

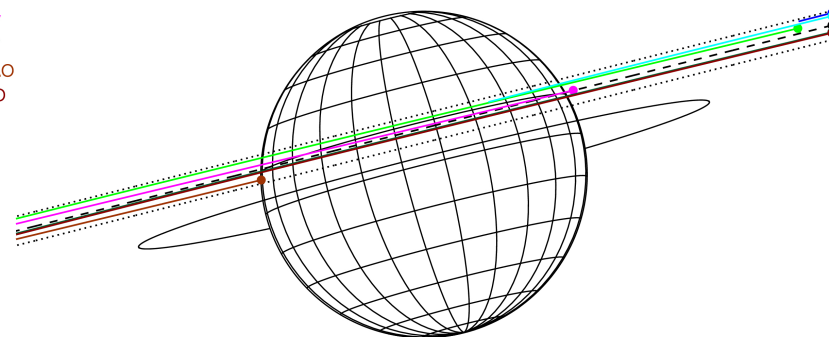
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2030-04-18T16:31:11.480
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6255381719277385216
 2Mass ID (if available) : 15325472-1754381

Jupiter 2030-04-18T16:31:11 K6.15 G9.51 Pgt

ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
 RUWE (>1.4 is poor) : 1.11
 K magnitude : 6.146
 G magnitude : 9.507
 RP magnitude : 8.553
 BP magnitude : 10.439
 DUPflag : 0
 Distance (au) : 4.487
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.64
 Sun-Target sep (deg) : 152.98
 Sun-Moon sep (deg) : 19.77
 B (ring opening deg) : -3.37
 PA of pole (deg) : 14.26
 Pole direction: RA (deg): 268.05727
 Dec (deg): 64.49652
 C/A sky separation (") : 6.049
 C/A sky separation (km) : 19686.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



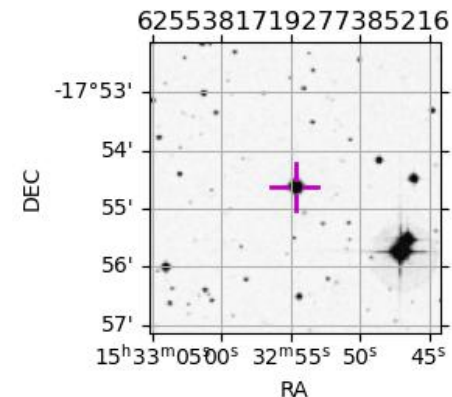
Earth
 PAL
 PMO
 IRTF
 KAV
 AAT
 SAAO
 MSO



2030-04-18T16:31:11.4800 at: 15 32 54.7222 6: -17 54 38.584 C/A 6.036" PA 194.14 deg v_sky -13.64 km/s D 04.49 AU
 Credit: Styled after SORA/Lucky Star

