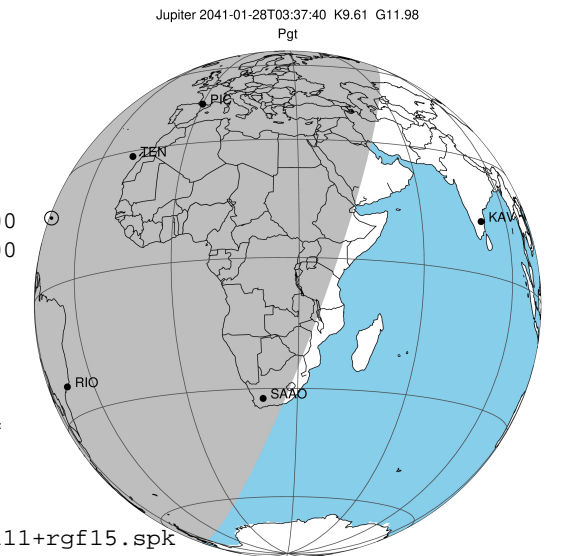


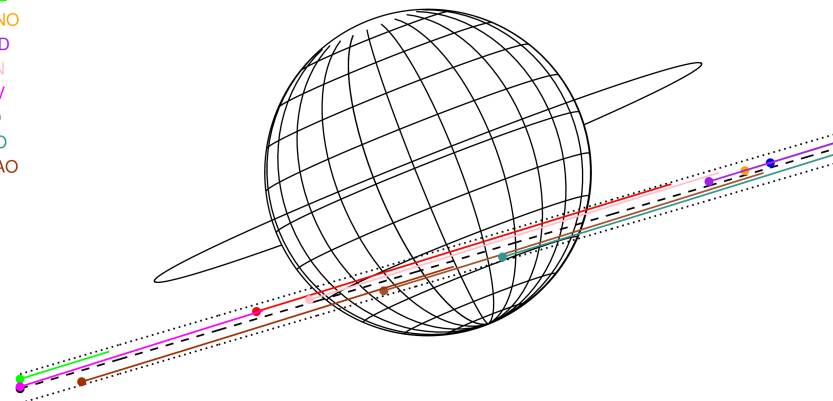
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2041-01-28T03:37:40.790
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3613835033893119488
 2Mass ID (if available) : 13561295-1027575

Jupiter 2041-01-28T03:37:40 K9.61 G11.98 Pgt

ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.605
 G magnitude : 11.979
 RP magnitude : 11.254
 BP magnitude : 12.566
 DUPflag : 0
 Distance (au) : 5.238
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 8.65
 Sun-Target sep (deg) : 97.31
 Sun-Moon sep (deg) : 40.88
 B (ring opening deg) : -3.10
 PA of pole (deg) : 21.69
 Pole direction: RA (deg): 268.05624
 Dec (deg): 64.49718
 C/A sky separation (") : 10.600
 C/A sky separation (km) : 40270.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



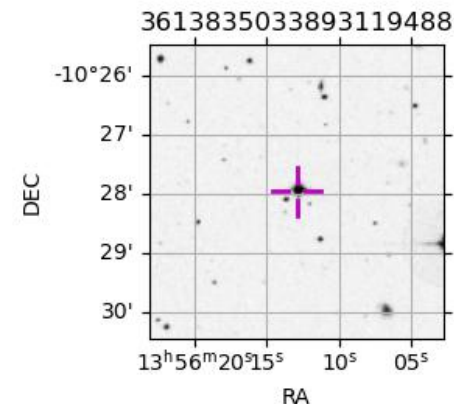
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 KAV
 RIO
 ESO
 SAAO



2041-01-28T03:37:40.7900 α: 13 56 12.9449 β: -10 27 57.777 C/A ***** PA 16.40 deg v_sky + 8.65 km/s D 05.24 AU
 Credit: Styled after SORA/Lucky Star

