

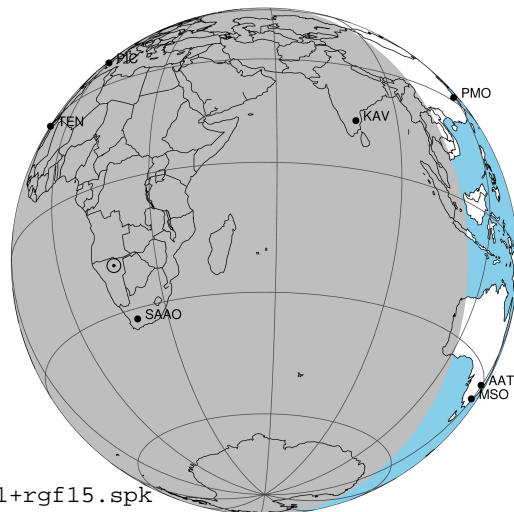
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-05-16T22:43:50.460  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4066594955688788224  
 2Mass ID (if available) : 18081229-2301117

Jupiter 2043-05-16T22:43:50 K9.95 G14.55 Pgt

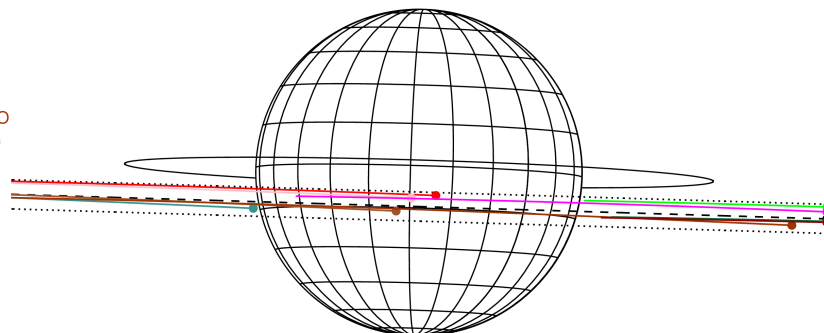
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23°01'11.55519s

RUWE (>1.4 is poor) : 1.00  
 K magnitude : 9.952  
 G magnitude : 14.549  
 RP magnitude : 13.515  
 BP magnitude : 15.645  
 DUPflag : 0  
 Distance (au) : 4.431  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -10.62  
 Sun-Target sep (deg) : 143.48  
 Sun-Moon sep (deg) : 113.95  
 B (ring opening deg) : -2.43  
 PA of pole (deg) : -1.72  
 Pole direction: RA (deg): 268.05667  
 Dec (deg): 64.49732  
 C/A sky separation (") : 4.644  
 C/A sky separation (km) : 14925.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-05-16T22:43:50 K9.95 G14.55  
 Pgt



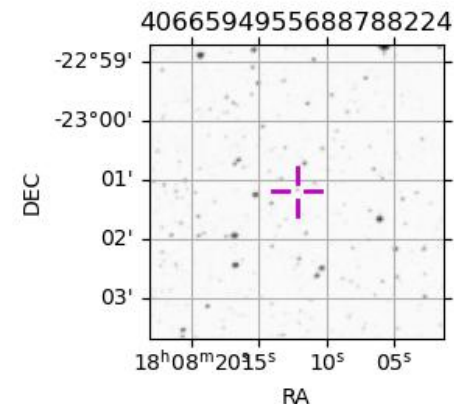
Earth  
 PIC  
 PMO  
 TEN  
 KAV  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



2043-05-16T22:43:50.4600 at: 18 08 12.3128 s: -23 01 11.5555 C/A 4.6566 PA 358.28 deg v\_sky -10.62 km/s D 04.43 AU  
 Credit: Styled after SORA/Lucky Star