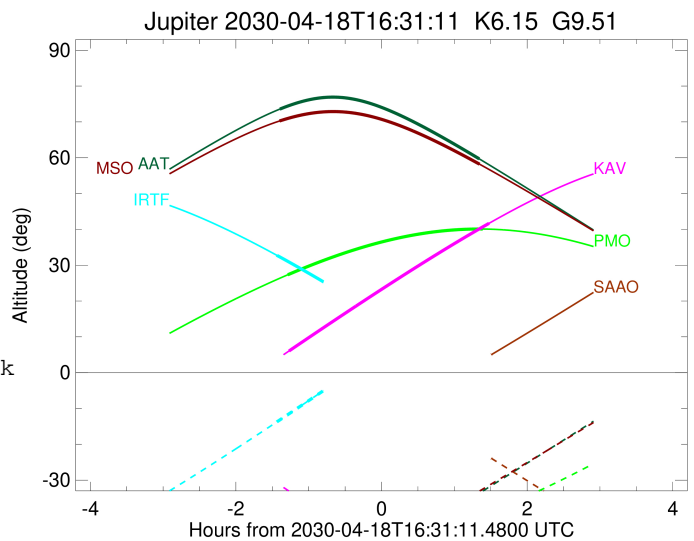
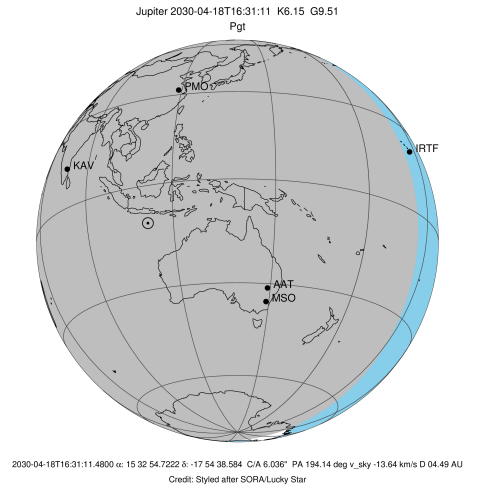
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
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	+ +	APR 18 15:13 - APR 18 17:54	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	+	APR 18 15:04 - APR 18 15:04	Pin
KAV	Kavalur Observatory	12.6	78.8	+ +	APR 18 15:14 - APR 18 17:59	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	+ +	APR 18 15:07 - APR 18 17:51	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	APR 18 18:01 - APR 18 18:01	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	APR 18 15:07 - APR 18 17:51	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-04-18T16:34:27.810
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       : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 6.146
G magnitude           : 9.507
RP magnitude         : 8.553
BP magnitude         : 10.439
DUPflag              : 0
Distance (au)        : 4.487
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.64
Sun-Target sep (deg) : 152.98
Sun-Moon sep (deg)  : 19.71
B (ring opening deg) : -3.37
PA of pole (deg)    : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 7.341
C/A sky separation (km) : 23890.8
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
    
```

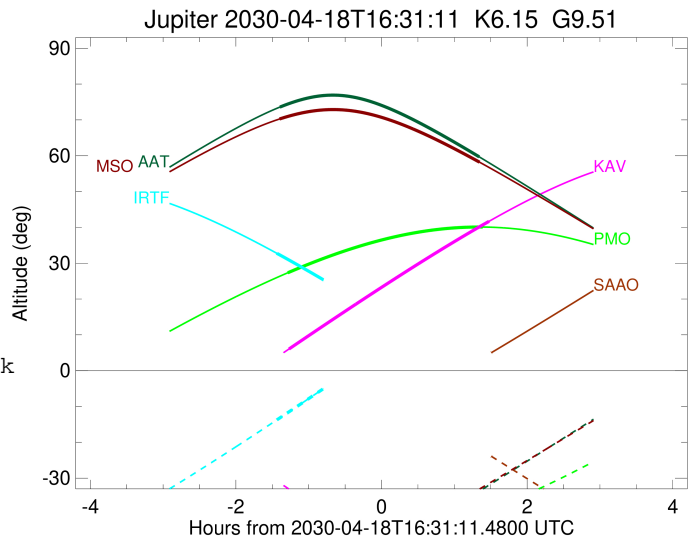
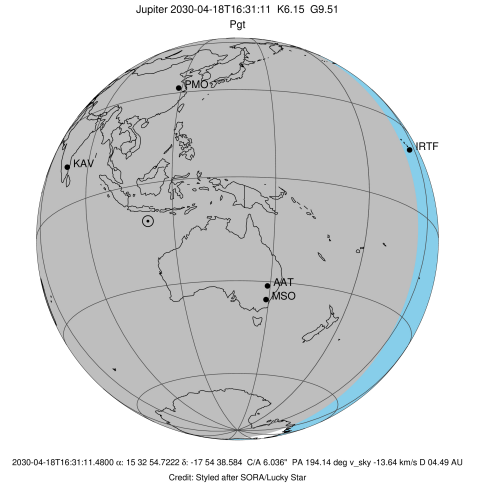


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-18T15:13:56.769	27.32	-45.47	71490.4	18.79	21.24
Jupiter	E	2030-04-18T17:54:36.496	40.09	-39.58	71490.2	20.07	22.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-18T16:25:46.680
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      : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor) : 1.11
K magnitude          : 6.146
G magnitude          : 9.507
RP magnitude         : 8.553
BP magnitude         : 10.439
DUPflag             : 0
Distance (au)       : 4.487
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.64
Sun-Target sep (deg) : 152.98
Sun-Moon sep (deg)  : 20.69
B (ring opening deg) : -3.37
PA of pole (deg)    : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 7.302
C/A sky separation (km): 23764.7
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
    
```

