

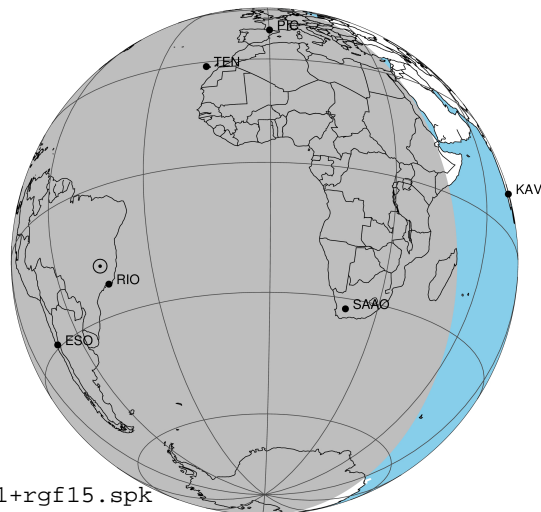
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-13T02:54:23.350
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066586017808403840
 2Mass ID (if available) : 18092642-2300519

Jupiter 2043-05-13T02:54:23 K9.69 G14.93 Pgt

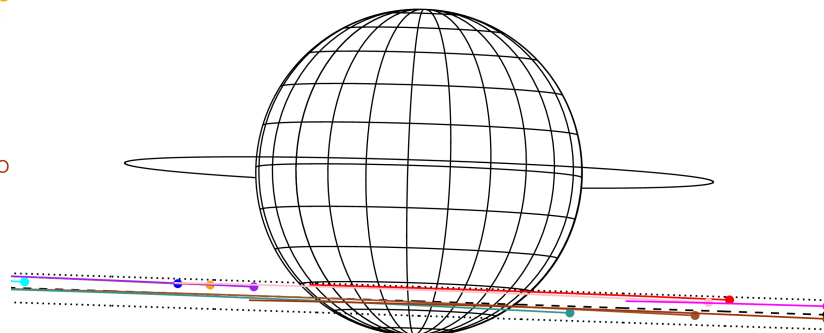
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23°00'52.10947s

RUWE (>1.4 is poor) : 1.02
 K magnitude : 9.688
 G magnitude : 14.928
 RP magnitude : 13.597
 BP magnitude : 16.522
 DUPflag : 0
 Distance (au) : 4.470
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -9.35
 Sun-Target sep (deg) : 139.51
 Sun-Moon sep (deg) : 164.12
 B (ring opening deg) : -2.42
 PA of pole (deg) : -1.85
 Pole direction: RA (deg): 268.05666
 Dec (deg): 64.49732
 C/A sky separation (") : 17.390
 C/A sky separation (km) : 56380.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-05-13T02:54:23 K9.69 G14.93
 Pgt



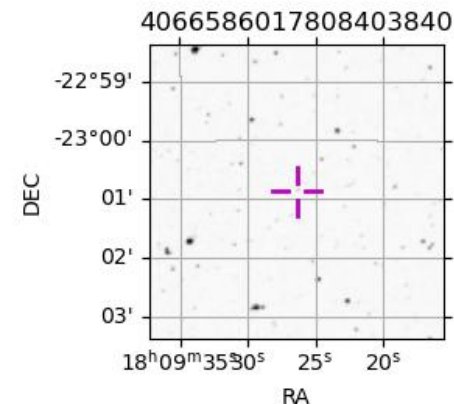
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 SAAO



2043-05-13T02:54:23.3500 α: 18 09 26.4214 δ: -23 00 52.109 C/A ***** PA 358.10 deg v_sky - 9.35 km/s D 04.47 AU
 Credit: Styled after SORA/Lucky Star

