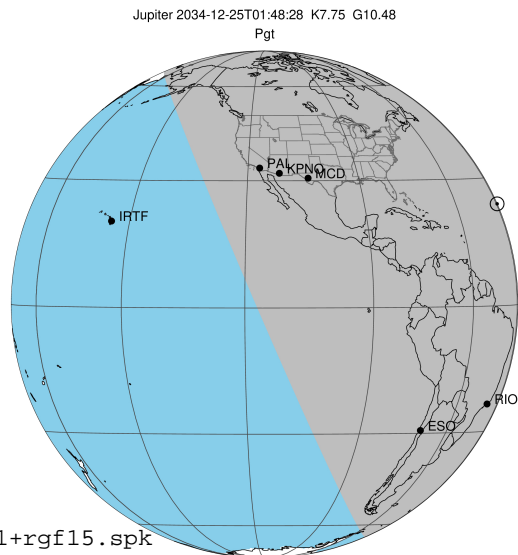


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2034-12-25T01:48:28.860
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 2545567094173124096
 2Mass ID (if available) : 00191745+0037546

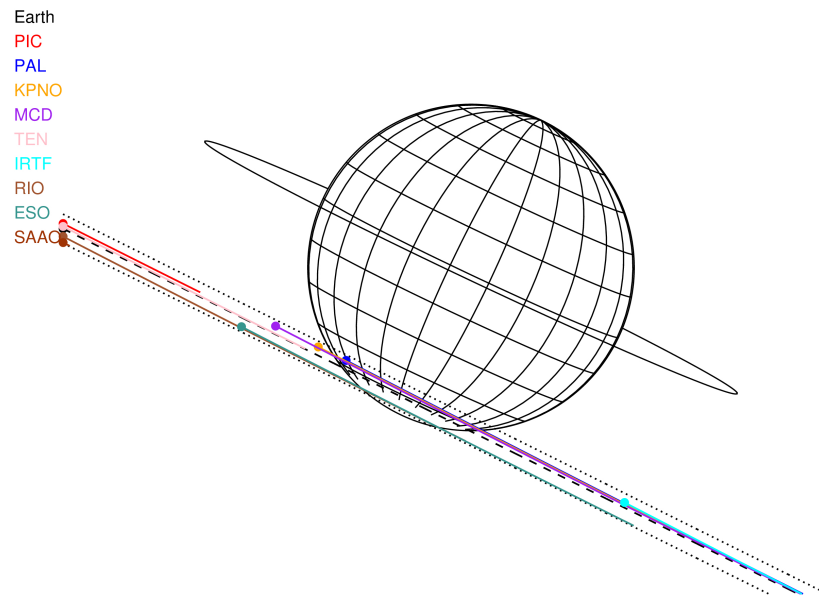
Jupiter 2034-12-25T01:48:28 K7.75 G10.48 Pgt

ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s

RUWE (>1.4 is poor) : 1.15
 K magnitude : 7.751
 G magnitude : 10.483
 RP magnitude : 9.685
 BP magnitude : 11.167
 DUPflag : 0
 Distance (au) : 4.823
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.57
 Sun-Target sep (deg) : 91.84
 Sun-Moon sep (deg) : 83.86
 B (ring opening deg) : 2.34
 PA of pole (deg) : -25.34
 Pole direction: RA (deg): 268.05640
 Dec (deg): 64.49676
 C/A sky separation (") : 18.393
 C/A sky separation (km) : 64332.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

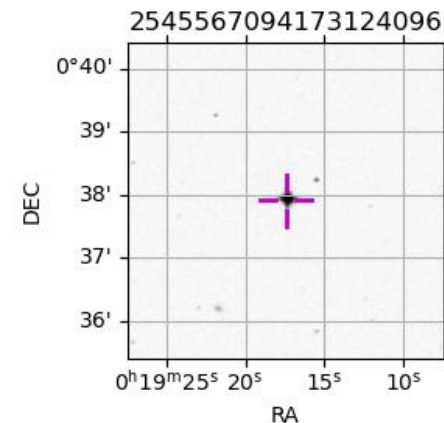


2034-12-25T01:48:28.8600 α: 00 19 17.4663 δ: +00 37 54.450 C/A ***** PA 333.58 deg v_sky +12.57 km/s D 04.82 AU
 Credit: Styled after SORA/Lucky Star



