

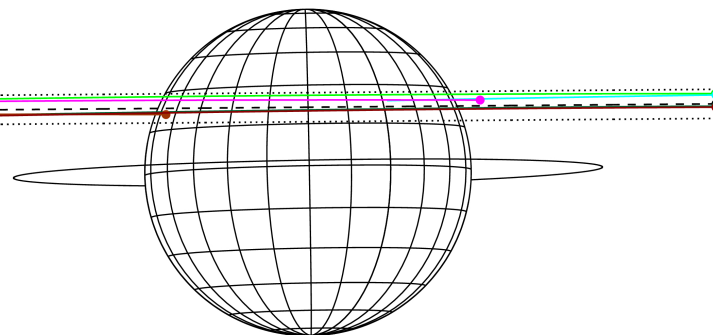
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-07T14:51:53.600
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116871945976194304
 2Mass ID (if available) : 17422027-2304071

Jupiter 2043-07-07T14:51:53 K8.77 G13.97 Pgt

ICRS Star Coord at Epoch: 17h 42m 20.26289s -23°04'07.48057s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 8.774
 G magnitude : 13.967
 RP magnitude : 12.670
 BP magnitude : 15.895
 DUPflag : 0
 Distance (au) : 4.288
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.89
 Sun-Target sep (deg) : 161.12
 Sun-Moon sep (deg) : 148.91
 B (ring opening deg) : -2.41
 PA of pole (deg) : 1.07
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 9.194
 C/A sky separation (km) : 28593.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



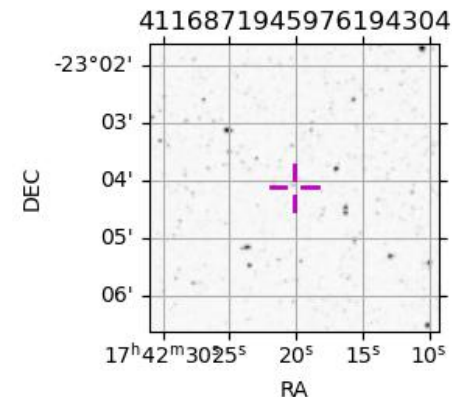
Earth
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2043-07-07T14:51:53.6000 at: 17 42 20.26289 s: -23 04 07.481 C/A 9.183° PA 180.47 deg v_sky -14.89 km/s D 04.29 AU
 Credit: Styled after SORA/Lucky Star

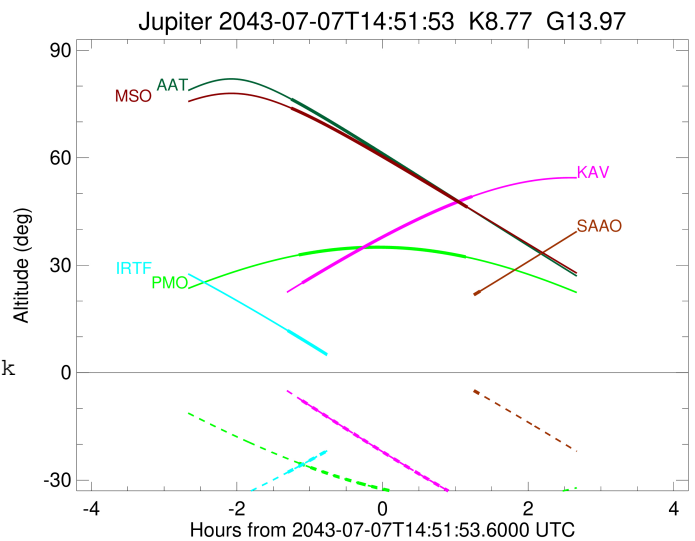
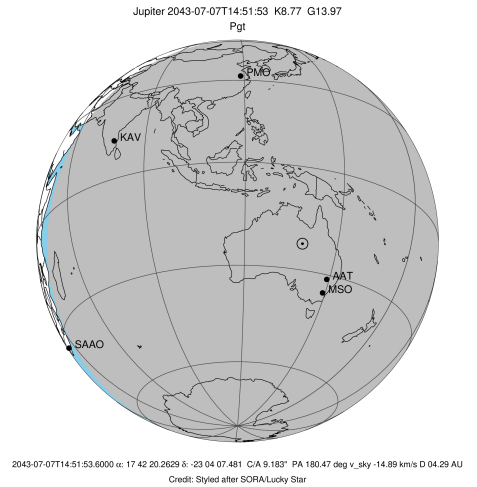
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUL 07 13:43 - JUL 07 16:00	Pie
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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	JUL 07 13:33 - JUL 07 13:33	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	JUL 07 13:45 - JUL 07 16:05	Pie
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUL 07 13:36 - JUL 07 16:01	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUL 07 16:12 - JUL 07 16:12	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 07 13:36 - JUL 07 16:01	Pie




