

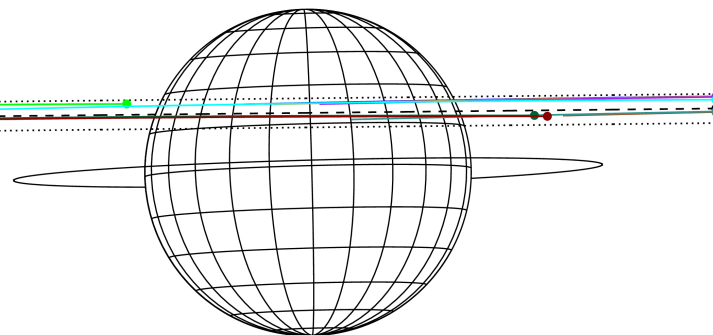
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-17T09:45:00.290
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116725534741340928
 2Mass ID (if available) : 17374867-2303314

Jupiter 2043-07-17T09:45:00 K8.40 G14.55 Pgt

ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
 RUWE (>1.4 is poor) : 0.88
 K magnitude : 8.402
 G magnitude : 14.546
 RP magnitude : 13.048
 BP magnitude : 17.633
 DUPflag : 0
 Distance (au) : 4.347
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.72
 Sun-Target sep (deg) : 150.75
 Sun-Moon sep (deg) : 24.78
 B (ring opening deg) : -2.40
 PA of pole (deg) : 1.55
 Pole direction: RA (deg): 268.05670
 Dec (deg): 64.49732
 C/A sky separation (") : 8.284
 C/A sky separation (km) : 26116.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



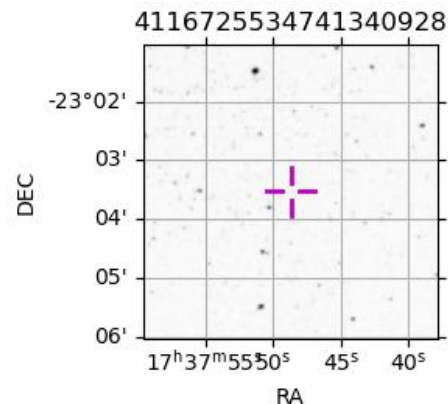
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 RIO
 ESO
 AAT
 MSO



2043-07-17T09:45:00.290 at: 17 37 48.6610 s: -23 03 31.744 C/A 8.273" PA 180.62 deg v_sky -12.72 km/s D 04.35 AU
 Credit: Styled after SORA/Lucky Star

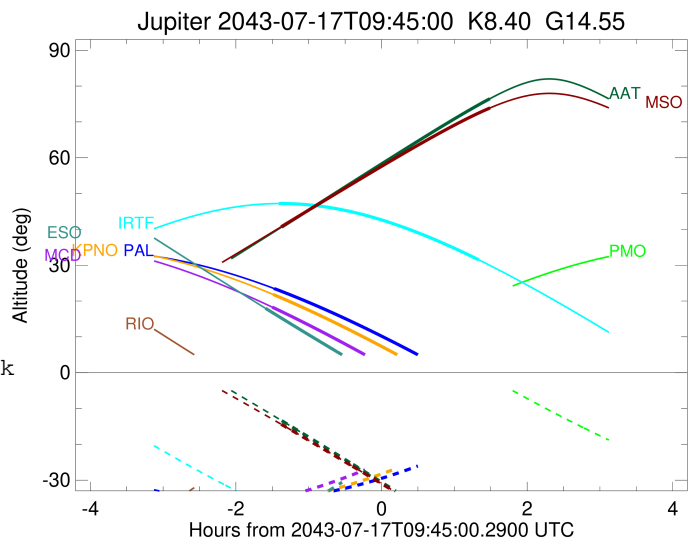
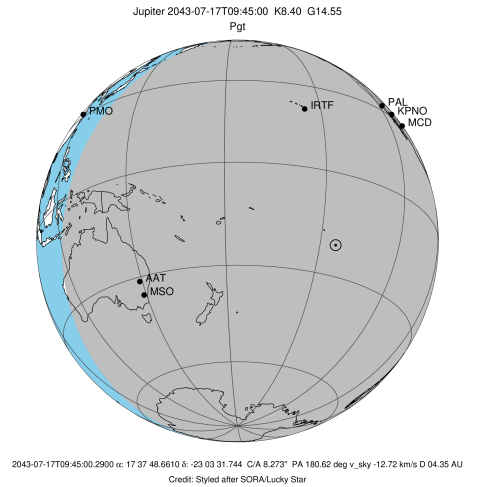
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUL 17 08:16 - JUL 17 08:16	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUL 17 08:15 - JUL 17 08:15	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	JUL 17 08:14 - JUL 17 08:14	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUL 17 08:20 - JUL 17 11:05	Pie
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	+	JUL 17 08:09 - JUL 17 08:09	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUL 17 08:22 - JUL 17 11:14	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 17 08:22 - JUL 17 11:14	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-17T09:39:30.260
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        : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 8.402
G magnitude           : 14.546
RP magnitude          : 13.048
BP magnitude          : 17.633
DUPflag              : 0
Distance (au)         : 4.347
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)   : 25.52
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 9.662
C/A sky separation (km): 30461.2
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
    
