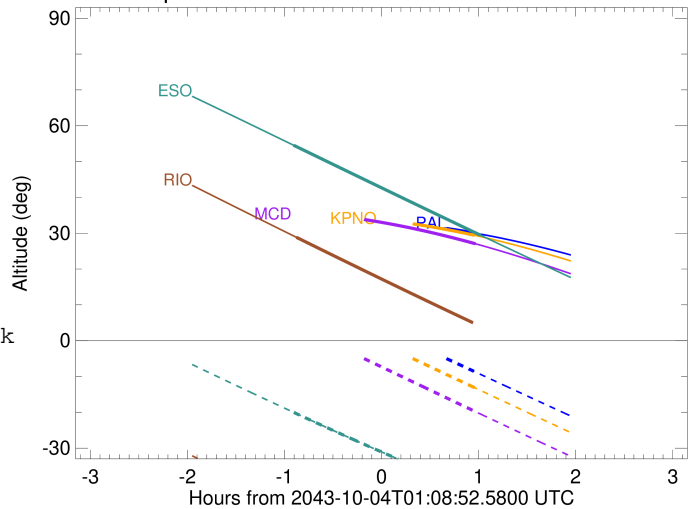


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-10-04T01:09:12.560
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       : 4116478733180318080
2Mass ID (if available) : 17424646-2317369
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.895
G magnitude          : 14.809
RP magnitude         : 13.558
BP magnitude         : 16.533
DUPflag             : 0
Distance (au)        : 5.382
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.36
Sun-Target sep (deg) : 75.94
Sun-Moon sep (deg)   : 66.08
B (ring opening deg) : -2.19
PA of pole (deg)     : 1.02
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 5.649
C/A sky separation (km): 22049.1
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
    
```



Jupiter 2043-10-04T01:08:52 K9.89 G14.81

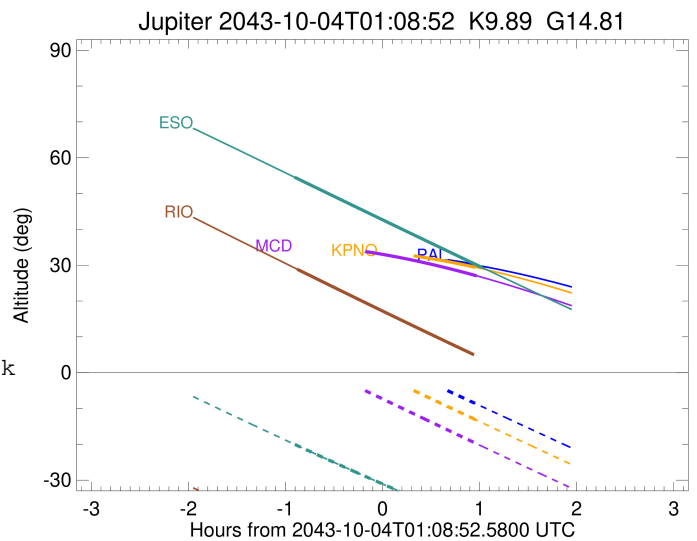
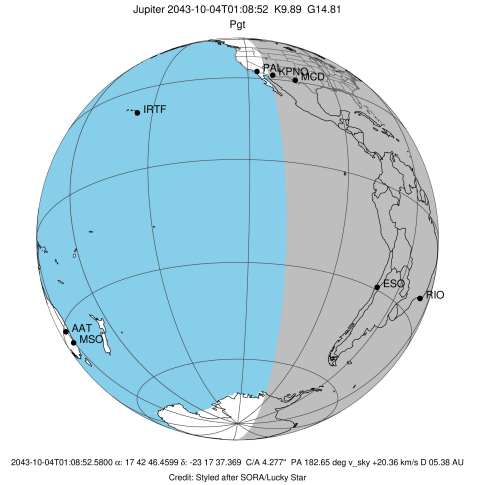


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-10-04T00:12:24.950	33.06	14.96x	71491.5	16.27	18.44
Jupiter	E	2043-10-04T02:05:55.199	30.08	-8.54	71491.3	19.52	22.04

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-10-04T01:09:38.670
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        : 4116478733180318080
2Mass ID (if available) : 17424646-2317369
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s
RUWE (>1.4 is poor)  : 0.91
K magnitude           : 9.895
G magnitude           : 14.809
RP magnitude          : 13.558
BP magnitude          : 16.533
DUPflag              : 0
Distance (au)         : 5.382
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 20.36
Sun-Target sep (deg)  : 75.94
Sun-Moon sep (deg)    : 66.12
B (ring opening deg)  : -2.19
PA of pole (deg)      : 1.02
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 5.624
C/A sky separation (km) : 21951.2
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
    
```

