

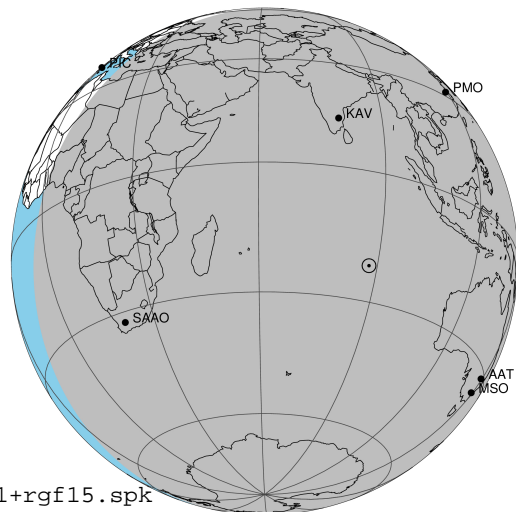
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-07-12T18:14:35.880  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116554736930449152  
 2Mass ID (if available) : 17395180-2304015

Jupiter 2043-07-12T18:14:35 K8.28 G14.98 Pgt

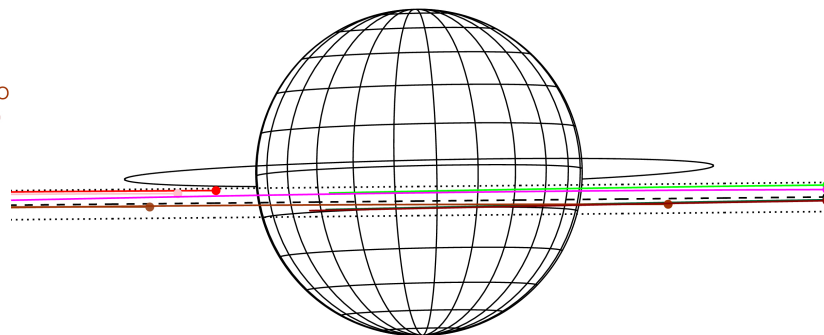
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s

RUWE (>1.4 is poor) : 1.01  
 K magnitude : 8.284  
 G magnitude : 14.976  
 RP magnitude : 13.239  
 BP magnitude : 19.072  
 DUPflag : 0  
 Distance (au) : 4.316  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.85  
 Sun-Target sep (deg) : 155.65  
 Sun-Moon sep (deg) : 80.36  
 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 (") : 3.998  
 C/A sky separation (km) : 12515.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-07-12T18:14:35 K8.28 G14.98  
 Pgt



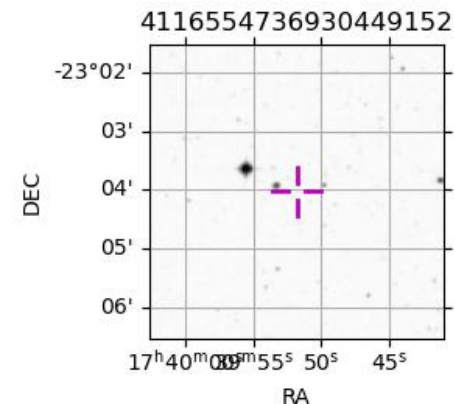
Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 AAT  
 SAAO  
 MSO



2043-07-12T18:14:35.8800 a: 17 39 51.7998 ð -23 04 01.830 C/A 4.010" PA 0.58 deg v\_sky -13.85 km/s D 04.32 AU  
 Credit: Styled after SORA/Lucky Star