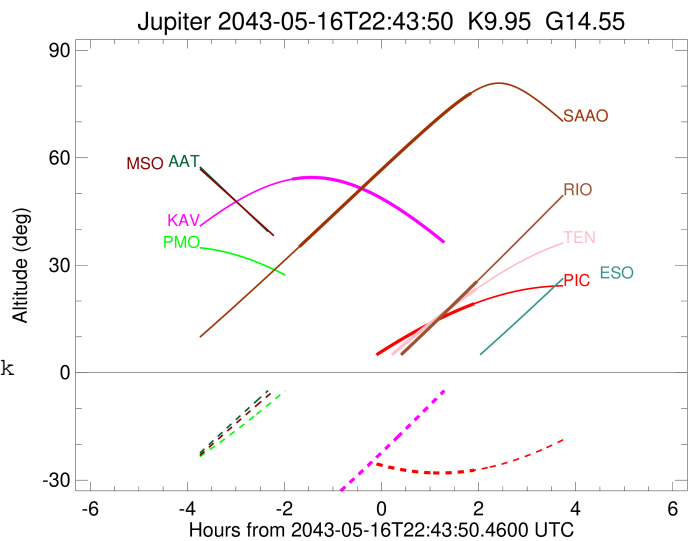
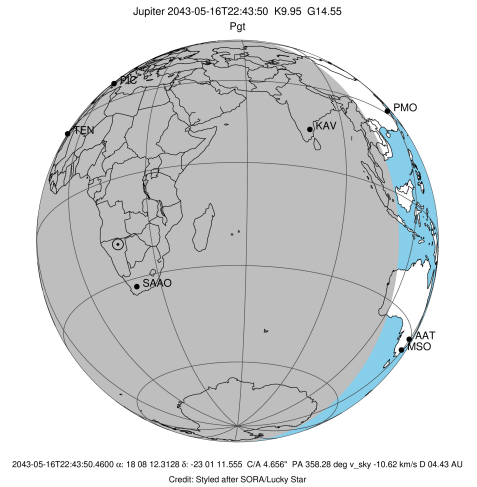
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAY 17 00:38 - MAY 17 00:38	Pne
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 17 00:40 - MAY 17 00:40	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	MAY 16 20:53 - MAY 16 20:53	Pin
RIO	Rio de Janeiro	-22.9	316.8	+	MAY 17 00:41 - MAY 17 00:41	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAY 16 21:02 - MAY 17 00:34	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-16T22:49:46.150
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     : 4066594955688788224
2Mass ID (if available) : 18081229-2301117
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23:01:11.55519s
RUWE (>1.4 is poor) : 1.00
K magnitude        : 9.952
G magnitude        : 14.549
RP magnitude       : 13.515
BP magnitude       : 15.645
DUPflag           : 0
Distance (au)     : 4.431
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : -10.62
Sun-Target sep (deg) : 143.48
Sun-Moon sep (deg) : 114.28
B (ring opening deg) : -2.43
PA of pole (deg)   : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (" ) : 3.043
C/A sky separation (km) : 9780.9
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
    
```

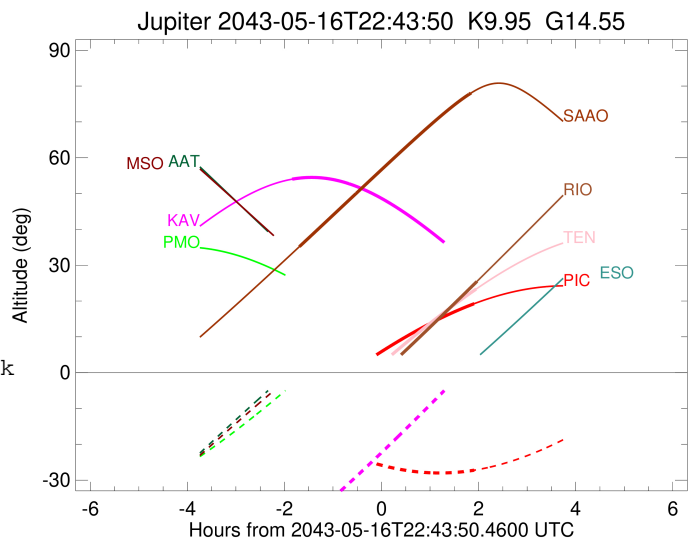
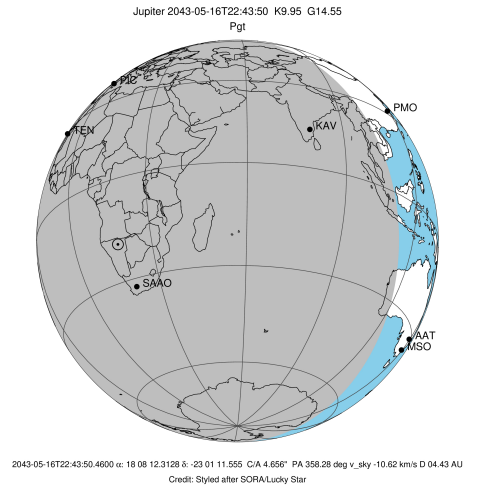


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-16T20:59:47.007	-10.63x	-15.98	71491.8	-8.50	-9.69
Jupiter	E	2043-05-17T00:38:11.993	19.24	-27.23	71491.9	-7.44	-8.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-16T22:52:15.900
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      : 4066594955688788224
2Mass ID (if available) : 18081229-2301117
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23:01:11.55519s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.952
G magnitude          : 14.549
RP magnitude         : 13.515
BP magnitude         : 15.645
DUPflag             : 0
Distance (au)       : 4.431
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.62
Sun-Target sep (deg) : 143.48
Sun-Moon sep (deg)  : 114.31
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 3.511
C/A sky separation (km) : 11282.3
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
    
```

