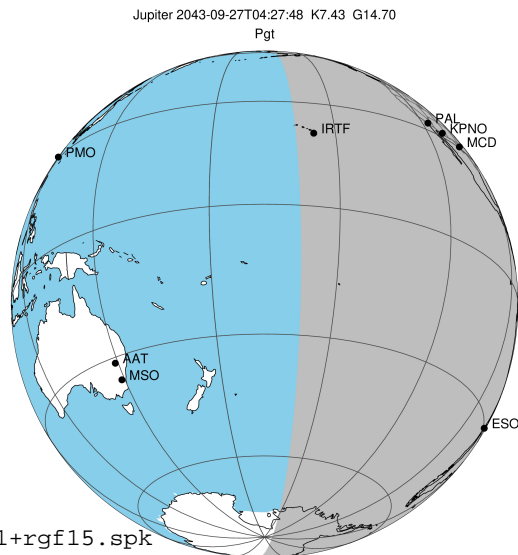


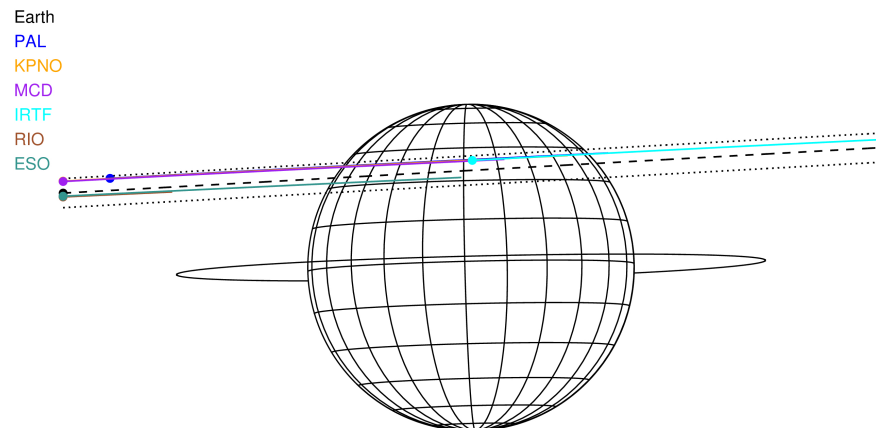
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-09-27T04:27:48.190
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116516460157284352
 2Mass ID (if available) : 17391717-2315042

Jupiter 2043-09-27T04:27:48 K7.43 G14.70 Pgt

ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 7.433
 G magnitude : 14.698
 RP magnitude : 13.070
 BP magnitude : 18.905
 DUPflag : 0
 Distance (au) : 5.278
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 17.30
 Sun-Target sep (deg) : 81.88
 Sun-Moon sep (deg) : 153.24
 B (ring opening deg) : -2.22
 PA of pole (deg) : 1.39
 Pole direction: RA (deg): 268.05674
 Dec (deg): 64.49731
 C/A sky separation (") : 11.094
 C/A sky separation (km) : 42470.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

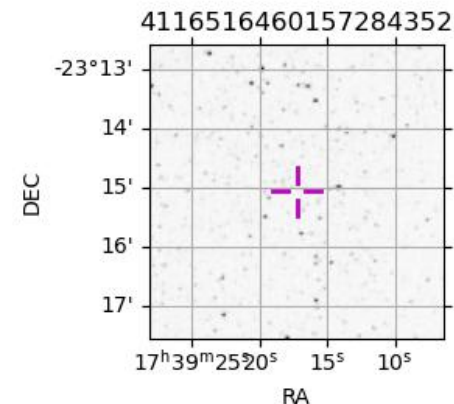


2043-09-27T04:27:48.1900 a: 17 39 17.1661 s: -23 15 04.186 C/A ***** PA 183.18 deg v_sky +17.30 km/s D 05.28 AU
 Credit: Styled after SORA/Lucky Star



