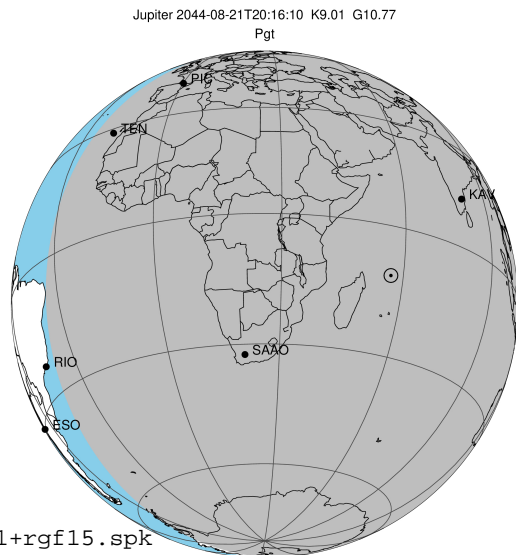


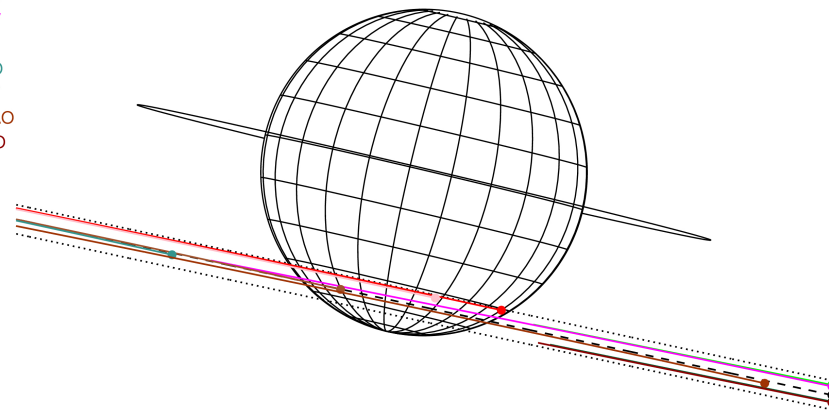
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2044-08-21T20:16:10.810
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6866026292388236288
 2Mass ID (if available) : 20010867-2110035

Jupiter 2044-08-21T20:16:10 K9.01 G10.77 Pgt

ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69823s
 RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.006
 G magnitude : 10.773
 RP magnitude : 10.171
 BP magnitude : 11.207
 DUPflag : 0
 Distance (au) : 4.218
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -11.99
 Sun-Target sep (deg) : 149.26
 Sun-Moon sep (deg) : 165.58
 B (ring opening deg) : -0.79
 PA of pole (deg) : -13.28
 Pole direction: RA (deg): 268.05690
 Dec (deg): 64.49728
 C/A sky separation (") : 18.849
 C/A sky separation (km) : 57668.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



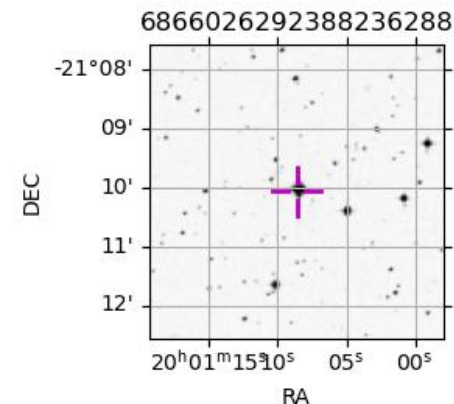
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2044-08-21T20:16:10.8100 a: 20 01 08.8201 & -21 10 04.698 C/A ***** PA 347.84 deg v_sky -11.99 km/s D 0.42 AU
 Credit: Styled after SORA/Lucky Star