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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-07T14:45:35.830
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       : 4116871945976194304
2Mass ID (if available) : 17422027-2304071
ICRS Star Coord at Epoch: 17h 42m 20.26289s -23:04:07.48057s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.774
G magnitude           : 13.967
RP magnitude         : 12.670
BP magnitude         : 15.895
DUPflag              : 0
Distance (au)        : 4.288
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg) : 161.12
Sun-Moon sep (deg)  : 148.14
B (ring opening deg) : -2.41
PA of pole (deg)    : 1.07
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.902
C/A sky separation (km): 30794.2
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
    
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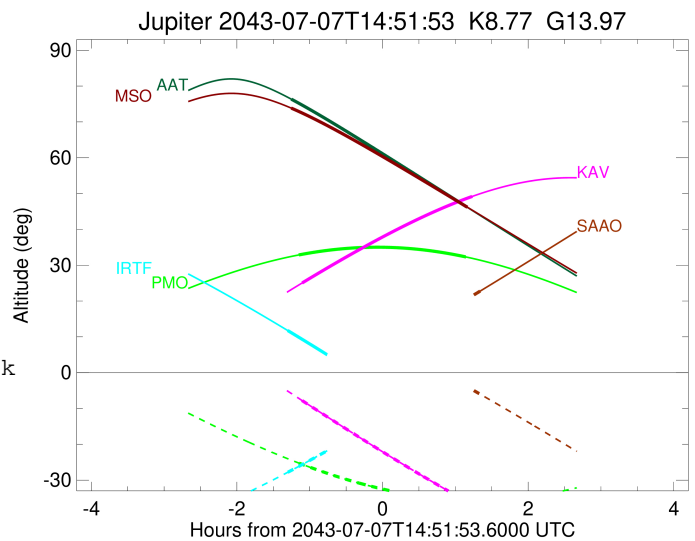
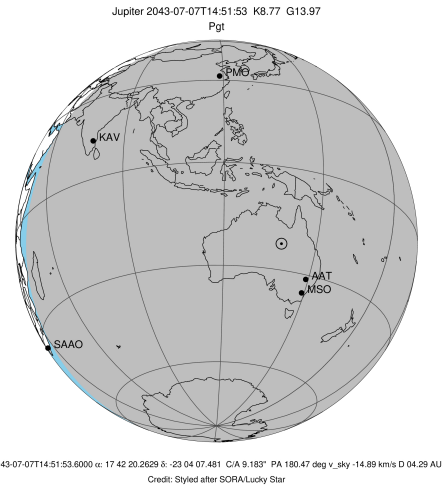


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-07T13:33:53.102	11.74	-27.79	71490.5	25.53	28.60
Jupiter	E	2043-07-07T15:57:59.595	-19.38x	1.15x	71490.5	25.43	28.49

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-07T14:55:56.000
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4116871945976194304
2Mass ID (if available) : 17422027-2304071
ICRS Star Coord at Epoch: 17h 42m 20.26289s -23:04:07.48057s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.774
G magnitude           : 13.967
RP magnitude          : 12.670
BP magnitude          : 15.895
DUPflag              : 0
Distance (au)         : 4.288
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg)  : 161.12
Sun-Moon sep (deg)   : 149.81
B (ring opening deg) : -2.41
PA of pole (deg)     : 1.07
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (" ) : 10.217
C/A sky separation (km) : 31775.7
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
    
