

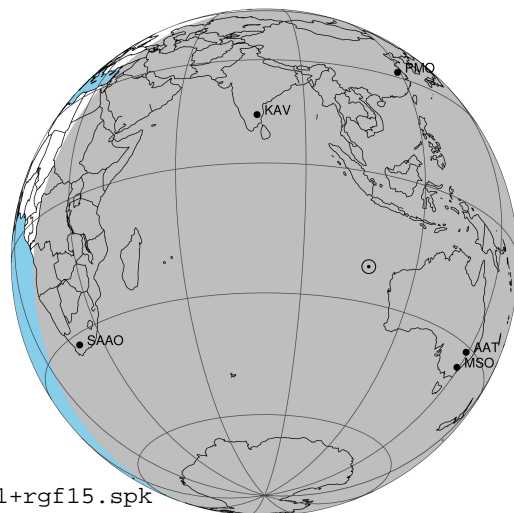
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-12T16:58:08.120
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116554736930442752
 2Mass ID (if available) : 17395339-2303584

Jupiter 2043-07-12T16:58:08 K9.34 G11.44 Pgt

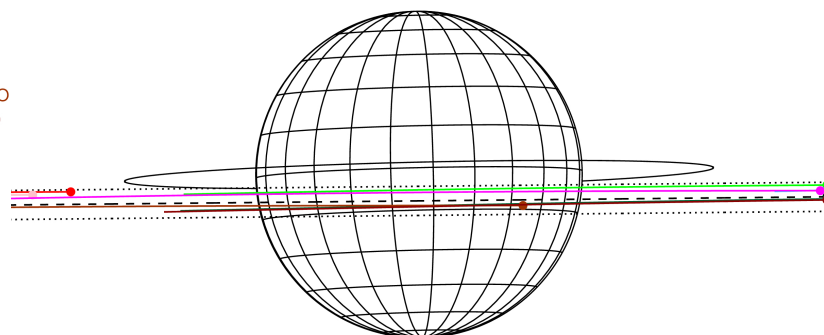
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s

RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.337
 G magnitude : 11.438
 RP magnitude : 10.735
 BP magnitude : 11.980
 DUPflag : 0
 Distance (au) : 4.315
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.86
 Sun-Target sep (deg) : 155.71
 Sun-Moon sep (deg) : 81.02
 B (ring opening deg) : -2.40
 PA of pole (deg) : 1.33
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 3.693
 C/A sky separation (km) : 11558.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-07-12T16:58:08 K9.34 G11.44
 Pgt



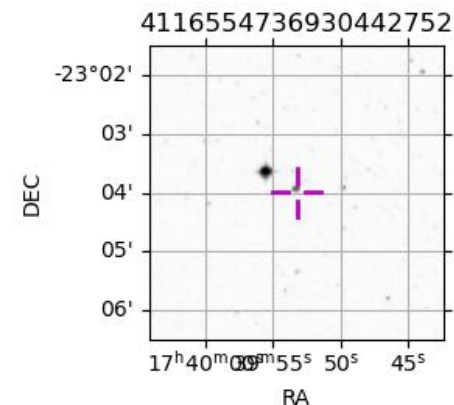
Earth
 PIC
 PMO
 TEN
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-07-12T16:58:08.1200 a: 17 39 53.27178 d: -23 04 01.729 C/A 3.704" PA 0.58 deg v_sky -13.86 km/s D 04.32 AU
 Credit: Styled after SORA/Lucky Star

