

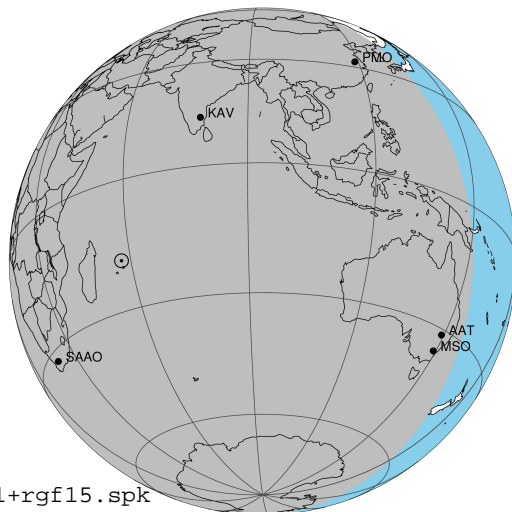
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-05-14T20:06:42.310  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068887437440022272  
 2Mass ID (if available) : 17475911-2253512

Jupiter 2031-05-14T20:06:42 K8.41 G13.92 Pgt

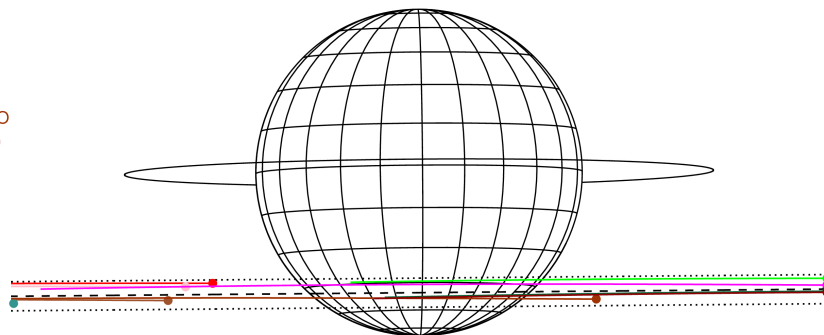
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s

RUWE (>1.4 is poor) : 0.86  
 K magnitude : 8.406  
 G magnitude : 13.921  
 RP magnitude : 12.528  
 BP magnitude : 16.290  
 DUPflag : 0  
 Distance (au) : 4.422  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -11.45  
 Sun-Target sep (deg) : 146.17  
 Sun-Moon sep (deg) : 69.56  
 B (ring opening deg) : -2.60  
 PA of pole (deg) : 0.46  
 Pole direction: RA (deg): 268.05695  
 Dec (deg): 64.49651  
 C/A sky separation (") : 16.417  
 C/A sky separation (km) : 52647.4  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-05-14T20:06:42 K8.41 G13.92  
 Pgt



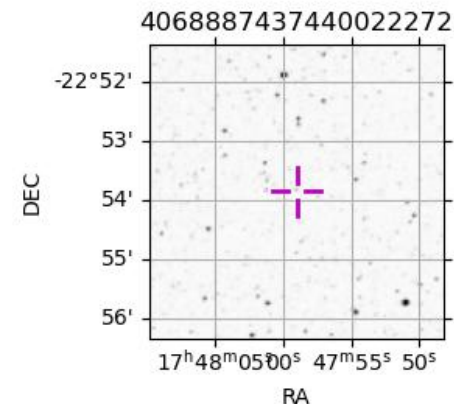
Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



2031-05-14T20:06:42.3100 α: 17 47 59.1048 δ: -22 53 51.350 C/A \*\*\*\*\* PA 0.50 deg v\_sky -11.45 km/s D 04.42 AU  
 Credit: Styled after SORA/Lucky Star