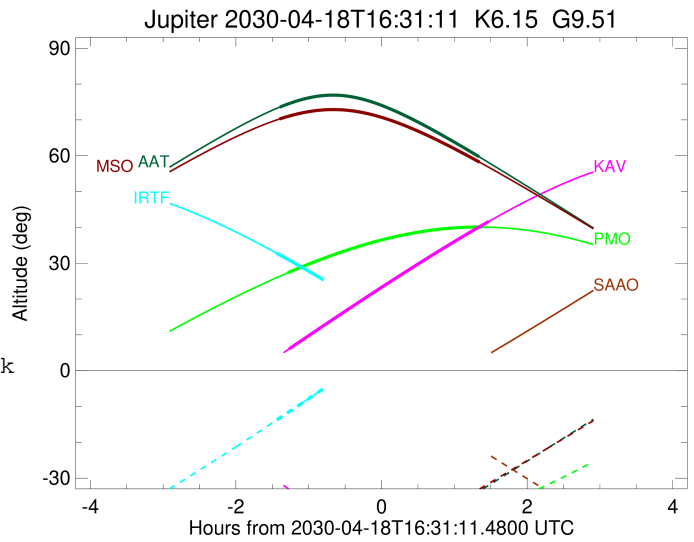
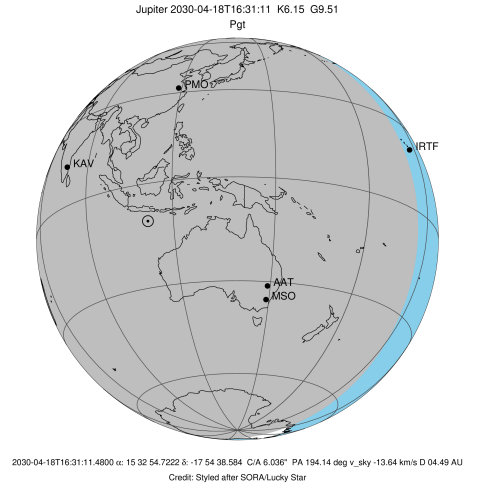


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-18T15:04:54.964	32.76	-13.75	71490.3	19.44	21.96
Jupiter	E	2030-04-18T17:47:18.941	-1.14x	23.81x	71490.3	19.09	21.58

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2030-04-18T16:37:51.370
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        : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor)  : 1.11
K magnitude            : 6.146
G magnitude            : 9.507
RP magnitude           : 8.553
BP magnitude           : 10.439
DUPflag               : 0
Distance (au)         : 4.487
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -13.64
Sun-Target sep (deg)  : 152.98
Sun-Moon sep (deg)    : 19.09
B (ring opening deg)  : -3.37
PA of pole (deg)      : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 6.346
C/A sky separation (km) : 20651.8
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
    