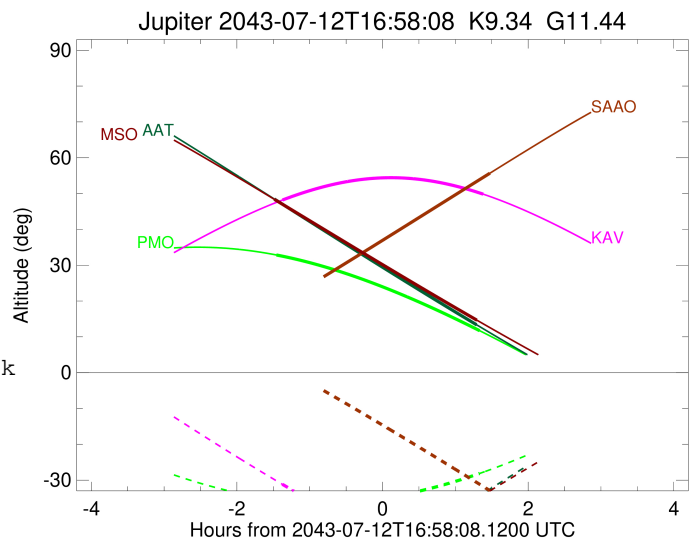
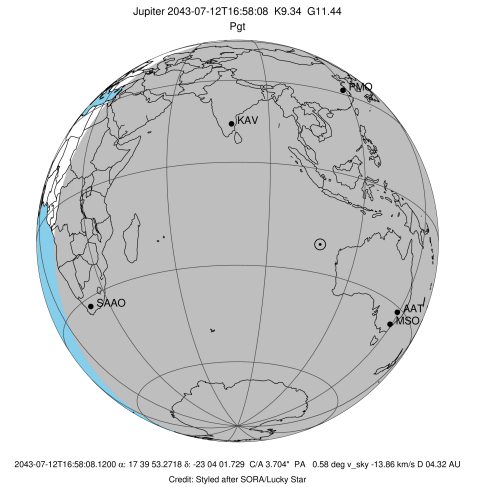
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
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	+ +	JUL 12 15:30 - JUL 12 18:18	Pie
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	+ +	JUL 12 15:35 - JUL 12 18:21	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	+ +	JUL 12 15:28 - JUL 12 18:15	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8		JUL 12 18:26 - JUL 12 18:26	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 12 15:29 - JUL 12 18:15	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T16:54:10.700
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        : 4116554736930442752
2Mass ID (if available) : 17395339-2303584
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.337
G magnitude           : 11.438
RP magnitude          : 10.735
BP magnitude          : 11.980
DUPflag              : 0
Distance (au)         : 4.315
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.86
Sun-Target sep (deg)  : 155.71
Sun-Moon sep (deg)    : 81.46
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.33
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 2.158
C/A sky separation (km) : 6754.5
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
    
