

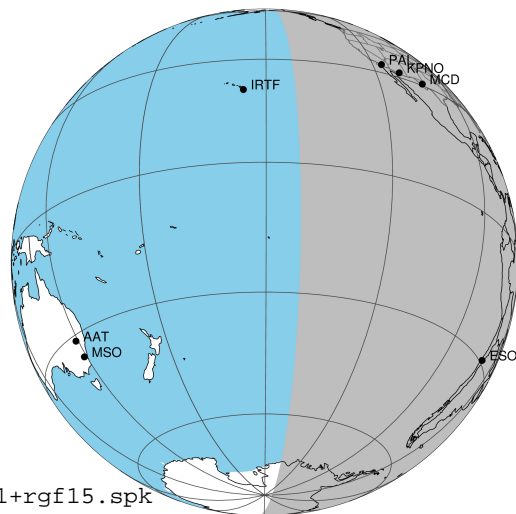
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-09-27T03:19:58.970
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116516528825727232
 2Mass ID (if available) : 17391577-2315171

Jupiter 2043-09-27T03:19:58 K8.70 G14.76 Pgt

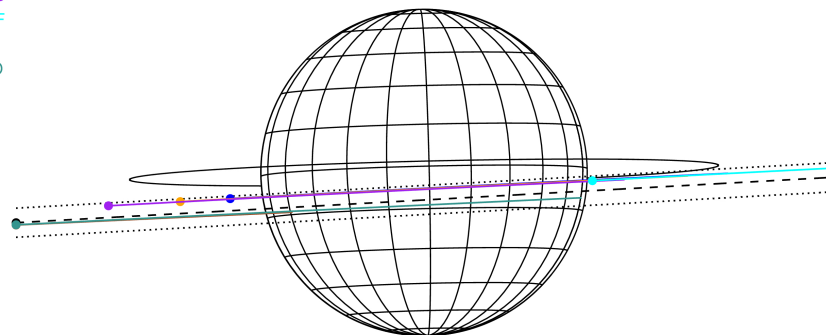
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.696
 G magnitude : 14.763
 RP magnitude : 13.261
 BP magnitude : 17.547
 DUPflag : 0
 Distance (au) : 5.278
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 17.27
 Sun-Target sep (deg) : 81.92
 Sun-Moon sep (deg) : 153.86
 B (ring opening deg) : -2.21
 PA of pole (deg) : 1.40
 Pole direction: RA (deg): 268.05674
 Dec (deg): 64.49731
 C/A sky separation (") : 3.144
 C/A sky separation (km) : 12032.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-09-27T03:19:58 K8.70 G14.76
 Pgt



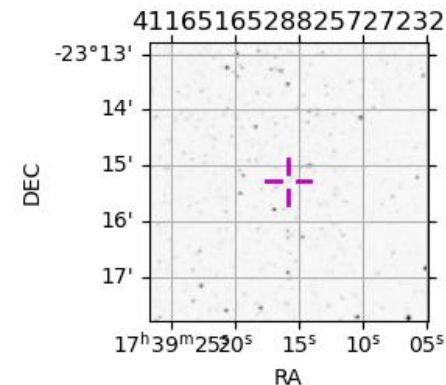
Earth
 PAL
 KPNO
 MCD
 IRTF
 RIO
 ESO



2043-09-27T03:19:58.9700 @: 17.39 15.7775 @: -23 15 17.381 C/A 3.152" PA 3.18 deg v_sky +17.27 km/s D 05.28 AU
 Credit: Styled after SORA/Lucky Star

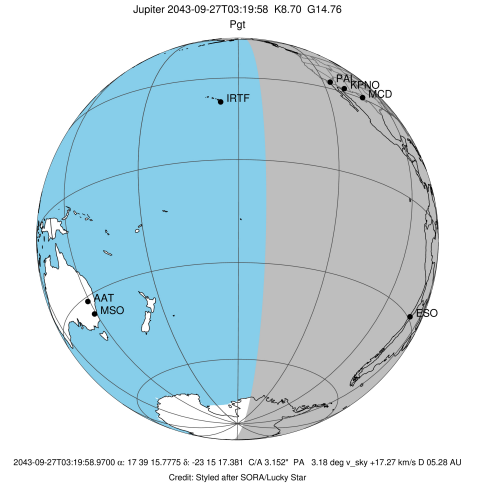
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	SEP 27 02:12 - SEP 27 04:32	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	SEP 27 02:12 - SEP 27 04:32	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 27 02:13 - SEP 27 04:33	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	+	SEP 27 02:18 - SEP 27 02:18	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	SEP 27 02:17 - SEP 27 02:17	Pin
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

