

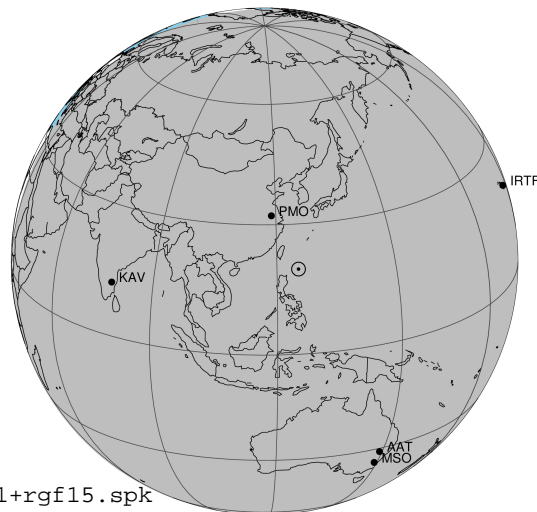
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2038-01-21T15:50:30.750
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 673283853621325184
 2Mass ID (if available) : 07405195+2148487

Jupiter 2038-01-21T15:50:30 K8.42 G10.97 Pgt

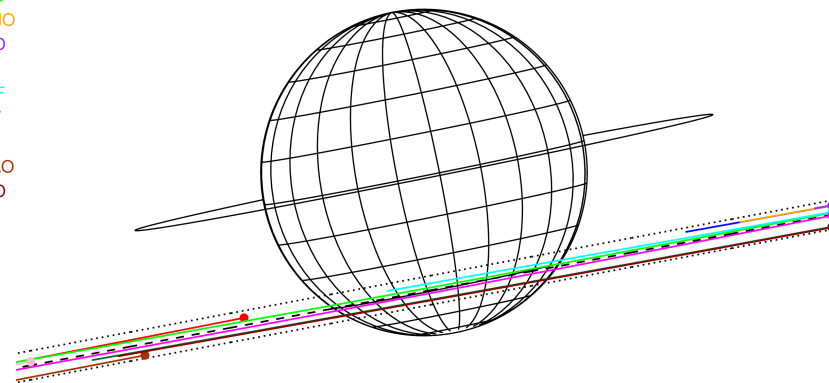
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 8.419
 G magnitude : 10.968
 RP magnitude : 10.195
 BP magnitude : 11.622
 DUPflag : 0
 Distance (au) : 4.259
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.01
 Sun-Target sep (deg) : 172.11
 Sun-Moon sep (deg) : 14.36
 B (ring opening deg) : 1.16
 PA of pole (deg) : 11.34
 Pole direction: RA (deg): 268.05621
 Dec (deg): 64.49690
 C/A sky separation (") : 16.582
 C/A sky separation (km) : 51221.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2038-01-21T15:50:30 K8.42 G10.97
 Pgt



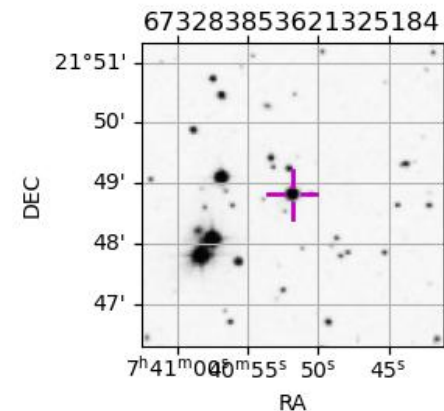
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 AAT
 SAAO
 MSO



2038-01-21T15:50:30.7500 a: 07 40 51.9306 s: +21 48 48.944 C/A ***** PA 10.63 deg v_sky -17.01 km/s D 04.26 AU
 Credit: Styled after SORA/Lucky Star