```

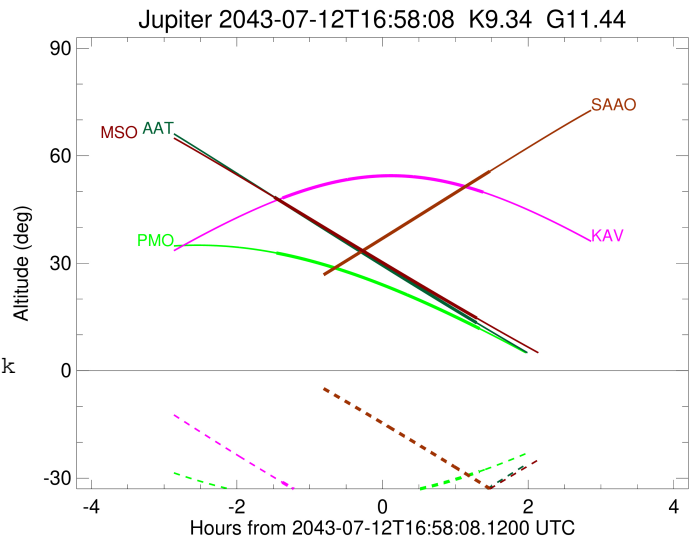
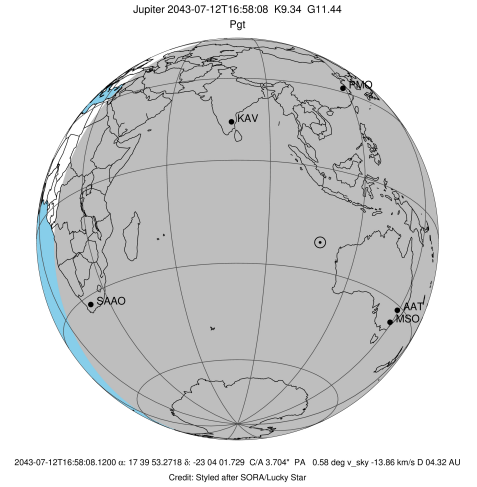


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T15:30:46.924	32.84	-35.37	71491.9	-5.90	-6.74
Jupiter	E	2043-07-12T18:18:09.217	11.73	-28.13	71491.9	-5.12	-5.85

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T16:58:23.180
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        : 4116554736930442752
2Mass ID (if available) : 17395339-2303584
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s
RUWE (>1.4 is poor)  : 0.90
K magnitude           : 9.337
G magnitude           : 11.438
RP magnitude          : 10.735
BP magnitude          : 11.980
DUPflag              : 0
Distance (au)         : 4.315
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.86
Sun-Target sep (deg)  : 155.71
Sun-Moon sep (deg)    : 81.76
B (ring opening deg) : -2.40
PA of pole (deg)      : 1.33
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 2.508
C/A sky separation (km) : 7849.5
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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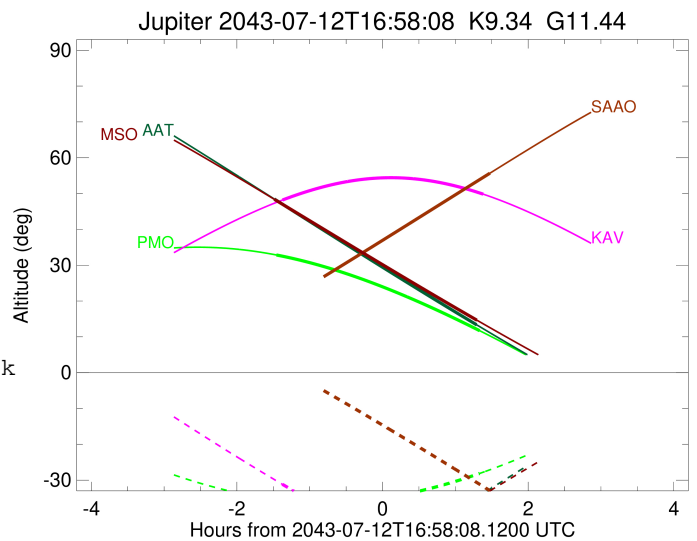
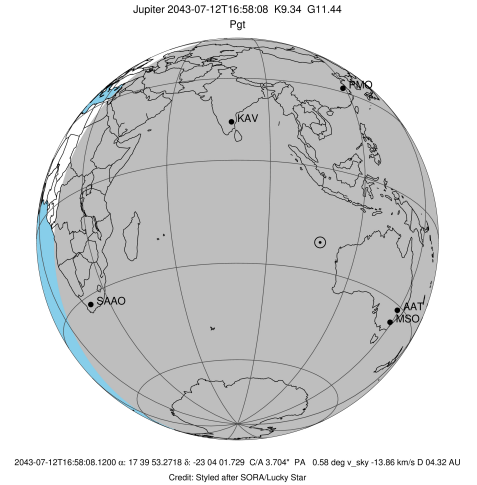


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T15:35:39.136	48.18	-31.16	71491.9	-7.21	-8.23
Jupiter	E	2043-07-12T18:21:09.450	49.82	-54.87	71491.9	-5.64	-6.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T16:51:55.110
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        : 4116554736930442752
2Mass ID (if available) : 17395339-2303584
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.337
G magnitude           : 11.438
RP magnitude          : 10.735
BP magnitude          : 11.980
DUPflag              : 0
Distance (au)         : 4.315
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.86
Sun-Target sep (deg)  : 155.71
Sun-Moon sep (deg)    : 81.58
B (ring opening deg) : -2.40
PA of pole (deg)      : 1.33
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 4.384
C/A sky separation (km) : 13721.8
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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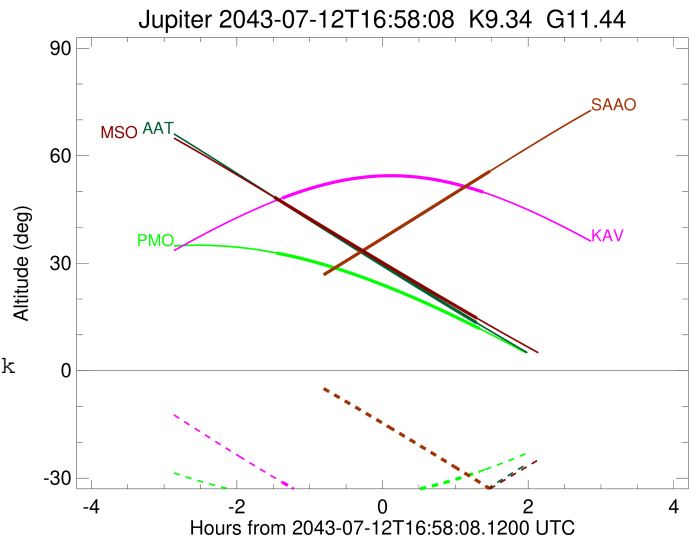
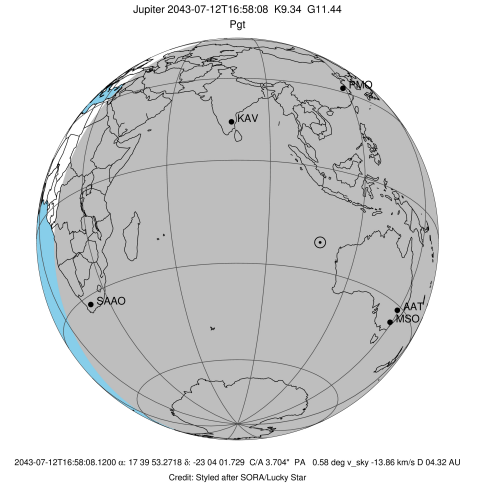


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T15:28:56.724	48.47	-70.02	71491.7	-11.29	-12.85
Jupiter	E	2043-07-12T18:15:45.127	13.35	-34.80	71491.7	-10.92	-12.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-12T17:03:47.750
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      : 4116554736930442752
2Mass ID (if available) : 17395339-2303584
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 9.337
G magnitude          : 11.438
RP magnitude         : 10.735
BP magnitude         : 11.980
DUPflag             : 0
Distance (au)       : 4.315
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.86
Sun-Target sep (deg) : 155.71
Sun-Moon sep (deg)  : 81.47
B (ring opening deg) : -2.40
PA of pole (deg)    : 1.33
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 4.345
C/A sky separation (km): 13599.5
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
    
```

