

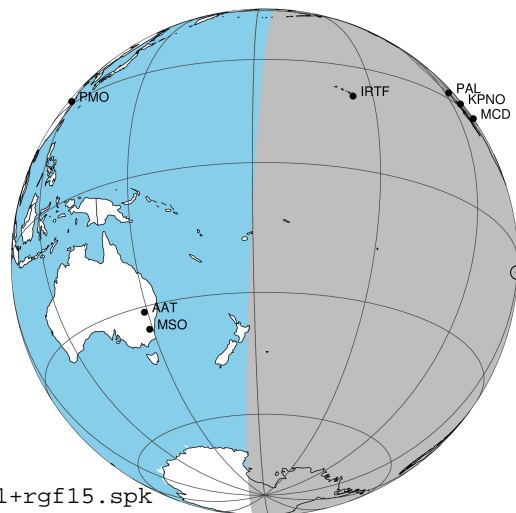
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-09-14T05:53:11.340  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116682658186347136  
 2Mass ID (if available) : 17340848-2310479

Jupiter 2043-09-14T05:53:11 K9.22 G14.69 Pgt

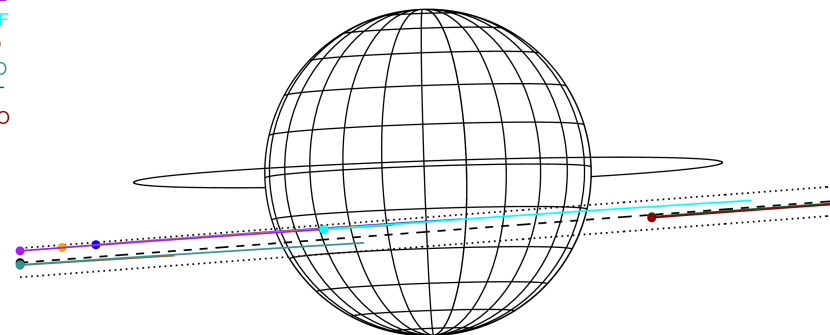
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s

RUWE (>1.4 is poor) : 1.07  
 K magnitude : 9.221  
 G magnitude : 14.693  
 RP magnitude : 13.298  
 BP magnitude : 17.085  
 DUPflag : 0  
 Distance (au) : 5.081  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 11.36  
 Sun-Target sep (deg) : 93.33  
 Sun-Moon sep (deg) : 27.39  
 B (ring opening deg) : -2.25  
 PA of pole (deg) : 1.95  
 Pole direction: RA (deg): 268.05673  
 Dec (deg): 64.49731  
 C/A sky separation (") : 7.023  
 C/A sky separation (km) : 25877.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-09-14T05:53:11 K9.22 G14.69  
 Pgt



Earth  
 PAL  
 KPNO  
 MCD  
 IRTF  
 RIO  
 ESO  
 AAT  
 MSO

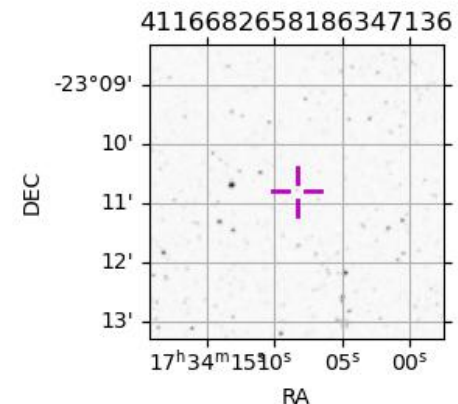


2043-09-14T05:53:11.3400 a: 17 34 08.4737 & -23 10 48.008 C/A 7.032" PA 4.33 deg v\_sky +11.36 km/s D 05.08 AU

Credit: Styled after SORA/Lucky Star

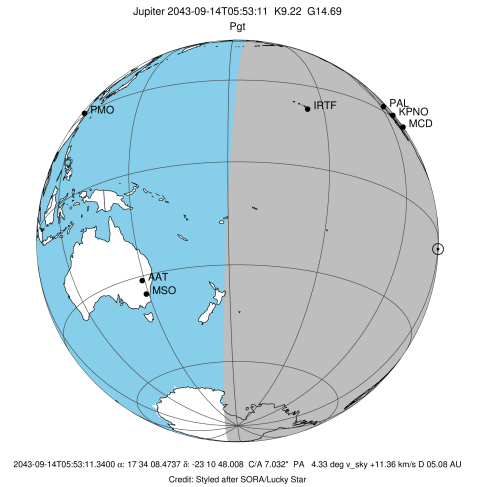
Observable events with sun below -5 deg and altitude above 5 deg

