

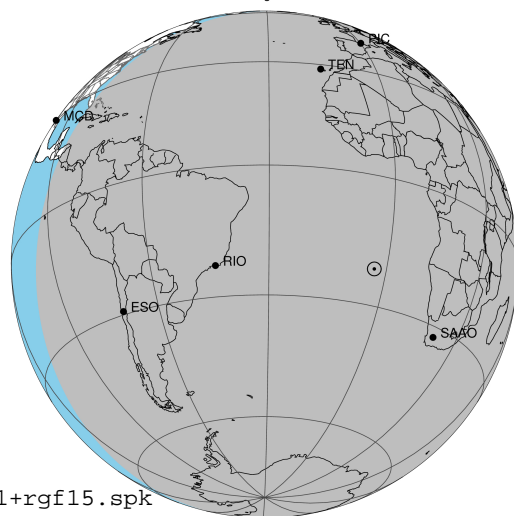
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-14T00:19:00.180
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116558344703175808
 2Mass ID (if available) : 17391745-2303463

Jupiter 2043-07-14T00:19:00 K9.62 G14.12 Pgt

ICRS Star Coord at Epoch: 17h 39m 17.48074s -23°03'46.54196s

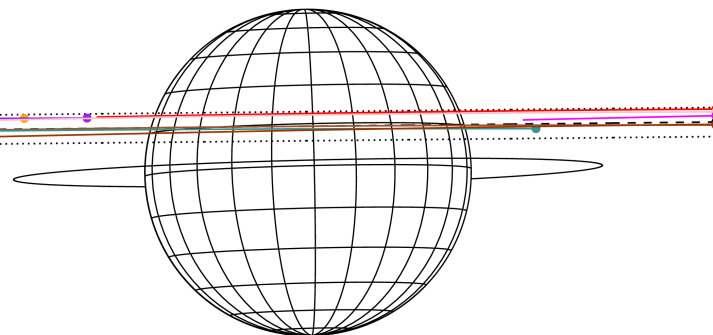
RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.621
 G magnitude : 14.119
 RP magnitude : 12.898
 BP magnitude : 15.630
 DUPflag : 0
 Distance (au) : 4.324
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.56
 Sun-Target sep (deg) : 154.33
 Sun-Moon sep (deg) : 65.03
 B (ring opening deg) : -2.40
 PA of pole (deg) : 1.39
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 6.467
 C/A sky separation (km) : 20278.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-07-14T00:19:00 K9.62 G14.12
 Pgt



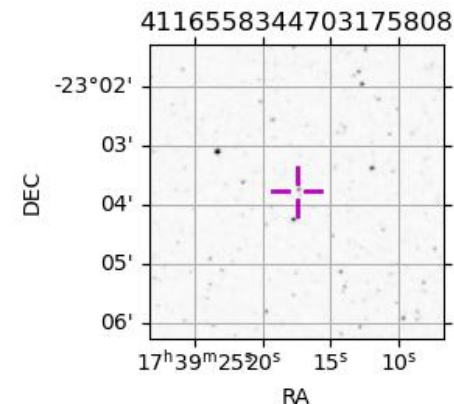
2043-07-14T00:19:00.1800 at: 17 39 17.4807 s: -23 03 46.542 C/A 6.466° PA 180.59 deg v_sky -13.56 km/s D 04.32 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



