

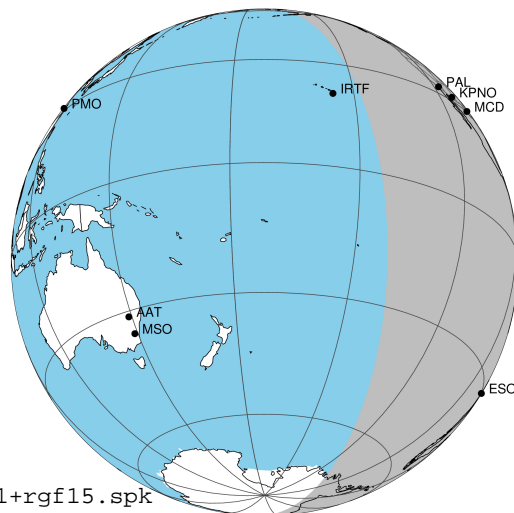
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-17T03:23:02.790
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116682108430482304
 2Mass ID (if available) : 17342749-2310126

Jupiter 2031-10-17T03:23:02 K9.15 G14.91 Pgt

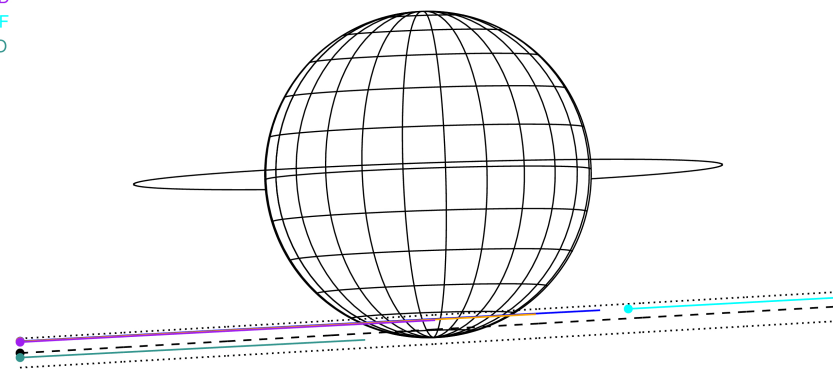
ICRS Star Coord at Epoch: 17h 34m 27.48991s -23:10:12.66954s

RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.147
 G magnitude : 14.912
 RP magnitude : 13.469
 BP magnitude : 17.591
 DUPflag : 0
 Distance (au) : 5.647
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 27.59
 Sun-Target sep (deg) : 61.01
 Sun-Moon sep (deg) : 51.18
 B (ring opening deg) : -2.27
 PA of pole (deg) : 1.91
 Pole direction: RA (deg): 268.05682
 Dec (deg): 64.49652
 C/A sky separation (") : 16.588
 C/A sky separation (km) : 67938.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-10-17T03:23:02 K9.15 G14.91
 Pgt



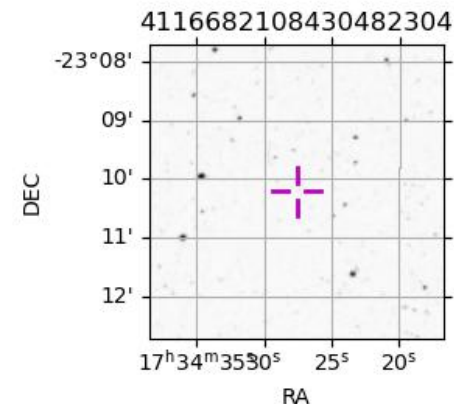
Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



2031-10-17T03:23:02.7900 α: 17 34 27.4899 δ: -23 10 12.670 C/A ***** PA 3.26 deg v_sky +27.59 km/s D 05.65 AU
 Credit: Styled after SORA/Lucky Star