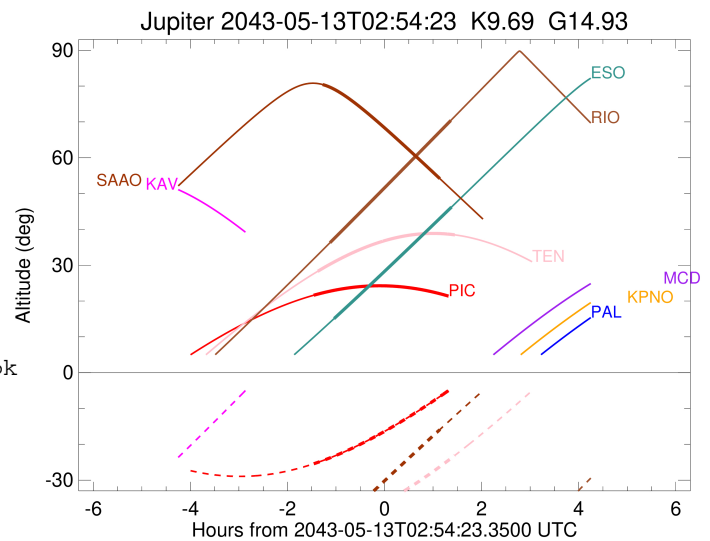
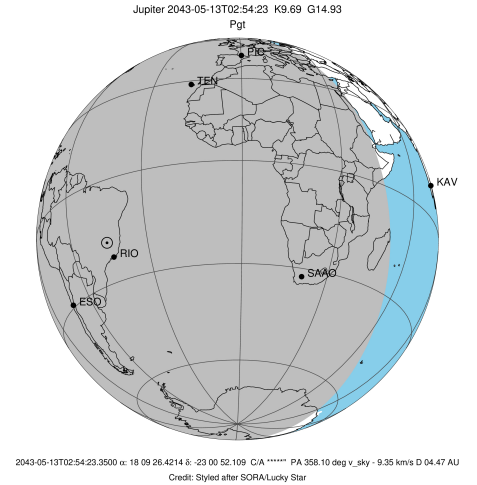
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAY 13 01:26 - MAY 13 01:26	Pin
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	+ +	MAY 13 01:31 - MAY 13 04:21	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAY 13 01:47 - MAY 13 04:16	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAY 13 01:52 - MAY 13 04:17	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	MAY 13 01:37 - MAY 13 04:02	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-13T02:53:39.420
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PIC
Location            : Pic du Midi
Latitude (deg)      : 42.93656
E. Longitude (deg)  : 0.14231
Altitude (km)       : 2.890
Gaia source ID      : 4066586017808403840
2Mass ID (if available) : 18092642-2300519
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23:00:52.10947s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 9.688
G magnitude          : 14.928
RP magnitude        : 13.597
BP magnitude        : 16.522
DUPflag            : 0
Distance (au)       : 4.470
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -9.35
Sun-Target sep (deg) : 139.51
Sun-Moon sep (deg)  : 164.47
B (ring opening deg) : -2.42
PA of pole (deg)    : -1.85
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 15.601
C/A sky separation (km): 50580.4
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
    
```

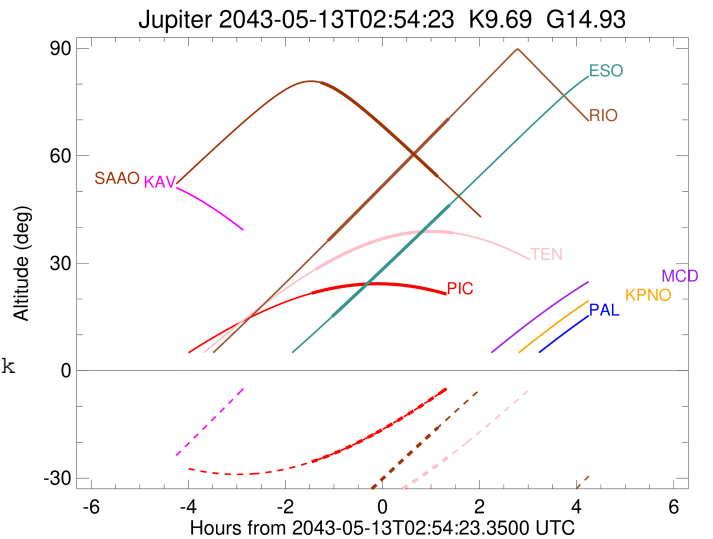
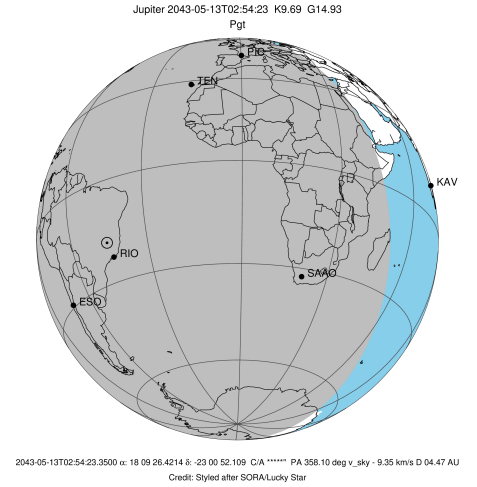


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-13T01:26:49.580	21.61	-25.43	71488.0	-45.08	-48.78
Jupiter	E	2043-05-13T04:20:21.813	20.90	-3.91x	71487.9	-45.18	-48.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-13T02:56:48.570
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 4066586017808403840
2Mass ID (if available) : 18092642-2300519
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23:00:52.10947s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 9.688
G magnitude           : 14.928
RP magnitude          : 13.597
BP magnitude          : 16.522
DUPflag              : 0
Distance (au)         : 4.470
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.35
Sun-Target sep (deg)  : 139.51
Sun-Moon sep (deg)   : 164.71
B (ring opening deg) : -2.42
PA of pole (deg)     : -1.85
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 15.865
C/A sky separation (km) : 51436.9
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
    
```