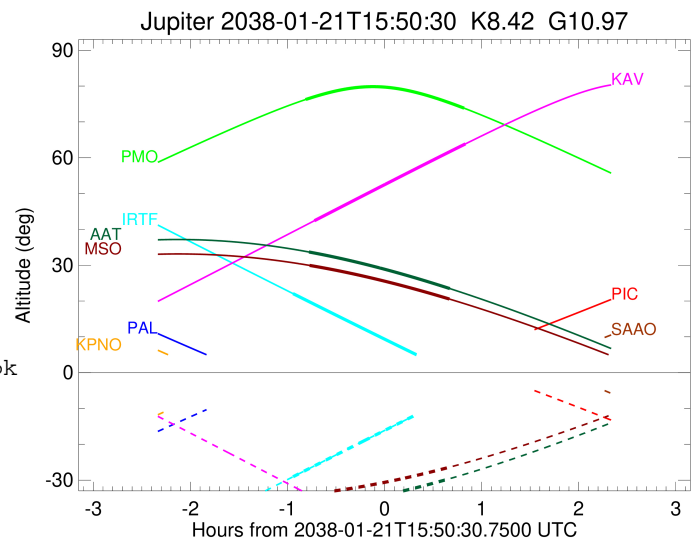
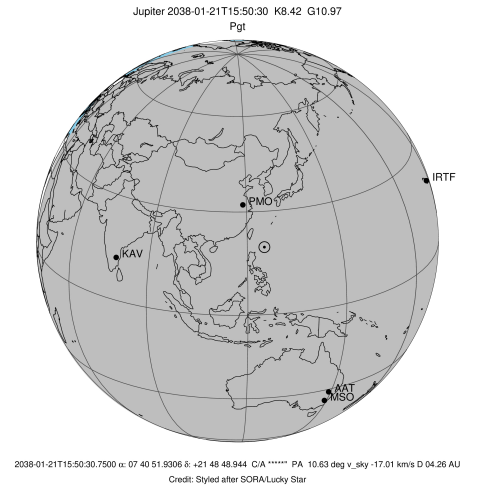
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JAN 21 15:01 - JAN 21 16:39	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	+	JAN 21 14:54 - JAN 21 14:54	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JAN 21 15:07 - JAN 21 16:40	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	+ +	JAN 21 15:03 - JAN 21 16:30	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JAN 21 15:04 - JAN 21 16:30	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2038-01-21T15:50:46.380
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      : 673283853621325184
2Mass ID (if available) : 07405195+2148487
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 8.419
G magnitude          : 10.968
RP magnitude         : 10.195
BP magnitude         : 11.622
DUPflag             : 0
Distance (au)       : 4.259
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.01
Sun-Target sep (deg) : 172.11
Sun-Moon sep (deg)  : 14.60
B (ring opening deg) : 1.16
PA of pole (deg)    : 11.34
Pole direction: RA (deg): 268.05621
Dec (deg): 64.49690
C/A sky separation (" ) : 16.213
C/A sky separation (km) : 50082.4
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
    
