

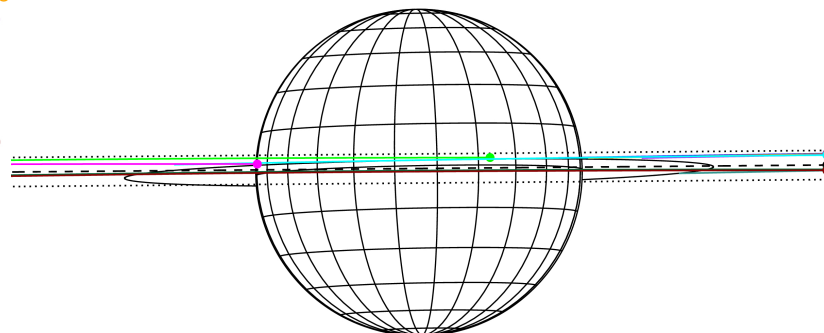
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-08T12:07:01.550
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116499928707892992
 2Mass ID (if available) : 17415388-2304130

Jupiter 2043-07-08T12:07:01 K8.55 G13.05 Pgt

ICRS Star Coord at Epoch: 17h 41m 53.87634s -23°04'13.04547s
 RUWE (>1.4 is poor) : 0.86
 K magnitude : 8.546
 G magnitude : 13.053
 RP magnitude : 11.887
 BP magnitude : 14.511
 DUPflag : 0
 Distance (au) : 4.292
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.73
 Sun-Target sep (deg) : 160.18
 Sun-Moon sep (deg) : 136.42
 B (ring opening deg) : -2.41
 PA of pole (deg) : 1.11
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 0.563
 C/A sky separation (km) : 1751.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



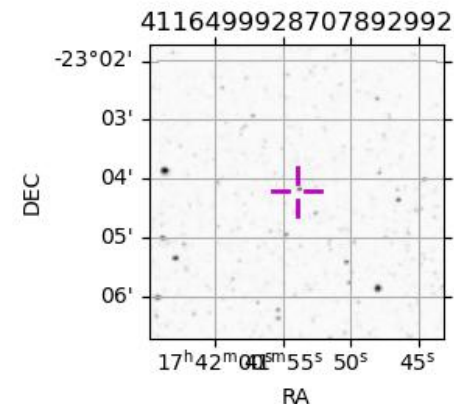
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 MSO



2043-07-08T12:07:01.5500 at: 17 41 53.8763 s: -23 04 13.045 C/A 0.551" PA 180.49 deg v_sky -14.73 km/s D 04.29 AU
 Credit: Styled after SORA/Lucky Star

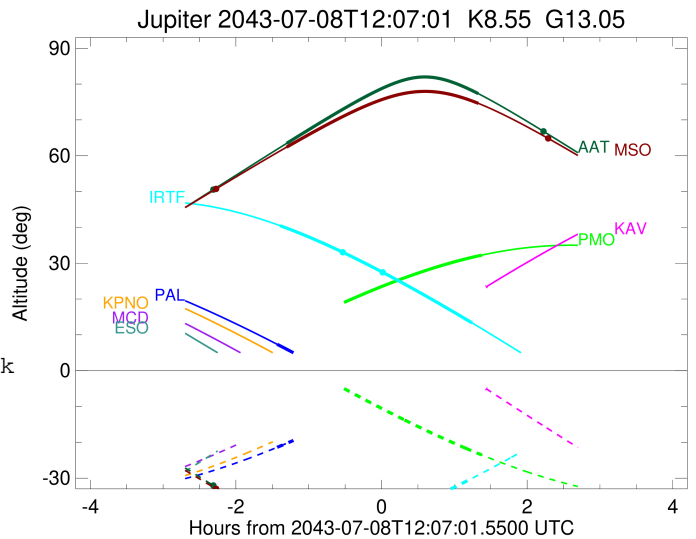
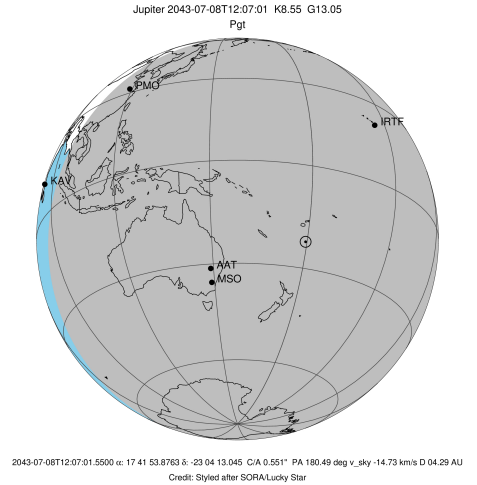
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUL 08 10:41 - JUL 08 10:41	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUL 08 13:29 - JUL 08 13:29	Pne
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 08 10:43 - JUL 08 13:21	Pie
KAV	Kavalur Observatory	12.6	78.8	+	JUL 08 13:33 - JUL 08 13:33	Pne
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 08 10:49 - JUL 08 13:26	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUL 08 10:48 - JUL 08 13:26	Pie