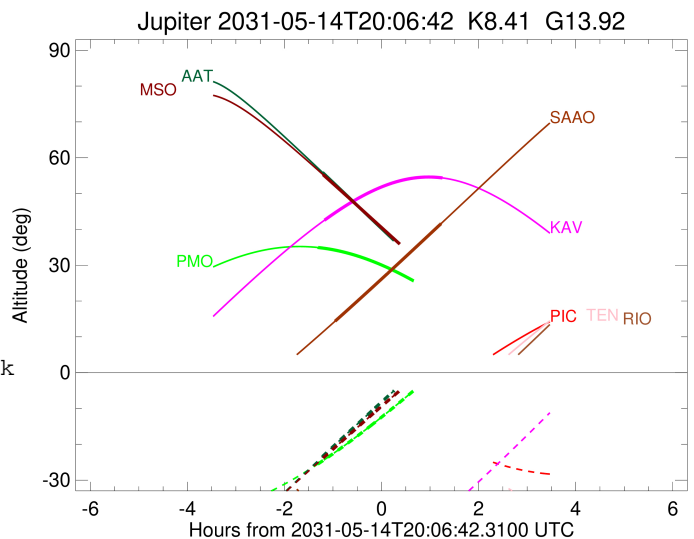
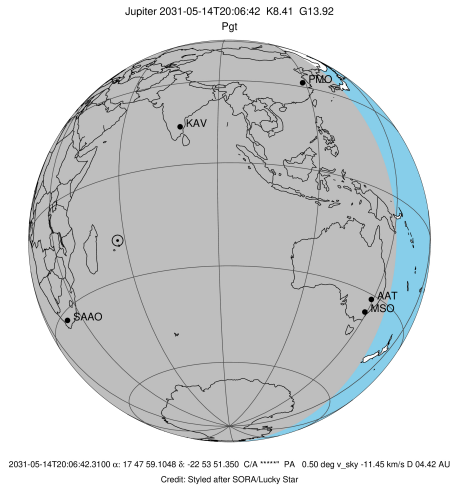
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	MAY 14 18:48 - MAY 14 18:48	Pin
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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	MAY 14 18:56 - MAY 14 21:21	Pie
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	MAY 14 18:53 - MAY 14 18:53	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	MAY 14 19:09 - MAY 14 21:20	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAY 14 18:54 - MAY 14 18:54	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-14T20:03:06.950
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)        : 32.06667
E. Longitude (deg)    : 118.82089
Altitude (km)         : 0.364
Gaia source ID        : 4068887437440022272
2Mass ID (if available) : 17475911-2253512
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.406
G magnitude           : 13.921
RP magnitude          : 12.528
BP magnitude          : 16.290
DUPflag              : 0
Distance (au)         : 4.422
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.45
Sun-Target sep (deg)  : 146.17
Sun-Moon sep (deg)    : 69.87
B (ring opening deg) : -2.60
PA of pole (deg)      : 0.46
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation (" ) : 14.849
C/A sky separation (km) : 47618.4
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
    
```

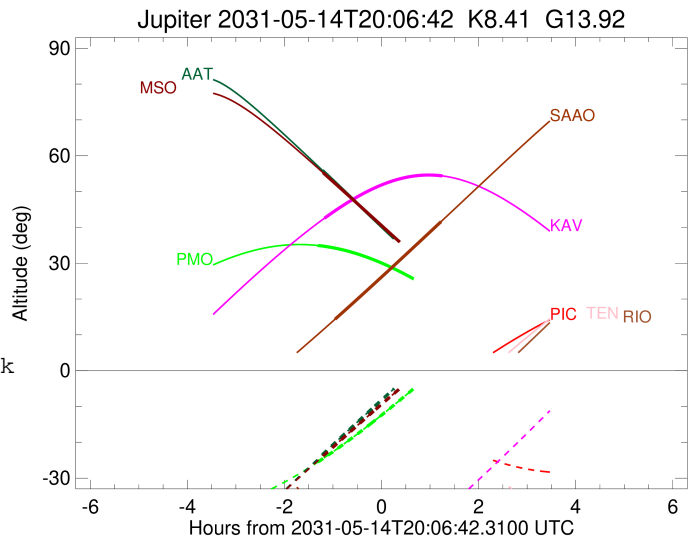
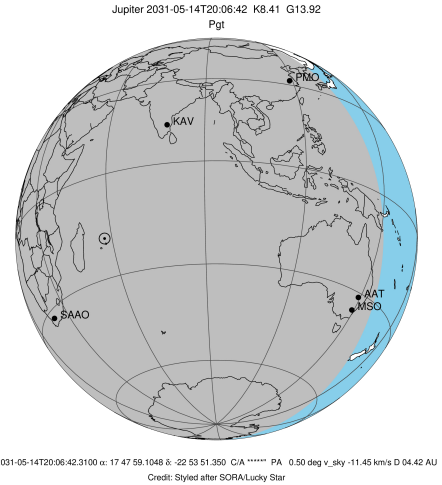


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-14T18:48:03.942	34.94	-25.50	71487.9	-41.49	-45.21
Jupiter	E	2031-05-14T21:18:25.239	21.27	1.20x	71487.8	-42.17	-45.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-14T20:09:11.530
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      : 4068887437440022272
2Mass ID (if available) : 17475911-2253512
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s
RUWE (>1.4 is poor) : 0.86
K magnitude          : 8.406
G magnitude          : 13.921
RP magnitude         : 12.528
BP magnitude         : 16.290
DUPflag             : 0
Distance (au)       : 4.422
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -11.45
Sun-Target sep (deg) : 146.17
Sun-Moon sep (deg)  : 70.34
B (ring opening deg) : -2.60
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation (") : 15.290
C/A sky separation (km) : 49033.2
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
    
```