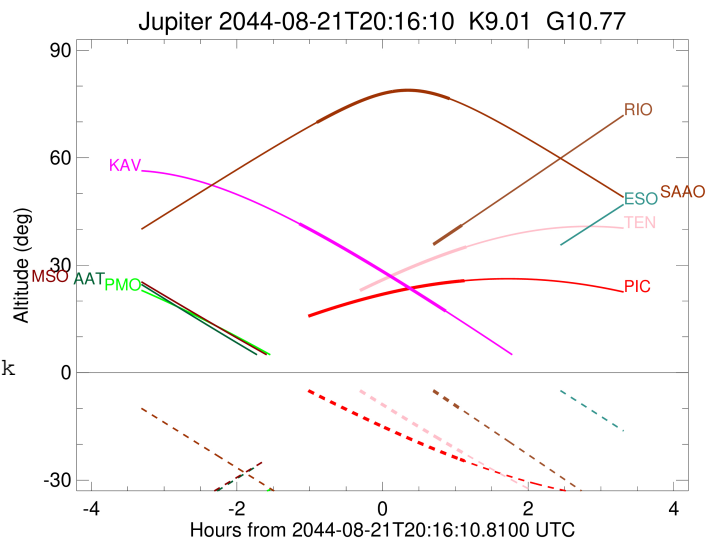
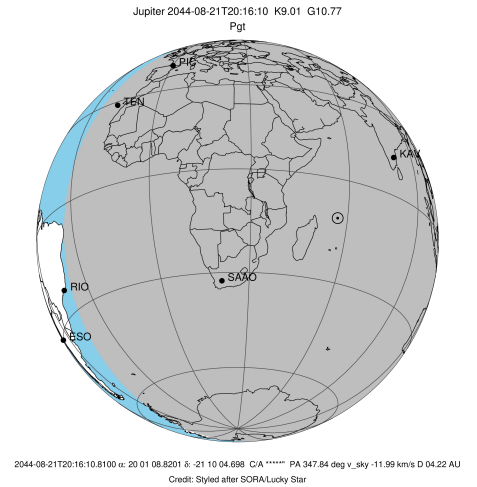
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	AUG 21 21:23 - AUG 21 21:23	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	+	AUG 21 21:25 - AUG 21 21:25	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	AUG 21 19:07 - AUG 21 21:08	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	AUG 21 21:21 - AUG 21 21:21	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	+ +	AUG 21 19:22 - AUG 21 21:11	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-08-21T20:17:11.680
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        : 6866026292388236288
2Mass ID (if available) : 20010867-2110035
ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69823s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.006
G magnitude           : 10.773
RP magnitude          : 10.171
BP magnitude          : 11.207
DUPflag              : 0
Distance (au)         : 4.218
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.99
Sun-Target sep (deg)  : 149.26
Sun-Moon sep (deg)   : 165.89
B (ring opening deg) : -0.79
PA of pole (deg)     : -13.28
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation (") : 16.935
C/A sky separation (km) : 51812.6
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
    
```

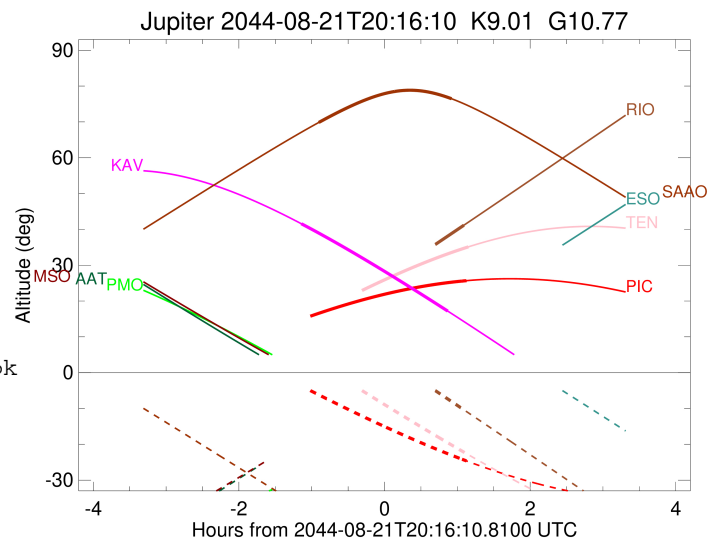
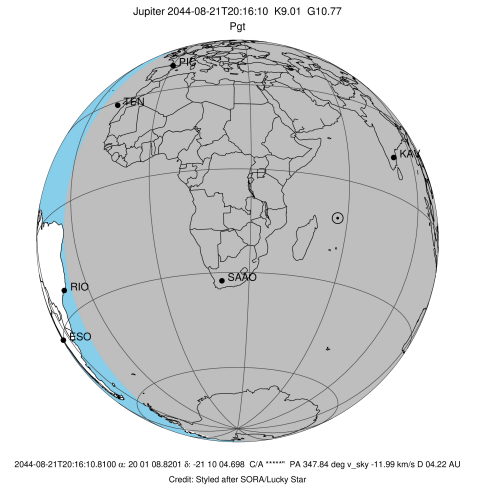


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-08-21T19:10:30.379	15.22	-4.21x	71491.6	-45.36	-49.05
Jupiter	E	2044-08-21T21:23:45.653	25.68	-24.64	71491.5	-47.72	-51.37

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-08-21T20:20:08.070
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       : 6866026292388236288
2Mass ID (if available) : 20010867-2110035
ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69824s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.006
G magnitude           : 10.773
RP magnitude         : 10.171
BP magnitude         : 11.207
DUPflag              : 0
Distance (au)        : 4.218
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.99
Sun-Target sep (deg) : 149.26
Sun-Moon sep (deg)   : 166.20
B (ring opening deg) : -0.79
PA of pole (deg)     : -13.28
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 17.209
C/A sky separation (km): 52652.5
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
    
```