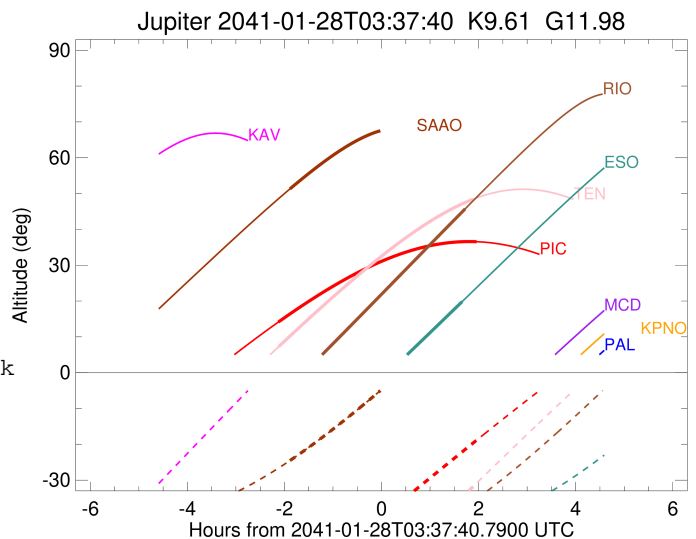
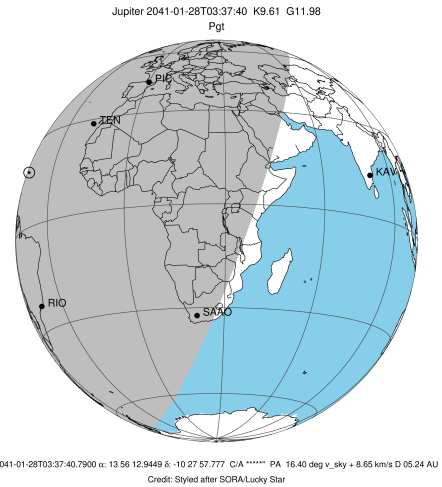
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	JAN 28 01:30 - JAN 28 05:35	Pie
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	+ +	JAN 28 01:30 - JAN 28 05:30	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	+	JAN 28 05:21 - JAN 28 05:21	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	JAN 28 05:17 - JAN 28 05:17	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JAN 28 01:44 - JAN 28 01:44	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2041-01-28T03:31:45.480
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        : 3613835033893119488
2Mass ID (if available) : 13561295-1027575
ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
RUWE (>1.4 is poor)  : 0.93
K magnitude           : 9.605
G magnitude           : 11.979
RP magnitude          : 11.254
BP magnitude          : 12.566
DUPflag              : 0
Distance (au)         : 5.238
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.65
Sun-Target sep (deg)  : 97.31
Sun-Moon sep (deg)    : 41.68
B (ring opening deg)  : -3.10
PA of pole (deg)      : 21.69
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49718
C/A sky separation (") : 9.501
C/A sky separation (km) : 36096.6
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
    
```

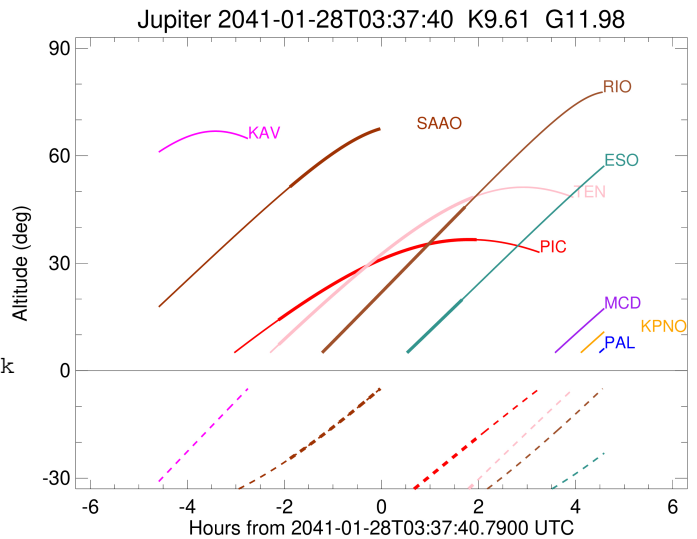
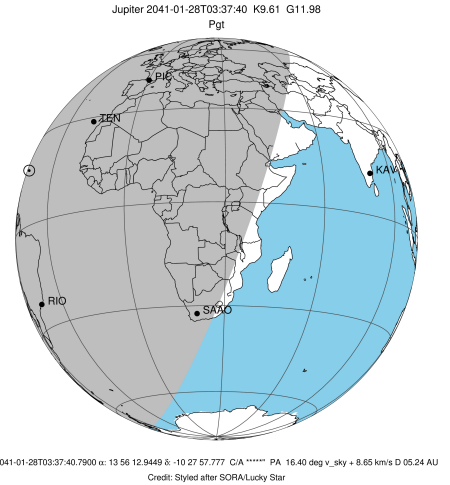


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2041-01-28T01:30:08.920	14.12	-60.37	71489.5	-25.75	-28.84
Jupiter	E	2041-01-28T05:35:14.281	36.55	-18.85	71487.7	-34.84	-38.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2041-01-28T03:29:22.480
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        : 3613835033893119488
2Mass ID (if available) : 13561295-1027575
ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.605
G magnitude           : 11.979
RP magnitude          : 11.254
BP magnitude          : 12.566
DUPflag              : 0
Distance (au)         : 5.238
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.65
Sun-Target sep (deg)  : 97.31
Sun-Moon sep (deg)   : 41.81
B (ring opening deg) : -3.10
PA of pole (deg)     : 21.69
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49718
C/A sky separation (" ) : 9.970
C/A sky separation (km) : 37879.0
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
    
```