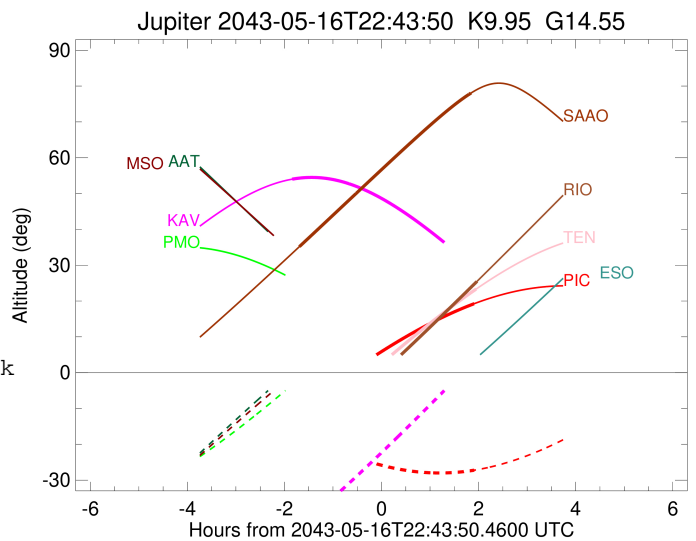
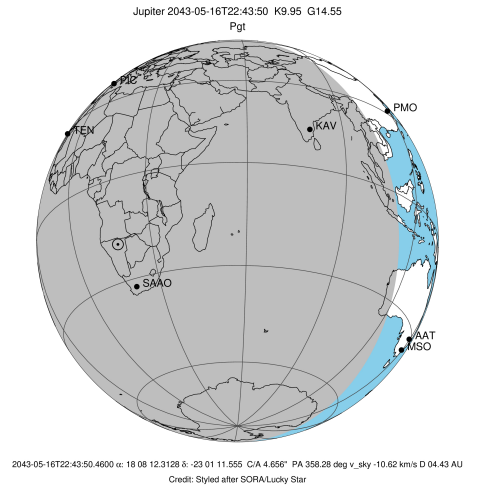


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-16T21:01:44.975	-18.37x	-15.02	71491.8	-9.92	-11.31
Jupiter	E	2043-05-17T00:40:41.072	23.31	-42.32	71491.8	-8.40	-9.58

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-16T22:40:04.090
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      : 4066594955688788224
2Mass ID (if available) : 18081229-2301117
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23:01:11.55519s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.952
G magnitude          : 14.549
RP magnitude         : 13.515
BP magnitude         : 15.645
DUPflag             : 0
Distance (au)       : 4.431
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.62
Sun-Target sep (deg) : 143.48
Sun-Moon sep (deg)  : 114.45
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (" ) : 3.565
C/A sky separation (km) : 11457.5
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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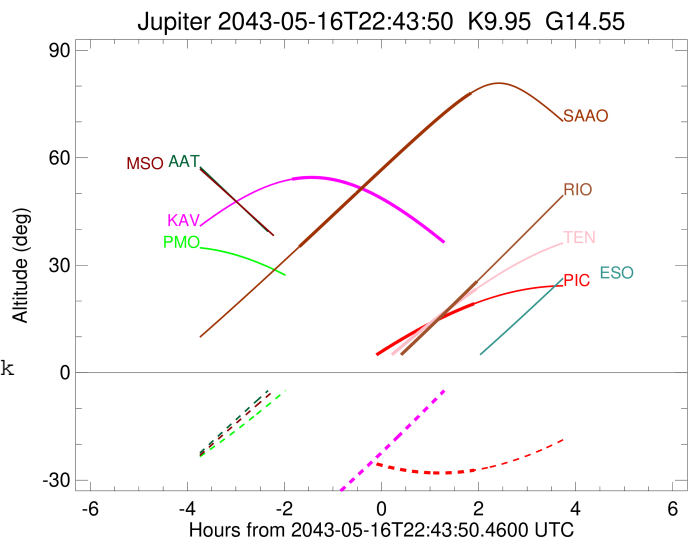
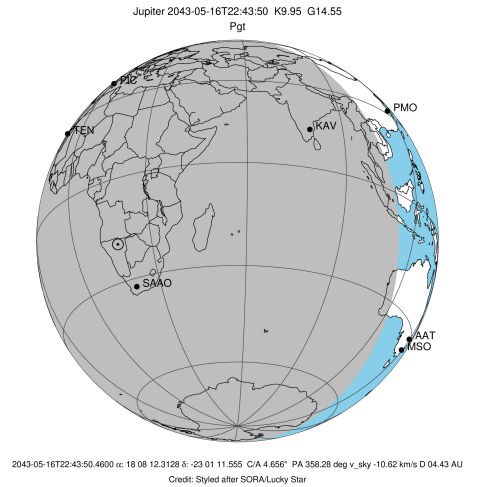


