

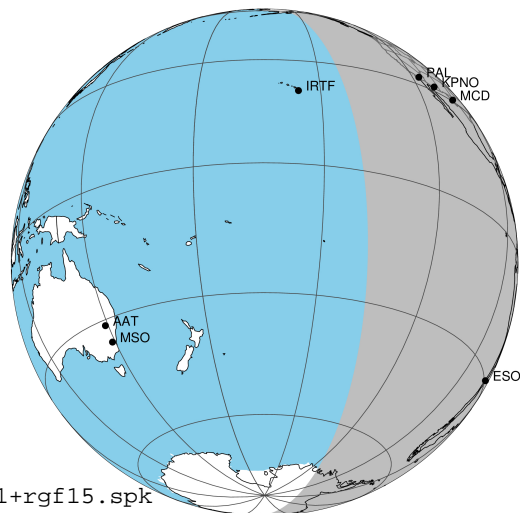
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-10-11T03:08:42.670  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4111432799358057472  
 2Mass ID (if available) : 17302356-2306150

Jupiter 2031-10-11T03:08:42 K8.73 G10.54 Pgt

ICRS Star Coord at Epoch: 17h 30m 23.53662s -23°06'15.67128s

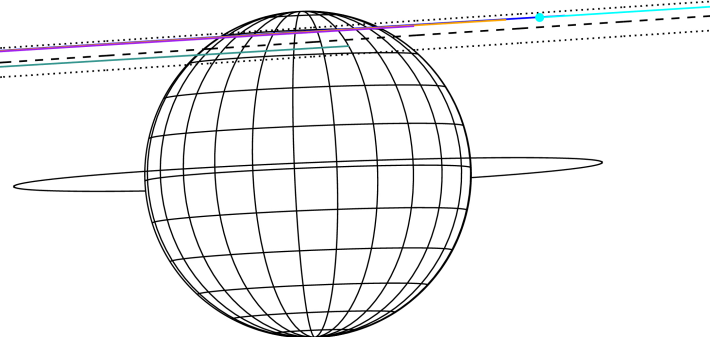
RUWE (>1.4 is poor) : 25.30  
 K magnitude : 8.728  
 G magnitude : 10.535  
 RP magnitude : 9.898  
 BP magnitude : 10.950  
 DUPflag : 0  
 Distance (au) : 5.565  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 25.22  
 Sun-Target sep (deg) : 66.03  
 Sun-Moon sep (deg) : 126.61  
 B (ring opening deg) : -2.30  
 PA of pole (deg) : 2.35  
 Pole direction: RA (deg): 268.05682  
 Dec (deg): 64.49652  
 C/A sky separation (") : 14.306  
 C/A sky separation (km) : 57742.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-10-11T03:08:42 K8.73 G10.54  
 Pgt



Earth

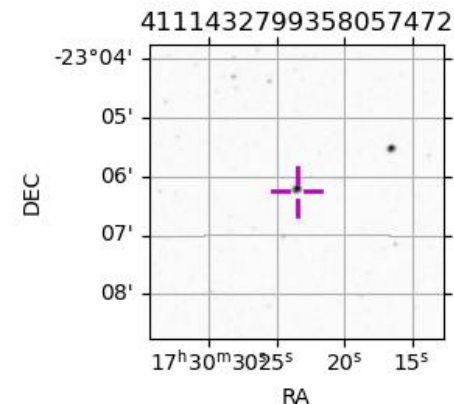
- PAL
- KPNO
- MCD
- IRTF
- RIO
- ESO



2031-10-11T03:08:42.6700 at: 17 30 23.5366 & -23 06 15.671 C/A \*\*\*\*\* PA 183.76 deg v\_sky +25.22 km/s D 05.57 AU  
 Credit: Styled after SORA/Lucky Star