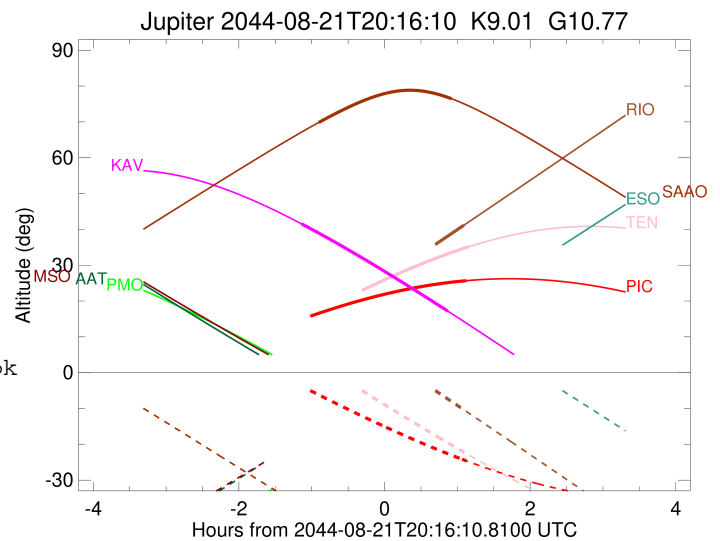
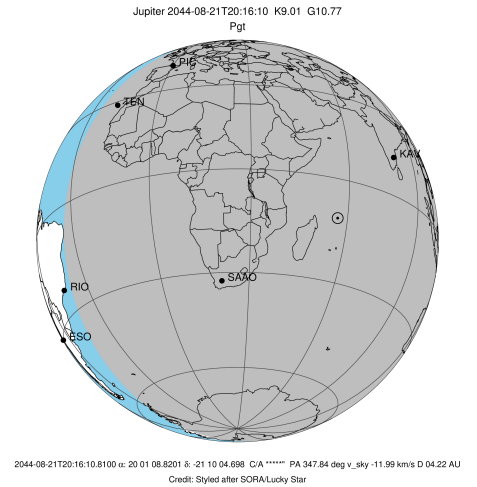


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-08-21T19:14:38.256	15.48	4.22x	71491.6	-46.56	-50.24
Jupiter	E	2044-08-21T21:25:19.540	35.12	-22.91	71491.5	-48.52	-52.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-08-21T20:07:39.930
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       : 6866026292388236288
2Mass ID (if available) : 20010867-2110035
ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69823s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.006
G magnitude          : 10.773
RP magnitude         : 10.171
BP magnitude         : 11.207
DUPflag             : 0
Distance (au)        : 4.218
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.99
Sun-Target sep (deg) : 149.26
Sun-Moon sep (deg)   : 164.91
B (ring opening deg) : -0.79
PA of pole (deg)     : -13.28
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation ("): 18.325
C/A sky separation (km): 56064.4
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
    
```

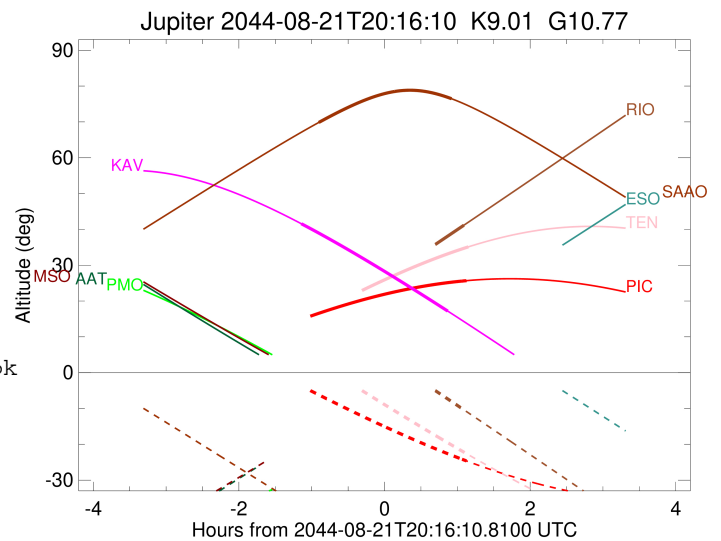
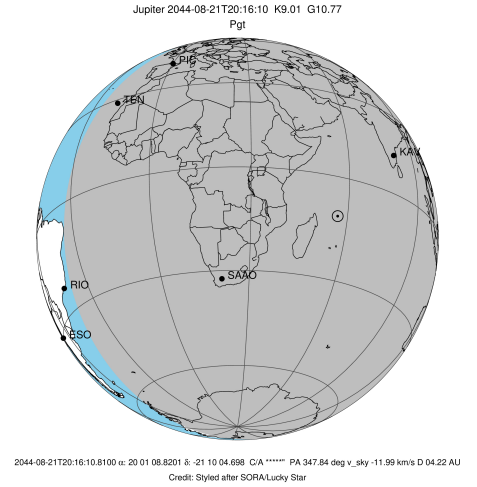


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-08-21T19:07:36.050	41.58	-65.31	71491.5	-49.69	-53.29
Jupiter	E	2044-08-21T21:08:16.843	17.19	-47.53	71491.4	-53.63	-57.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-08-21T20:24:39.420
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        : 6866026292388236288
2Mass ID (if available) : 20010867-2110035
ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69824s
RUWE (>1.4 is poor)  : 0.92
K magnitude           : 9.006
G magnitude           : 10.773
RP magnitude          : 10.171
BP magnitude          : 11.207
DUPflag              : 0
Distance (au)         : 4.218
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.99
Sun-Target sep (deg)  : 149.26
Sun-Moon sep (deg)    : 166.54
B (ring opening deg)  : -0.79
PA of pole (deg)      : -13.28
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation (") : 18.943
C/A sky separation (km) : 57956.0
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
    
```