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-08T12:01:06.110
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      : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude         : 8.546
G magnitude         : 13.053
RP magnitude        : 11.887
BP magnitude        : 14.511
DUPflag            : 0
Distance (au)       : 4.292
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg) : 160.18
Sun-Moon sep (deg)  : 135.78
B (ring opening deg) : -2.41
PA of pole (deg)    : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 1.675
C/A sky separation (km) : 5213.1
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
    
```

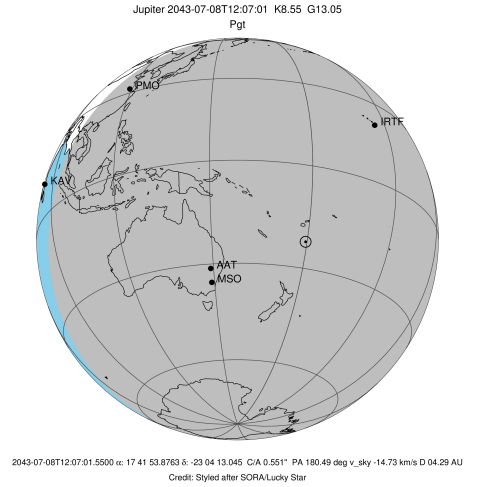


x: target alt < 5.0 deg or sun > -5.0 deg

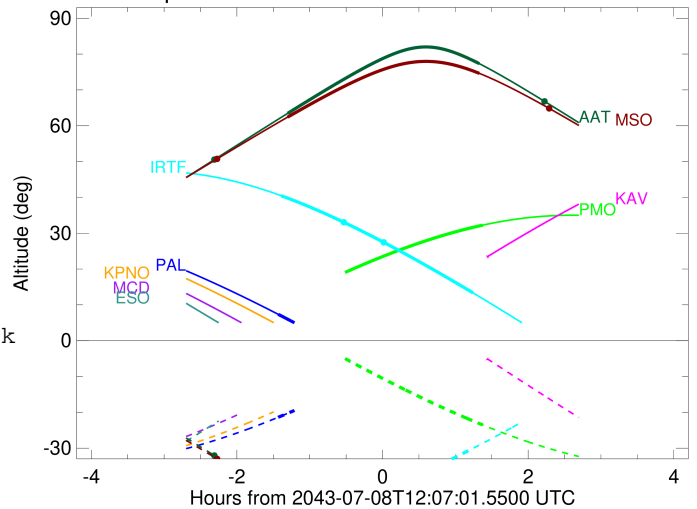
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-08T10:41:01.686	7.36	-21.39	71492.0	4.12	4.71
Jupiter	E	2043-07-08T13:21:57.514	-23.57x	6.08x	71492.0	4.21	4.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-08T12:10:47.460
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)  : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.546
G magnitude           : 13.053
RP magnitude         : 11.887
BP magnitude         : 14.511
DUPflag              : 0
Distance (au)        : 4.292
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg) : 160.18
Sun-Moon sep (deg)  : 137.13
B (ring opening deg) : -2.41
PA of pole (deg)    : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 2.088
C/A sky separation (km): 6501.6
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
    
```