```

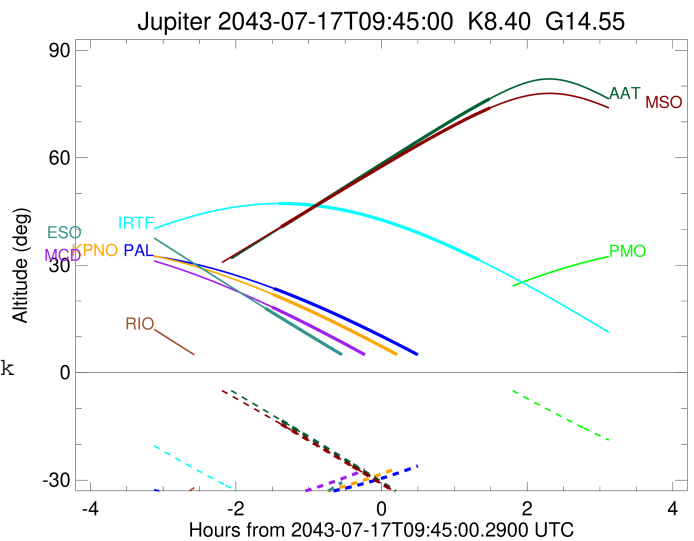
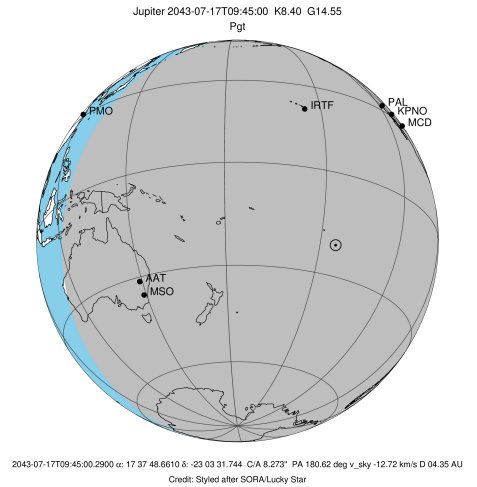


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:16:26.254	23.49	-35.37	71490.6	24.75	27.75
Jupiter	E	2043-07-17T11:03:24.831	-3.94x	-19.28	71490.5	25.51	28.57

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T09:39:07.200
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      : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude         : 8.402
G magnitude         : 14.546
RP magnitude        : 13.048
BP magnitude        : 17.633
DUPflag            : 0
Distance (au)       : 4.347
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)  : 25.53
B (ring opening deg) : -2.40
PA of pole (deg)    : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 9.578
C/A sky separation (km) : 30194.4
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
    
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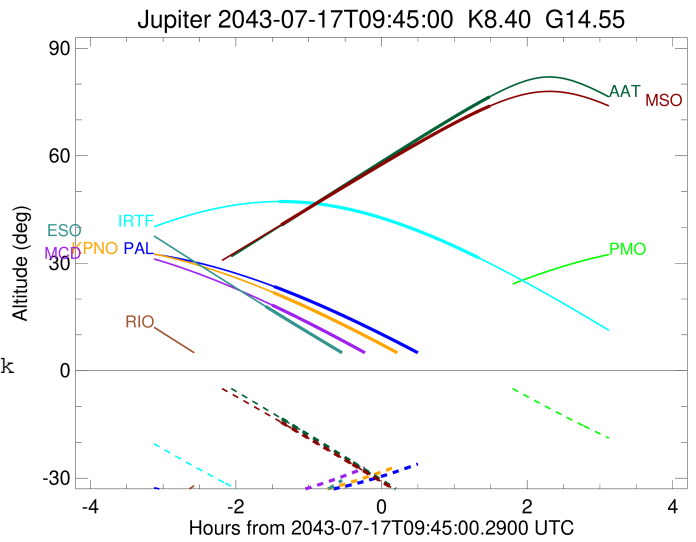
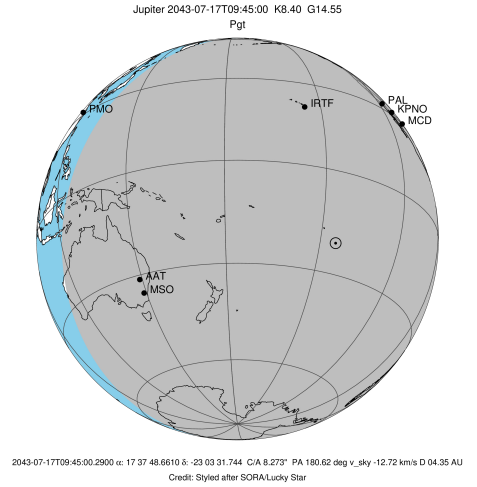


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:15:45.142	21.82	-36.03	71490.6	24.56	27.55
Jupiter	E	2043-07-17T11:03:23.491	-7.44x	-16.86	71490.6	25.24	28.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T09:38:41.410
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      : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude         : 8.402
G magnitude         : 14.546
RP magnitude        : 13.048
BP magnitude        : 17.633