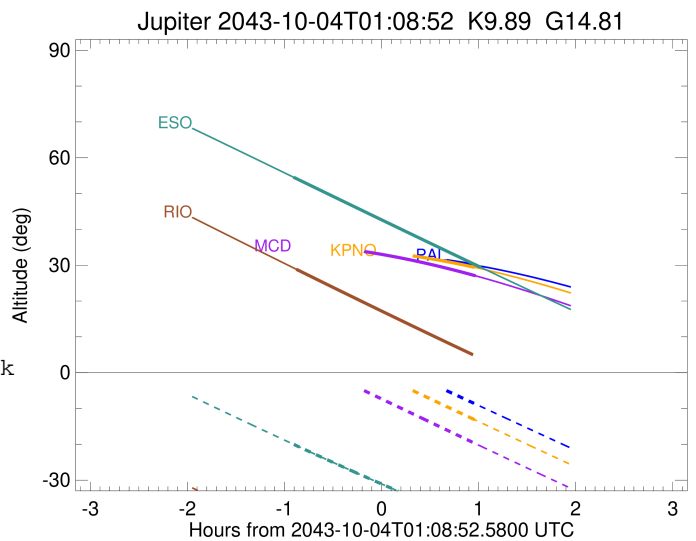
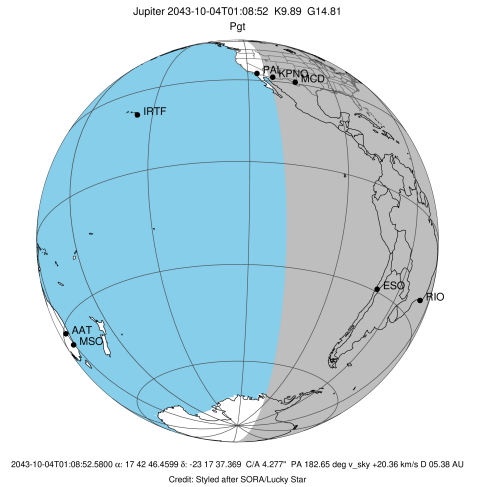


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-10-04T00:12:48.589	34.86	10.90x	71491.5	16.23	18.40
Jupiter	E	2043-10-04T02:06:22.178	29.41	-13.11	71491.3	19.39	21.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-10-04T01:10:15.860
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        : 4116478733180318080
2Mass ID (if available) : 17424646-2317369
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.895
G magnitude           : 14.809
RP magnitude          : 13.558
BP magnitude          : 16.533
DUPflag               : 0
Distance (au)         : 5.382
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 20.36
Sun-Target sep (deg)  : 75.94
Sun-Moon sep (deg)    : 66.15
B (ring opening deg) : -2.19
PA of pole (deg)      : 1.02
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 5.590
C/A sky separation (km) : 21817.4
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
    
```

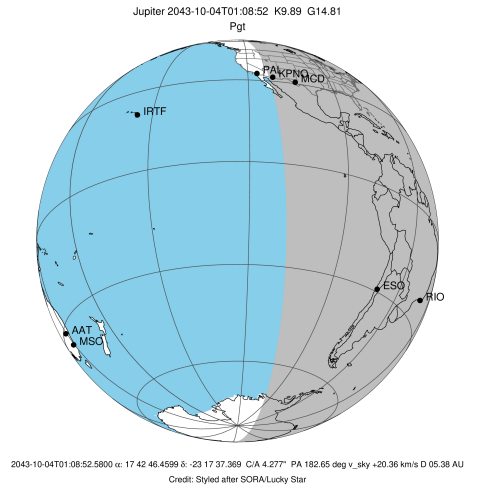


x: target alt < 5.0 deg or sun > -5.0 deg

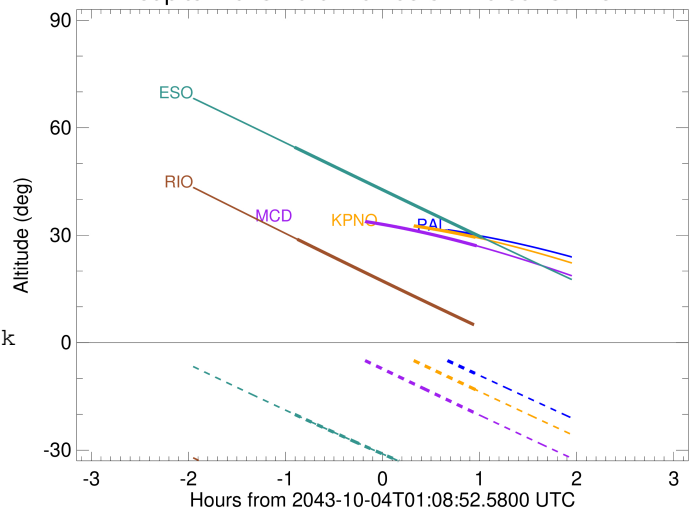
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-10-04T00:13:24.009	35.92	4.60x	71491.5	16.18	18.34
Jupiter	E	2043-10-04T02:06:58.868	27.04	-19.82	71491.3	19.22	21.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-10-04T01:13:47.830
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        : 4116478733180318080
2Mass ID (if available) : 17424646-2317369
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.895
G magnitude           : 14.809
RP magnitude          : 13.558
BP magnitude          : 16.533
DUPflag              : 0
Distance (au)         : 5.382
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 20.36
Sun-Target sep (deg) : 75.94
Sun-Moon sep (deg)   : 66.17
B (ring opening deg) : -2.19
PA of pole (deg)     : 1.02
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 3.856
C/A sky separation (km) : 15050.1
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
    
```



