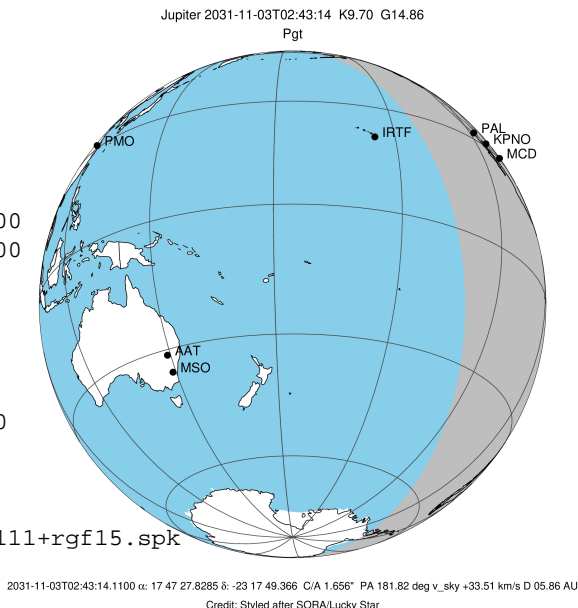


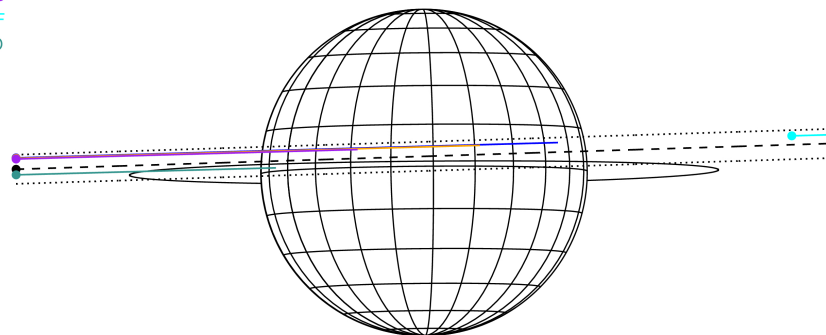
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-03T02:43:14.110
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068770751790941440
 2Mass ID (if available) : 17472783-2317491

Jupiter 2031-11-03T02:43:14 K9.70 G14.86 Pgt

ICRS Star Coord at Epoch: 17h 47m 27.82852s -23:17:49.36646s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 9.704
 G magnitude : 14.864
 RP magnitude : 13.589
 BP magnitude : 16.748
 DUPflag : 0
 Distance (au) : 5.856
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.52
 Sun-Target sep (deg) : 47.09
 Sun-Moon sep (deg) : 175.88
 B (ring opening deg) : -2.20
 PA of pole (deg) : 0.51
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 1.664
 C/A sky separation (km) : 7068.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

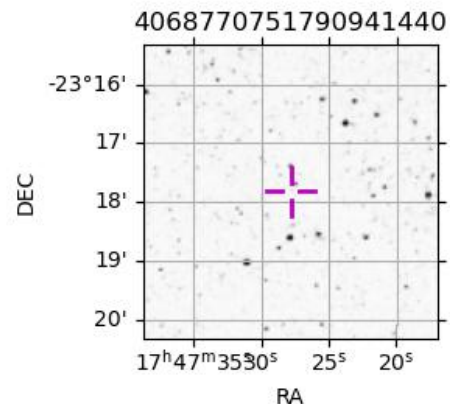


Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



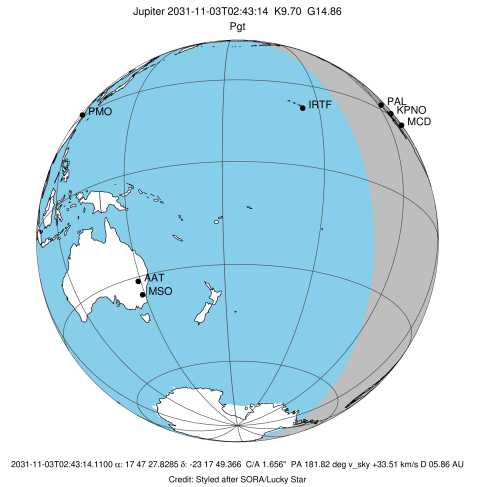
Observable events with sun below -5 deg and altitude above 5 deg