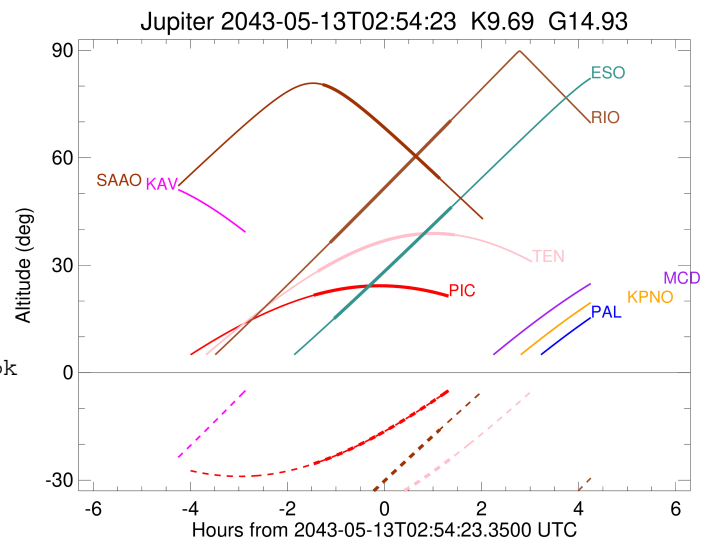
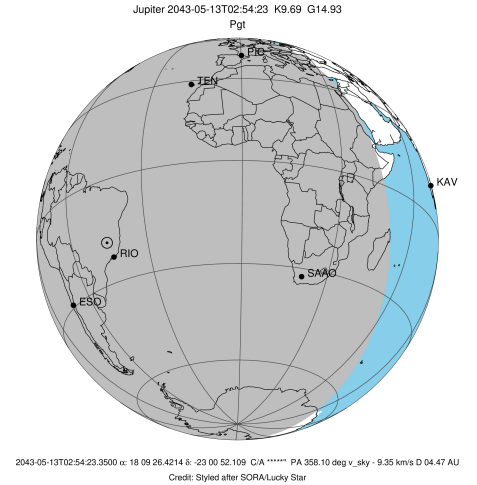


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-13T01:31:50.621	28.29	-43.00	71487.8	-46.32	-50.00
Jupiter	E	2043-05-13T04:21:17.683	38.46	-23.11	71487.8	-45.94	-49.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-13T03:02:08.220
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : RIO
Location            : Rio de Janeiro
Latitude (deg)      : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)       : 0.033
Gaia source ID      : 4066586017808403840
2Mass ID (if available) : 18092642-2300519
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23:00:52.10947s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 9.688
G magnitude          : 14.928
RP magnitude         : 13.597
BP magnitude         : 16.522
DUPflag             : 0
Distance (au)        : 4.470
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.35
Sun-Target sep (deg) : 139.51
Sun-Moon sep (deg)  : 164.85
B (ring opening deg) : -2.42
PA of pole (deg)    : -1.85
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 17.503
C/A sky separation (km): 56748.4
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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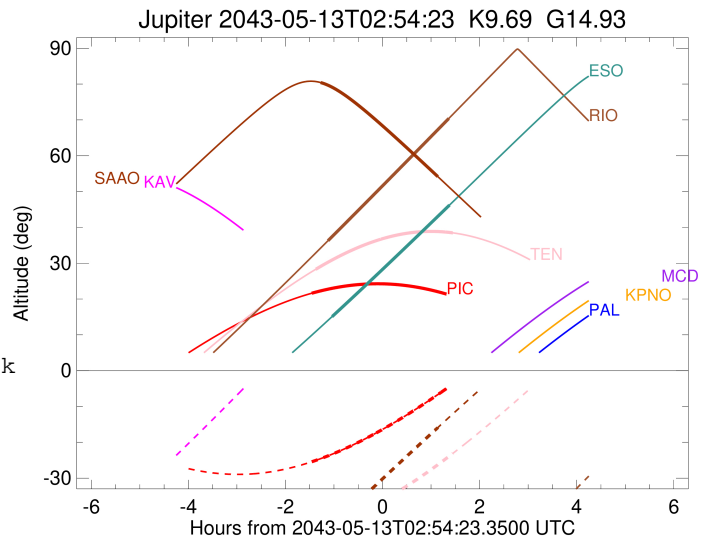
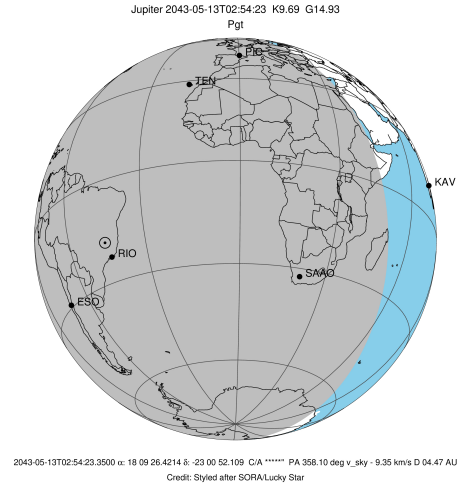