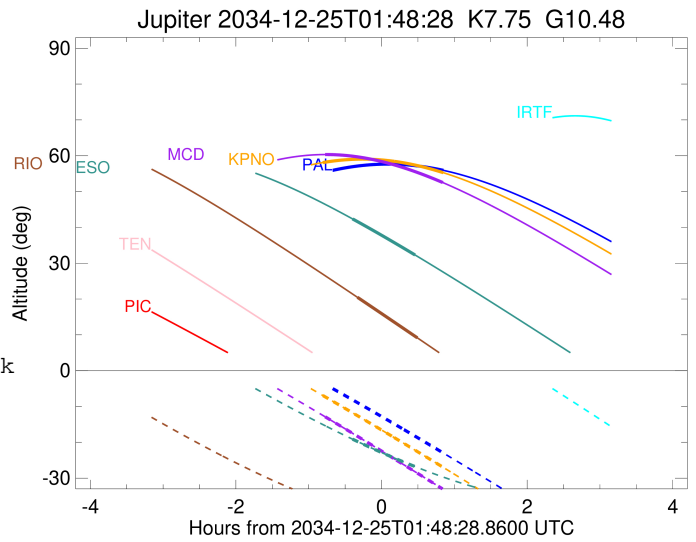
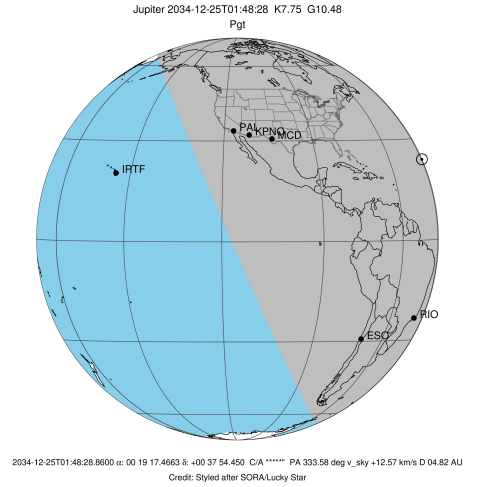
Observable events with sun below -5 deg and altitude above 5 deg

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	+	DEC 25 02:39 - DEC 25 02:39	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	DEC 25 01:00 - DEC 25 02:39	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	DEC 25 01:01 - DEC 25 02:38	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
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	+ +	DEC 25 01:28 - DEC 25 02:18	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	DEC 25 01:24 - DEC 25 02:16	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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-12-25T01:49:12.840
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      : 2545567094173124096
2Mass ID (if available) : 00191745+0037546
ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 7.751
G magnitude          : 10.483
RP magnitude         : 9.685
BP magnitude         : 11.167
DUPflag             : 0
Distance (au)       : 4.823
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.57
Sun-Target sep (deg) : 91.84
Sun-Moon sep (deg)  : 84.70
B (ring opening deg) : 2.34
PA of pole (deg)    : -25.34
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation ("): 17.507
C/A sky separation (km): 61235.5
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
    
```

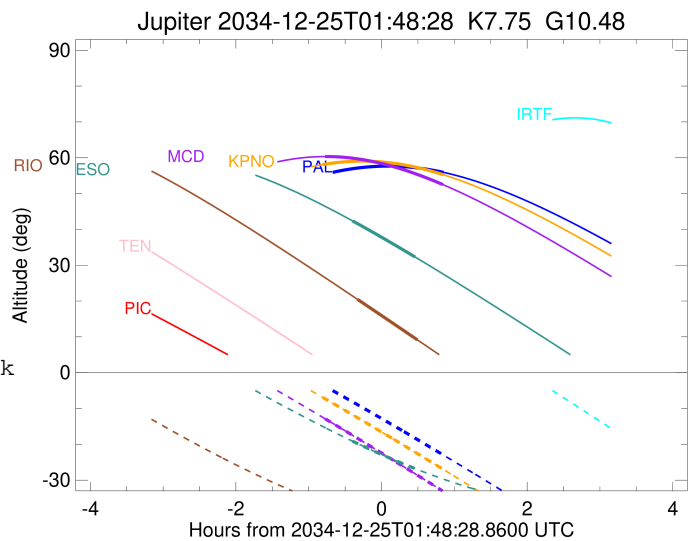
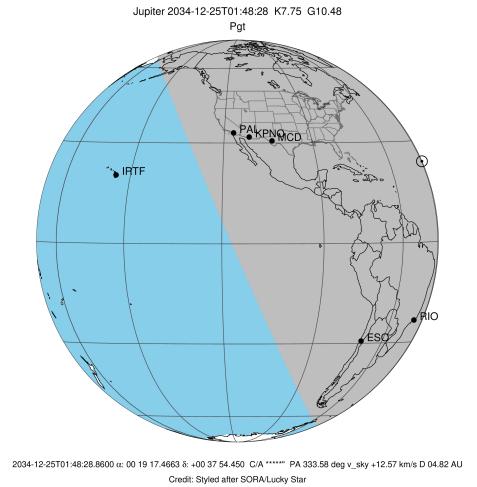


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-25T00:58:55.060	55.16	-3.24x	71486.8	-56.97	-60.23
Jupiter	E	2034-12-25T02:39:27.770	55.91	-22.99	71486.3	-60.74	-63.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-12-25T01:49:43.260
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        : 2545567094173124096
2Mass ID (if available) : 00191745+0037546
ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s
RUWE (>1.4 is poor)  : 1.15
K magnitude           : 7.751
G magnitude           : 10.483
RP magnitude          : 9.685
BP magnitude          : 11.167
DUPflag              : 0
Distance (au)         : 4.823
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.57
Sun-Target sep (deg)  : 91.84
Sun-Moon sep (deg)    : 84.71
B (ring opening deg)  : 2.34
PA of pole (deg)      : -25.34
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 17.605
C/A sky separation (km) : 61578.7
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
    
```