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-16T20:53:40.932	54.02	-44.46	71491.8	-9.02	-10.29
Jupiter	E	2043-05-17T00:26:58.981	31.49	0.85x	71491.8	-9.79	-11.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-16T22:53:32.890
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        : 4066594955688788224
2Mass ID (if available) : 18081229-2301117
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23:01:11.55519s
RUWE (>1.4 is poor)  : 1.00
K magnitude           : 9.952
G magnitude           : 14.549
RP magnitude          : 13.515
BP magnitude          : 15.645
DUPflag              : 0
Distance (au)         : 4.431
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -10.62
Sun-Target sep (deg)  : 143.48
Sun-Moon sep (deg)    : 114.28
B (ring opening deg)  : -2.43
PA of pole (deg)      : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 5.387
C/A sky separation (km) : 17313.3
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
    
```

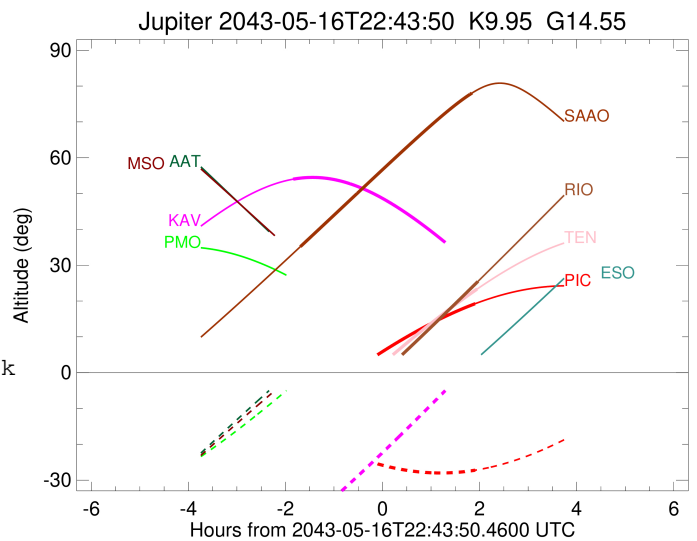
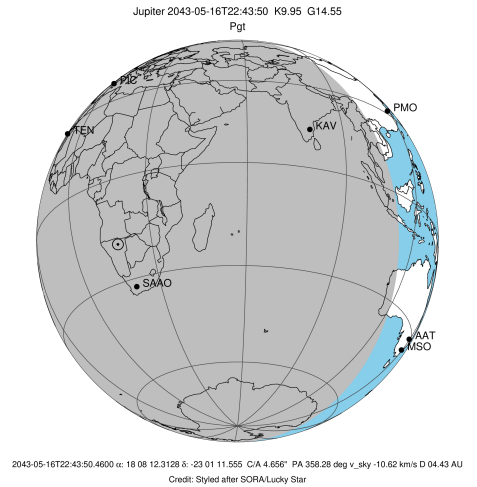


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-16T21:02:57.169	-20.13x	-10.34	71491.5	-14.88	-16.89
Jupiter	E	2043-05-17T00:41:48.633	25.47	-60.11	71491.6	-13.12	-14.92

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-16T22:48:57.710
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        : 4066594955688788224
2Mass ID (if available) : 18081229-2301117
ICRS Star Coord at Epoch: 18h 08m 12.31278s -23:01:11.55519s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.952
G magnitude           : 14.549
RP magnitude          : 13.515
BP magnitude          : 15.645
DUPflag              : 0
Distance (au)         : 4.431
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.62
Sun-Target sep (deg)  : 143.48
Sun-Moon sep (deg)    : 114.84
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.72
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 5.047
C/A sky separation (km) : 16219.5
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	2043-05-16T21:02:15.034	35.16	-65.85	71491.6	-13.66	-15.52
Jupiter	E	2043-05-17T00:34:28.289	78.05	-59.91	71491.6	-12.87	-14.63