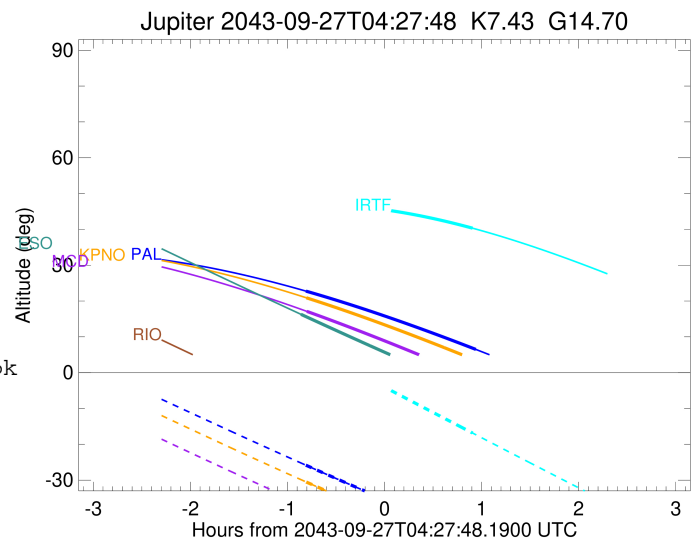
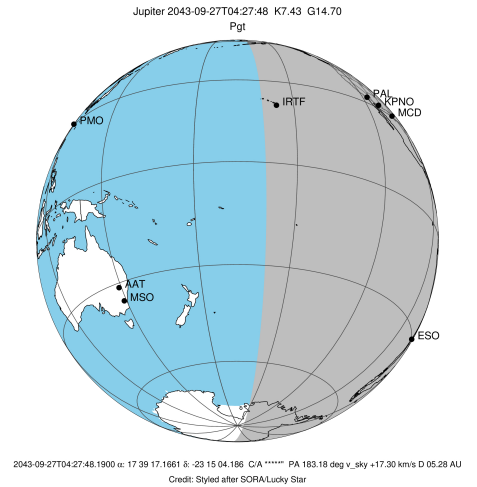
Observable events with sun below -5 deg and altitude above 5 deg

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 03:39 - SEP 27 05:24	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 27 03:39 - SEP 27 03:39	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	SEP 27 03:39 - SEP 27 03:39	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	SEP 27 05:22 - SEP 27 05:22	Pne
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	+	SEP 27 03:36 - SEP 27 03:36	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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T04:31:53.240
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       : 4116516460157284352
2Mass ID (if available) : 17391717-2315042
ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 7.433
G magnitude           : 14.698
RP magnitude         : 13.070
BP magnitude         : 18.905
DUPflag              : 0
Distance (au)        : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.30
Sun-Target sep (deg) : 81.88
Sun-Moon sep (deg)   : 152.94
B (ring opening deg) : -2.22
PA of pole (deg)     : 1.39
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 12.327
C/A sky separation (km): 47193.5
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
    
```

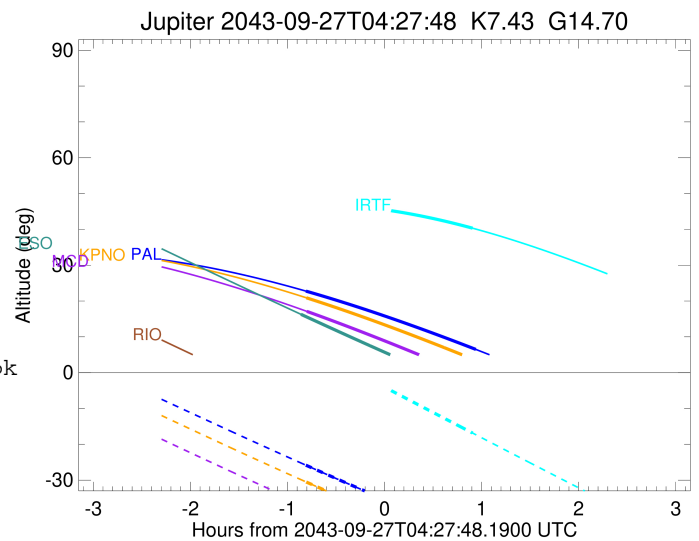
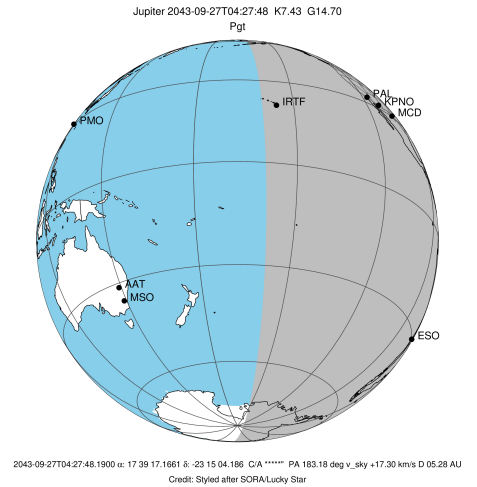


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T03:39:13.890	22.76	-25.83	71489.3	39.80	43.51
Jupiter	E	2043-09-27T05:24:16.192	6.49	-45.44	71488.9	42.66	46.38

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T04:32:16.670
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      : 4116516460157284352
2Mass ID (if available) : 17391717-2315042
ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
RUWE (>1.4 is poor) : 0.96
K magnitude         : 7.433
G magnitude         : 14.698
RP magnitude        : 13.070
BP magnitude        : 18.905
DUPflag            : 0
Distance (au)       : 5.278
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 17.30
Sun-Target sep (deg) : 81.88
Sun-Moon sep (deg)  : 152.87
B (ring opening deg) : -2.22
PA of pole (deg)    : 1.39
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 12.264
C/A sky separation (km) : 46951.4
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
    
```