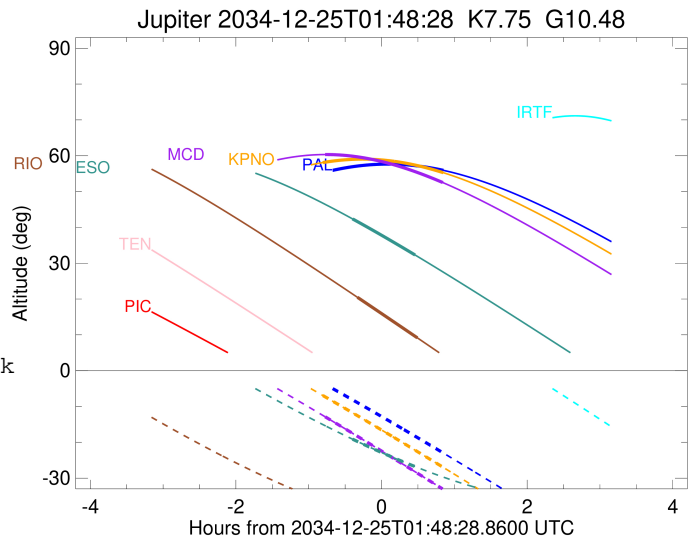
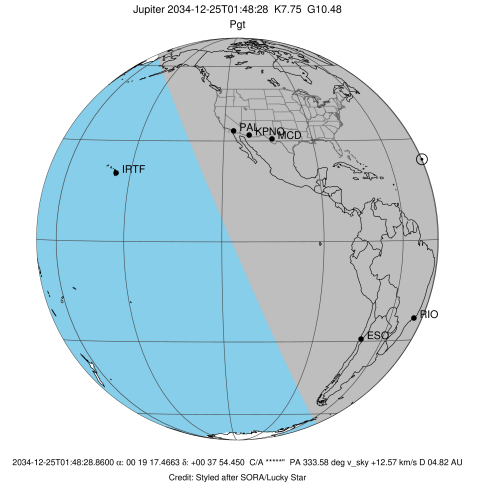


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-25T01:00:09.861	58.09	-6.94	71486.7	-57.49	-60.71
Jupiter	E	2034-12-25T02:39:12.163	55.28	-26.96	71486.3	-61.28	-64.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-12-25T01:50:32.100
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        : 2545567094173124096
2Mass ID (if available) : 00191745+0037546
ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s
RUWE (>1.4 is poor) : 1.15
K magnitude           : 7.751
G magnitude           : 10.483
RP magnitude          : 9.685
BP magnitude          : 11.167
DUPflag              : 0
Distance (au)         : 4.823
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.57
Sun-Target sep (deg) : 91.84
Sun-Moon sep (deg)   : 84.70
B (ring opening deg) : 2.34
PA of pole (deg)     : -25.34
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation ("): 17.731
C/A sky separation (km): 62018.4
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
    