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	+	NOV 03 02:10 - NOV 03 02:10	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	NOV 03 02:10 - NOV 03 02:10	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	NOV 03 02:10 - NOV 03 02:10	Pin
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	NOV 03 02:10 - NOV 03 02:10	Pin
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

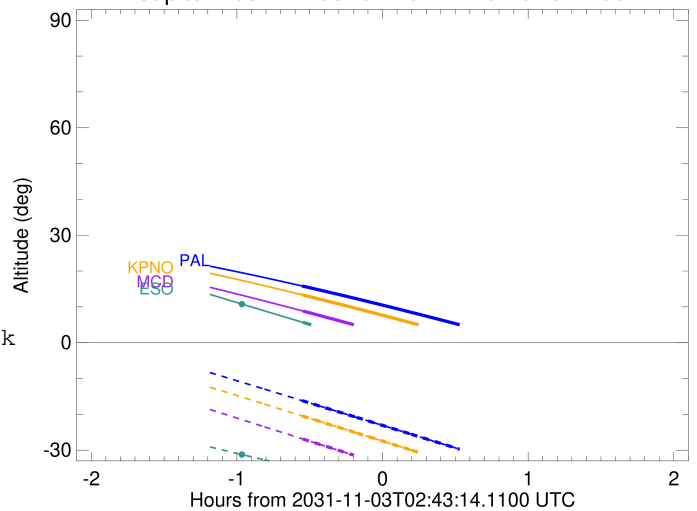


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-03T02:45:28.650
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        : 4068770751790941440
2Mass ID (if available) : 17472783-2317491
ICRS Star Coord at Epoch: 17h 47m 27.82852s -23:17:49.36646s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.704
G magnitude           : 14.864
RP magnitude          : 13.589
BP magnitude          : 16.748
DUPflag              : 0
Distance (au)         : 5.856
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.52
Sun-Target sep (deg) : 47.09
Sun-Moon sep (deg)   : 175.78
B (ring opening deg) : -2.20
PA of pole (deg)     : 0.51
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 2.702
C/A sky separation (km): 11475.9
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
    