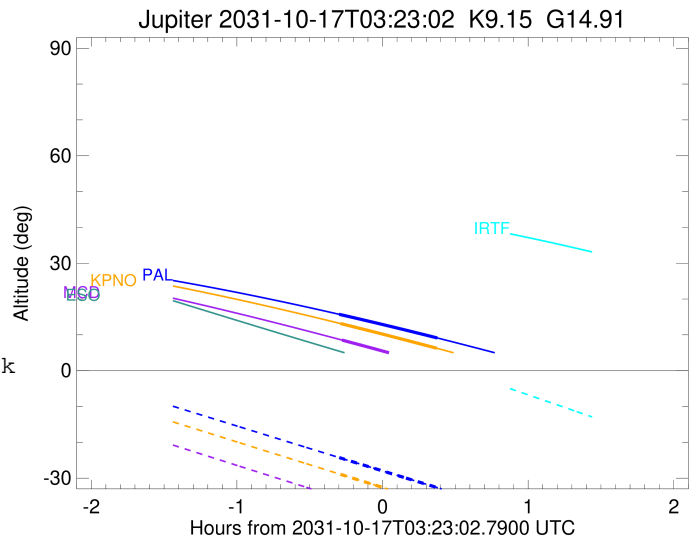
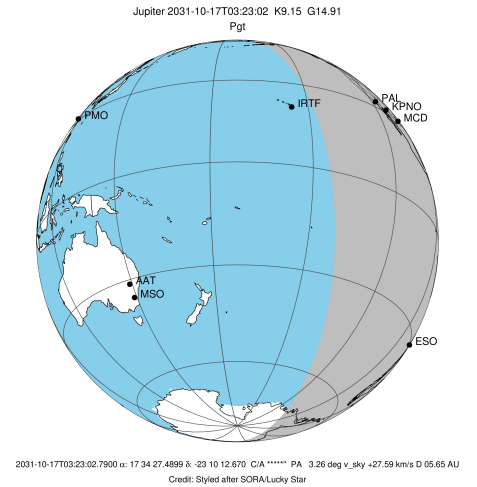
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	OCT 17 03:05 - OCT 17 03:45	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	OCT 17 03:05 - OCT 17 03:45	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 17 03:06 - OCT 17 03:06	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			Pnn
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



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-17T03:25:24.390
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        : 4116682108430482304
2Mass ID (if available) : 17342749-2310126
ICRS Star Coord at Epoch: 17h 34m 27.48991s -23:10:12.66954s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.147
G magnitude           : 14.912
RP magnitude          : 13.469
BP magnitude          : 17.591
DUPflag              : 0
Distance (au)         : 5.647
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 27.59
Sun-Target sep (deg)  : 61.01
Sun-Moon sep (deg)    : 51.75
B (ring opening deg) : -2.27
PA of pole (deg)      : 1.91
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 15.461
C/A sky separation (km) : 63323.9
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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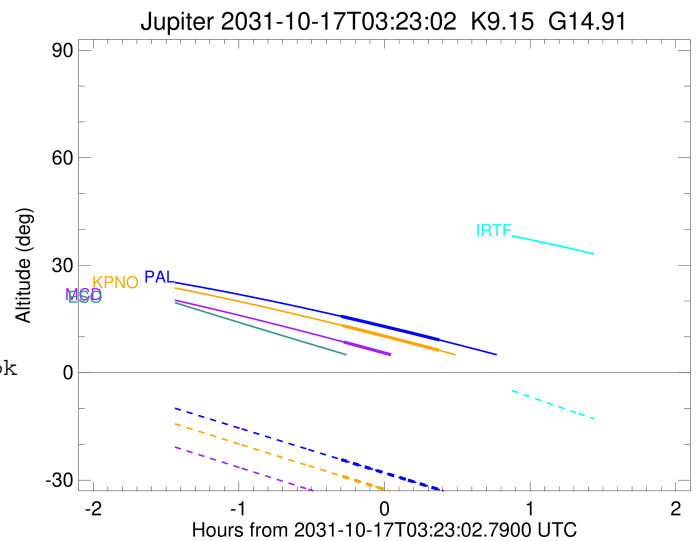
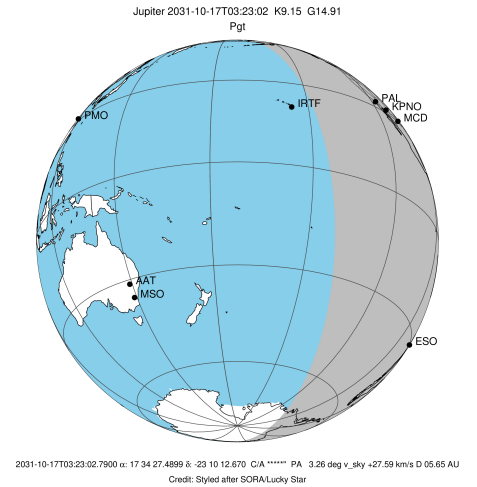