```

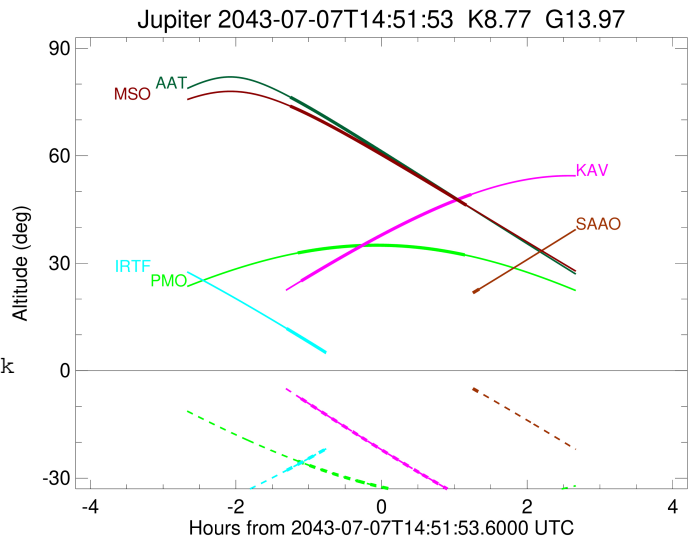
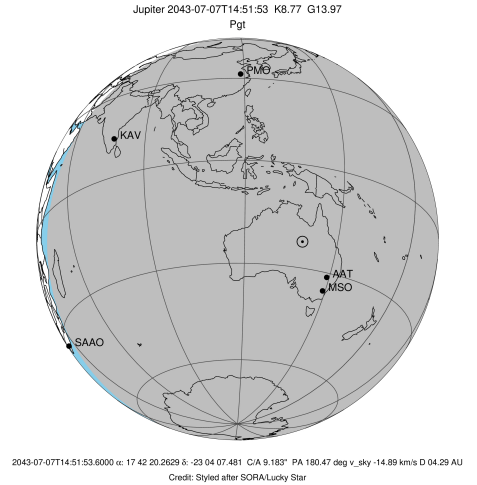


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-07T13:45:40.286	25.04	-7.79	71490.5	25.28	28.33
Jupiter	E	2043-07-07T16:05:50.856	49.19	-36.74	71490.3	27.29	30.49

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-07T14:48:56.460
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        : 4116871945976194304
2Mass ID (if available) : 17422027-2304071
ICRS Star Coord at Epoch: 17h 42m 20.26289s -23:04:07.48057s
RUWE (>1.4 is poor) : 0.96
K magnitude            : 8.774
G magnitude           : 13.967
RP magnitude          : 12.670
BP magnitude          : 15.895
DUPflag              : 0
Distance (au)         : 4.288
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg) : 161.12
Sun-Moon sep (deg)   : 148.96
B (ring opening deg) : -2.41
PA of pole (deg)     : 1.07
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 8.816
C/A sky separation (km) : 27417.9
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
    
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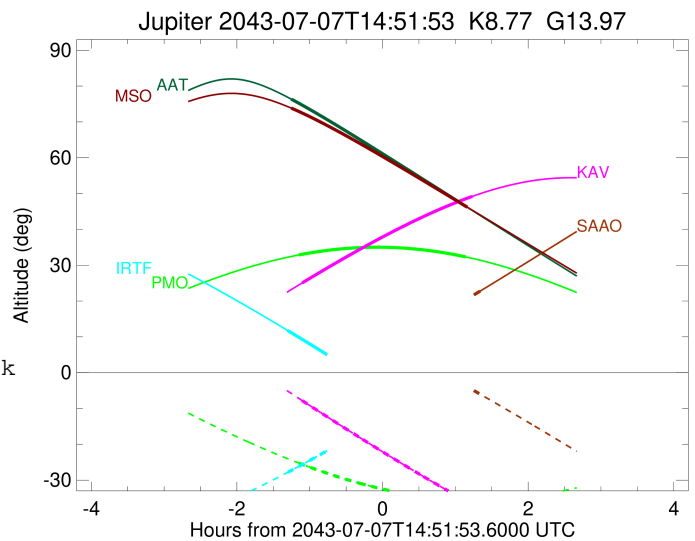
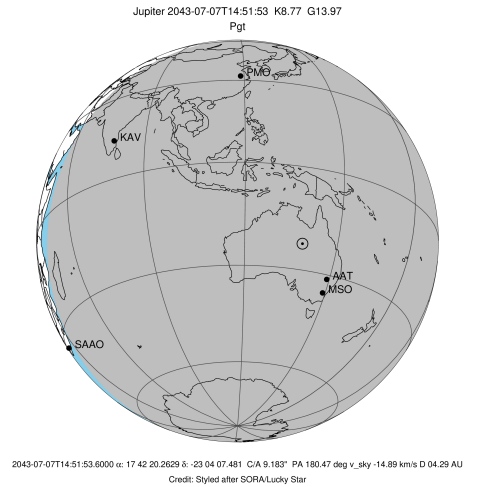


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-07T13:36:47.354	76.33	-78.88	71490.9	22.14	24.93
Jupiter	E	2043-07-07T16:01:25.551	46.23	-63.52	71490.8	22.75	25.59

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-07T14:57:35.850
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       : 4116871945976194304
2Mass ID (if available) : 17422027-2304071
ICRS Star Coord at Epoch: 17h 42m 20.26289s -23:04:07.48057s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 8.774
G magnitude           : 13.967
RP magnitude          : 12.670
BP magnitude          : 15.895
DUPflag              : 0
Distance (au)        : 4.288
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg) : 161.12
Sun-Moon sep (deg)   : 149.58
B (ring opening deg) : -2.41
PA of pole (deg)     : 1.07
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 8.118
C/A sky separation (km): 25246.5
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
    
```

