

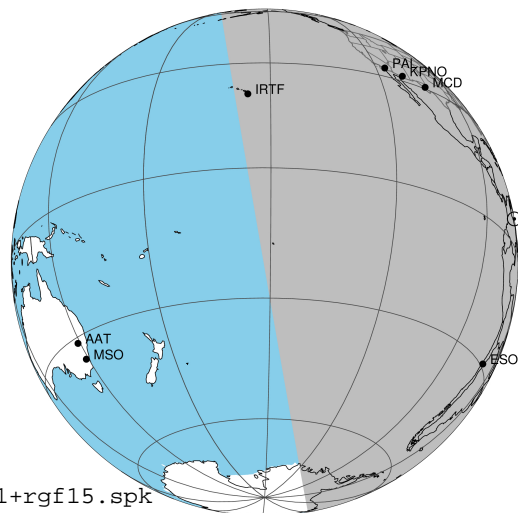
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2032-10-16T04:06:53.820  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 6771915862351855104  
 2Mass ID (if available) : 19401316-2159340

Jupiter 2032-10-16T04:06:53 K9.31 G11.91 Pgt

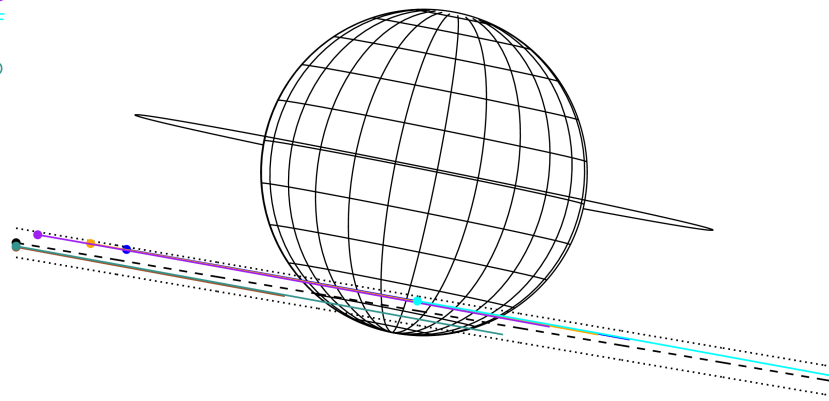
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s

RUWE (>1.4 is poor) : 0.95  
 K magnitude : 9.307  
 G magnitude : 11.907  
 RP magnitude : 11.131  
 BP magnitude : 12.567  
 DUPflag : 0  
 Distance (au) : 5.004  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 13.30  
 Sun-Target sep (deg) : 90.22  
 Sun-Moon sep (deg) : 53.78  
 B (ring opening deg) : -1.02  
 PA of pole (deg) : -11.27  
 Pole direction: RA (deg): 268.05657  
 Dec (deg): 64.49657  
 C/A sky separation (") : 16.588  
 C/A sky separation (km) : 60208.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2032-10-16T04:06:53 K9.31 G11.91  
 Pgt



Earth  
 PAL  
 KPNO  
 MCD  
 IRTF  
 RIO  
 ESO



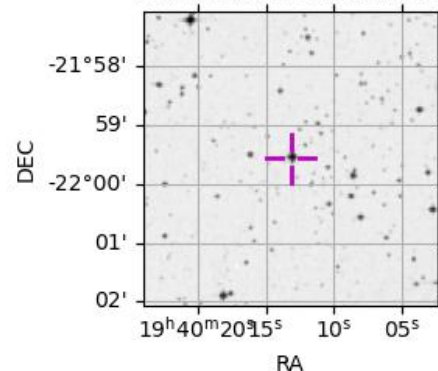
2032-10-16T04:06:53.8200 az: 19 40 13.1595 & -21 59 34.121 C/A \*\*\*\*\* PA 350.38 deg v\_sky +13.30 km/s D 05.00 AU