```



Jupiter 2031-11-03T02:43:14 K9.70 G14.86

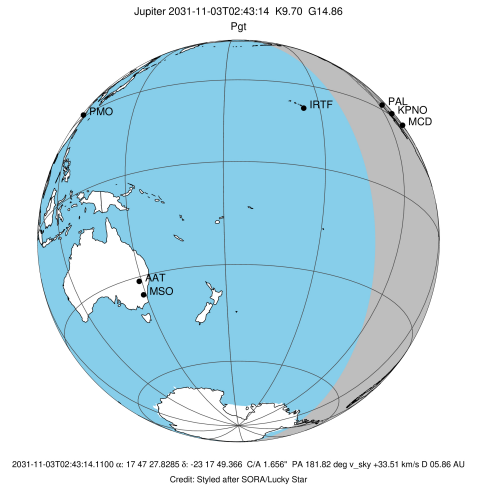


x: target alt < 5.0 deg or sun > -5.0 deg

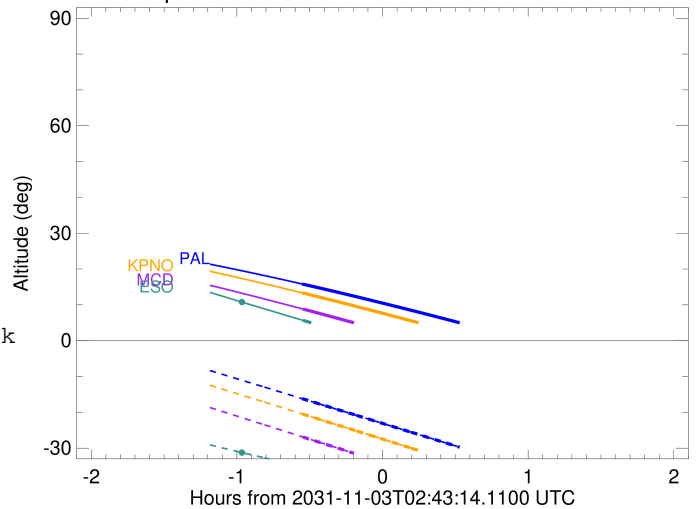
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-03T02:10:08.511	15.82	-16.19	71491.9	8.14	9.28
Jupiter	E	2031-11-03T03:20:44.928	3.97x	-30.93	71491.8	10.30	11.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-03T02:45:38.120
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        : 4068770751790941440
2Mass ID (if available) : 17472783-2317491
ICRS Star Coord at Epoch: 17h 47m 27.82852s -23:17:49.36646s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 9.704
G magnitude           : 14.864
RP magnitude          : 13.589
BP magnitude          : 16.748
DUPflag              : 0
Distance (au)         : 5.856
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.52
Sun-Target sep (deg) : 47.09
Sun-Moon sep (deg)    : 175.83
B (ring opening deg) : -2.20
PA of pole (deg)      : 0.51
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 2.639
C/A sky separation (km) : 11207.3
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 2031-11-03T02:43:14 K9.70 G14.86

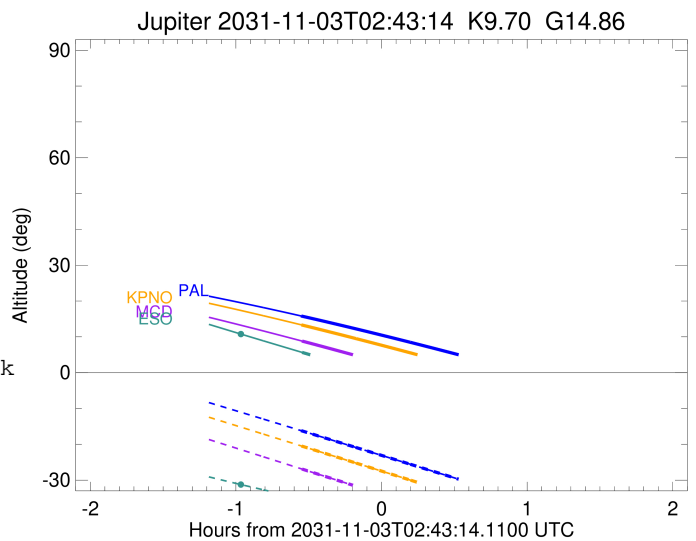
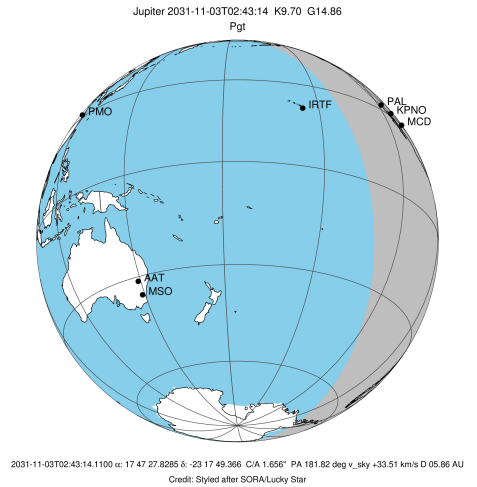


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-03T02:10:18.422	13.33	-20.48	71491.9	7.93	9.05
Jupiter	E	2031-11-03T03:20:53.741	0.78x	-35.47	71491.8	10.07	11.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-03T02:45:48.500
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        : 4068770751790941440
2Mass ID (if available) : 17472783-2317491
ICRS Star Coord at Epoch: 17h 47m 27.82852s -23:17:49.36646s
RUWE (>1.4 is poor)  : 0.95
K magnitude           : 9.704
G magnitude           : 14.864
RP magnitude          : 13.589
BP magnitude          : 16.748
DUPflag              : 0
Distance (au)         : 5.856
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.52
Sun-Target sep (deg)  : 47.09
Sun-Moon sep (deg)    : 175.90
B (ring opening deg) : -2.20
PA of pole (deg)      : 0.51
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 2.554
C/A sky separation (km) : 10848.5
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
    
```

