

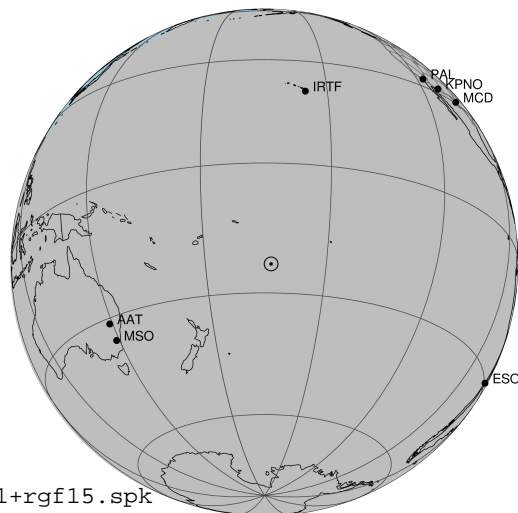
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-21T10:56:35.000
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068704059579262336
 2Mass ID (if available) : 17505964-2304247

Jupiter 2043-06-21T10:56:35 K9.26 G14.97 Pgt

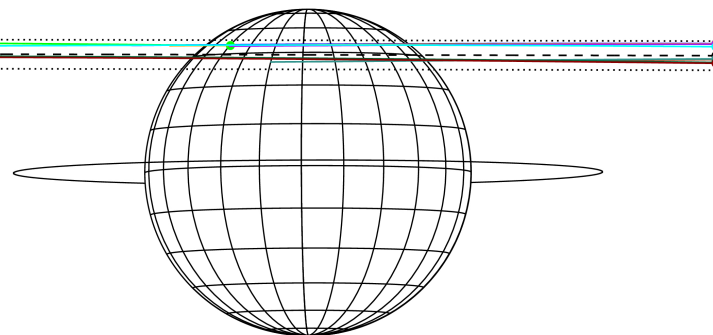
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s

RUWE (>1.4 is poor) : 1.00
 K magnitude : 9.260
 G magnitude : 14.971
 RP magnitude : 13.576
 BP magnitude : 17.413
 DUPflag : 0
 Distance (au) : 4.250
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.40
 Sun-Target sep (deg) : 178.49
 Sun-Moon sep (deg) : 12.40
 B (ring opening deg) : -2.43
 PA of pole (deg) : 0.13
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 16.721
 C/A sky separation (km) : 51542.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-21T10:56:35 K9.26 G14.97
 Pgt



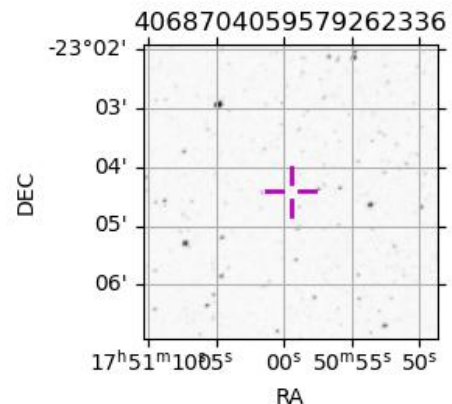
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 RIO
 ESO
 AAT
 MSO



2043-06-21T10:56:35.0000 a: 17 50 59.6249 s -23 04 25.0083 C/A ***** PA 179.89 deg v_sky -16.40 km/s D 04.25 AU
 Credit: Styled after SORA/Lucky Star