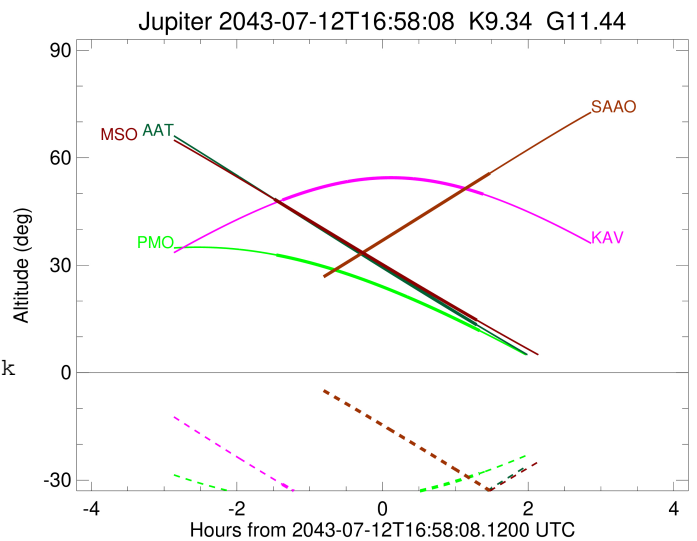
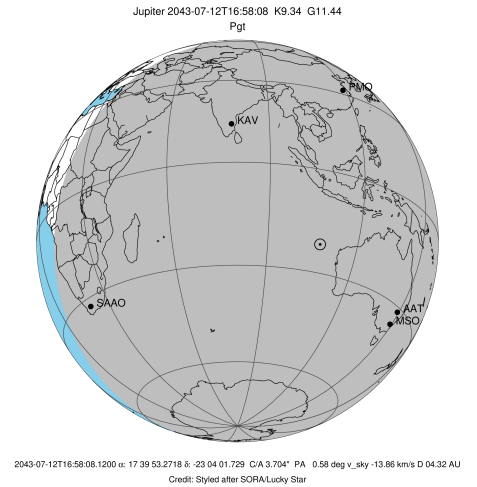


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T15:40:19.014	20.71	0.64x	71491.6	-12.30	-13.99
Jupiter	E	2043-07-12T18:26:37.526	55.67	-32.93	71491.8	-9.74	-11.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-12T16:52:11.460
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      : 4116554736930442752
2Mass ID (if available) : 17395339-2303584
ICRS Star Coord at Epoch: 17h 39m 53.27177s -23:04:01.72863s
RUWE (>1.4 is poor) : 0.90
K magnitude         : 9.337
G magnitude         : 11.438
RP magnitude        : 10.735
BP magnitude        : 11.980
DUPflag            : 0
Distance (au)      : 4.315
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -13.86
Sun-Target sep (deg) : 155.71
Sun-Moon sep (deg)  : 81.58
B (ring opening deg) : -2.40
PA of pole (deg)    : 1.33
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 4.507
C/A sky separation (km) : 14105.8
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	2043-07-12T15:29:14.913	48.33	-68.15	71491.7	-11.63	-13.23
Jupiter	E	2043-07-12T18:15:57.494	14.64	-35.16	71491.7	-11.21	-12.76