Jupiter 2043-07-08T12:07:01 K8.55 G13.05

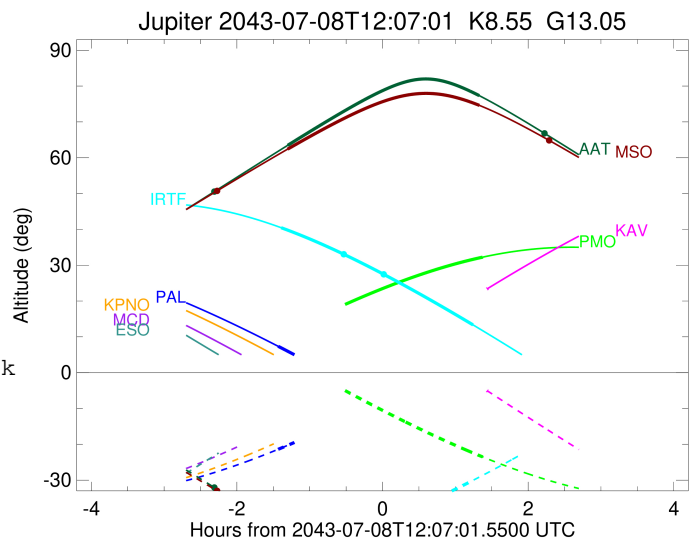
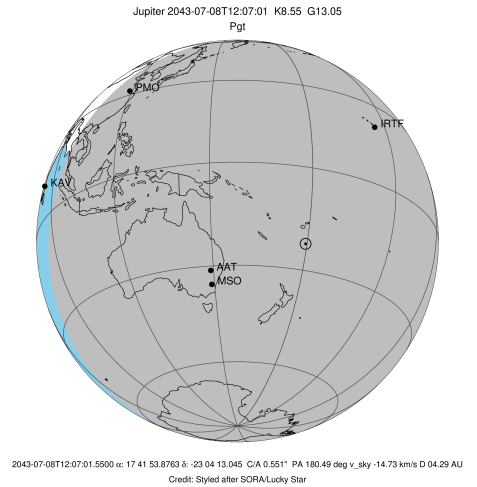


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-08T10:51:37.801	11.86	3.40x	71492.0	4.15	4.74
Jupiter	E	2043-07-08T13:29:33.843	32.24	-23.51	71491.9	6.11	6.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-08T12:02:15.470
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        : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.546
G magnitude           : 13.053
RP magnitude          : 11.887
BP magnitude          : 14.511
DUPflag              : 0
Distance (au)         : 4.292
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg) : 160.18
Sun-Moon sep (deg)   : 136.30
B (ring opening deg) : -2.41
PA of pole (deg)     : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 1.736
C/A sky separation (km) : 5403.7
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
    
