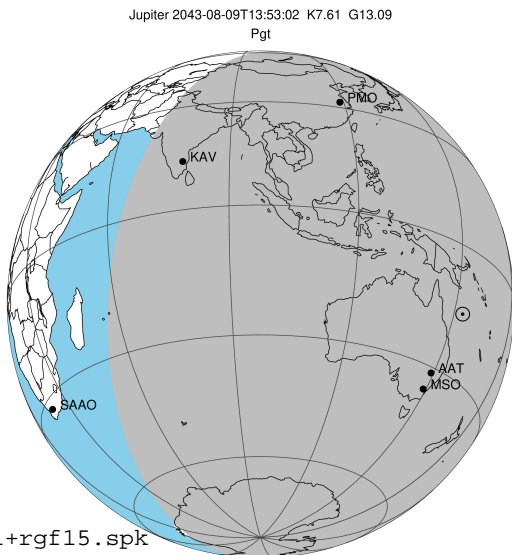


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-08-09T13:53:02.360
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4117435102056064384
 2Mass ID (if available) : 17310046-2303086

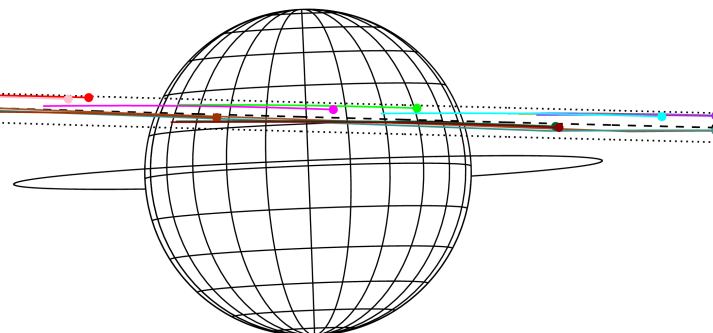
Jupiter 2043-08-09T13:53:02 K7.61 G13.09 Pgt

ICRS Star Coord at Epoch: 17h 31m 00.47188s -23°03'08.49865s
 RUWE (>1.4 is poor) : 0.83
 K magnitude : 7.609
 G magnitude : 13.095
 RP magnitude : 11.730
 BP magnitude : 15.391
 DUPflag : 0
 Distance (au) : 4.575
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.80
 Sun-Target sep (deg) : 127.04
 Sun-Moon sep (deg) : 72.63
 B (ring opening deg) : -2.35
 PA of pole (deg) : 2.28
 Pole direction: RA (deg): 268.05671
 Dec (deg): 64.49731
 C/A sky separation (") : 7.321
 C/A sky separation (km) : 24294.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



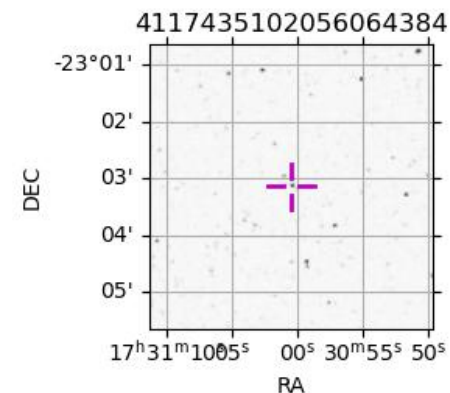
2043-08-09T13:53:02.3600 at: 17 31 00.47188 -23 03 08.499 C/A 7.311° PA 178.43 deg v_sky - 4.80 km/s D 04.58 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



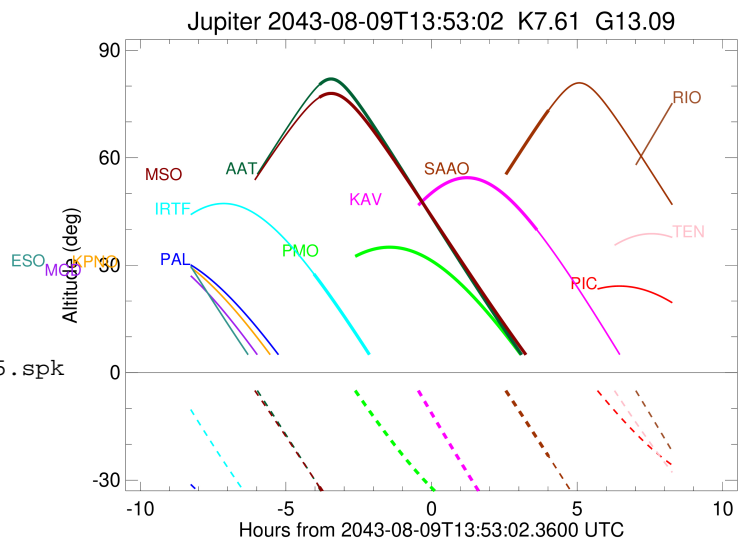
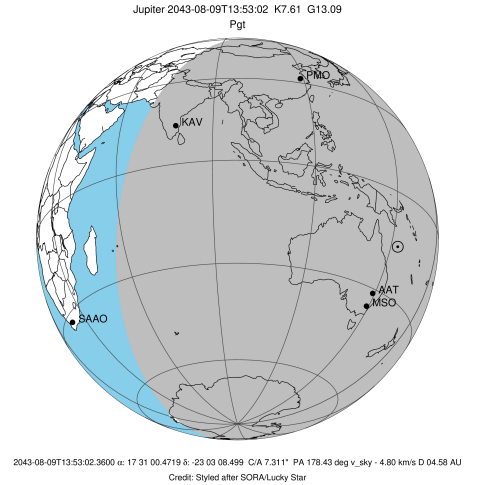
Observable events with sun below -5 deg and altitude above 5 deg