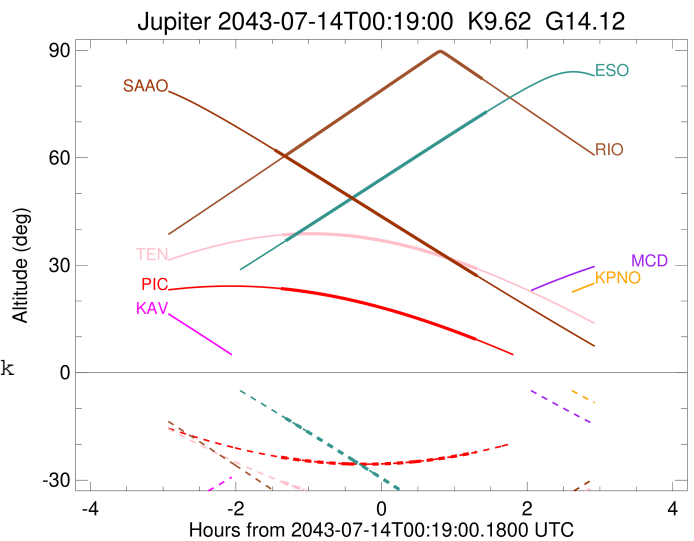
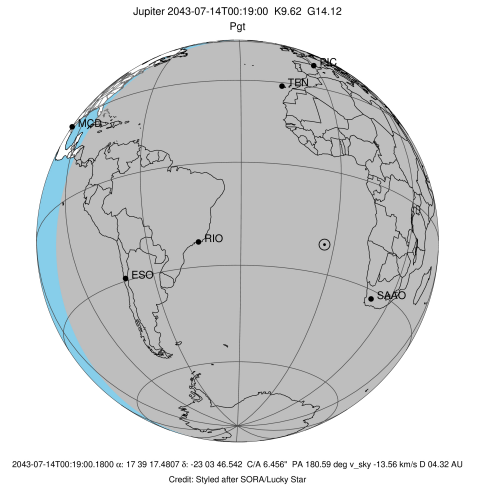
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	JUL 13 22:56 - JUL 14 01:36	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 13 22:57 - JUL 14 01:37	Pie
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	+ +	JUL 13 22:58 - JUL 14 01:42	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUL 13 23:00 - JUL 14 01:45	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 13 22:51 - JUL 14 01:37	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-14T00:16:16.440
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     : 4116558344703175808
2Mass ID (if available) : 17391745-2303463
ICRS Star Coord at Epoch: 17h 39m 17.48074s -23:03:46.54196s
RUWE (>1.4 is poor) : 0.93
K magnitude        : 9.621
G magnitude        : 14.119
RP magnitude       : 12.898
BP magnitude       : 15.630
DUPflag           : 0
Distance (au)     : 4.324
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : -13.56
Sun-Target sep (deg) : 154.33
Sun-Moon sep (deg) : 65.43
B (ring opening deg) : -2.40
PA of pole (deg)  : 1.39
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 8.244
C/A sky separation (km) : 25850.7
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
    
```

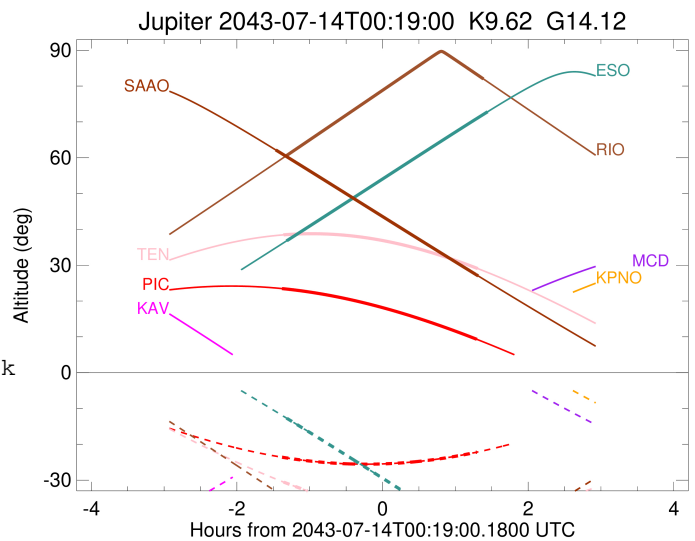
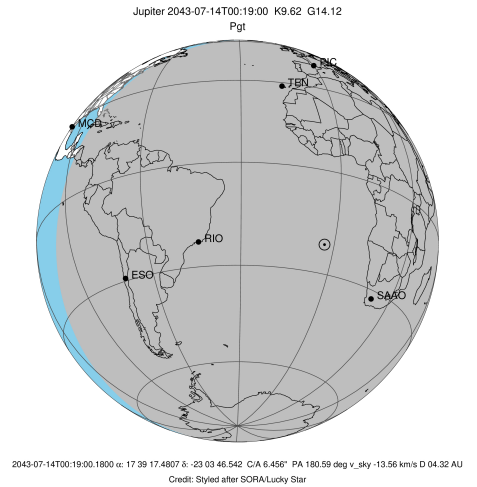


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-13T22:56:14.034	23.46	-23.60	71491.0	20.56	23.19
Jupiter	E	2043-07-14T01:36:43.525	9.31	-22.19	71490.9	21.63	24.36

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-14T00:17:25.690
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        : 4116558344703175808
2Mass ID (if available) : 17391745-2303463
ICRS Star Coord at Epoch: 17h 39m 17.48074s -23:03:46.54196s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.621
G magnitude           : 14.119
RP magnitude          : 12.898
BP magnitude          : 15.630
DUPflag              : 0
Distance (au)         : 4.324
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.56
Sun-Target sep (deg)  : 154.33
Sun-Moon sep (deg)   : 65.61
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 8.033
C/A sky separation (km) : 25189.3
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
    
```