```

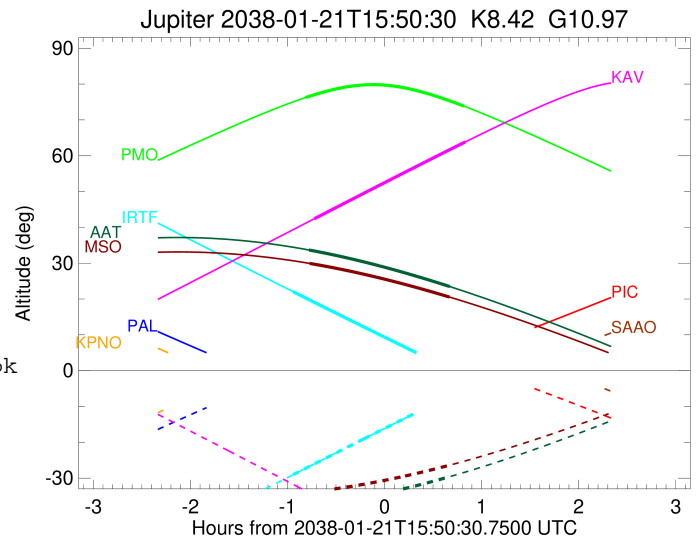
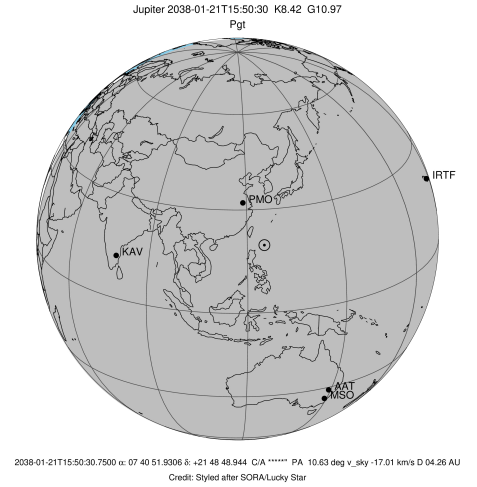


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-21T15:01:51.787	76.25	-69.44	71491.1	-45.37	-49.07
Jupiter	E	2038-01-21T16:39:42.612	73.82	-76.76	71491.1	-43.45	-47.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-21T15:45:32.600
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       : 673283853621325184
2Mass ID (if available) : 07405195+2148487
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.419
G magnitude           : 10.968
RP magnitude          : 10.195
BP magnitude          : 11.622
DUPflag              : 0
Distance (au)        : 4.259
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.01
Sun-Target sep (deg) : 172.11
Sun-Moon sep (deg)  : 13.53
B (ring opening deg) : 1.16
PA of pole (deg)    : 11.34
Pole direction: RA (deg): 268.05621
Dec (deg): 64.49690
C/A sky separation (") : 15.629
C/A sky separation (km) : 48276.5
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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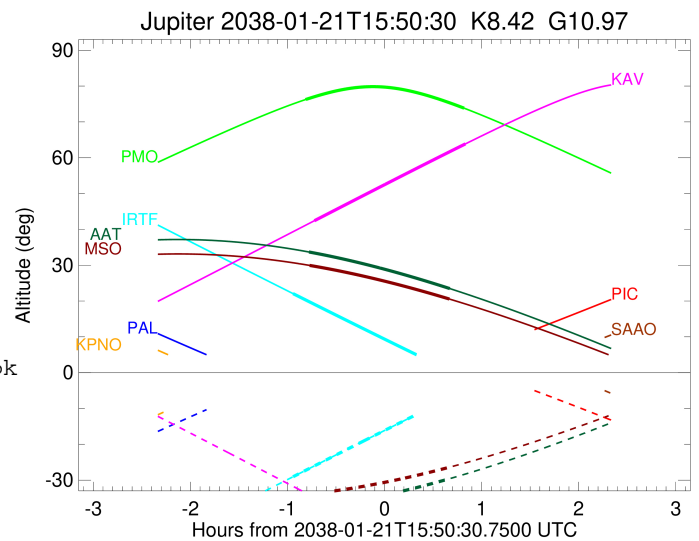
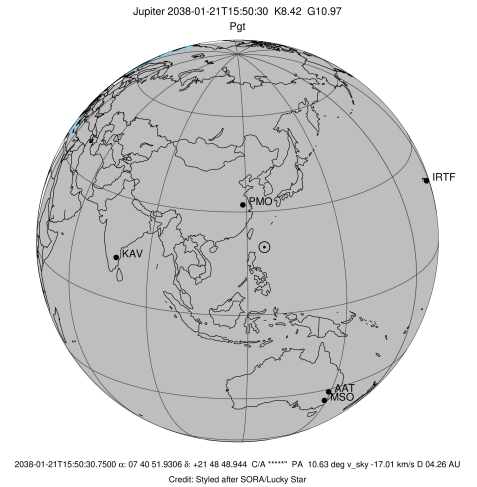


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-21T14:54:02.708	22.05	-29.04	71491.1	-43.74	-47.46
Jupiter	E	2038-01-21T16:37:20.182	-0.90x	-5.62	71491.2	-41.24	-44.95

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-21T15:53:56.960
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        : 673283853621325184
2Mass ID (if available) : 07405195+2148487
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.419
G magnitude           : 10.968
RP magnitude          : 10.195
BP magnitude          : 11.622
DUPflag              : 0
Distance (au)         : 4.259
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -17.01
Sun-Target sep (deg) : 172.11
Sun-Moon sep (deg)   : 15.13
B (ring opening deg) : 1.16
PA of pole (deg)     : 11.34
Pole direction: RA (deg): 268.05621
Dec (deg): 64.49690
C/A sky separation ("): 16.987
C/A sky separation (km): 52472.2
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
    
```

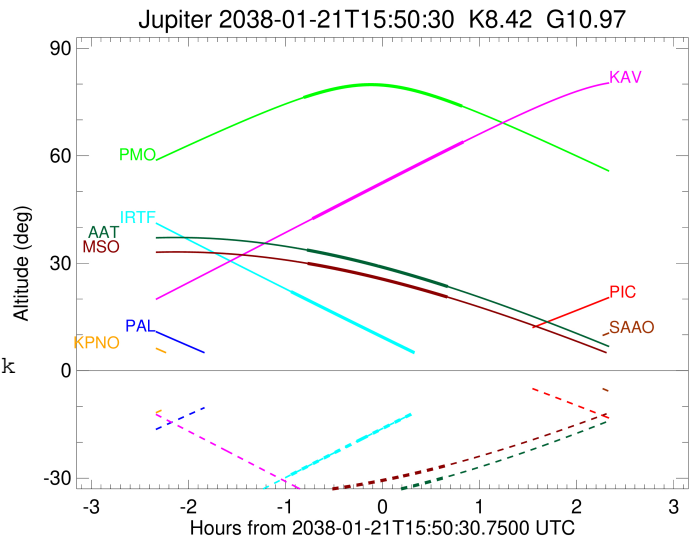
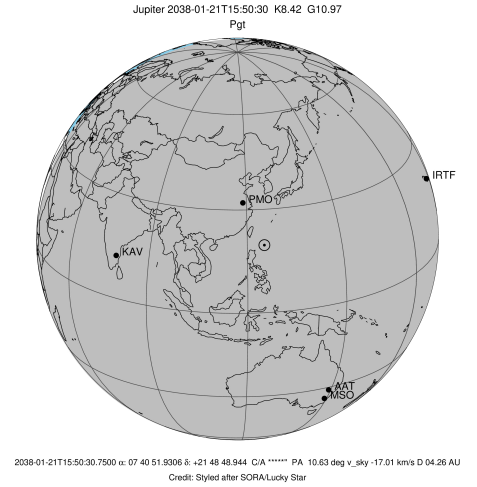