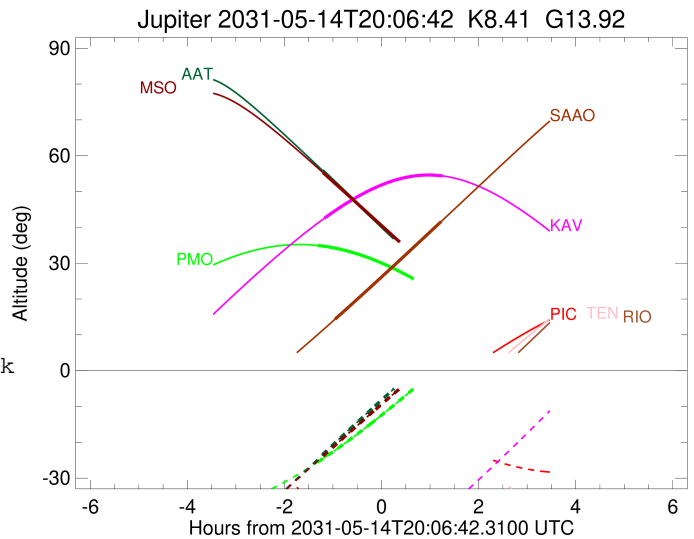
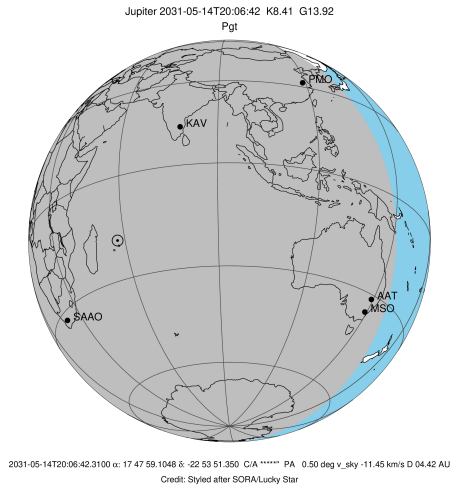


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-14T18:56:13.351	42.56	-58.56	71487.6	-43.55	-47.27
Jupiter	E	2031-05-14T21:21:51.289	54.36	-39.54	71487.6	-43.21	-46.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-14T19:59:26.330
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 4068887437440022272
2Mass ID (if available) : 17475911-2253512
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.406
G magnitude           : 13.921
RP magnitude         : 12.528
BP magnitude         : 16.290
DUPflag              : 0
Distance (au)        : 4.422
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.45
Sun-Target sep (deg) : 146.17
Sun-Moon sep (deg)   : 69.92
B (ring opening deg) : -2.60
PA of pole (deg)     : 0.46
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation ("): 16.965
C/A sky separation (km): 54406.1
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
    
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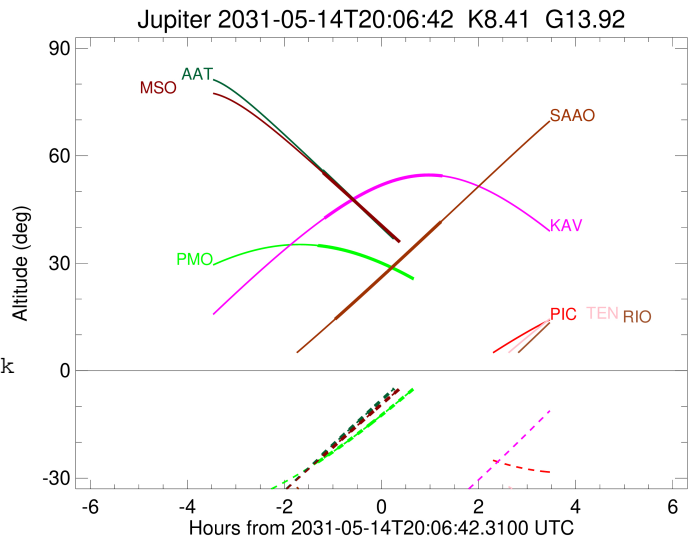
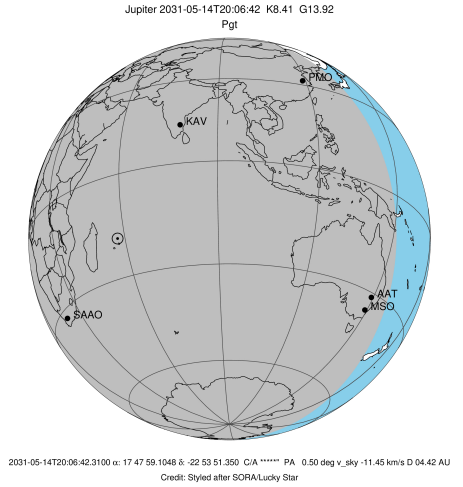