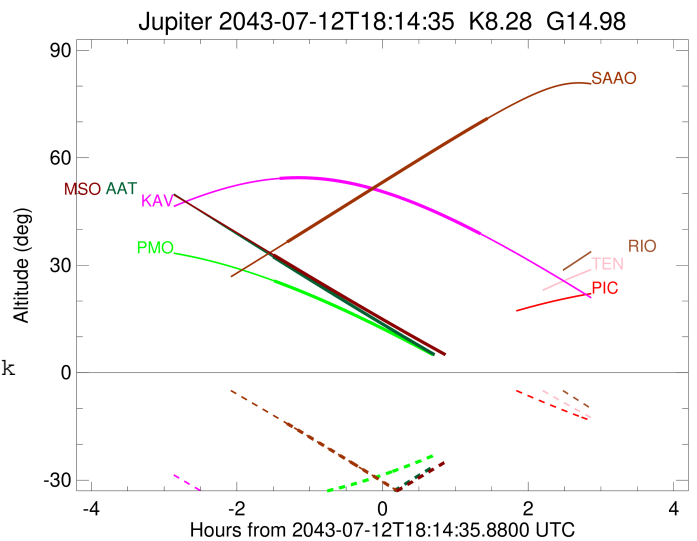
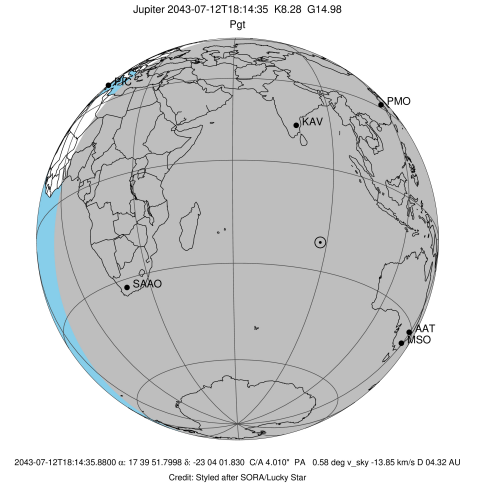
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	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	+	JUL 12 16:45 - JUL 12 16:45	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	+ +	JUL 12 16:49 - JUL 12 19:35	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 16:44 - JUL 12 16:44	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 12 16:56 - JUL 12 19:41	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUL 12 16:44 - JUL 12 16:44	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T18:09:08.280
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       : 4116554736930449152
2Mass ID (if available) : 17395180-2304015
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.284
G magnitude           : 14.976
RP magnitude         : 13.239
BP magnitude         : 19.072
DUPflag              : 0
Distance (au)        : 4.316
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.85
Sun-Target sep (deg) : 155.65
Sun-Moon sep (deg)  : 80.66
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 ("): 2.623
C/A sky separation (km): 8209.1
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
    