```

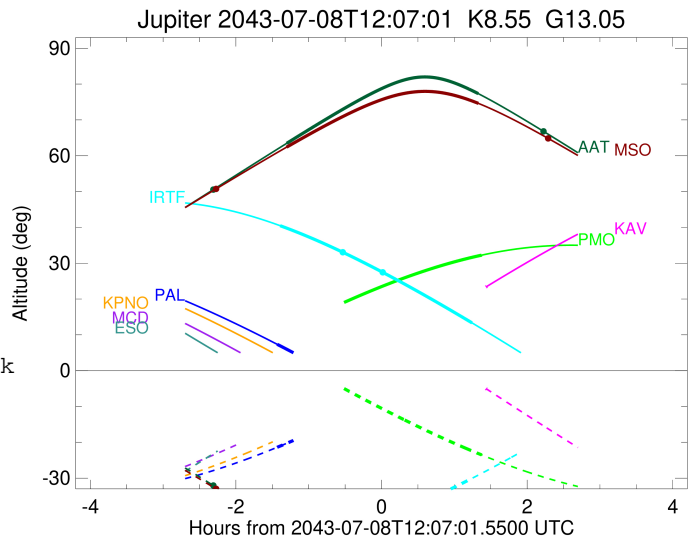
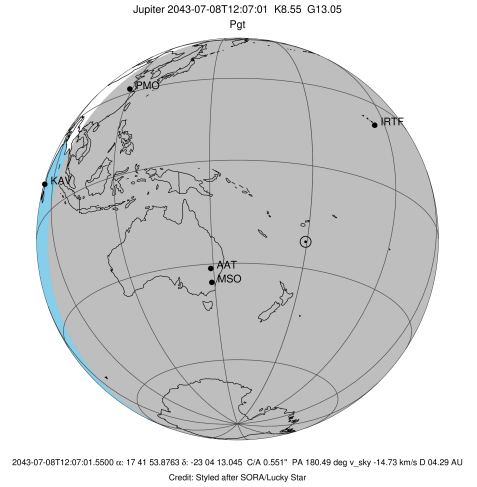


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-08T10:43:29.611	40.46	-47.65	71492.0	4.08	4.67
Jupiter	E	2043-07-08T13:21:37.733	13.34	-30.05	71492.0	4.42	5.05

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-08T12:13:52.020
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       : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.546
G magnitude           : 13.053
RP magnitude         : 11.887
BP magnitude         : 14.511
DUPflag              : 0
Distance (au)        : 4.292
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg) : 160.18
Sun-Moon sep (deg)  : 137.18
B (ring opening deg) : -2.41
PA of pole (deg)    : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (" ) : 1.133
C/A sky separation (km) : 3526.5
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
    
```

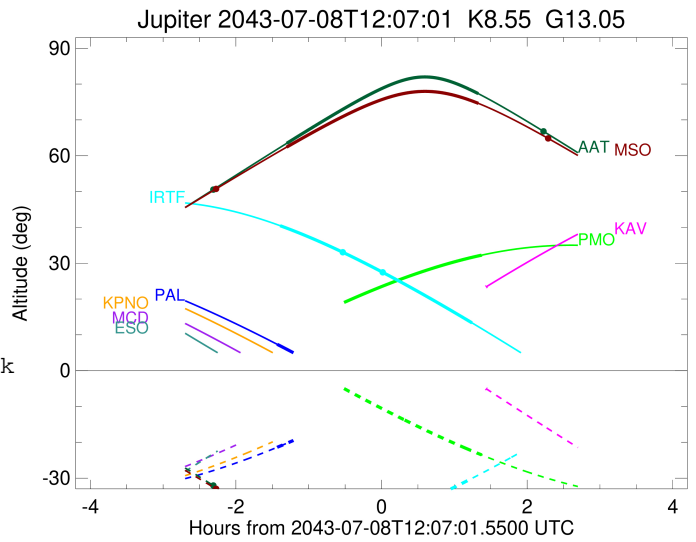
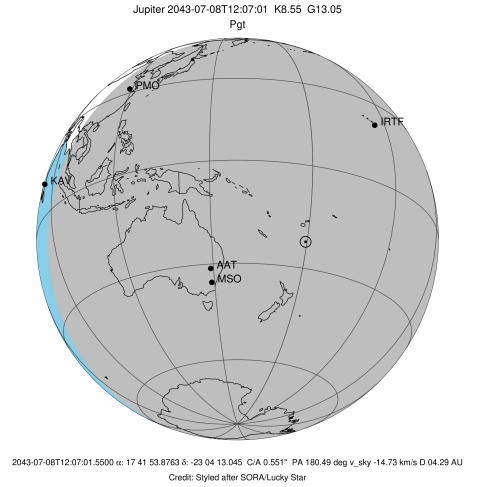