DUPflag            : 0
Distance (au)       : 4.347
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)  : 25.54
B (ring opening deg) : -2.40
PA of pole (deg)    : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 9.465
C/A sky separation (km) : 29839.2
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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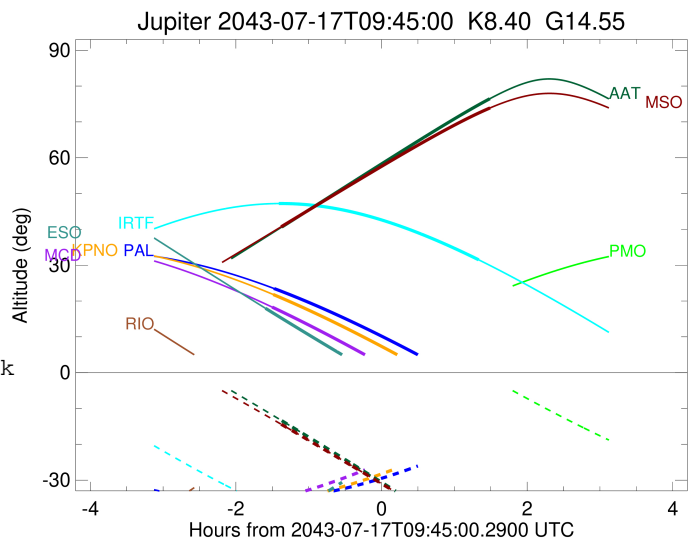
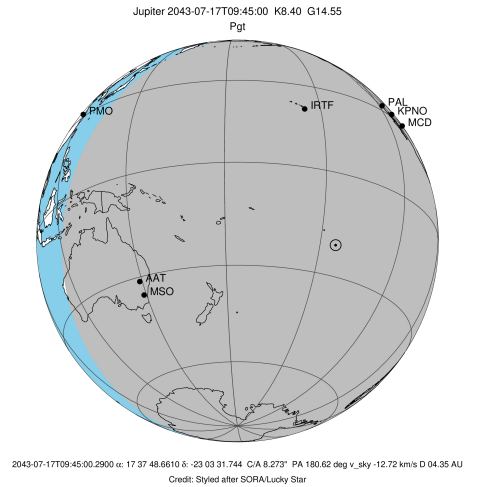


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:14:51.924	18.31	-35.45	71490.7	24.30	27.27
Jupiter	E	2043-07-17T11:03:29.529	-13.05x	-12.40	71490.6	24.89	27.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-17T09:42:29.700
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       : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 8.402
G magnitude           : 14.546
RP magnitude          : 13.048
BP magnitude          : 17.633
DUPflag              : 0
Distance (au)        : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)   : 25.40
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 9.617
C/A sky separation (km) : 30318.2
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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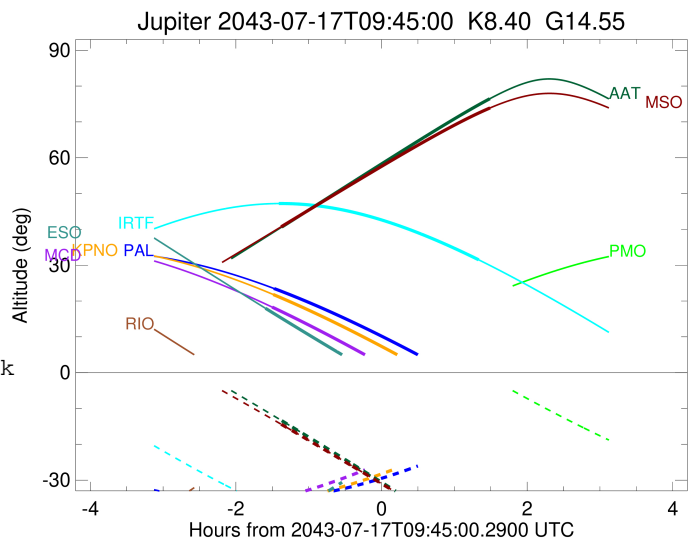
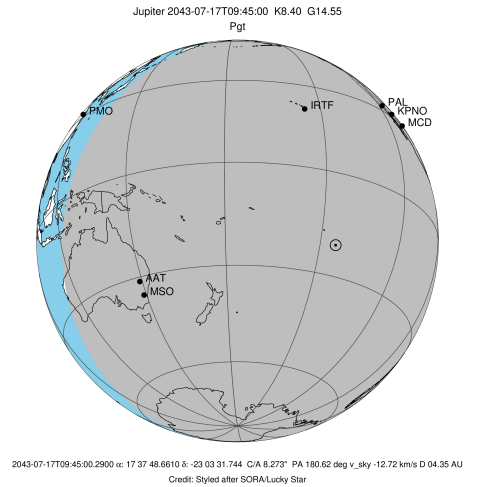


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:20:21.814	47.21	-38.56	71490.7	24.25	27.21