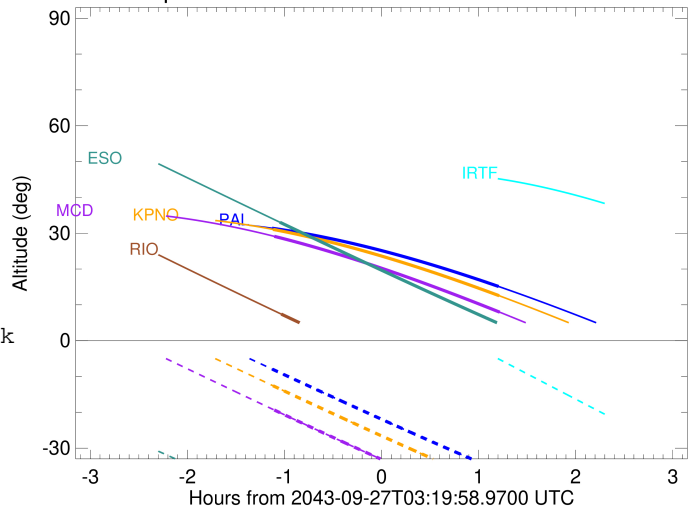


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T03:22:35.850
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4116516528825727232
2Mass ID (if available) : 17391577-2315171
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.696
G magnitude          : 14.763
RP magnitude         : 13.261
BP magnitude         : 17.547
DUPflag             : 0
Distance (au)       : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.27
Sun-Target sep (deg) : 81.92
Sun-Moon sep (deg)  : 153.80
B (ring opening deg) : -2.21
PA of pole (deg)    : 1.40
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 1.813
C/A sky separation (km) : 6938.4
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
    
```



Jupiter 2043-09-27T03:19:58 K8.70 G14.76

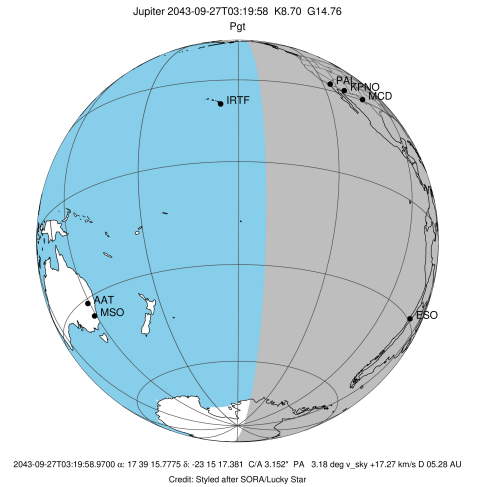


x: target alt < 5.0 deg or sun > -5.0 deg

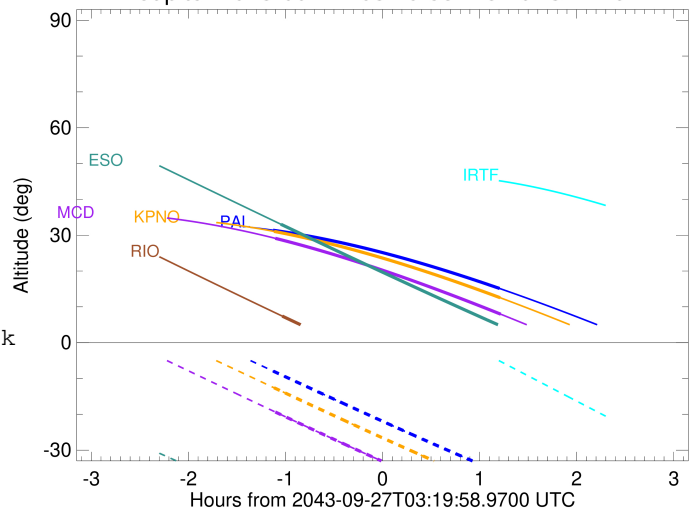
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T02:12:28.752	31.37	-7.95	71491.9	-7.19	-8.21
Jupiter	E	2043-09-27T04:32:21.075	15.13	-36.20	71492.0	-4.09	-4.67

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T03:23:02.320
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       : 4116516528825727232
2Mass ID (if available) : 17391577-2315171
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.696
G magnitude           : 14.763
RP magnitude         : 13.261
BP magnitude         : 17.547
DUPflag              : 0
Distance (au)        : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.27
Sun-Target sep (deg) : 81.92
Sun-Moon sep (deg)   : 153.72
B (ring opening deg) : -2.21
PA of pole (deg)     : 1.40
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 1.862
C/A sky separation (km): 7127.3
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
    
```