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			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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	AUG 09 09:50 - AUG 09 09:50	Pin
KAV	Kavalur Observatory	12.6	78.8	+	AUG 09 17:30 - AUG 09 17:30	Pne
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	+	AUG 09 10:02 - AUG 09 10:02	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	AUG 09 17:54 - AUG 09 17:54	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	AUG 09 10:01 - AUG 09 10:01	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-09T13:35:41.700
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4117435102056064384
2Mass ID (if available) : 17310046-2303086
ICRS Star Coord at Epoch: 17h 31m 00.47188s -23:03:08.49865s
RUWE (>1.4 is poor)  : 0.83
K magnitude           : 7.609
G magnitude           : 13.095
RP magnitude          : 11.730
BP magnitude          : 15.391
DUPflag              : 0
Distance (au)         : 4.575
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.80
Sun-Target sep (deg)  : 127.04
Sun-Moon sep (deg)   : 72.53
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.28
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (" ) : 7.706
C/A sky separation (km) : 25571.5
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
    
```

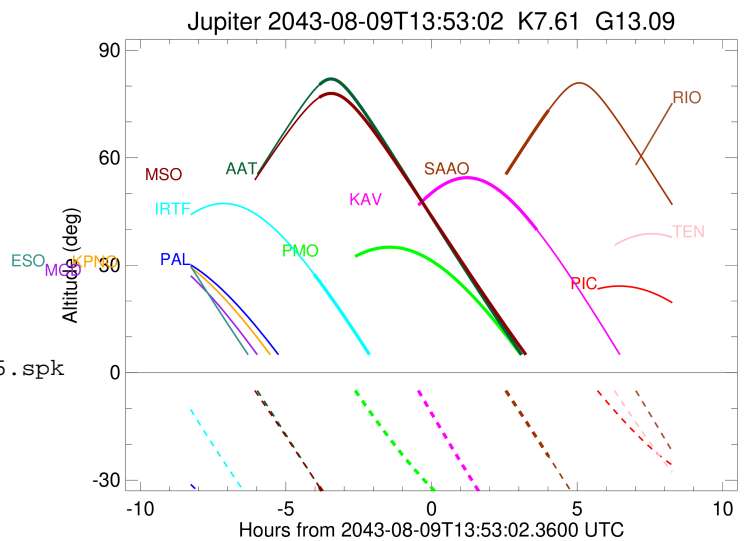
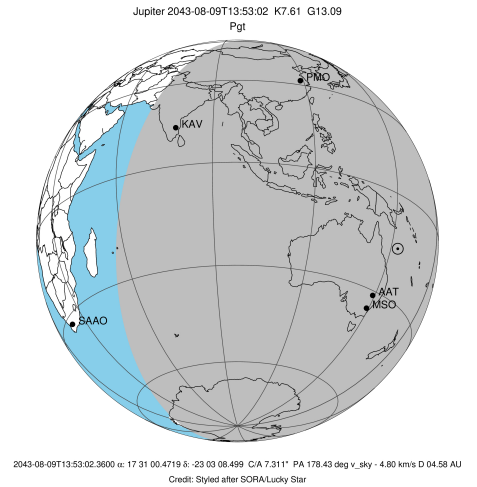


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-09T09:50:41.211	27.57	-53.35	71491.2	19.01	21.48
Jupiter	E	2043-08-09T17:42:48.383	-75.60x	22.60x	71490.8	23.43	26.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-09T13:58:15.310
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       : 4117435102056064384
2Mass ID (if available) : 17310046-2303086
ICRS Star Coord at Epoch: 17h 31m 00.47188s -23:03:08.49865s
RUWE (>1.4 is poor) : 0.83
K magnitude           : 7.609
G magnitude           : 13.095
RP magnitude          : 11.730
BP magnitude          : 15.391
DUPflag              : 0
Distance (au)         : 4.576
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.80
Sun-Target sep (deg) : 127.04
Sun-Moon sep (deg)   : 73.22
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.28
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 8.424
C/A sky separation (km): 27955.3
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
    
```

