

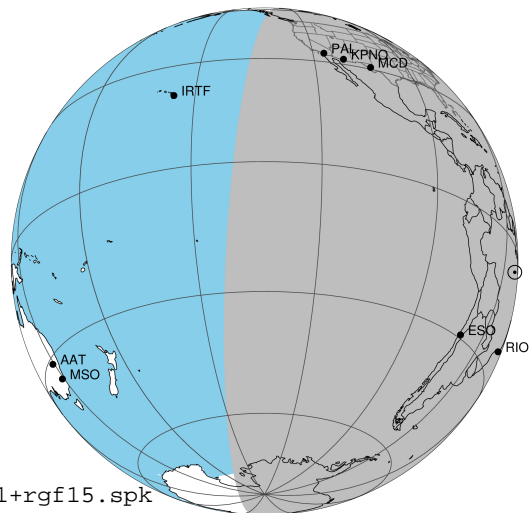
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-09-08T03:19:03.040
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4117419124776688896
 2Mass ID (if available) : 17322475-2309010

Jupiter 2043-09-08T03:19:03 K8.77 G14.25 Pgt

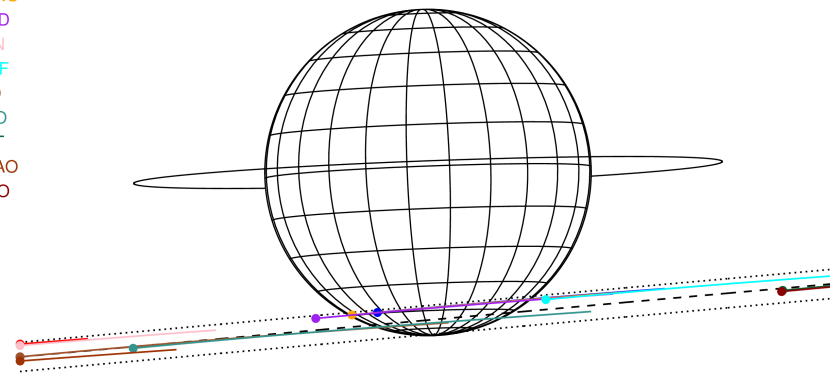
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 8.769
 G magnitude : 14.251
 RP magnitude : 12.903
 BP magnitude : 16.405
 DUPflag : 0
 Distance (au) : 4.988
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 8.49
 Sun-Target sep (deg) : 98.87
 Sun-Moon sep (deg) : 46.16
 B (ring opening deg) : -2.27
 PA of pole (deg) : 2.13
 Pole direction: RA (deg): 268.05673
 Dec (deg): 64.49731
 C/A sky separation (") : 17.802
 C/A sky separation (km) : 64397.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-09-08T03:19:03 K8.77 G14.25
 Pgt



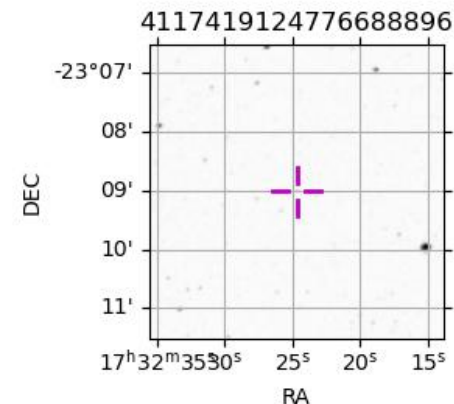
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-09-08T03:19:03.0400 α: 17 32 24.7441 δ: -23 09 01.272 C/A ***** PA 5.14 deg v_sky + 8.49 km/s D 04.99 AU
 Credit: Styled after SORA/Lucky Star