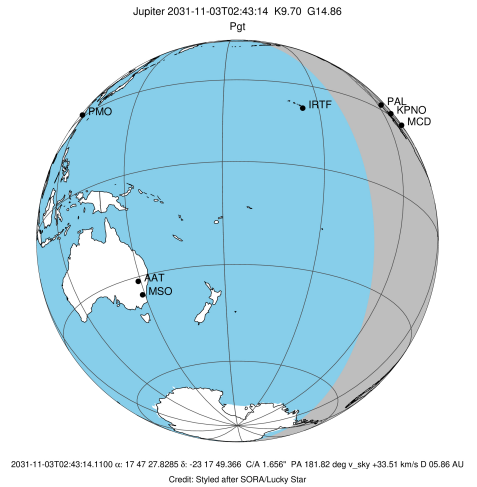


x: target alt < 5.0 deg or sun > -5.0 deg

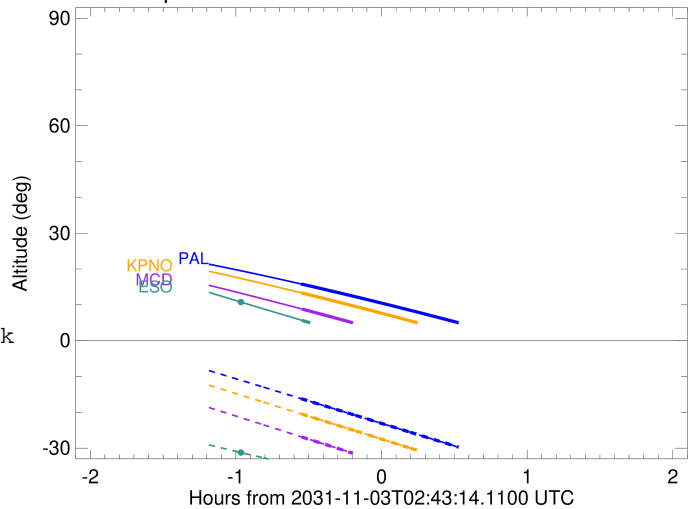
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-03T02:10:29.988	8.82	-26.91	71491.9	7.67	8.75
Jupiter	E	2031-11-03T03:21:02.696	-4.49x	-42.08	71491.8	9.76	11.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-03T02:45:57.580
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     : 4068770751790941440
2Mass ID (if available) : 17472783-2317491
ICRS Star Coord at Epoch: 17h 47m 27.82852s -23:17:49.36646s
RUWE (>1.4 is poor) : 0.95
K magnitude         : 9.704
G magnitude         : 14.864
RP magnitude        : 13.589
BP magnitude        : 16.748
DUPflag            : 0
Distance (au)      : 5.856
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 33.52
Sun-Target sep (deg) : 47.09
Sun-Moon sep (deg)  : 176.75
B (ring opening deg) : -2.20
PA of pole (deg)    : 0.51
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 0.890
C/A sky separation (km) : 3781.6
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 2031-11-03T02:43:14 K9.70 G14.86



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	2031-11-03T02:10:31.908	5.66	-35.07	71492.0	2.00	2.29
Jupiter	E	2031-11-03T03:21:18.833	-8.03x	-43.21	71492.0	4.07	4.65