```

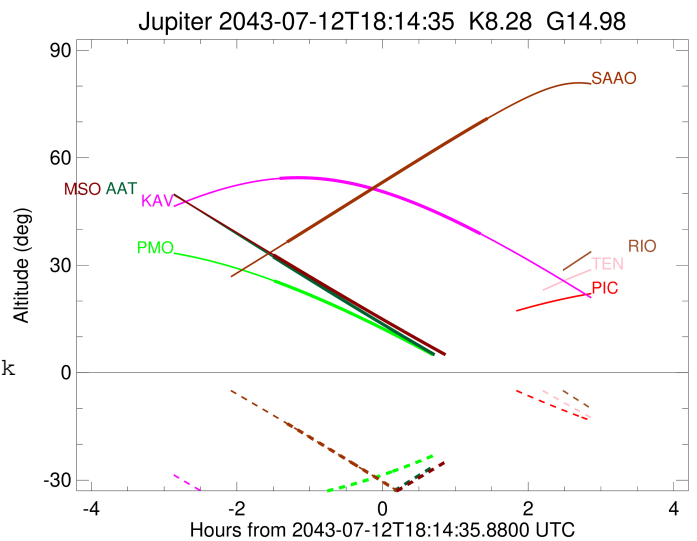
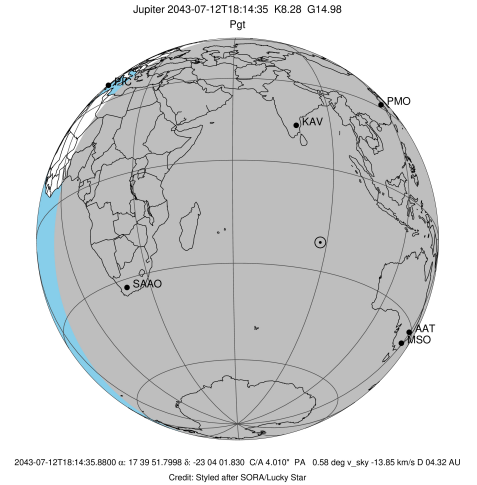


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T16:45:24.691	25.61	-35.55	71491.9	-6.90	-7.88
Jupiter	E	2043-07-12T19:33:38.911	-1.98x	-17.51	71491.9	-6.41	-7.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T18:12:24.660
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        : 4116554736930449152
2Mass ID (if available) : 17395180-2304015
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.284
G magnitude           : 14.976
RP magnitude          : 13.239
BP magnitude          : 19.072
DUPflag              : 0
Distance (au)         : 4.316
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.85
Sun-Target sep (deg) : 155.65
Sun-Moon sep (deg)   : 81.10
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 ("): 2.843
C/A sky separation (km): 8899.9
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
    
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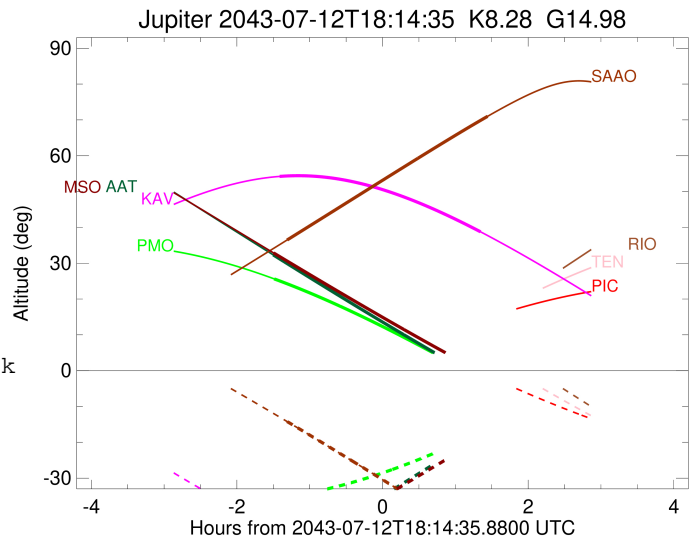
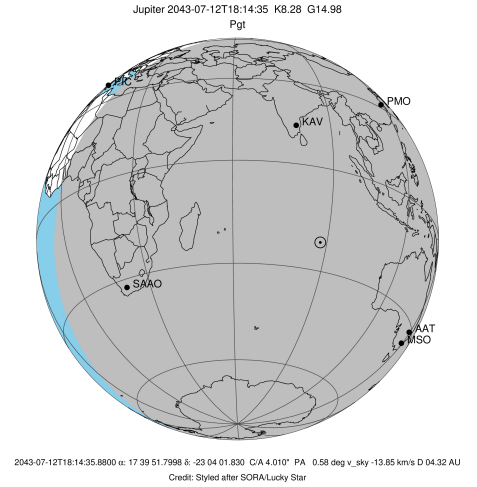


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T16:49:48.037	54.22	-44.64	71491.9	-7.83	-8.94
Jupiter	E	2043-07-12T19:35:21.657	38.76	-53.89	71491.9	-6.71	-7.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T18:07:49.370
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        : 4116554736930449152
2Mass ID (if available) : 17395180-2304015
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.284
G magnitude           : 14.976
RP magnitude          : 13.239
BP magnitude          : 19.072
DUPflag              : 0
Distance (au)         : 4.316
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.85
Sun-Target sep (deg) : 155.65
Sun-Moon sep (deg)   : 80.70
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 (") : 4.909
C/A sky separation (km) : 15364.9
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
    
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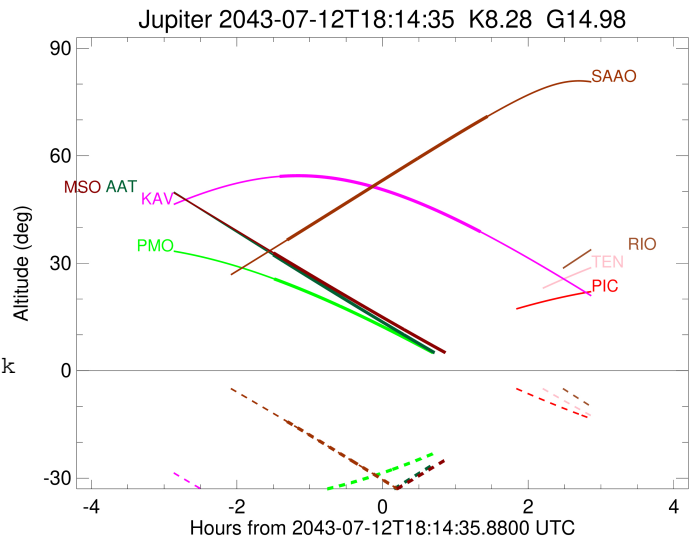
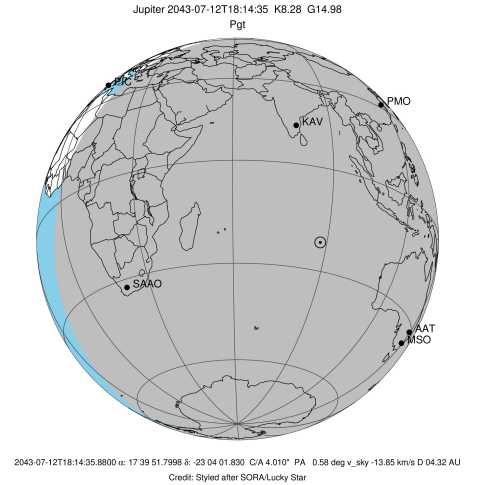


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T16:44:28.361	32.33	-54.31	71491.6	-12.54	-14.27
Jupiter	E	2043-07-12T19:32:07.320	-1.66x	-18.75	71491.6	-12.29	-13.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-12T18:18:50.300
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      : 4116554736930449152
2Mass ID (if available) : 17395180-2304015
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 8.284
G magnitude          : 14.976
RP magnitude         : 13.239
BP magnitude         : 19.072
DUPflag             : 0
Distance (au)       : 4.316
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.85
Sun-Target sep (deg) : 155.65
Sun-Moon sep (deg)  : 81.01
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 ("): 4.482
C/A sky separation (km): 14028.7
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
    
```