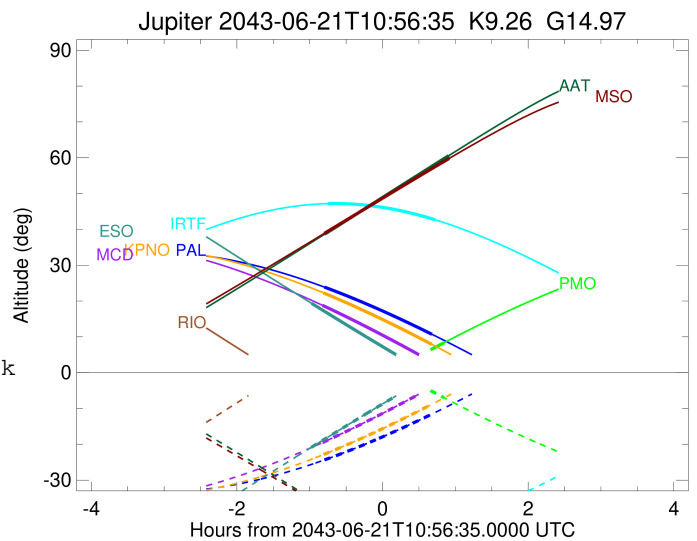
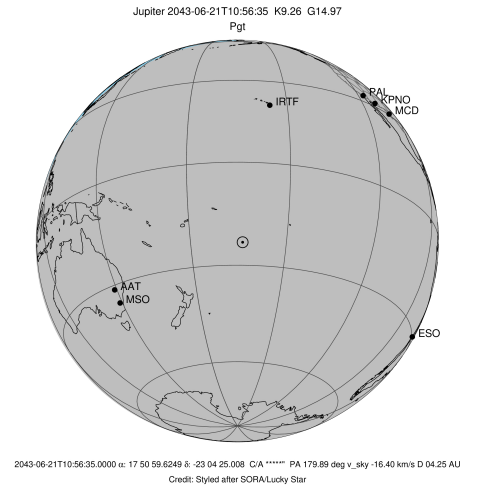
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 21 10:08 - JUN 21 11:37	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUN 21 11:47 - JUN 21 11:47	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 21 10:08 - JUN 21 11:37	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 21 10:07 - JUN 21 10:07	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 21 10:11 - JUN 21 11:39	Pie
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	+ +	JUN 21 09:58 - JUN 21 09:58	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 21 10:09 - JUN 21 11:51	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 21 10:08 - JUN 21 11:51	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-21T10:52:56.770
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       : 4068704059579262336
2Mass ID (if available) : 17505964-2304247
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.260
G magnitude          : 14.971
RP magnitude         : 13.576
BP magnitude         : 17.413
DUPflag             : 0
Distance (au)        : 4.250
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 178.49
Sun-Moon sep (deg)  : 13.23
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.13
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 18.212
C/A sky separation (km): 56138.9
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
    
```

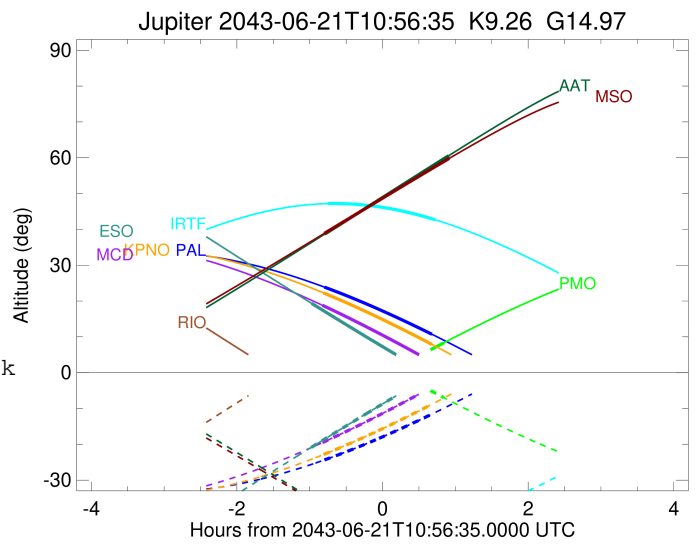
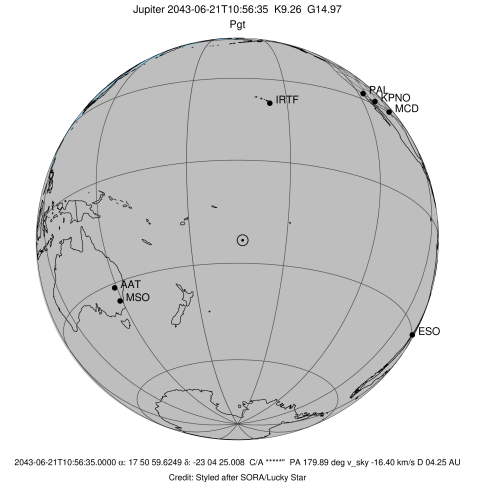


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-21T10:08:43.158	23.88	-24.35	71487.0	51.79	55.31
Jupiter	E	2043-06-21T11:37:18.990	10.71	-11.56	71487.1	51.51	55.04

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-21T11:01:21.340
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PMO
Location            : Purple Mtn Obs. Nanking
Latitude (deg)      : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)       : 0.364
Gaia source ID      : 4068704059579262336
2Mass ID (if available) : 17505964-2304247
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.260
G magnitude          : 14.971
RP magnitude         : 13.576
BP magnitude         : 17.413
DUPflag             : 0
Distance (au)        : 4.250
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 178.49
Sun-Moon sep (deg)   : 11.96
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.13
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 17.919
C/A sky separation (km): 55236.9
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
    
```