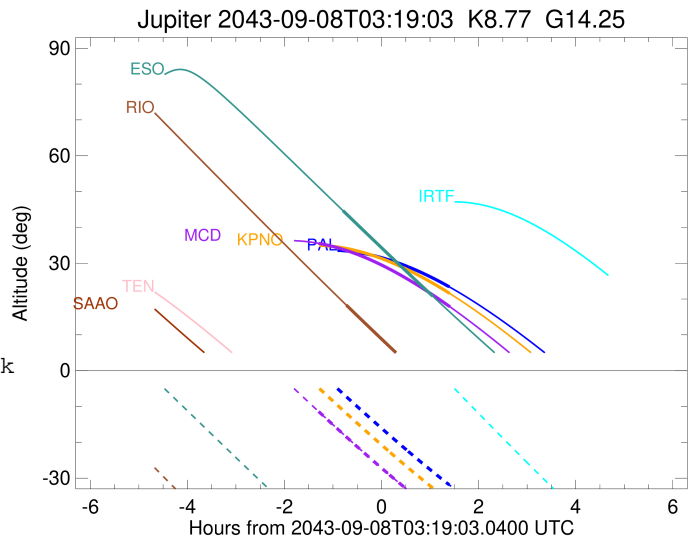
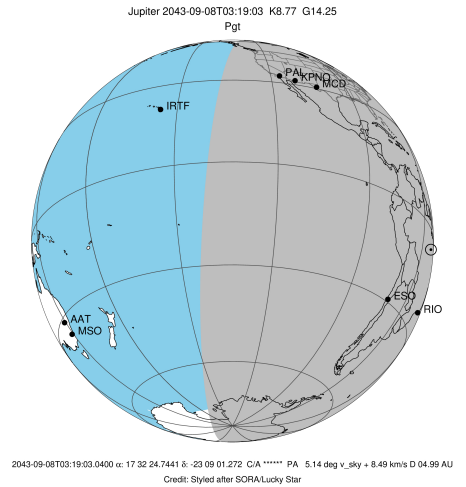
Observable events with sun below -5 deg and altitude above 5 deg

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 08 04:42 - SEP 08 04:42	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 08 04:43 - SEP 08 04:43	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 08 02:01 - SEP 08 04:43	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 08 02:35 - SEP 08 02:35	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	SEP 08 02:31 - SEP 08 04:22	Pie
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             : 2043-09-08T03:21:00.530
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        : 4117419124776688896
2Mass ID (if available) : 17322475-2309010
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.769
G magnitude           : 14.251
RP magnitude          : 12.903
BP magnitude          : 16.405
DUPflag              : 0
Distance (au)         : 4.988
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.49
Sun-Target sep (deg)  : 98.87
Sun-Moon sep (deg)   : 46.68
B (ring opening deg) : -2.27
PA of pole (deg)     : 2.13
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (" ) : 16.329
C/A sky separation (km) : 59068.6
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
    