Credit: Styled after SORA/Lucky Star

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

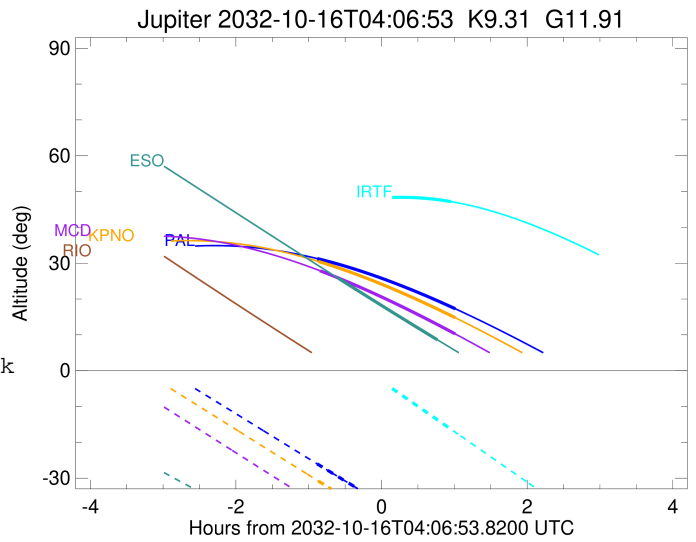
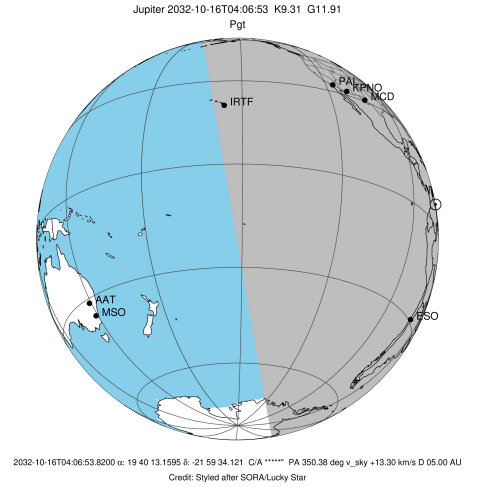
Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	OCT 16 03:13 - OCT 16 05:07	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	OCT 16 03:14 - OCT 16 05:07	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	OCT 16 03:16 - OCT 16 05:07	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5		OCT 16 05:04 - OCT 16 05:04	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	+ +	OCT 16 03:31 - OCT 16 04:52	Pie
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

6771915862351855104



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-10-16T04:11:01.640
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        : 6771915862351855104
2Mass ID (if available) : 19401316-2159340
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.307
G magnitude           : 11.907
RP magnitude          : 11.131
BP magnitude          : 12.567
DUPflag              : 0
Distance (au)         : 5.004
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 13.30
Sun-Target sep (deg)  : 90.22
Sun-Moon sep (deg)    : 53.75
B (ring opening deg) : -1.02
PA of pole (deg)      : -11.27
Pole direction: RA (deg): 268.05657
Dec (deg): 64.49657
C/A sky separation (" ) : 15.417
C/A sky separation (km) : 55955.9
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
    
```

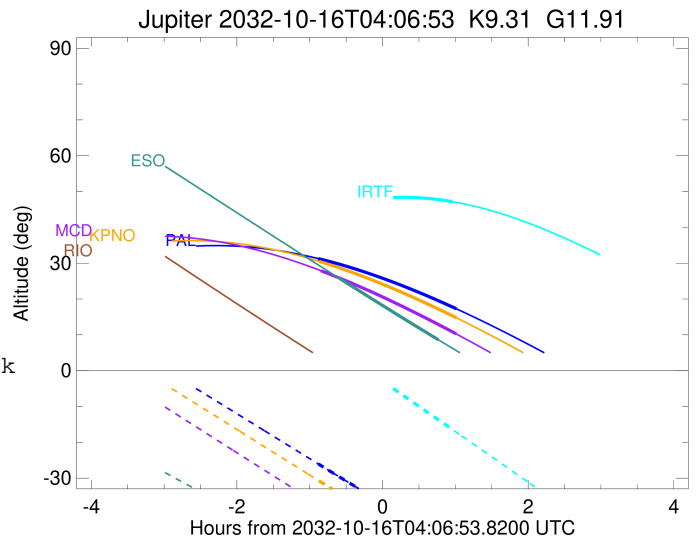
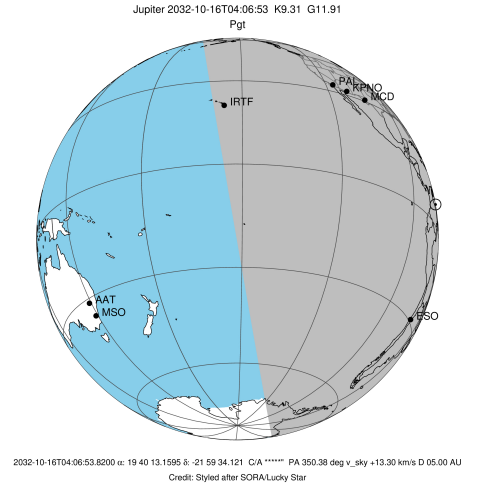


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-10-16T03:13:53.694	31.29	-26.01	71491.1	-52.59	-56.08
Jupiter	E	2032-10-16T05:07:49.386	17.26	-48.83	71491.2	-50.49	-54.05

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-10-16T04:11:29.030
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       : 6771915862351855104
2Mass ID (if available) : 19401316-2159340
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.307
G magnitude           : 11.907
RP magnitude         : 11.131
BP magnitude         : 12.567
DUPflag              : 0
Distance (au)        : 5.004
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 13.30
Sun-Target sep (deg) : 90.22
Sun-Moon sep (deg)   : 53.69
B (ring opening deg) : -1.02
PA of pole (deg)     : -11.27
Pole direction: RA (deg): 268.05657
Dec (deg): 64.49657
C/A sky separation (") : 15.496
C/A sky separation (km) : 56242.1
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
    
```