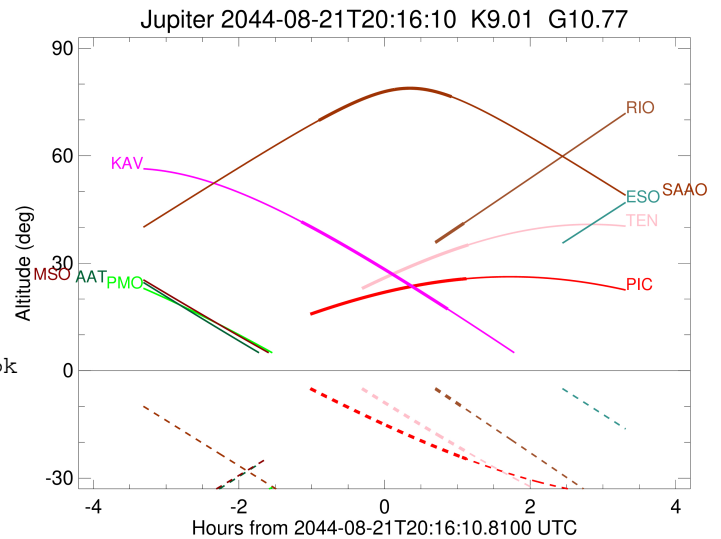
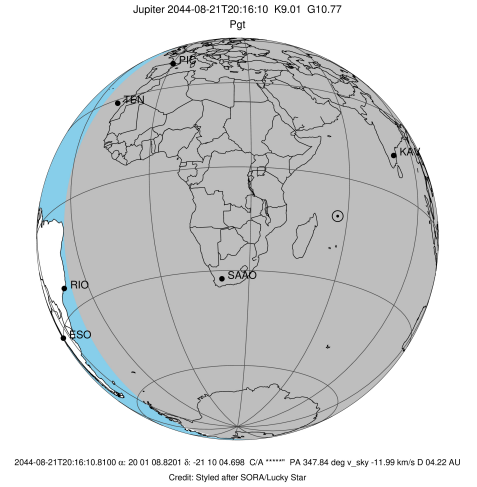


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-08-21T19:27:18.825	15.39	15.16x	71491.5	-53.60	-57.04
Jupiter	E	2044-08-21T21:21:36.149	41.16	-10.37	71491.4	-54.88	-58.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-08-21T20:16:43.900
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        : 6866026292388236288
2Mass ID (if available) : 20010867-2110035
ICRS Star Coord at Epoch: 20h 01m 08.82010s -21:10:04.69823s
RUWE (>1.4 is poor)  : 0.92
K magnitude           : 9.006
G magnitude           : 10.773
RP magnitude          : 10.171
BP magnitude          : 11.207
DUPflag              : 0
Distance (au)         : 4.218
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -11.99
Sun-Target sep (deg)  : 149.26
Sun-Moon sep (deg)    : 165.90
B (ring opening deg)  : -0.79
PA of pole (deg)      : -13.28
Pole direction: RA (deg): 268.05690
Dec (deg): 64.49728
C/A sky separation (") : 19.212
C/A sky separation (km) : 58778.8
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	2044-08-21T19:22:03.576	69.85	-40.34	71491.4	-53.93	-57.36
Jupiter	E	2044-08-21T21:11:27.019	76.46	-61.15	71491.4	-56.82	-60.09