Jupiter	E	2043-07-17T11:05:02.537	31.51	-48.14	71490.5	25.64	28.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-17T09:38:15.360
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        : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 8.402
G magnitude           : 14.546
RP magnitude          : 13.048
BP magnitude          : 17.633
DUPflag              : 0
Distance (au)         : 4.347
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg)  : 150.75
Sun-Moon sep (deg)   : 25.39
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 7.225
C/A sky separation (km) : 22776.0
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
    
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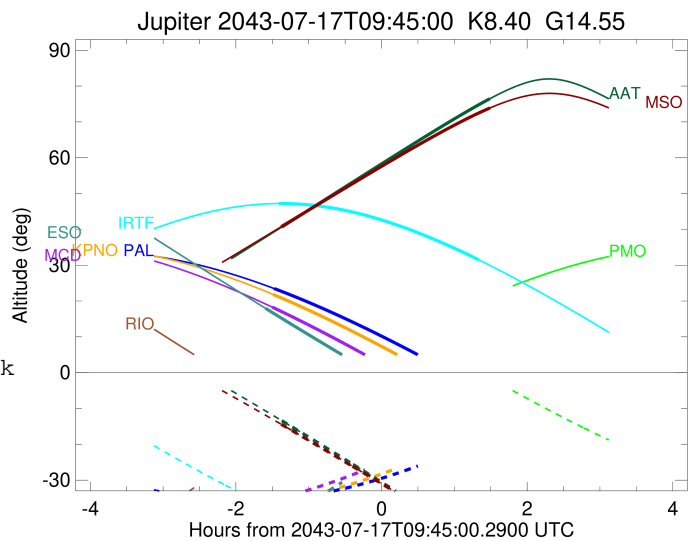
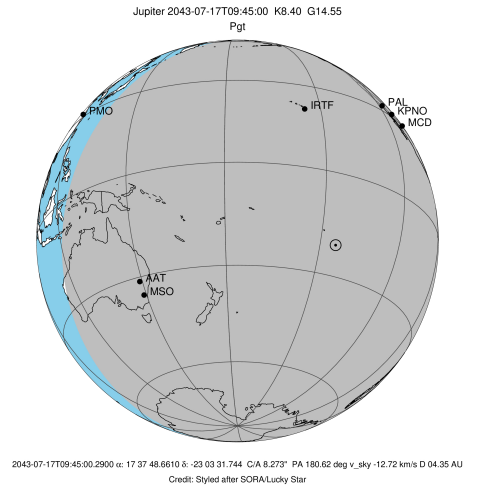


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:09:22.676	17.97	-44.32	71491.2	18.34	20.74
Jupiter	E	2043-07-17T11:08:18.201	-16.66x	-6.16	71491.2	18.84	21.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T09:48:44.650
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       : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 8.402
G magnitude           : 14.546
RP magnitude         : 13.048
BP magnitude         : 17.633
DUPflag              : 0
Distance (au)        : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)   : 24.68
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation ("): 7.882
C/A sky separation (km): 24848.6
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
    
```