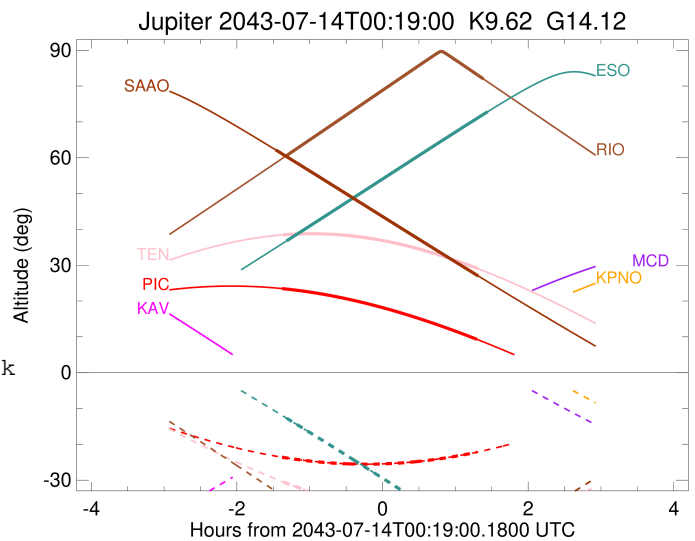
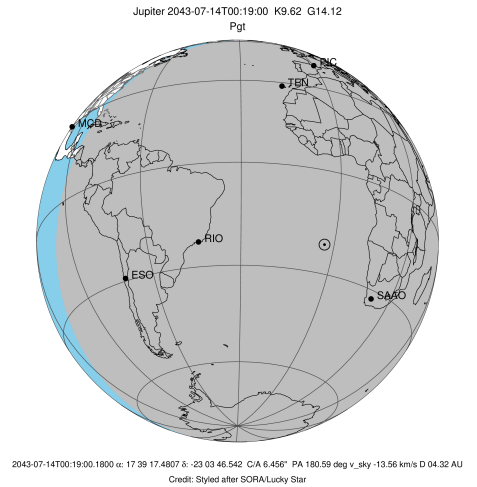


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-13T22:57:34.863	38.47	-30.55	71491.1	19.85	22.41
Jupiter	E	2043-07-14T01:37:32.309	29.05	-39.78	71491.0	21.15	23.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-14T00:20:24.930
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        : 4116558344703175808
2Mass ID (if available) : 17391745-2303463
ICRS Star Coord at Epoch: 17h 39m 17.48074s -23:03:46.54196s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.621
G magnitude           : 14.119
RP magnitude          : 12.898
BP magnitude          : 15.630
DUPflag              : 0
Distance (au)         : 4.324
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.56
Sun-Target sep (deg)  : 154.33
Sun-Moon sep (deg)   : 65.77
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 6.461
C/A sky separation (km) : 20259.5
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
    
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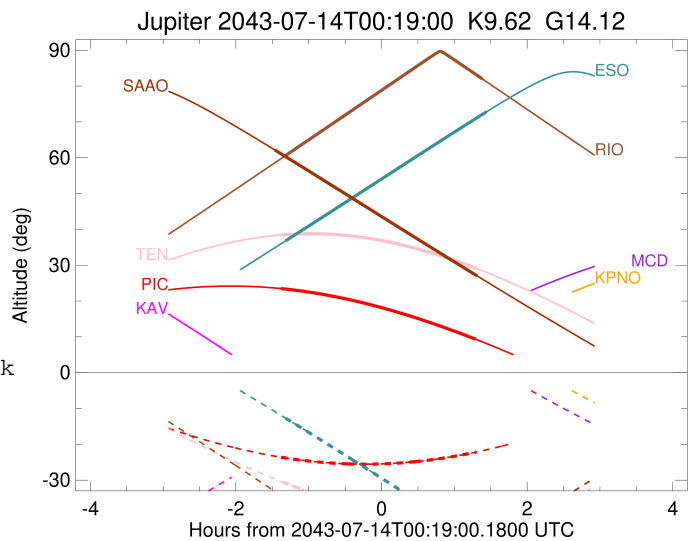
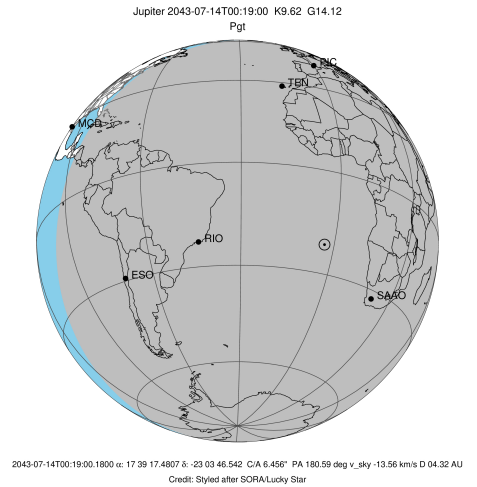