Jupiter 2043-09-27T03:19:58 K8.70 G14.76

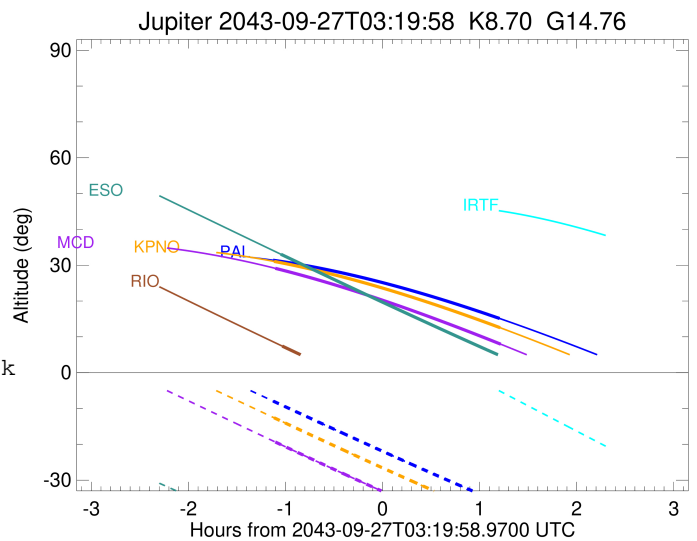
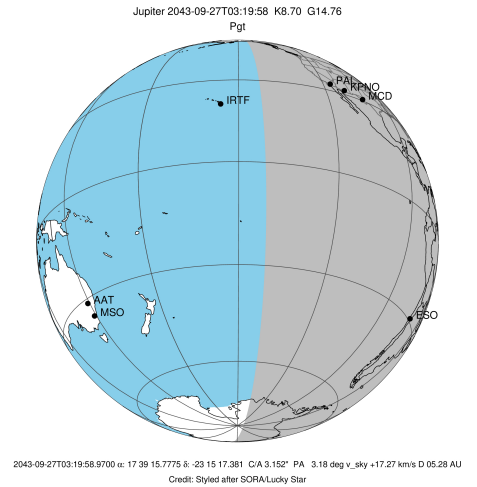


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T02:12:59.147	31.06	-12.60	71491.9	-7.29	-8.32
Jupiter	E	2043-09-27T04:32:41.193	12.55	-40.84	71492.0	-4.28	-4.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T03:23:36.450
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      : 4116516528825727232
2Mass ID (if available) : 17391577-2315171
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.696
G magnitude          : 14.763
RP magnitude         : 13.261
BP magnitude         : 17.547
DUPflag             : 0
Distance (au)       : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.27
Sun-Target sep (deg) : 81.92
Sun-Moon sep (deg)  : 153.61
B (ring opening deg) : -2.21
PA of pole (deg)    : 1.40
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 1.930
C/A sky separation (km) : 7387.8
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
    
```

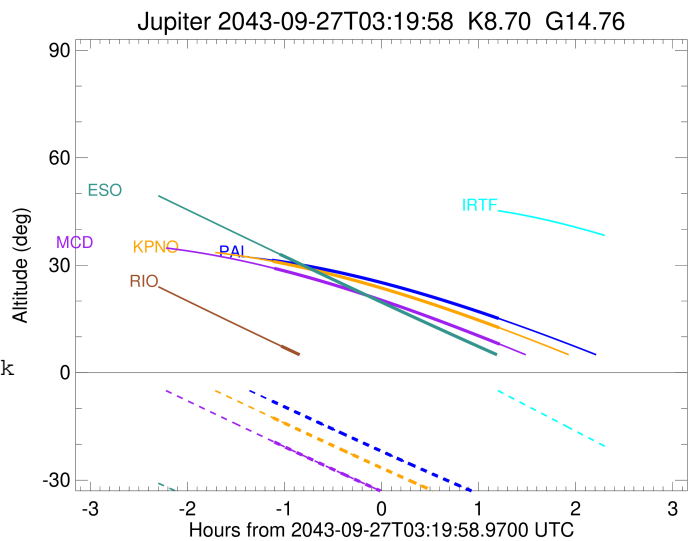
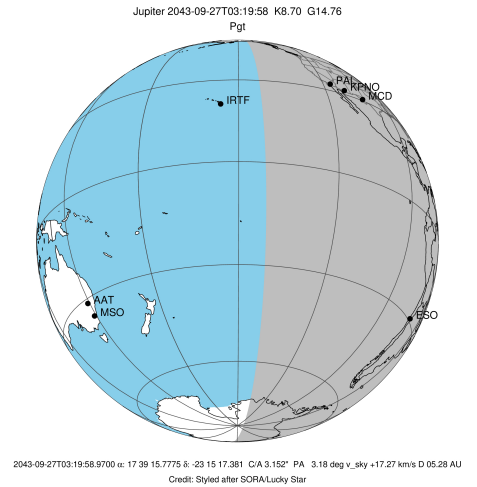


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T02:13:41.089	29.13	-19.34	71491.9	-7.44	-8.49
Jupiter	E	2043-09-27T04:33:04.456	7.94	-47.07	71492.0	-4.54	-5.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T03:25:21.910
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       : 4116516528825727232
2Mass ID (if available) : 17391577-2315171
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.696
G magnitude          : 14.763
RP magnitude         : 13.261
BP magnitude         : 17.547
DUPflag             : 0
Distance (au)        : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.27
Sun-Target sep (deg) : 81.92
Sun-Moon sep (deg)  : 152.99
B (ring opening deg) : -2.21
PA of pole (deg)    : 1.40
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 3.853
C/A sky separation (km): 14747.9
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
    
```