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	+	SEP 14 04:16 - SEP 14 04:16	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 14 04:17 - SEP 14 04:17	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	SEP 14 04:18 - SEP 14 04:18	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	SEP 14 07:39 - SEP 14 07:39	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	SEP 14 04:25 - SEP 14 04:25	Pin
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

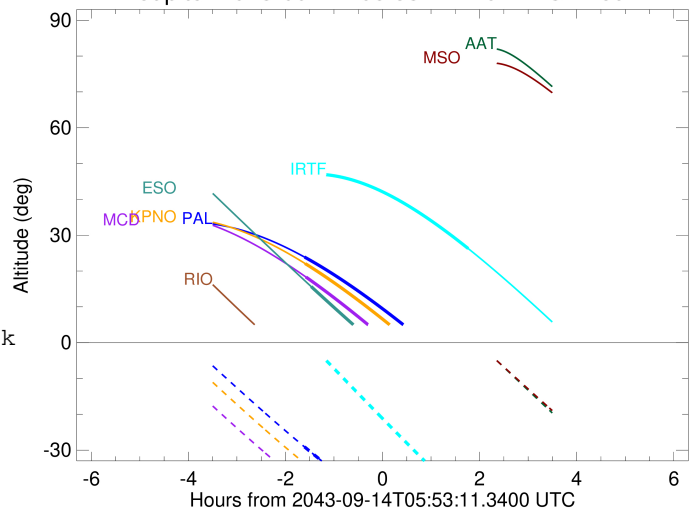


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-14T05:59:17.830
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg) : 243.13601
Altitude (km)      : 1.706
Gaia source ID     : 4116682658186347136
2Mass ID (if available) : 17340848-2310479
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s
RUWE (>1.4 is poor) : 1.07
K magnitude         : 9.221
G magnitude         : 14.693
RP magnitude        : 13.298
BP magnitude        : 17.085
DUPflag            : 0
Distance (au)      : 5.081
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 11.36
Sun-Target sep (deg) : 93.33
Sun-Moon sep (deg) : 27.01
B (ring opening deg) : -2.25
PA of pole (deg)   : 1.95
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 5.797
C/A sky separation (km) : 21360.2
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
    
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Jupiter 2043-09-14T05:53:11 K9.22 G14.69

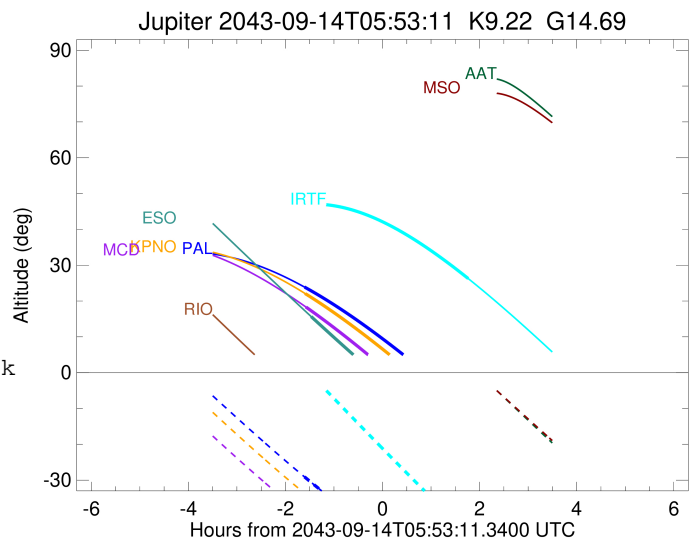
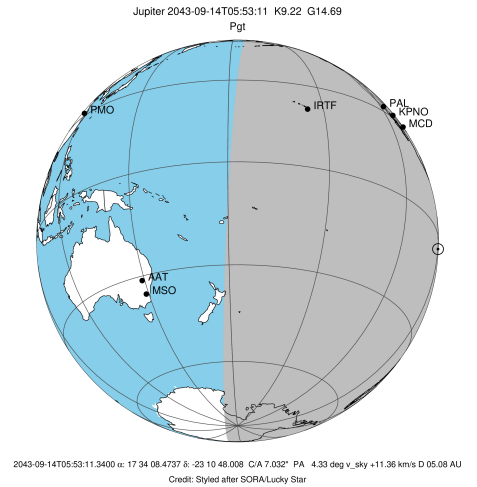