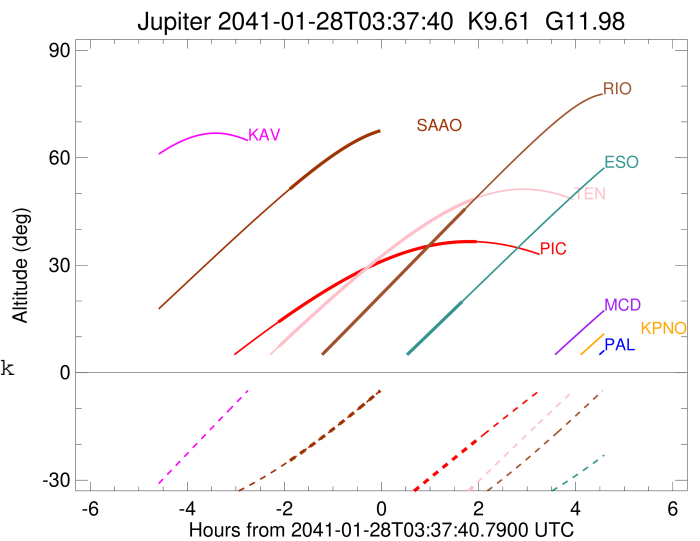
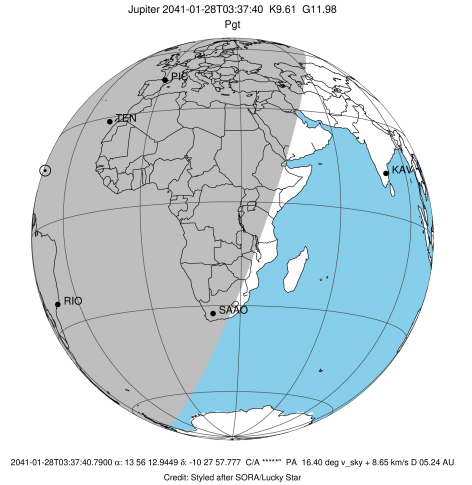


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2041-01-28T01:30:29.675	7.24	-79.65	71489.2	-27.47	-30.68
Jupiter	E	2041-01-28T05:30:56.781	48.41	-31.78	71487.4	-36.31	-39.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2041-01-28T03:29:31.000
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     : 3613835033893119488
2Mass ID (if available) : 13561295-1027575
ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
RUWE (>1.4 is poor) : 0.93
K magnitude        : 9.605
G magnitude        : 11.979
RP magnitude       : 11.254
BP magnitude       : 12.566
DUPflag           : 0
Distance (au)     : 5.238
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : 8.65
Sun-Target sep (deg) : 97.31
Sun-Moon sep (deg) : 41.61
B (ring opening deg) : -3.10
PA of pole (deg)   : 21.69
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49718
C/A sky separation (") : 11.545
C/A sky separation (km) : 43862.8
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
    