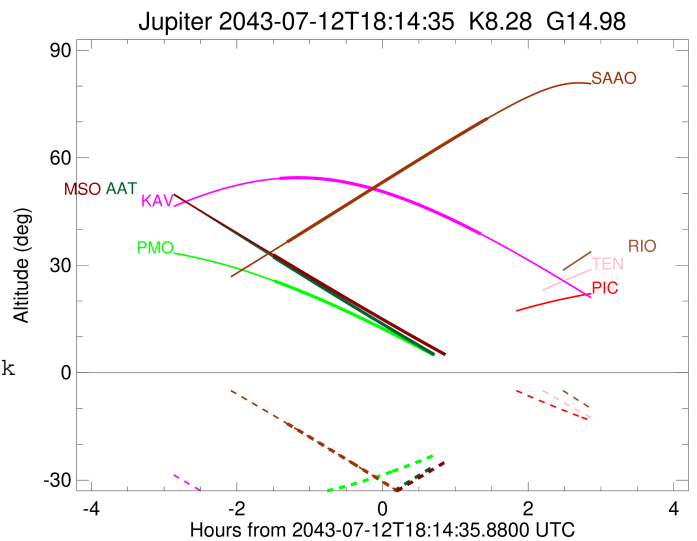
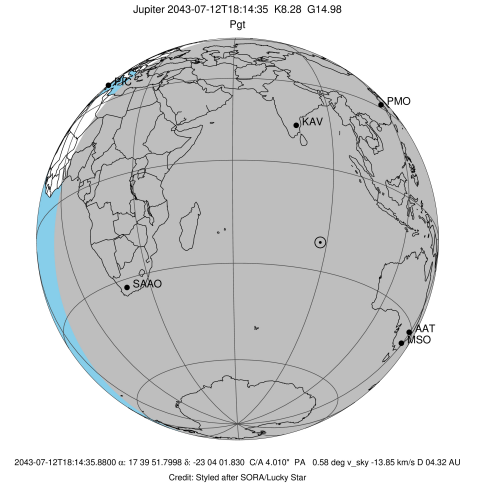


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-12T16:56:03.195	36.49	-14.21	71491.6	-12.54	-14.27
Jupiter	E	2043-07-12T19:41:09.873	70.98	-48.66	71491.7	-10.24	-11.67

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-12T18:08:07.260
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        : 4116554736930449152
2Mass ID (if available) : 17395180-2304015
ICRS Star Coord at Epoch: 17h 39m 51.79977s -23:04:01.83046s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.284
G magnitude           : 14.976
RP magnitude          : 13.239
BP magnitude          : 19.072
DUPflag              : 0
Distance (au)         : 4.316
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.85
Sun-Target sep (deg)  : 155.65
Sun-Moon sep (deg)    : 80.72
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 (" ) : 5.022
C/A sky separation (km) : 15718.1
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	2043-07-12T16:44:50.157	32.86	-53.71	71491.6	-12.86	-14.62
Jupiter	E	2043-07-12T19:32:18.832	0.27x	-19.74	71491.6	-12.55	-14.27