```

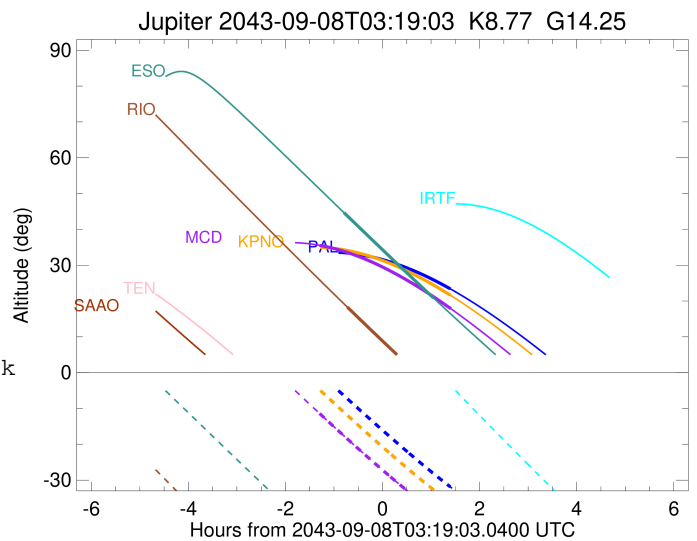
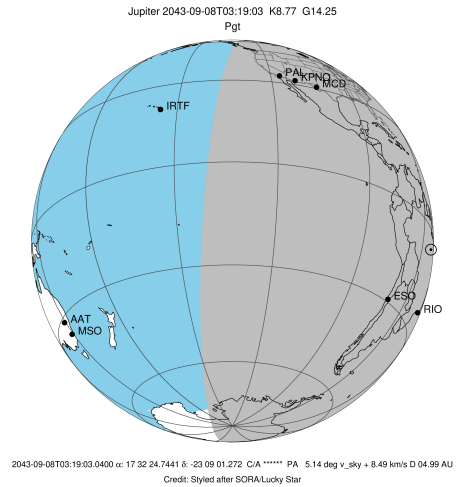


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-08T01:58:32.691	33.52	0.39x	71486.8	-58.76	-61.91
Jupiter	E	2043-09-08T04:42:50.784	23.39	-31.88	71487.5	-52.94	-56.41

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-09-08T03:21:49.010
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       : 4117419124776688896
2Mass ID (if available) : 17322475-2309010
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.769
G magnitude           : 14.251
RP magnitude          : 12.903
BP magnitude          : 16.405
DUPflag              : 0
Distance (au)        : 4.988
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.49
Sun-Target sep (deg) : 98.87
Sun-Moon sep (deg)   : 46.73
B (ring opening deg) : -2.27
PA of pole (deg)     : 2.13
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 16.360
C/A sky separation (km) : 59180.5
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
    
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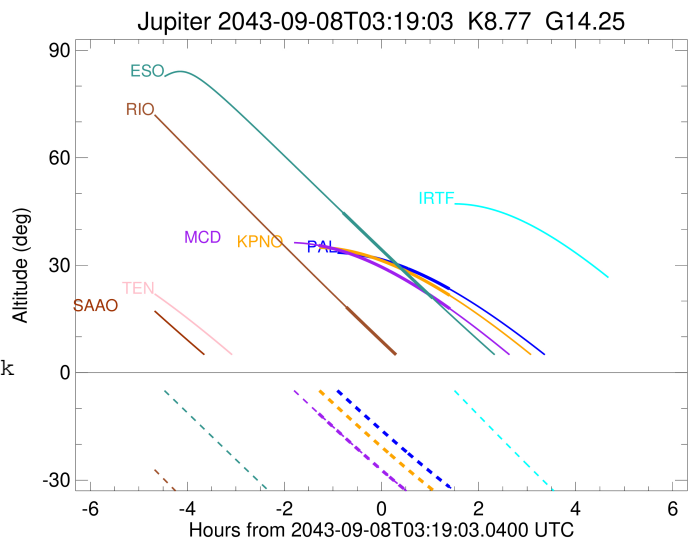
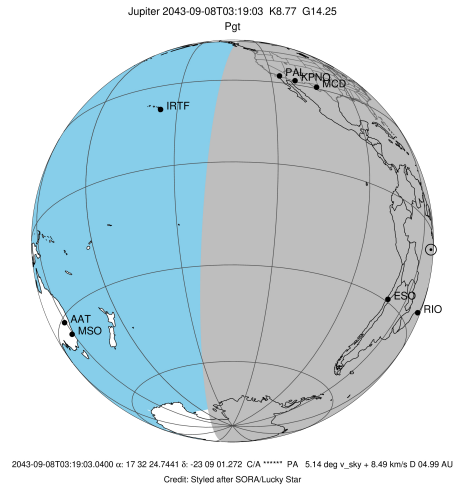


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-08T01:59:41.171	35.01	-4.44x	71486.8	-58.82	-61.96
Jupiter	E	2043-09-08T04:43:12.288	21.58	-36.37	71487.5	-53.20	-56.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-08T03:22:55.010
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        : 4117419124776688896
2Mass ID (if available) : 17322475-2309010
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.769
G magnitude           : 14.251
RP magnitude          : 12.903
BP magnitude          : 16.405
DUPflag              : 0
Distance (au)         : 4.988
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.49
Sun-Target sep (deg) : 98.87
Sun-Moon sep (deg)   : 46.77
B (ring opening deg) : -2.27
PA of pole (deg)     : 2.13
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 16.403
C/A sky separation (km) : 59336.6
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
    
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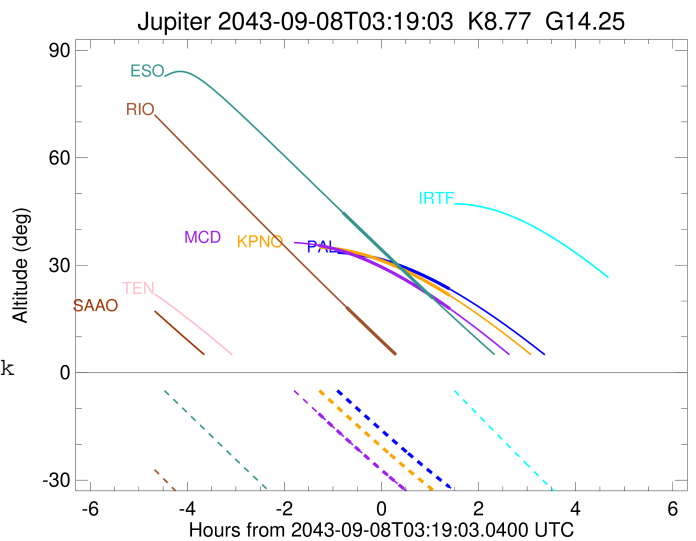
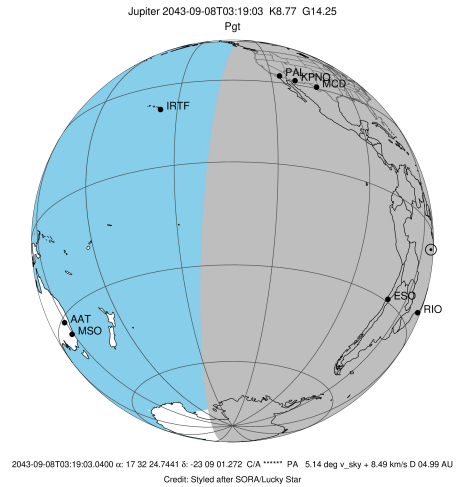


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-08T02:01:20.481	35.53	-11.40	71486.8	-58.89	-62.02
Jupiter	E	2043-09-08T04:43:35.754	17.84	-42.21	71487.4	-53.57	-57.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-08T03:28:20.010
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       : 4117419124776688896
2Mass ID (if available) : 17322475-2309010
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.769
G magnitude           : 14.251
RP magnitude          : 12.903
BP magnitude          : 16.405
DUPflag              : 0
Distance (au)        : 4.988
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.49
Sun-Target sep (deg) : 98.87
Sun-Moon sep (deg)   : 46.83
B (ring opening deg) : -2.27
PA of pole (deg)     : 2.13
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation (") : 18.316
C/A sky separation (km) : 66259.5
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
    
```