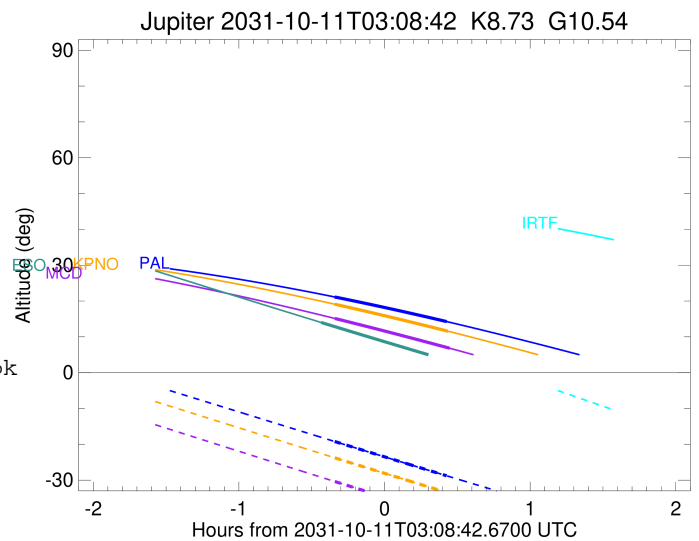
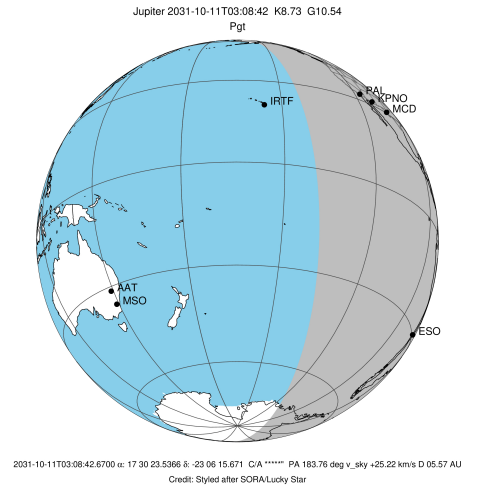
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	OCT 11 02:48 - OCT 11 03:34	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	OCT 11 02:48 - OCT 11 03:34	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	OCT 11 02:48 - OCT 11 03:35	Pie
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	+	OCT 11 02:42 - OCT 11 02:42	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



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-11T03:11:16.220
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       : 4111432799358057472
2Mass ID (if available) : 17302356-2306150
ICRS Star Coord at Epoch: 17h 30m 23.53662s -23:06:15.67128s
RUWE (>1.4 is poor) : 25.30
K magnitude           : 8.728
G magnitude           : 10.535
RP magnitude          : 9.898
BP magnitude          : 10.950
DUPflag              : 0
Distance (au)         : 5.565
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 25.22
Sun-Target sep (deg) : 66.03
Sun-Moon sep (deg)   : 126.48
B (ring opening deg) : -2.30
PA of pole (deg)     : 2.35
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 15.511
C/A sky separation (km) : 62603.3
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
    
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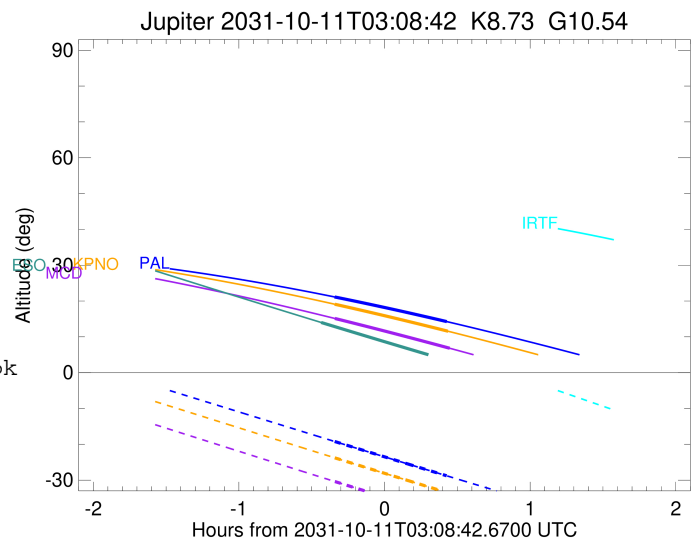
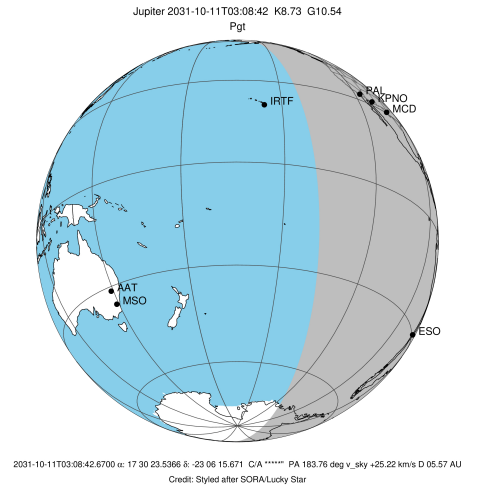