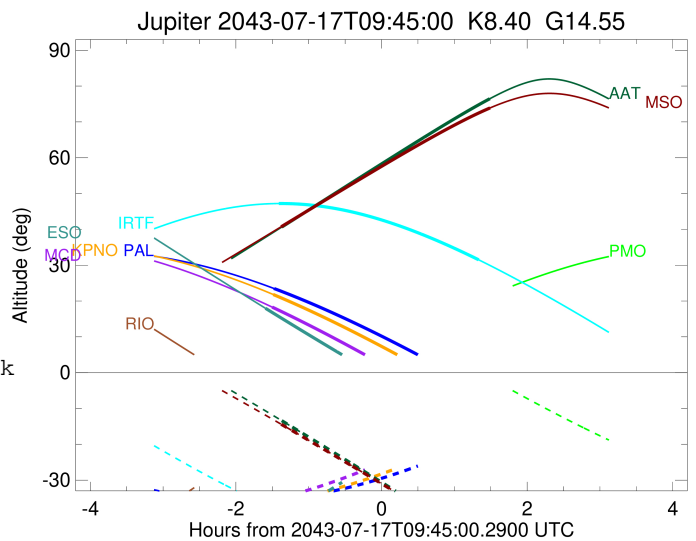
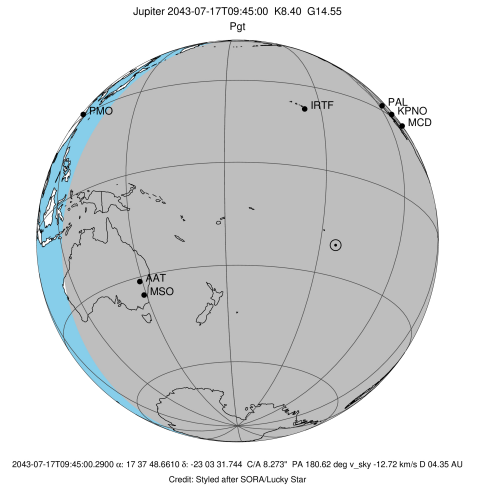


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-17T08:22:46.611	40.64	-13.39	71491.2	18.90	21.36
Jupiter	E	2043-07-17T11:14:16.598	76.47	-49.62	71490.9	21.53	24.26


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-17T09:48:35.040
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       : 4116725534741340928
2Mass ID (if available) : 17374867-2303314
ICRS Star Coord at Epoch: 17h 37m 48.66095s -23:03:31.74418s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 8.402
G magnitude           : 14.546
RP magnitude          : 13.048
BP magnitude          : 17.633
DUPflag              : 0
Distance (au)         : 4.347
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.72
Sun-Target sep (deg) : 150.75
Sun-Moon sep (deg)   : 24.69
B (ring opening deg) : -2.40
PA of pole (deg)     : 1.55
Pole direction: RA (deg): 268.05670
Dec (deg): 64.49732
C/A sky separation (") : 7.747
C/A sky separation (km) : 24422.5
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	2043-07-17T08:22:19.854	40.72	-14.40	71491.2	18.55	20.98
Jupiter	E	2043-07-17T11:14:25.280	73.89	-49.21	71491.0	21.16	23.85