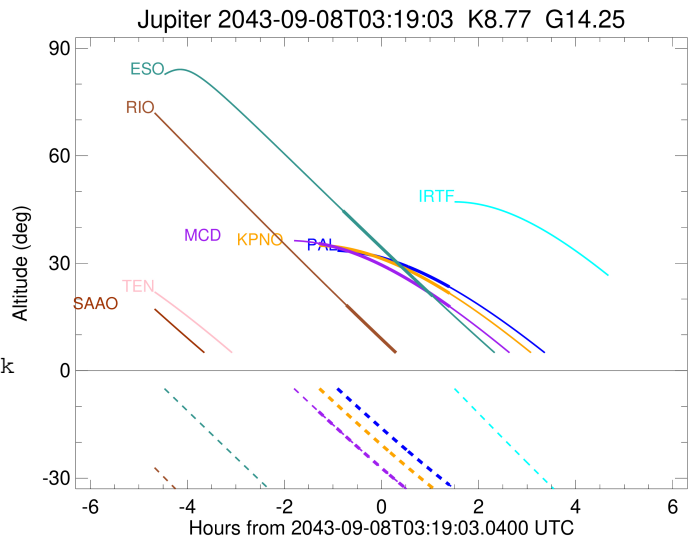
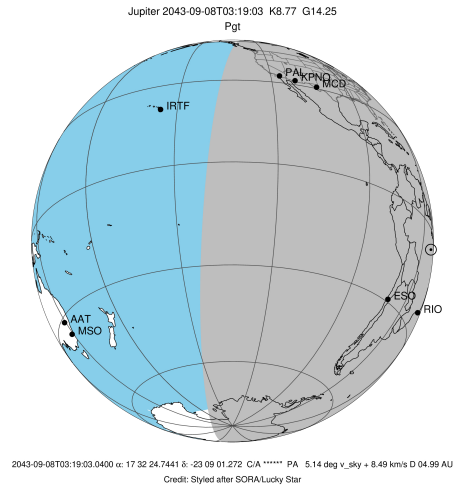


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-09-08T02:35:25.831	18.34	-72.61	71485.8	-69.72	-71.97
Jupiter	E	2043-09-08T04:20:33.979	-4.11x	-62.44	71486.1	-66.00	-68.59

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-09-08T03:27:11.120
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       : 4117419124776688896
2Mass ID (if available) : 17322475-2309010
ICRS Star Coord at Epoch: 17h 32m 24.74413s -23:09:01.27219s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.769
G magnitude           : 14.251
RP magnitude          : 12.903
BP magnitude          : 16.405
DUPflag              : 0
Distance (au)        : 4.988
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.49
Sun-Target sep (deg) : 98.87
Sun-Moon sep (deg)   : 47.01
B (ring opening deg) : -2.27
PA of pole (deg)     : 2.13
Pole direction: RA (deg): 268.05673
Dec (deg): 64.49731
C/A sky separation ("): 18.210
C/A sky separation (km): 65874.8
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	2043-09-08T02:31:22.278	44.67	-51.58	71485.8	-69.23	-71.53
Jupiter	E	2043-09-08T04:22:20.226	20.80	-66.24	71486.2	-65.01	-67.68