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-13T01:47:03.685	36.28	-74.80	71486.8	-53.21	-56.67
Jupiter	E	2043-05-13T04:16:23.061	70.40	-69.15	71487.0	-52.02	-55.53

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-13T03:05:09.530
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        : 4066586017808403840
2Mass ID (if available) : 18092642-2300519
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23:00:52.10947s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 9.688
G magnitude           : 14.928
RP magnitude          : 13.597
BP magnitude          : 16.522
DUPflag              : 0
Distance (au)         : 4.470
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.35
Sun-Target sep (deg)  : 139.51
Sun-Moon sep (deg)    : 164.87
B (ring opening deg) : -2.42
PA of pole (deg)      : -1.85
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 17.946
C/A sky separation (km) : 58183.9
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
    
```

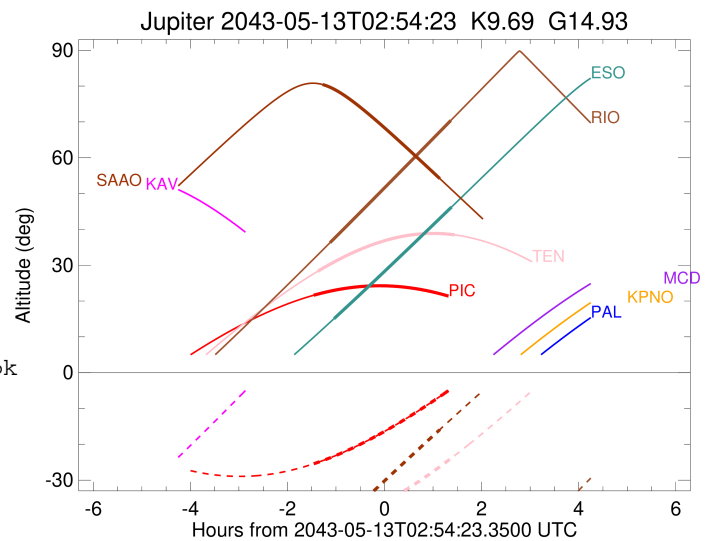
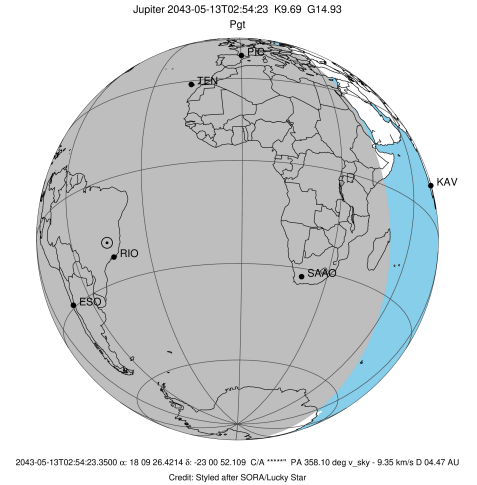


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-13T01:51:59.963	15.07	-50.46	71486.5	-55.36	-58.71
Jupiter	E	2043-05-13T04:17:15.652	46.23	-78.14	71486.8	-53.62	-57.06

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-13T02:50:16.040
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        : 4066586017808403840
2Mass ID (if available) : 18092642-2300519
ICRS Star Coord at Epoch: 18h 09m 26.42140s -23:00:52.10947s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 9.688
G magnitude           : 14.928
RP magnitude          : 13.597
BP magnitude          : 16.522
DUPflag              : 0
Distance (au)         : 4.470
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.35
Sun-Target sep (deg)  : 139.51
Sun-Moon sep (deg)   : 164.03
B (ring opening deg) : -2.42
PA of pole (deg)     : -1.85
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 17.770
C/A sky separation (km) : 57615.6
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	2043-05-13T01:37:55.768	80.42	-46.34	71486.8	-53.40	-56.85
Jupiter	E	2043-05-13T04:02:50.916	54.15	-15.87	71486.7	-54.12	-57.53