```

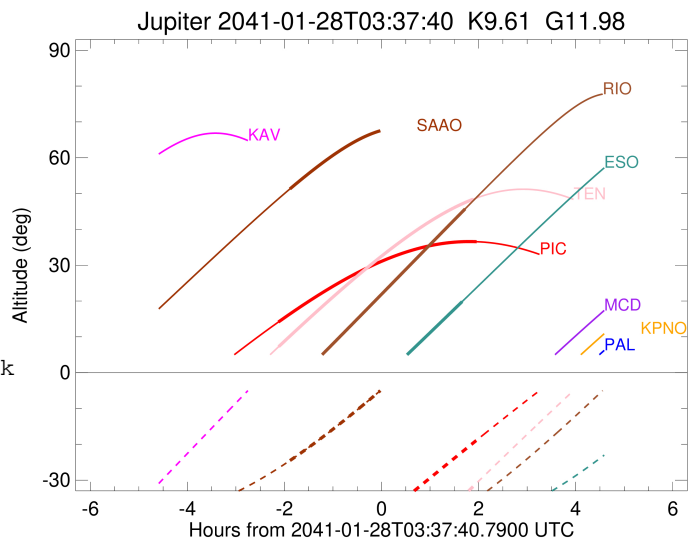
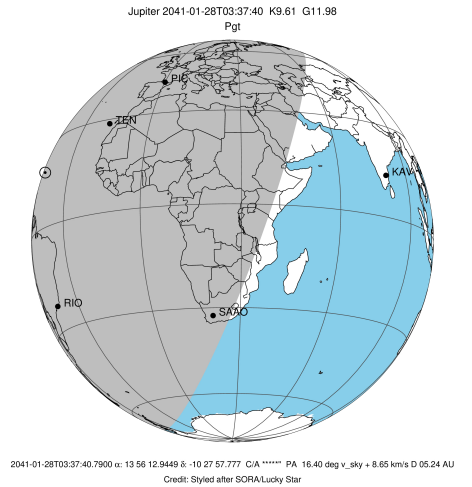


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2041-01-28T01:40:47.495	-4.83x	-44.15	71488.1	-33.06	-36.59
Jupiter	E	2041-01-28T05:21:06.087	45.72	-37.44	71486.0	-42.21	-45.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2041-01-28T03:29:47.600
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       : 3613835033893119488
2Mass ID (if available) : 13561295-1027575
ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.605
G magnitude           : 11.979
RP magnitude          : 11.254
BP magnitude          : 12.566
DUPflag              : 0
Distance (au)        : 5.238
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.65
Sun-Target sep (deg) : 97.31
Sun-Moon sep (deg)   : 41.29
B (ring opening deg) : -3.10
PA of pole (deg)     : 21.69
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49718
C/A sky separation ("): 11.820
C/A sky separation (km): 44907.7
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
    
```

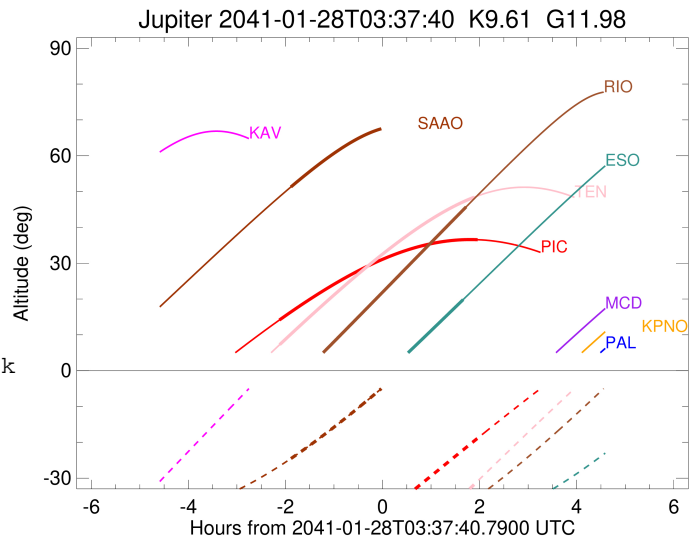
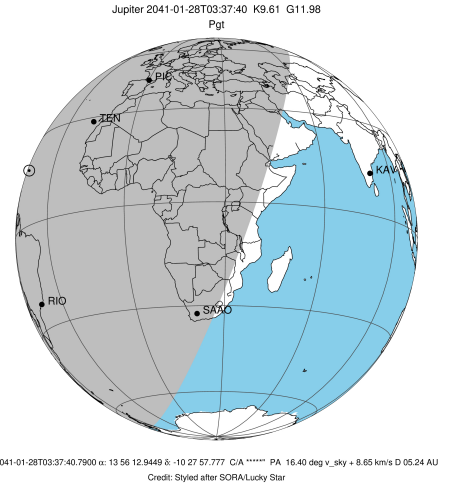


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2041-01-28T01:44:44.649	-24.82x	-24.02	71487.9	-33.72	-37.27
Jupiter	E	2041-01-28T05:17:23.819	19.84	-42.52	71485.7	-43.62	-47.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2041-01-28T03:39:01.740
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        : 3613835033893119488
2Mass ID (if available) : 13561295-1027575
ICRS Star Coord at Epoch: 13h 56m 12.94493s -10:27:57.77700s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.605
G magnitude           : 11.979
RP magnitude          : 11.254
BP magnitude          : 12.566
DUPflag              : 0
Distance (au)         : 5.238
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.65
Sun-Target sep (deg) : 97.31
Sun-Moon sep (deg)   : 41.43
B (ring opening deg) : -3.10
PA of pole (deg)     : 21.69
Pole direction: RA (deg): 268.05624
Dec (deg): 64.49718
C/A sky separation (") : 11.237
C/A sky separation (km) : 42690.9
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	2041-01-28T01:44:26.846	51.28	-24.54	71488.3	-32.21	-35.69
Jupiter	E	2041-01-28T05:34:30.010	59.96	18.79x	71486.3	-41.21	-44.93