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-14T04:16:45.715	23.89	-29.08	71491.2	-19.26	-21.76
Jupiter	E	2043-09-14T07:40:11.574	-10.25x	-53.41	71491.5	-15.70	-17.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-14T05:59:43.240
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4116682658186347136
2Mass ID (if available) : 17340848-2310479
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.221
G magnitude           : 14.693
RP magnitude         : 13.298
BP magnitude         : 17.085
DUPflag              : 0
Distance (au)        : 5.081
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.36
Sun-Target sep (deg) : 93.33
Sun-Moon sep (deg)  : 26.94
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.95
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 5.868
C/A sky separation (km) : 21623.5
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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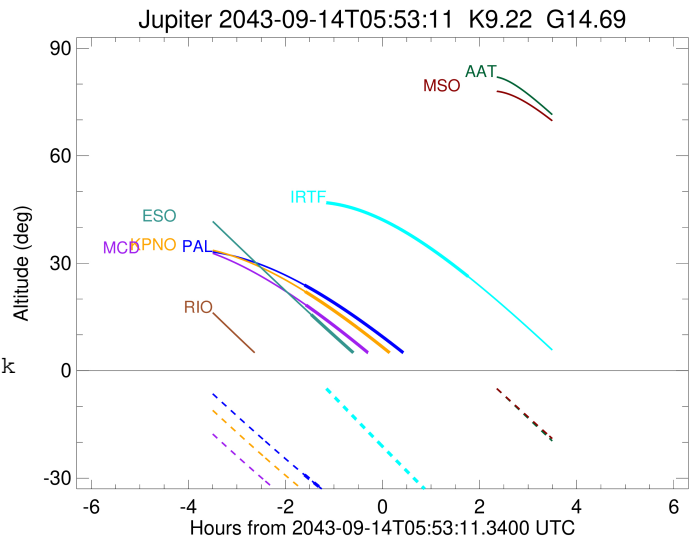
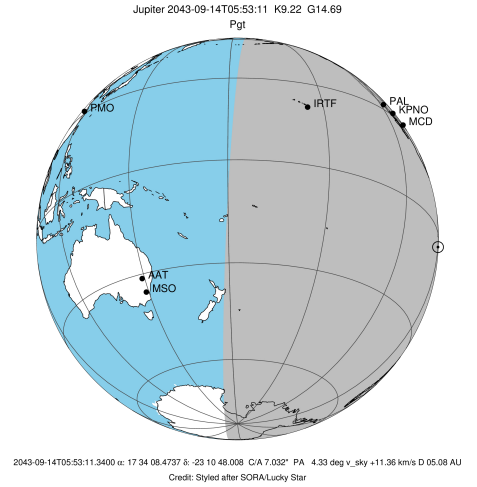


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-14T04:17:31.861	22.09	-33.80	71491.2	-19.41	-21.93
Jupiter	E	2043-09-14T07:40:12.106	-13.95x	-54.54	71491.5	-15.96	-18.09

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-14T06:00:10.170
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MCD
Location            : McDonald Obs. 2.7m
Latitude (deg)      : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)       : 2.075
Gaia source ID      : 4116682658186347136
2Mass ID (if available) : 17340848-2310479
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 9.221
G magnitude          : 14.693
RP magnitude         : 13.298
BP magnitude         : 17.085
DUPflag             : 0
Distance (au)       : 5.081
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.36
Sun-Target sep (deg) : 93.33
Sun-Moon sep (deg)  : 26.86
B (ring opening deg) : -2.25
PA of pole (deg)    : 1.95
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 5.964
C/A sky separation (km) : 21977.0
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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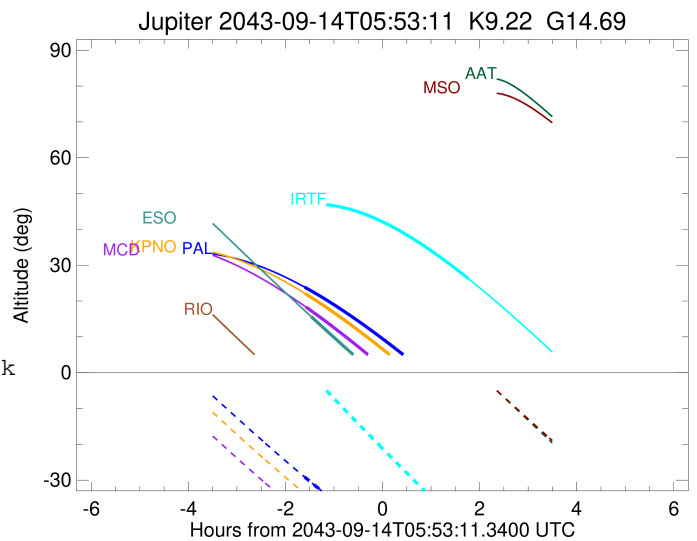
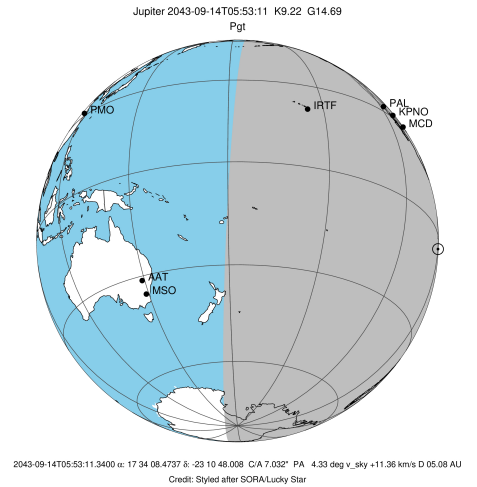