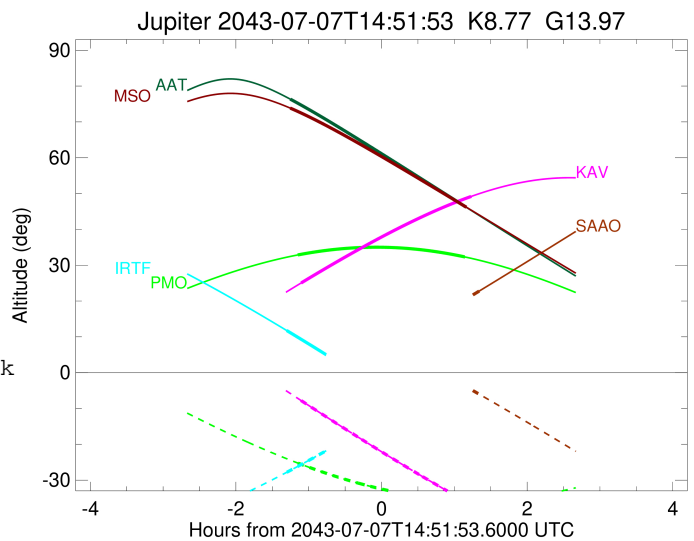
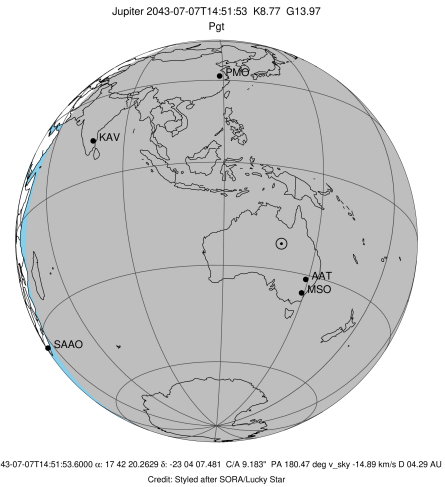


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-07T13:42:14.056	-6.48x	20.29x	71491.1	19.49	22.02
Jupiter	E	2043-07-07T16:12:22.134	22.77	-6.00	71490.9	21.84	24.60

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-07-07T14:49:04.330
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)        : -35.32000
E. Longitude (deg)    : 149.00833
Altitude (km)         : 0.770
Gaia source ID        : 4116871945976194304
2Mass ID (if available) : 17422027-2304071
ICRS Star Coord at Epoch: 17h 42m 20.26289s -23:04:07.48057s
RUWE (>1.4 is poor)  : 0.96
K magnitude           : 8.774
G magnitude           : 13.967
RP magnitude          : 12.670
BP magnitude          : 15.895
DUPflag              : 0
Distance (au)         : 4.288
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg)  : 161.12
Sun-Moon sep (deg)    : 148.96
B (ring opening deg) : -2.41
PA of pole (deg)      : 1.07
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 8.678
C/A sky separation (km) : 26990.1
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	2043-07-07T13:36:39.130	73.85	-75.58	71490.9	21.76	24.51
Jupiter	E	2043-07-07T16:01:48.879	46.18	-62.39	71490.8	22.40	25.21