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-13T22:58:32.072	60.28	-34.82	71491.4	15.38	17.45
Jupiter	E	2043-07-14T01:42:11.271	81.98	-72.27	71491.3	17.28	19.56

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-14T00:23:05.910
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        : 4116558344703175808
2Mass ID (if available) : 17391745-2303463
ICRS Star Coord at Epoch: 17h 39m 17.48074s -23:03:46.54196s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.621
G magnitude           : 14.119
RP magnitude          : 12.898
BP magnitude          : 15.630
DUPflag              : 0
Distance (au)         : 4.324
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.56
Sun-Target sep (deg) : 154.33
Sun-Moon sep (deg)   : 65.49
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 6.095
C/A sky separation (km): 19113.3
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
    
```

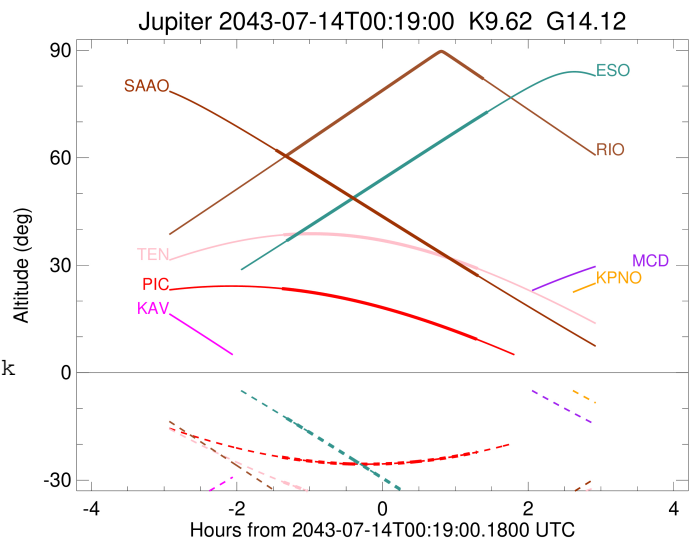
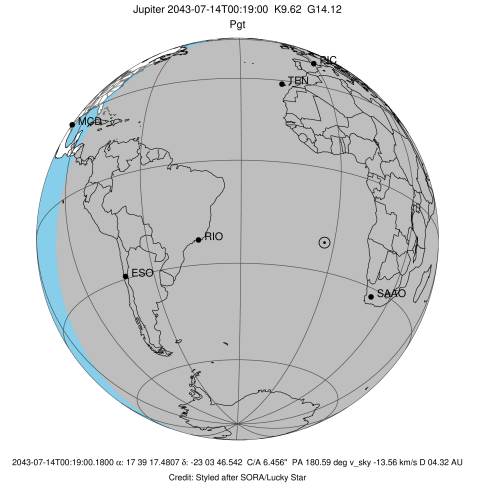


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-13T23:00:03.873	36.81	-12.72	71491.5	14.19	16.12
Jupiter	E	2043-07-14T01:45:40.247	72.83	-48.26	71491.4	16.61	18.82

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-14T00:14:03.670
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       : 4116558344703175808
2Mass ID (if available) : 17391745-2303463
ICRS Star Coord at Epoch: 17h 39m 17.48074s -23:03:46.54196s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.621
G magnitude          : 14.119
RP magnitude         : 12.898
BP magnitude         : 15.630
DUPflag             : 0
Distance (au)        : 4.324
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.56
Sun-Target sep (deg) : 154.33
Sun-Moon sep (deg)   : 65.85
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 5.906
C/A sky separation (km): 18519.3
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	2043-07-13T22:51:02.970	62.17	-79.35	71491.5	14.60	16.58
Jupiter	E	2043-07-14T01:37:48.048	27.01	-49.86	71491.5	15.25	17.30