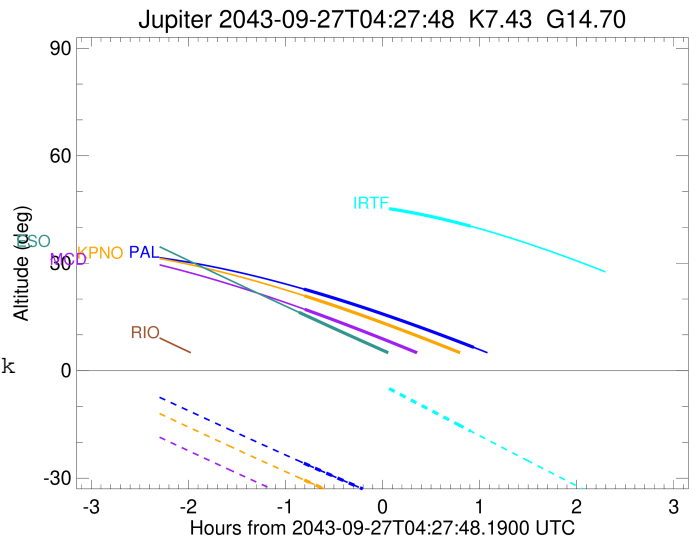
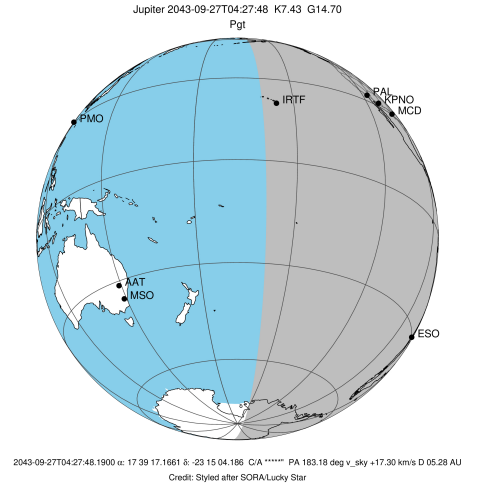


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T03:39:29.198	20.90	-30.53	71489.3	39.59	43.29
Jupiter	E	2043-09-27T05:24:46.513	3.35x	-49.80	71489.0	42.37	46.09

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-27T04:32:44.200
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      : 4116516460157284352
2Mass ID (if available) : 17391717-2315042
ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 7.433
G magnitude          : 14.698
RP magnitude         : 13.070
BP magnitude         : 18.905
DUPflag             : 0
Distance (au)       : 5.278
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 17.30
Sun-Target sep (deg) : 81.88
Sun-Moon sep (deg)  : 152.77
B (ring opening deg) : -2.22
PA of pole (deg)    : 1.39
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation ("): 12.179
C/A sky separation (km): 46623.2
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
    
```

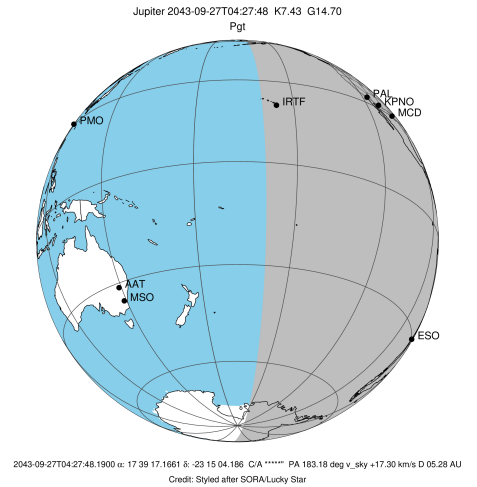


x: target alt < 5.0 deg or sun > -5.0 deg

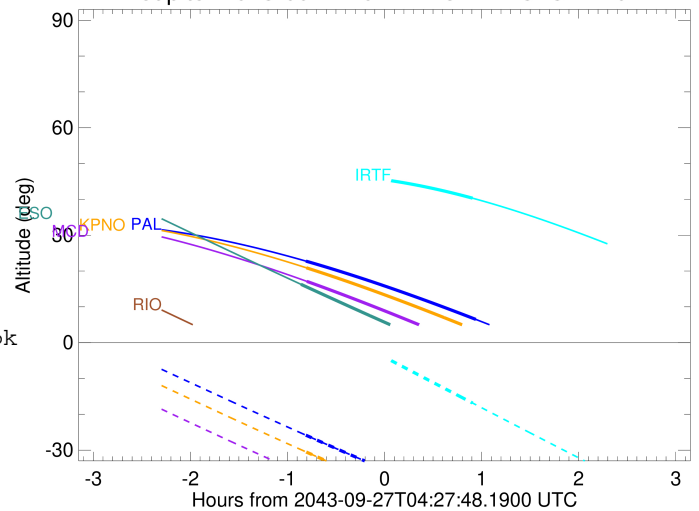
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T03:39:47.676	17.11	-37.09	71489.3	39.29	42.99
Jupiter	E	2043-09-27T05:25:21.657	-1.88x	-55.21	71489.0	41.98	45.70

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-09-27T04:28:50.840
Event type             : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code          : IRTF
Location               : Mauna Kea/IRTF
Latitude (deg)         : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4116516460157284352
2Mass ID (if available) : 17391717-2315042
ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
RUWE (>1.4 is poor)  : 0.96
K magnitude            : 7.433
G magnitude            : 14.698
RP magnitude           : 13.070
BP magnitude           : 18.905
DUPflag               : 0
Distance (au)         : 5.278
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 17.30
Sun-Target sep (deg)  : 81.88
Sun-Moon sep (deg)    : 153.50
B (ring opening deg)  : -2.22
PA of pole (deg)      : 1.39
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 12.231
C/A sky separation (km) : 46825.0
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
    
```