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-17T03:05:12.113	15.73	-24.26	71486.4	-63.38	-66.19
Jupiter	E	2031-10-17T03:45:35.190	9.13	-32.63	71486.6	-61.18	-64.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-17T03:25:35.960
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      : 4116682108430482304
2Mass ID (if available) : 17342749-2310126
ICRS Star Coord at Epoch: 17h 34m 27.48991s -23:10:12.66954s
RUWE (>1.4 is poor) : 0.92
K magnitude          : 9.147
G magnitude          : 14.912
RP magnitude         : 13.469
BP magnitude         : 17.591
DUPflag             : 0
Distance (au)       : 5.647
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 27.59
Sun-Target sep (deg) : 61.01
Sun-Moon sep (deg)  : 51.75
B (ring opening deg) : -2.27
PA of pole (deg)    : 1.91
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 15.522
C/A sky separation (km) : 63575.4
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
    
```

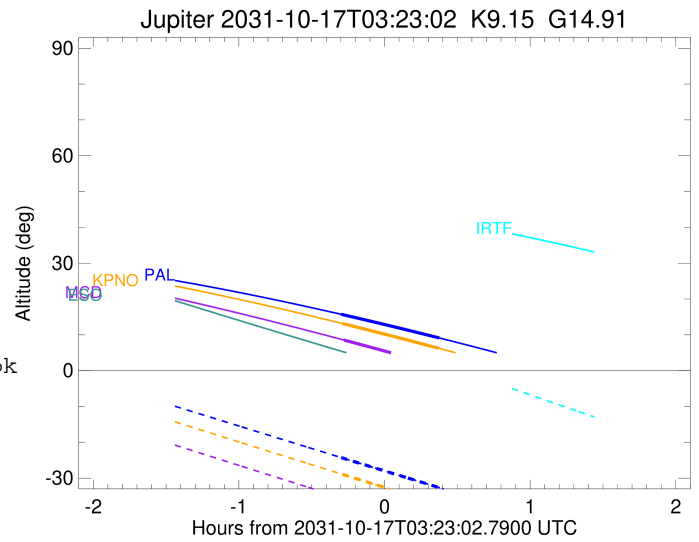
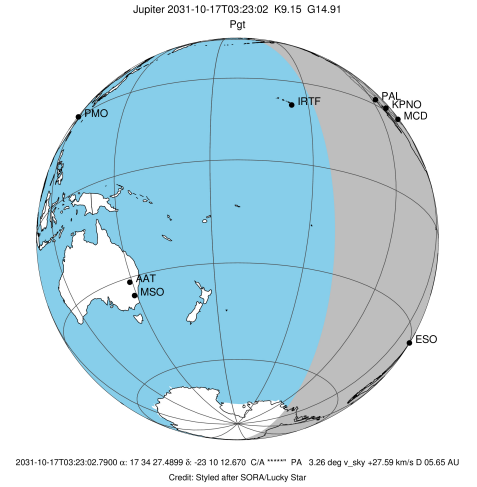


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-17T03:05:42.514	13.16	-28.93	71486.3	-63.79	-66.56
Jupiter	E	2031-10-17T03:45:27.887	6.24	-37.24	71486.5	-61.63	-64.58

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-17T03:25:49.060
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       : 4116682108430482304
2Mass ID (if available) : 17342749-2310126
ICRS Star Coord at Epoch: 17h 34m 27.48991s -23:10:12.66954s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.147
G magnitude           : 14.912
RP magnitude          : 13.469
BP magnitude          : 17.591
DUPflag              : 0
Distance (au)        : 5.647
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 27.59
Sun-Target sep (deg) : 61.01
Sun-Moon sep (deg)   : 51.72
B (ring opening deg) : -2.27
PA of pole (deg)     : 1.91
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 15.605
C/A sky separation (km) : 63914.2
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	2031-10-17T03:06:21.824	8.54	-35.68	71486.3	-64.36	-67.09
Jupiter	E	2031-10-17T03:45:14.744	1.32x	-43.78	71486.5	-62.26	-65.15