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-21T15:07:16.494	42.43	-34.84	71491.0	-47.74	-51.40
Jupiter	E	2038-01-21T16:40:29.845	63.85	-56.73	71491.0	-46.55	-50.22

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2038-01-21T15:47:20.530
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        : 673283853621325184
2Mass ID (if available) : 07405195+2148487
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.419
G magnitude           : 10.968
RP magnitude          : 10.195
BP magnitude          : 11.622
DUPflag              : 0
Distance (au)         : 4.259
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.01
Sun-Target sep (deg) : 172.11
Sun-Moon sep (deg)   : 14.00
B (ring opening deg) : 1.16
PA of pole (deg)     : 11.34
Pole direction: RA (deg): 268.05621
Dec (deg): 64.49690
C/A sky separation (") : 17.932
C/A sky separation (km) : 55391.1
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
    
```

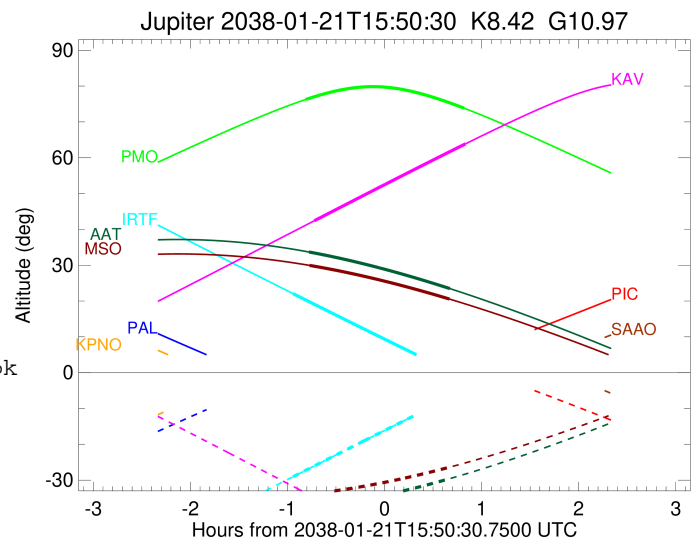
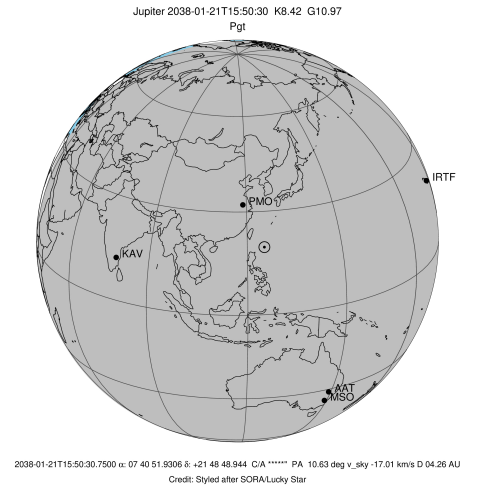


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2038-01-21T15:03:54.143	33.67	-37.78	71490.9	-51.91	-55.42
Jupiter	E	2038-01-21T16:30:53.392	23.47	-29.57	71490.9	-49.58	-53.18

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2038-01-21T15:47:24.070
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       : 673283853621325184
2Mass ID (if available) : 07405195+2148487
ICRS Star Coord at Epoch: 07h 40m 51.93060s +21:48:48.94426s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.419
G magnitude           : 10.968
RP magnitude          : 10.195
BP magnitude          : 11.622
DUPflag              : 0
Distance (au)         : 4.259
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.01
Sun-Target sep (deg) : 172.11
Sun-Moon sep (deg)   : 14.01
B (ring opening deg) : 1.16
PA of pole (deg)     : 11.34
Pole direction: RA (deg): 268.05621
Dec (deg): 64.49690
C/A sky separation ("): 18.026
C/A sky separation (km): 55681.5
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	2038-01-21T15:04:16.120	29.93	-33.86	71490.9	-52.26	-55.76
Jupiter	E	2038-01-21T16:30:38.133	20.55	-26.39	71490.9	-49.97	-53.56