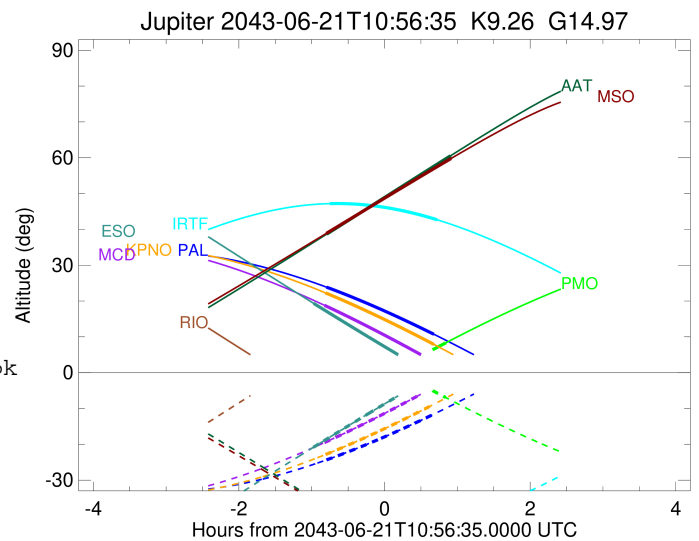
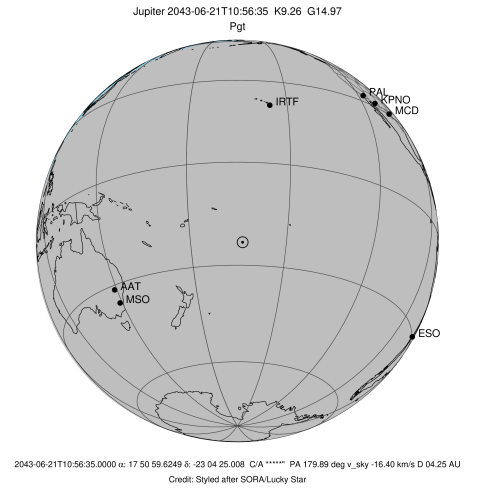


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-21T10:15:25.439	-8.94x	10.35x	71487.3	49.76	53.35
Jupiter	E	2043-06-21T11:47:05.025	8.32	-6.95	71487.1	51.27	54.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-21T10:52:36.060
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      : 4068704059579262336
2Mass ID (if available) : 17505964-2304247
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s
RUWE (>1.4 is poor) : 1.00
K magnitude         : 9.260
G magnitude         : 14.971
RP magnitude        : 13.576
BP magnitude        : 17.413
DUPflag            : 0
Distance (au)       : 4.250
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 178.49
Sun-Moon sep (deg)  : 13.25
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.13
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 18.132
C/A sky separation (km) : 55892.1
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
    
```

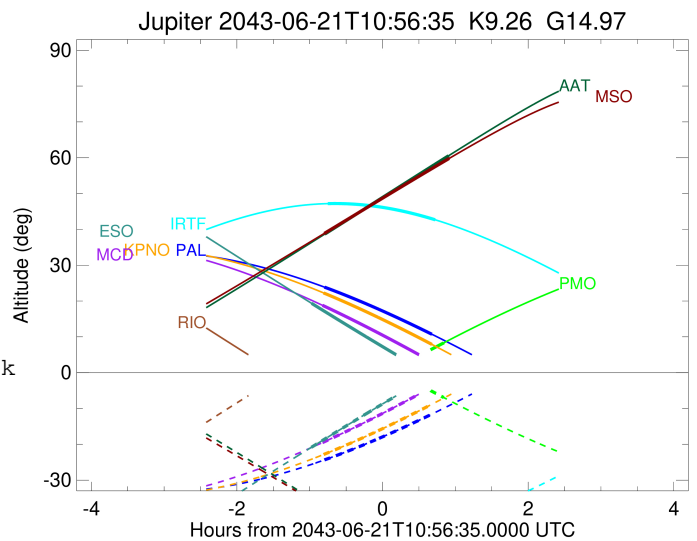
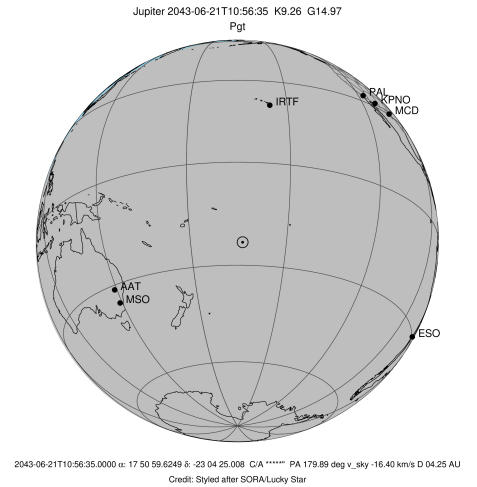


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-21T10:08:00.711	22.26	-22.84	71487.1	51.51	55.04
Jupiter	E	2043-06-21T11:37:21.021	7.88	-8.81	71487.1	51.15	54.70


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-21T10:51:25.850
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      : 4068704059579262336
2Mass ID (if available) : 17505964-2304247
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.260
G magnitude          : 14.971
RP magnitude         : 13.576
BP magnitude         : 17.413
DUPflag             : 0
Distance (au)       : 4.250
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 178.49
Sun-Moon sep (deg)  : 12.98
B (ring opening deg) : -2.43
PA of pole (deg)    : 0.13
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 15.744
C/A sky separation (km): 48531.3
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
    
```