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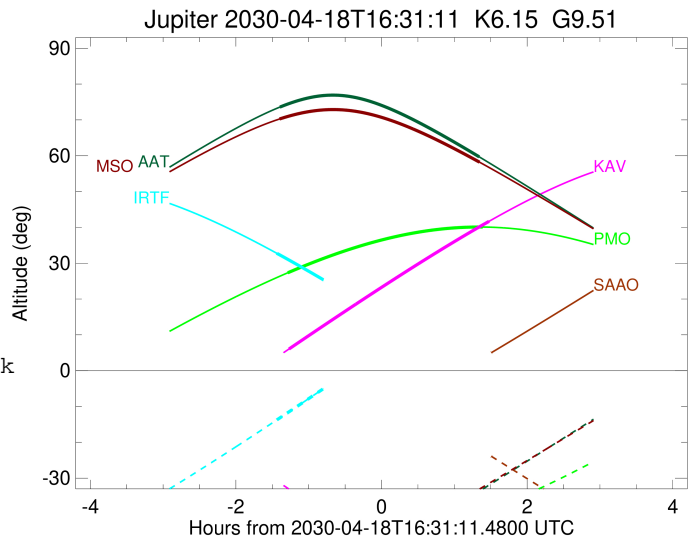
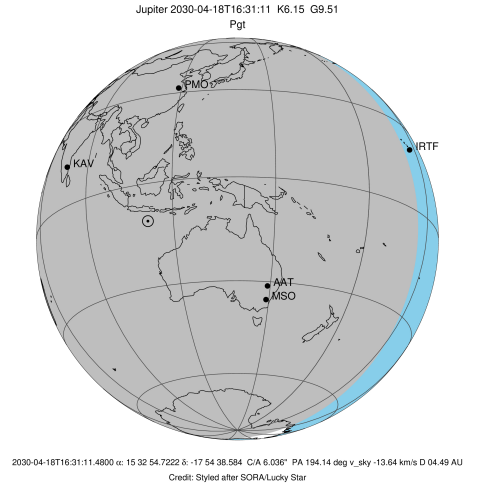


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-18T15:14:58.477	6.05	-33.06	71490.8	15.96	18.09
Jupiter	E	2030-04-18T17:59:50.066	41.69	-64.05	71490.6	17.59	19.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-04-18T16:29:33.270
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       : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 6.146
G magnitude           : 9.507
RP magnitude         : 8.553
BP magnitude         : 10.439
DUPflag              : 0
Distance (au)        : 4.487
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.64
Sun-Target sep (deg) : 152.98
Sun-Moon sep (deg)   : 20.26
B (ring opening deg) : -3.37
PA of pole (deg)     : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 5.679
C/A sky separation (km) : 18483.0
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
    
```

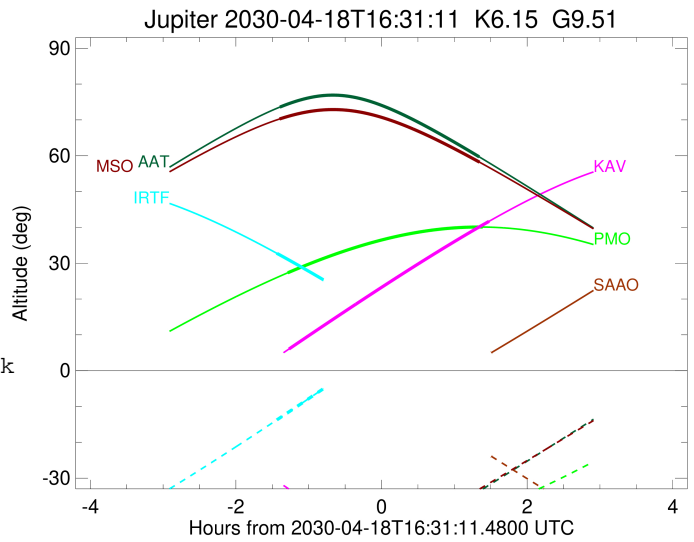
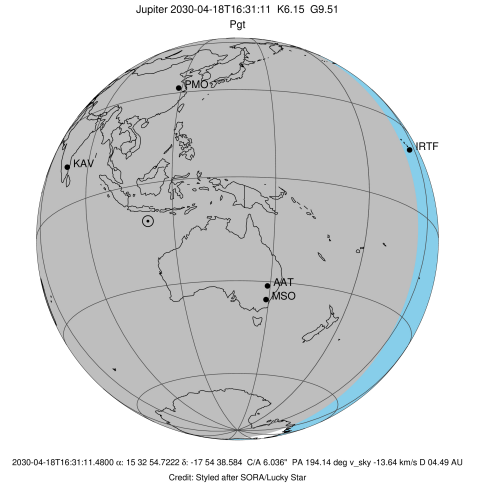


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-18T15:07:24.193	73.56	-64.97	71491.0	14.44	16.40
Jupiter	E	2030-04-18T17:51:42.484	59.68	-33.67	71490.9	15.28	17.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-18T16:35:37.290
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      : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor) : 1.11
K magnitude          : 6.146
G magnitude          : 9.507
RP magnitude         : 8.553
BP magnitude         : 10.439
DUPflag             : 0
Distance (au)       : 4.487
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -13.64
Sun-Target sep (deg) : 152.98
Sun-Moon sep (deg)  : 19.00
B (ring opening deg) : -3.37
PA of pole (deg)    : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 4.502
C/A sky separation (km): 14653.1
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
    
```