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-14T18:53:35.423	55.93	-23.44	71486.7	-48.91	-52.53
Jupiter	E	2031-05-14T21:05:45.275	27.71	3.62x	71486.5	-50.20	-53.78

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-14T20:15:05.500
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       : 4068887437440022272
2Mass ID (if available) : 17475911-2253512
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.406
G magnitude           : 13.921
RP magnitude          : 12.528
BP magnitude          : 16.290
DUPflag              : 0
Distance (au)        : 4.422
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.45
Sun-Target sep (deg) : 146.17
Sun-Moon sep (deg)   : 70.23
B (ring opening deg) : -2.60
PA of pole (deg)     : 0.46
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation ("): 17.185
C/A sky separation (km): 55108.1
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
    
```

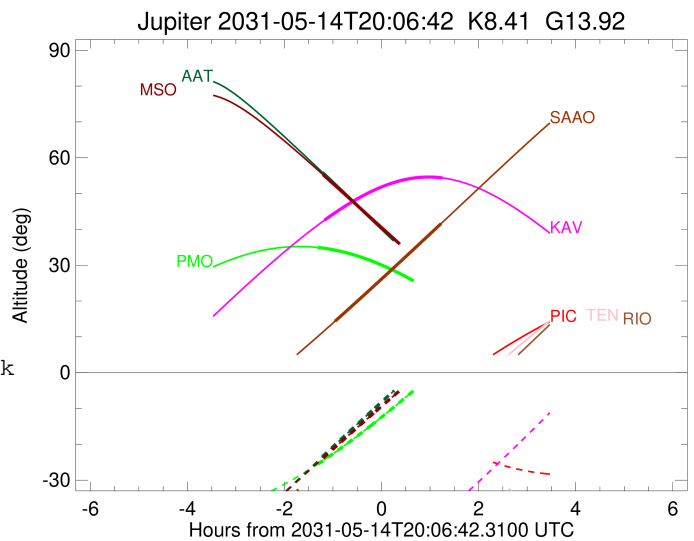
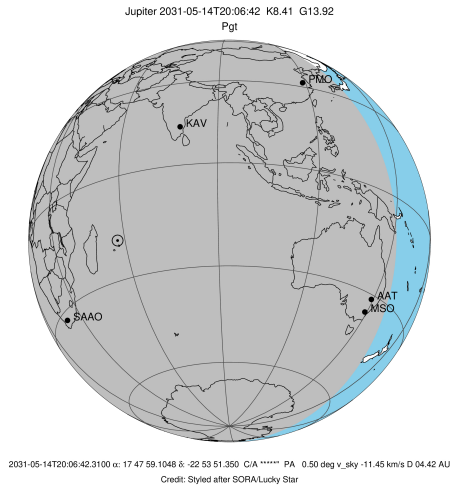


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-14T19:09:15.162	14.36	-42.51	71486.4	-51.06	-54.61
Jupiter	E	2031-05-14T21:20:14.216	41.58	-68.80	71486.6	-49.74	-53.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-14T19:59:45.280
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)   : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 4068887437440022272
2Mass ID (if available) : 17475911-2253512
ICRS Star Coord at Epoch: 17h 47m 59.10476s -22:53:51.35013s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.406
G magnitude           : 13.921
RP magnitude          : 12.528
BP magnitude          : 16.290
DUPflag              : 0
Distance (au)        : 4.422
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.45
Sun-Target sep (deg) : 146.17
Sun-Moon sep (deg)  : 69.93
B (ring opening deg) : -2.60
PA of pole (deg)    : 0.46
Pole direction: RA (deg): 268.05695
Dec (deg): 64.49651
C/A sky separation (") : 17.091
C/A sky separation (km) : 54809.1
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	2031-05-14T18:54:30.487	55.26	-23.84	71486.6	-49.44	-53.04
Jupiter	E	2031-05-14T21:05:26.208	28.54	1.84x	71486.4	-50.67	-54.23