```

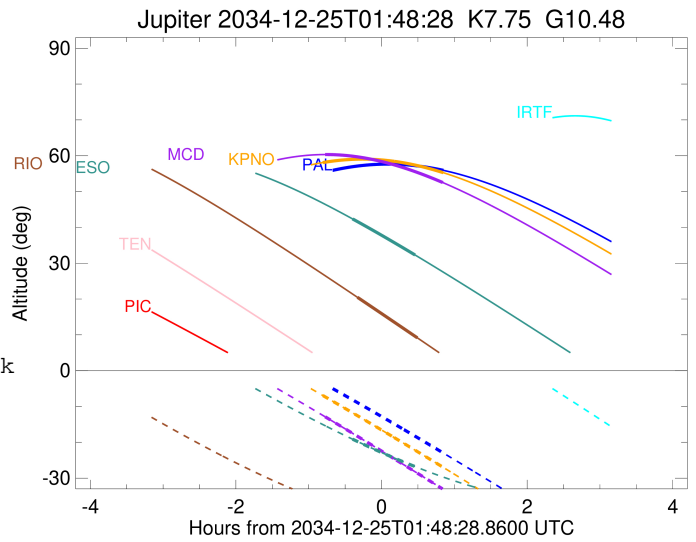
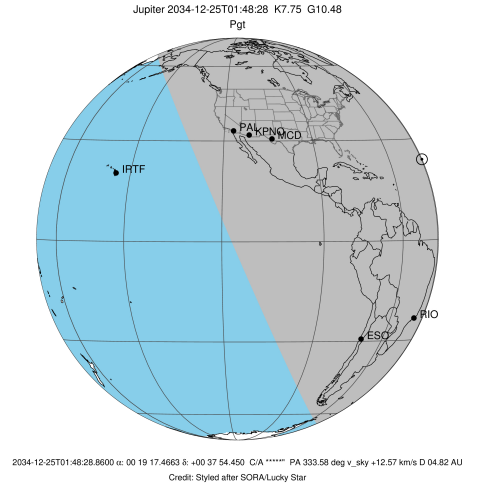


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-25T01:01:58.827	60.32	-12.86	71486.6	-58.18	-61.37
Jupiter	E	2034-12-25T02:38:58.645	52.51	-33.04	71486.2	-61.96	-64.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-12-25T01:53:20.860
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       : 2545567094173124096
2Mass ID (if available) : 00191745+0037546
ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 7.751
G magnitude           : 10.483
RP magnitude         : 9.685
BP magnitude         : 11.167
DUPflag             : 0
Distance (au)        : 4.823
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.57
Sun-Target sep (deg) : 91.84
Sun-Moon sep (deg)   : 84.07
B (ring opening deg) : 2.34
PA of pole (deg)     : -25.34
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 19.747
C/A sky separation (km) : 69069.9
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
    
```

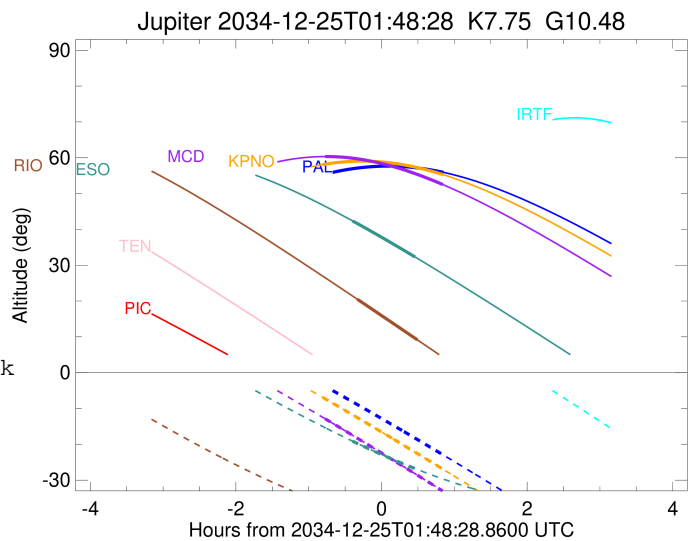
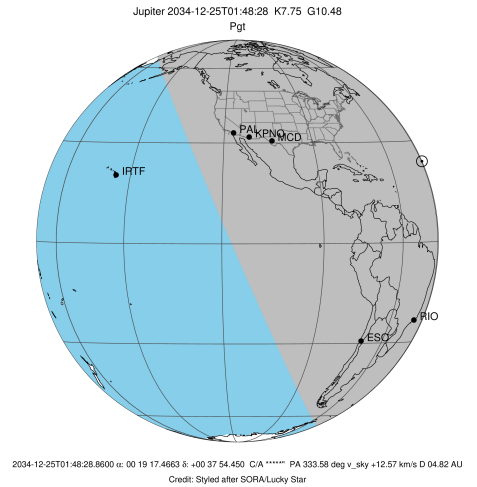


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-25T01:28:35.173	20.49	-39.53	71485.2	-73.54	-75.41
Jupiter	E	2034-12-25T02:18:00.777	9.16	-43.09	71485.0	-76.13	-77.73

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-12-25T01:50:24.210
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        : 2545567094173124096
2Mass ID (if available) : 00191745+0037546
ICRS Star Coord at Epoch: 00h 19m 17.46629s +00:37:54.44965s
RUWE (>1.4 is poor) : 1.15
K magnitude           : 7.751
G magnitude           : 10.483
RP magnitude          : 9.685
BP magnitude          : 11.167
DUPflag              : 0
Distance (au)         : 4.823
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.57
Sun-Target sep (deg) : 91.84
Sun-Moon sep (deg)   : 84.44
B (ring opening deg) : 2.34
PA of pole (deg)     : -25.34
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 19.705
C/A sky separation (km) : 68923.1
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	2034-12-25T01:24:38.552	42.36	-19.12	71485.2	-72.76	-74.71
Jupiter	E	2034-12-25T02:16:05.273	32.30	-26.76	71485.0	-76.05	-77.65