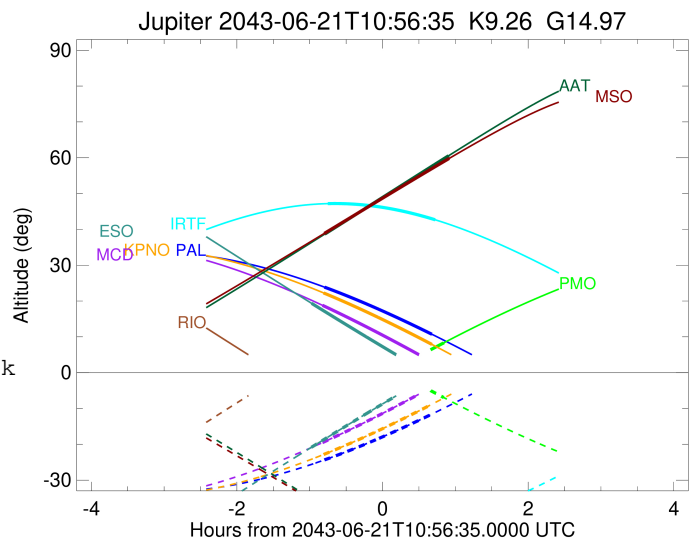
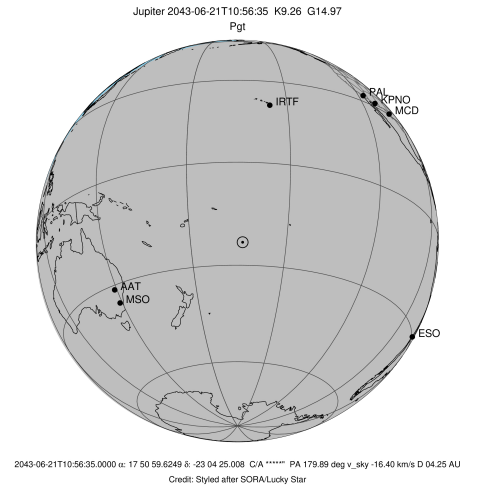


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-21T09:58:10.484	19.35	-20.79	71488.3	43.01	46.73
Jupiter	E	2043-06-21T11:44:59.228	-2.32x	0.86x	71488.3	42.41	46.13


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-21T11:00:10.010
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : AAT
Location              : Siding Spring (AAT)
Latitude (deg)        : -31.27703
E. Longitude (deg)    : 149.06608
Altitude (km)         : 1.164
Gaia source ID        : 4068704059579262336
2Mass ID (if available) : 17505964-2304247
ICRS Star Coord at Epoch: 17h 50m 59.62491s -23:04:25.00832s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.260
G magnitude           : 14.971
RP magnitude          : 13.576
BP magnitude          : 17.413
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg)  : 178.49
Sun-Moon sep (deg)   : 11.96
B (ring opening deg) : -2.43
PA of pole (deg)     : 0.13
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 16.240
C/A sky separation (km): 50059.8
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	2043-06-21T10:09:03.474	38.70	-37.50	71488.2	43.74	47.45
Jupiter	E	2043-06-21T11:51:05.534	60.55	-59.29	71488.0	44.97	48.67