Jupiter 2043-10-04T01:08:52 K9.89 G14.81

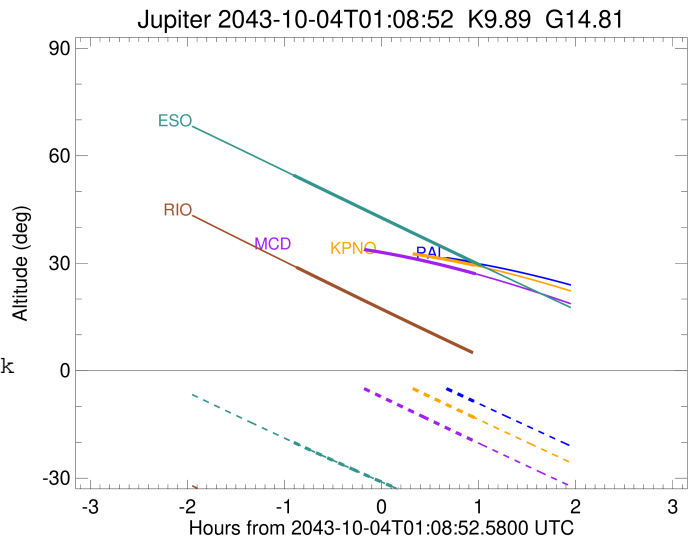
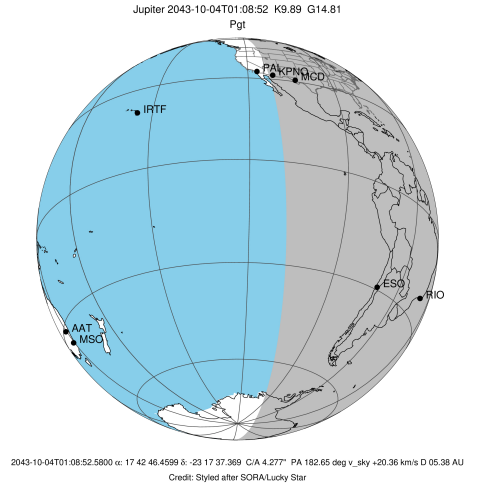


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-10-04T00:16:12.970	28.86	-45.40	71491.8	10.96	12.48
Jupiter	E	2043-10-04T02:11:01.300	3.82x	-61.97	71491.7	13.30	15.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-10-04T01:12:40.630
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       : 4116478733180318080
2Mass ID (if available) : 17424646-2317369
ICRS Star Coord at Epoch: 17h 42m 46.45992s -23:17:37.36928s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.895
G magnitude          : 14.809
RP magnitude         : 13.558
BP magnitude         : 16.533
DUPflag             : 0
Distance (au)        : 5.382
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.36
Sun-Target sep (deg) : 75.94
Sun-Moon sep (deg)   : 66.41
B (ring opening deg) : -2.19
PA of pole (deg)     : 1.02
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 3.939
C/A sky separation (km): 15373.3
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	2043-10-04T00:14:41.043	54.52	-20.03	71491.8	11.08	12.61
Jupiter	E	2043-10-04T02:10:22.630	29.37	-42.44	71491.6	13.66	15.52