Jupiter 2043-09-27T04:27:48 K7.43 G14.70

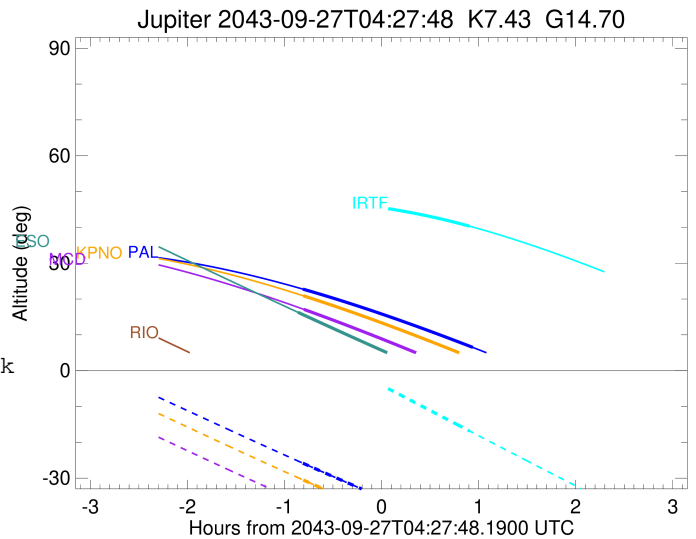
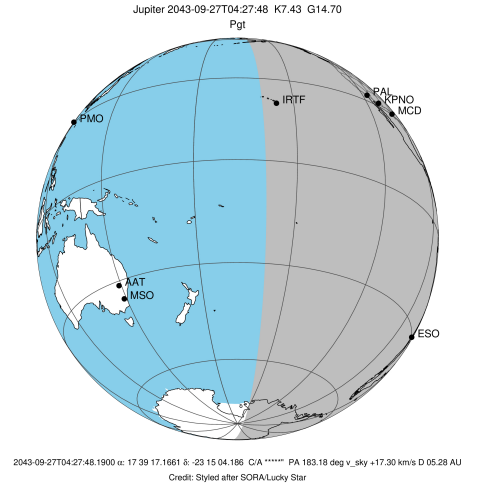


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-27T03:35:21.859	47.00	8.30x	71489.3	39.07	42.77
Jupiter	E	2043-09-27T05:22:12.511	40.33	-16.84	71488.9	42.55	46.27

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-27T04:33:37.280
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        : 4116516460157284352
2Mass ID (if available) : 17391717-2315042
ICRS Star Coord at Epoch: 17h 39m 17.16608s -23:15:04.18562s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 7.433
G magnitude           : 14.698
RP magnitude          : 13.070
BP magnitude          : 18.905
DUPflag              : 0
Distance (au)         : 5.278
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 17.30
Sun-Target sep (deg)  : 81.88
Sun-Moon sep (deg)    : 152.46
B (ring opening deg) : -2.22
PA of pole (deg)      : 1.39
Pole direction: RA (deg): 268.05674
Dec (deg): 64.49731
C/A sky separation (") : 10.344
C/A sky separation (km) : 39599.2
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	2043-09-27T03:36:14.017	16.27	-56.37	71490.1	32.35	35.84
Jupiter	E	2043-09-27T05:30:36.315	-6.50x	-56.44	71489.8	34.87	38.46