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-14T04:18:31.428	18.32	-40.11	71491.2	-19.63	-22.17
Jupiter	E	2043-09-14T07:40:02.583	-19.72x	-54.18	71491.5	-16.29	-18.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-14T05:56:00.480
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       : 4116682658186347136
2Mass ID (if available) : 17340848-2310479
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.221
G magnitude           : 14.693
RP magnitude          : 13.298
BP magnitude          : 17.085
DUPflag              : 0
Distance (au)        : 5.081
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.36
Sun-Target sep (deg) : 93.33
Sun-Moon sep (deg)   : 27.53
B (ring opening deg) : -2.25
PA of pole (deg)     : 1.95
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 5.851
C/A sky separation (km) : 21561.5
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
    
```

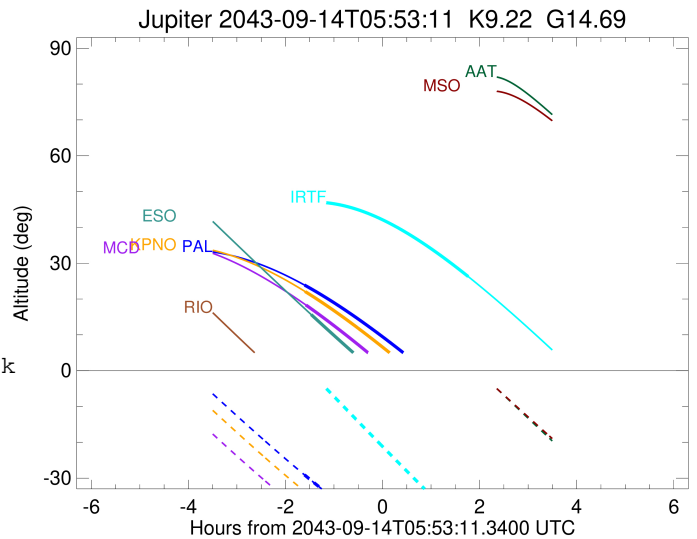
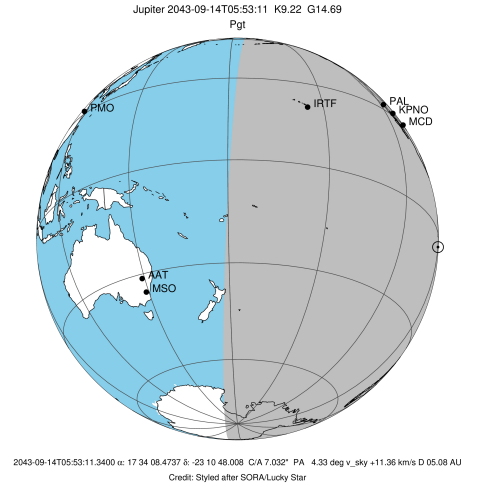


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-14T04:12:00.734	46.95	2.46x	71491.2	-19.94	-22.51
Jupiter	E	2043-09-14T07:39:01.400	26.29	-44.74	71491.5	-15.54	-17.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-14T06:00:41.910
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        : 4116682658186347136
2Mass ID (if available) : 17340848-2310479
ICRS Star Coord at Epoch: 17h 34m 08.47366s -23:10:48.00842s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.221
G magnitude           : 14.693
RP magnitude          : 13.298
BP magnitude          : 17.085
DUPflag              : 0
Distance (au)         : 5.081
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.36
Sun-Target sep (deg)  : 93.33
Sun-Moon sep (deg)    : 26.60
B (ring opening deg) : -2.25
PA of pole (deg)      : 1.95
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 7.880
C/A sky separation (km) : 29038.7
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	2043-09-14T04:25:00.264	15.66	-64.16	71490.7	-25.52	-28.59
Jupiter	E	2043-09-14T07:34:50.446	-20.22x	-40.96	71491.0	-22.32	-25.11