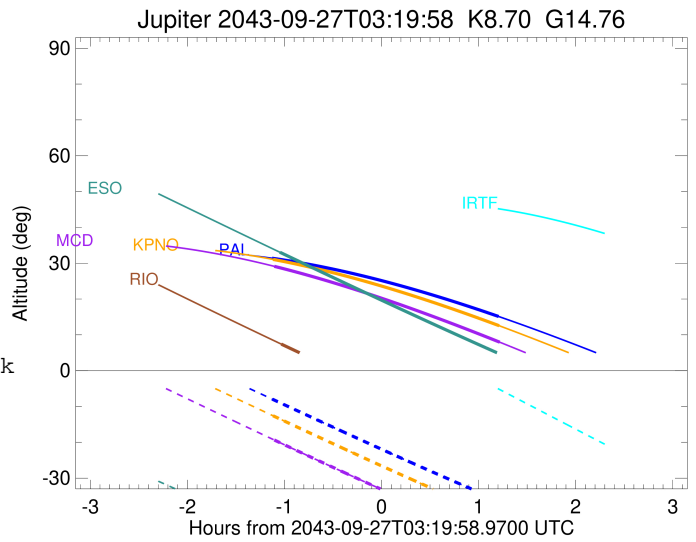
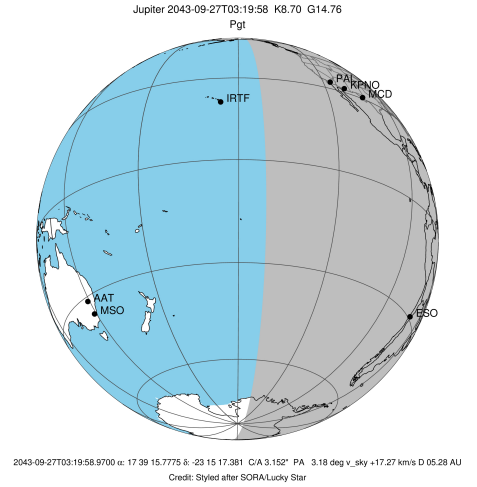


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T02:18:05.657	7.40	-64.89	71491.6	-13.12	-14.92
Jupiter	E	2043-09-27T04:32:05.549	-19.61x	-54.13	71491.8	-10.64	-12.12

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T03:25:16.940
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      : 4116516528825727232
2Mass ID (if available) : 17391577-2315171
ICRS Star Coord at Epoch: 17h 39m 15.77748s -23:15:17.38147s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.696
G magnitude          : 14.763
RP magnitude         : 13.261
BP magnitude         : 17.547
DUPflag             : 0
Distance (au)       : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.27
Sun-Target sep (deg) : 81.92
Sun-Moon sep (deg)  : 153.21
B (ring opening deg) : -2.21
PA of pole (deg)    : 1.40
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 3.723
C/A sky separation (km): 14252.2
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	2043-09-27T02:17:09.031	33.06	-45.17	71491.7	-12.79	-14.54
Jupiter	E	2043-09-27T04:32:51.634	4.70x	-59.32	71491.8	-10.24	-11.67