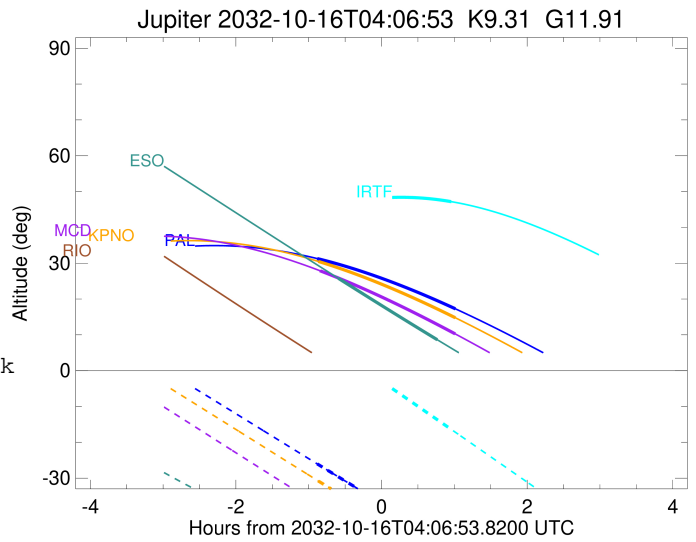
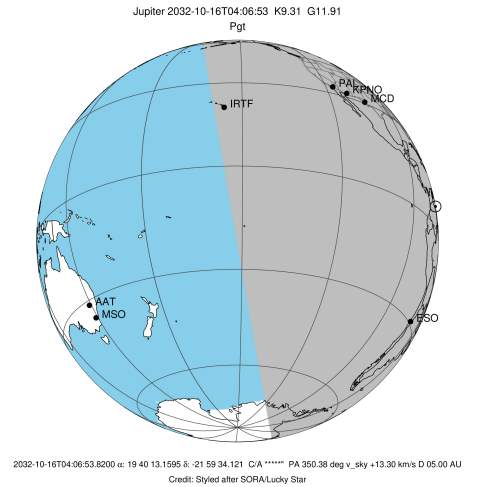


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-10-16T03:14:52.798	30.49	-30.80	71491.1	-52.92	-56.39
Jupiter	E	2032-10-16T05:07:43.566	14.77	-53.36	71491.1	-50.89	-54.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-10-16T04:12:04.530
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      : 6771915862351855104
2Mass ID (if available) : 19401316-2159340
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 9.307
G magnitude          : 11.907
RP magnitude         : 11.131
BP magnitude         : 12.567
DUPflag             : 0
Distance (au)       : 5.004
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 13.30
Sun-Target sep (deg) : 90.22
Sun-Moon sep (deg)  : 53.59
B (ring opening deg) : -1.02
PA of pole (deg)    : -11.27
Pole direction: RA (deg): 268.05657
Dec (deg): 64.49657
C/A sky separation (") : 15.601
C/A sky separation (km) : 56623.4
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
    
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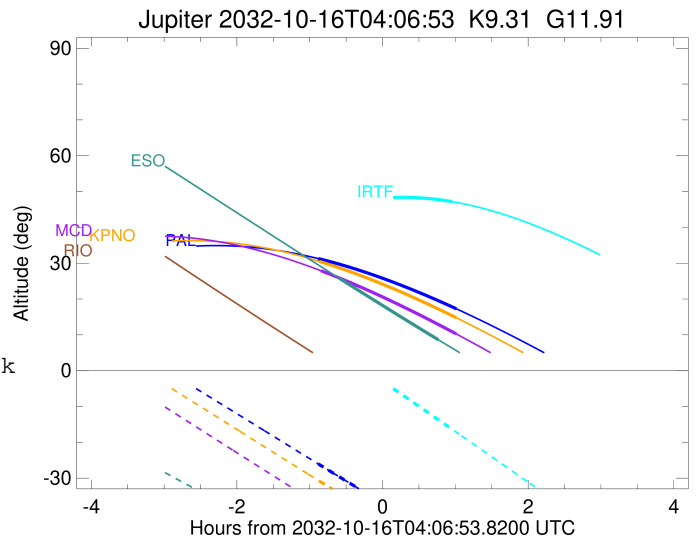
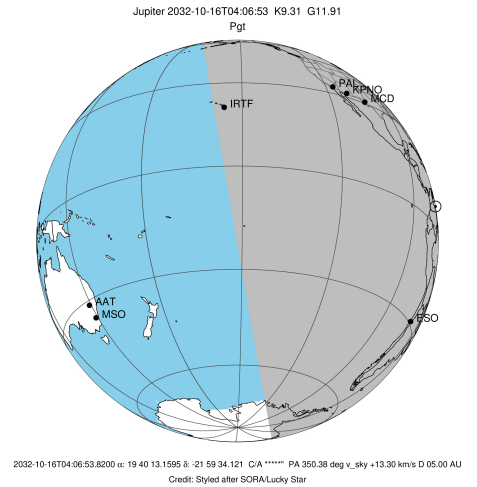