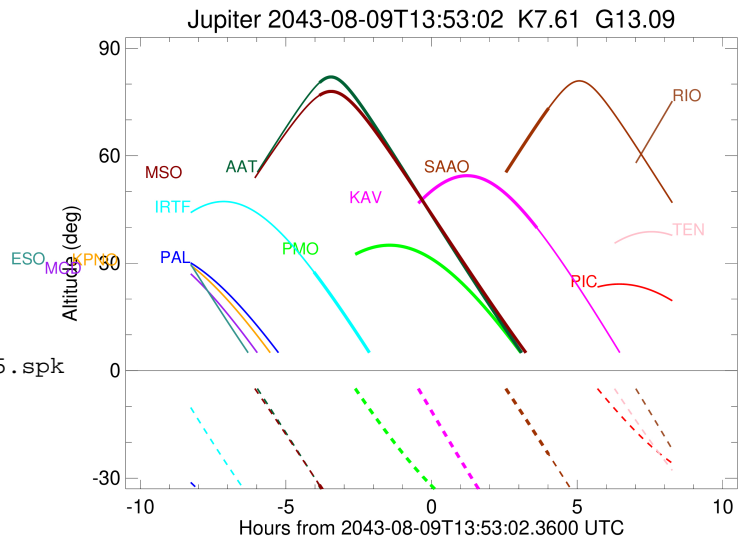
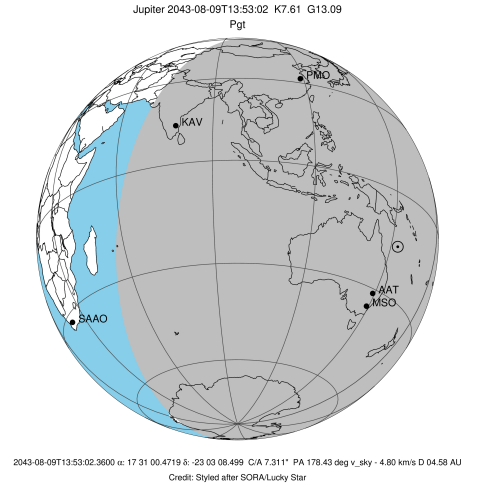


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-09T10:24:12.805	12.24	38.14x	71491.3	17.96	20.33
Jupiter	E	2043-08-09T17:30:17.927	39.83	-55.56	71490.5	26.40	29.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-09T13:40:55.250
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       : 4117435102056064384
2Mass ID (if available) : 17310046-2303086
ICRS Star Coord at Epoch: 17h 31m 00.47188s -23:03:08.49865s
RUWE (>1.4 is poor) : 0.83
K magnitude           : 7.609
G magnitude           : 13.095
RP magnitude         : 11.730
BP magnitude         : 15.391
DUPflag              : 0
Distance (au)        : 4.575
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.80
Sun-Target sep (deg) : 127.04
Sun-Moon sep (deg)   : 73.42
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.28
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 6.795
C/A sky separation (km): 22549.9
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
    
```

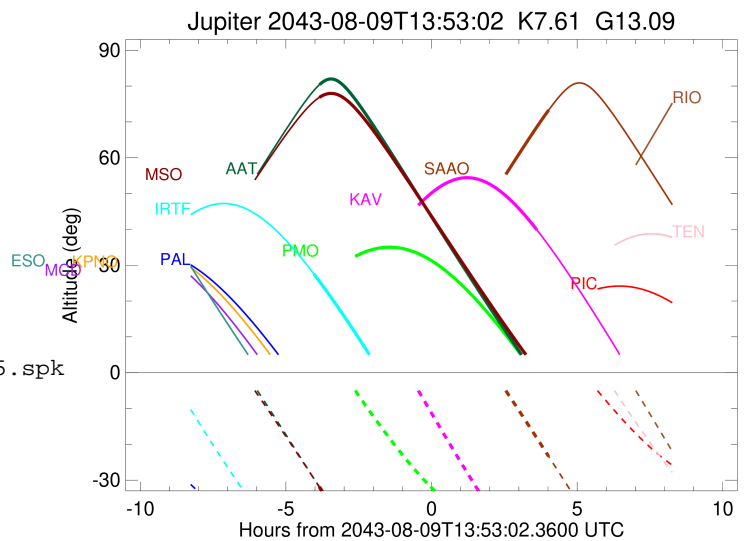
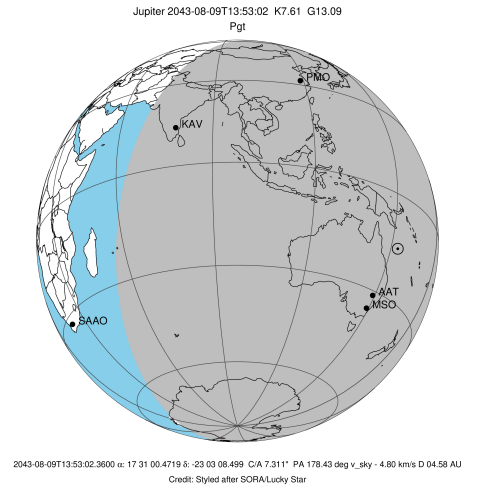


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-09T10:02:19.931	80.39	-32.07	71491.5	15.28	17.34
Jupiter	E	2043-08-09T17:34:23.158	-1.88x	-40.95	71491.1	20.49	23.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-09T14:08:55.390
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       : 4117435102056064384
2Mass ID (if available) : 17310046-2303086
ICRS Star Coord at Epoch: 17h 31m 00.47188s -23:03:08.49865s
RUWE (>1.4 is poor) : 0.83
K magnitude          : 7.609
G magnitude          : 13.095
RP magnitude         : 11.730
BP magnitude         : 15.391
DUPflag             : 0
Distance (au)        : 4.576
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.80
Sun-Target sep (deg) : 127.04
Sun-Moon sep (deg)   : 72.75
B (ring opening deg) : -2.35
PA of pole (deg)     : 2.28
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 6.625
C/A sky separation (km): 21984.5
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
    
```