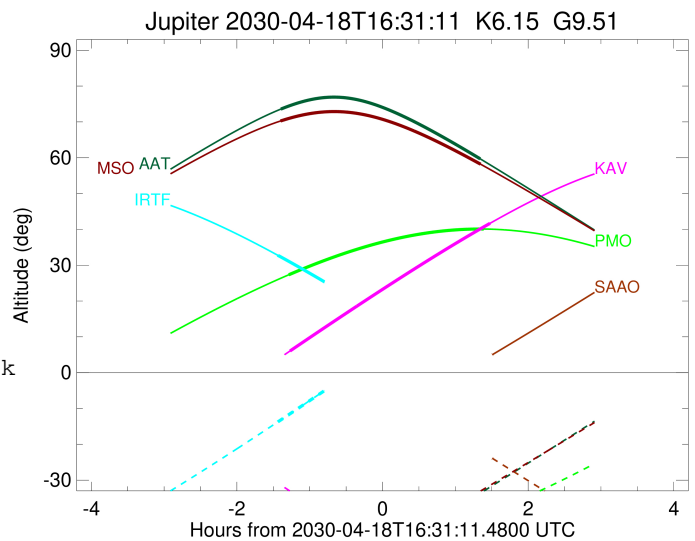
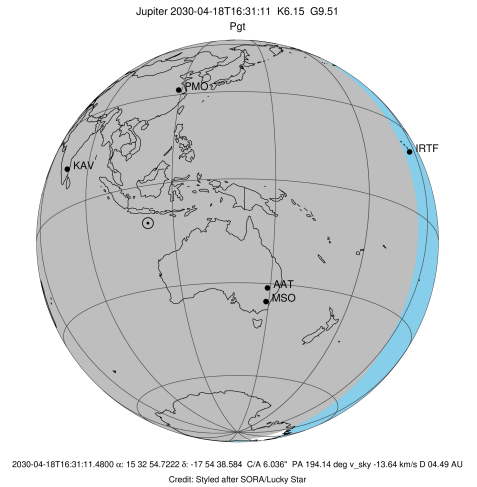


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-18T15:08:28.513	-26.23x	12.01x	71491.4	11.54	13.14
Jupiter	E	2030-04-18T18:01:53.578	5.05	-23.95	71491.3	12.29	13.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-18T16:29:29.500
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      : 6255381719277385216
2Mass ID (if available) : 15325472-1754381
ICRS Star Coord at Epoch: 15h 32m 54.72221s -17:54:38.58367s
RUWE (>1.4 is poor) : 1.11
K magnitude          : 6.146
G magnitude          : 9.507
RP magnitude         : 8.553
BP magnitude         : 10.439
DUPflag             : 0
Distance (au)       : 4.487
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -13.64
Sun-Target sep (deg) : 152.98
Sun-Moon sep (deg)  : 20.25
B (ring opening deg) : -3.37
PA of pole (deg)    : 14.26
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 5.547
C/A sky separation (km) : 18053.2
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	2030-04-18T15:07:06.286	70.24	-61.83	71491.1	14.10	16.02
Jupiter	E	2030-04-18T17:51:52.549	58.21	-33.06	71491.0	14.91	16.93