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-10-16T03:16:13.457	27.89	-37.70	71491.1	-53.36	-56.81
Jupiter	E	2032-10-16T05:07:32.205	10.28	-59.36	71491.1	-51.41	-54.95

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-10-16T04:06:56.020
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       : 6771915862351855104
2Mass ID (if available) : 19401316-2159340
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.307
G magnitude           : 11.907
RP magnitude          : 11.131
BP magnitude          : 12.567
DUPflag              : 0
Distance (au)        : 5.004
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 13.30
Sun-Target sep (deg) : 90.22
Sun-Moon sep (deg)   : 54.33
B (ring opening deg) : -1.02
PA of pole (deg)     : -11.27
Pole direction: RA (deg): 268.05657
Dec (deg): 64.49657
C/A sky separation (") : 15.420
C/A sky separation (km) : 55967.0
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
    
```

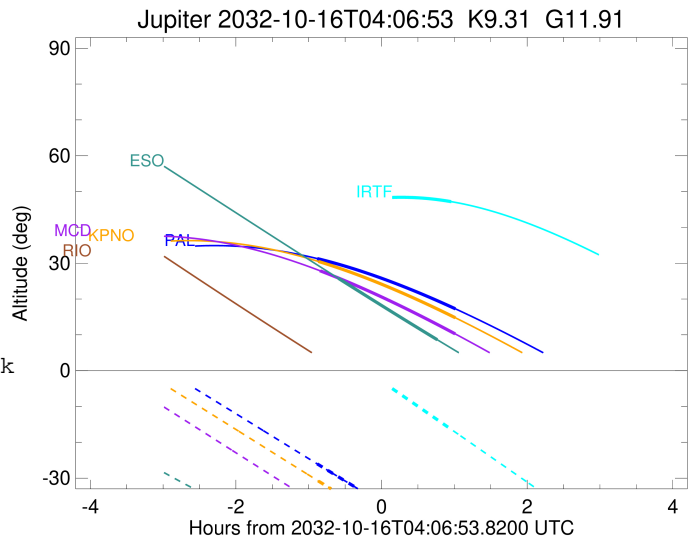
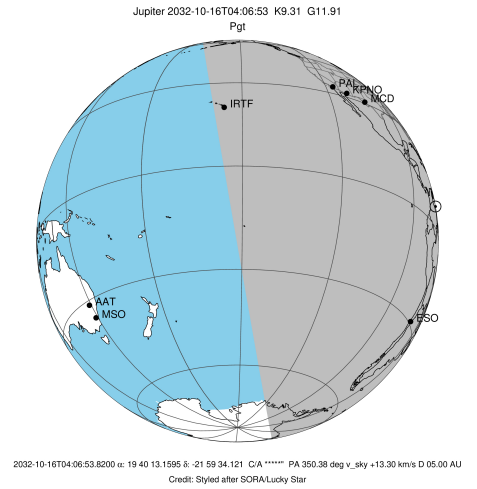


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-10-16T03:09:24.771	44.65	10.34x	71491.1	-52.98	-56.45
Jupiter	E	2032-10-16T05:04:22.426	47.17	-16.39	71491.2	-50.23	-53.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-10-16T04:12:12.600
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       : 6771915862351855104
2Mass ID (if available) : 19401316-2159340
ICRS Star Coord at Epoch: 19h 40m 13.15952s -21:59:34.12105s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.307
G magnitude           : 11.907
RP magnitude         : 11.131
BP magnitude         : 12.567
DUPflag              : 0
Distance (au)        : 5.004
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 13.30
Sun-Target sep (deg) : 90.22
Sun-Moon sep (deg)   : 53.60
B (ring opening deg) : -1.02
PA of pole (deg)     : -11.27
Pole direction: RA (deg): 268.05657
Dec (deg): 64.49657
C/A sky separation (") : 17.551
C/A sky separation (km) : 63701.9
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	2032-10-16T03:31:18.324	25.78	-49.43	71490.9	-63.94	-66.70
Jupiter	E	2032-10-16T04:52:51.704	8.63	-51.37	71490.9	-61.99	-64.91