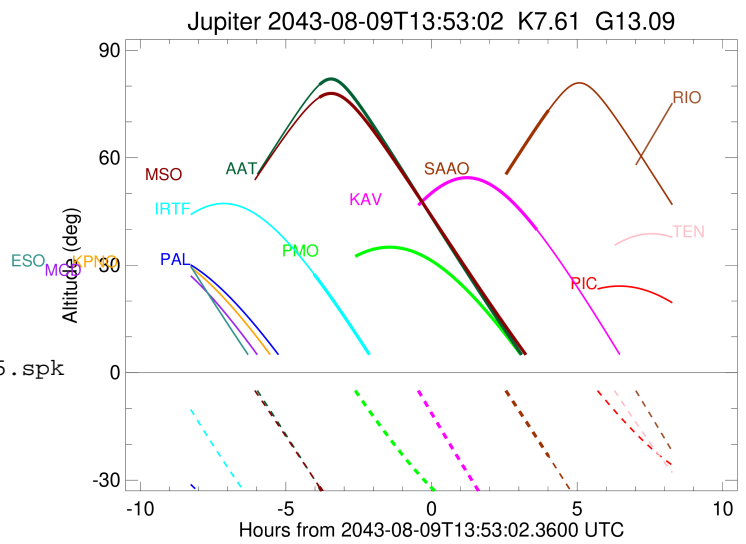
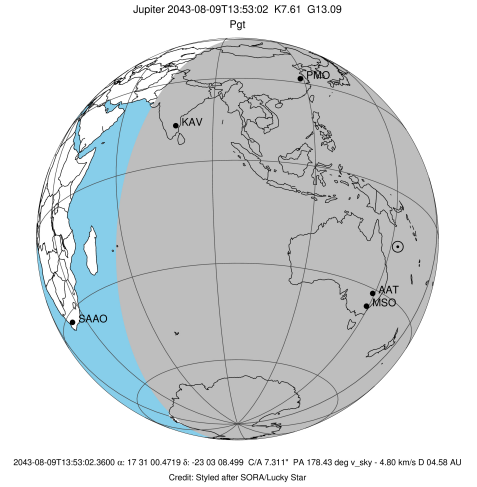


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-09T10:10:38.257	-18.24x	41.39x	71491.7	12.31	14.01
Jupiter	E	2043-08-09T17:54:24.622	73.29	-23.37	71490.9	22.84	25.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-09T13:41:28.660
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      : 4117435102056064384
2Mass ID (if available) : 17310046-2303086
ICRS Star Coord at Epoch: 17h 31m 00.47188s -23:03:08.49865s
RUWE (>1.4 is poor) : 0.83
K magnitude          : 7.609
G magnitude          : 13.095
RP magnitude         : 11.730
BP magnitude         : 15.391
DUPflag             : 0
Distance (au)       : 4.575
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.80
Sun-Target sep (deg) : 127.04
Sun-Moon sep (deg)  : 73.41
B (ring opening deg) : -2.35
PA of pole (deg)    : 2.28
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (" ) : 6.673
C/A sky separation (km) : 22144.8
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	2043-08-09T10:01:49.850	76.82	-31.82	71491.5	14.91	16.92
Jupiter	E	2043-08-09T17:35:36.090	-0.13x	-40.21	71491.1	20.23	22.82