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-08T10:53:10.535	-11.84x	31.47x	71492.0	1.52	1.74
Jupiter	E	2043-07-08T13:33:46.630	23.50	-5.15	71492.0	4.07	4.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-08T12:07:57.350
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        : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude           : 8.546
G magnitude           : 13.053
RP magnitude          : 11.887
BP magnitude          : 14.511
DUPflag              : 0
Distance (au)         : 4.292
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg)  : 160.18
Sun-Moon sep (deg)    : 137.15
B (ring opening deg)  : -2.41
PA of pole (deg)      : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 0.268
C/A sky separation (km) : 834.5
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
    
```

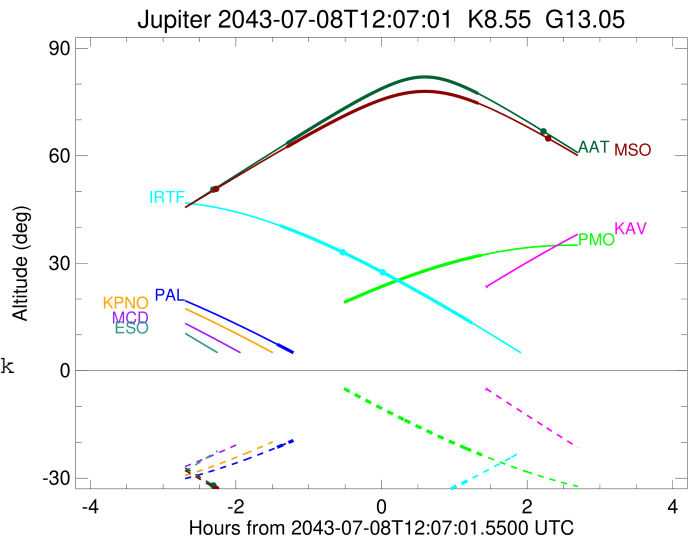
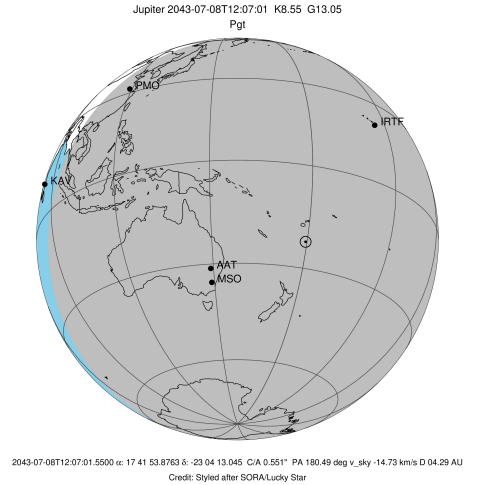


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-08T10:49:04.605	63.49	-44.97	71492.0	-0.14	-0.17
Jupiter	E	2043-07-08T13:26:46.540	77.32	-77.24	71492.0	1.28	1.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-08T12:07:55.150
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       : 4116499928707892992
2Mass ID (if available) : 17415388-2304130
ICRS Star Coord at Epoch: 17h 41m 53.87634s -23:04:13.04547s
RUWE (>1.4 is poor) : 0.86
K magnitude          : 8.546
G magnitude          : 13.053
RP magnitude         : 11.887
BP magnitude         : 14.511
DUPflag             : 0
Distance (au)        : 4.292
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.73
Sun-Target sep (deg) : 160.18
Sun-Moon sep (deg)   : 137.13
B (ring opening deg) : -2.41
PA of pole (deg)     : 1.11
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 0.127
C/A sky separation (km): 394.9
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	2043-07-08T10:48:56.844	62.41	-44.86	71492.0	-0.49	-0.56
Jupiter	E	2043-07-08T13:26:50.142	74.61	-74.31	71492.0	0.93	1.06