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-11T02:48:11.219	21.13	-19.21	71486.6	59.85	62.93
Jupiter	E	2031-10-11T03:34:19.179	14.26	-28.78	71486.4	62.22	65.12

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-11T03:11:33.280
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       : 4111432799358057472
2Mass ID (if available) : 17302356-2306150
ICRS Star Coord at Epoch: 17h 30m 23.53662s -23:06:15.67128s
RUWE (>1.4 is poor) : 25.30
K magnitude           : 8.728
G magnitude           : 10.535
RP magnitude         : 9.898
BP magnitude         : 10.950
DUPflag              : 0
Distance (au)        : 5.565
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.22
Sun-Target sep (deg) : 66.03
Sun-Moon sep (deg)   : 126.43
B (ring opening deg) : -2.30
PA of pole (deg)     : 2.35
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 15.455
C/A sky separation (km) : 62378.8
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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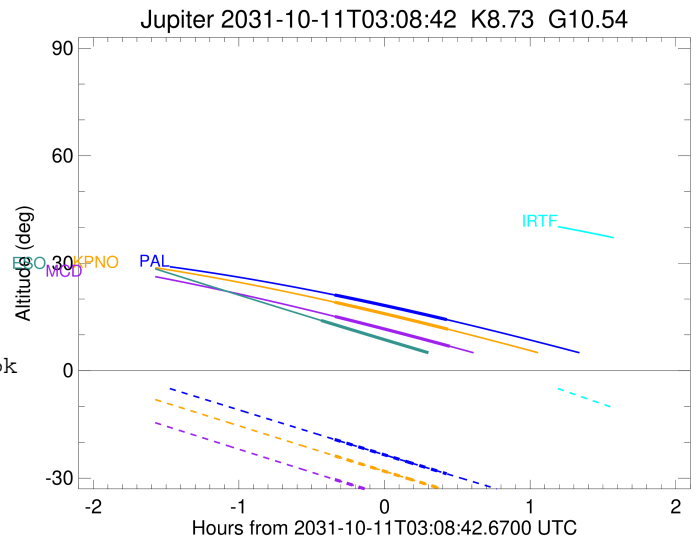
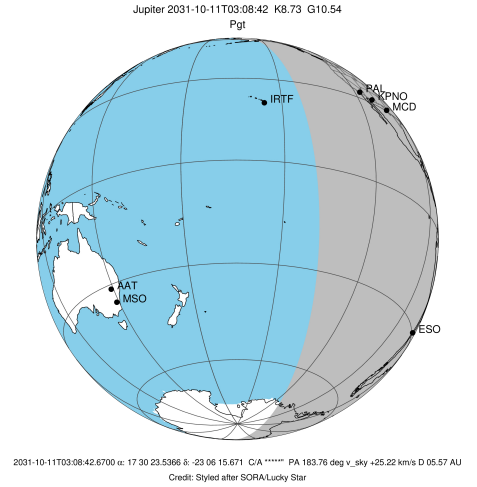


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-11T02:48:13.326	19.10	-23.77	71486.7	59.51	62.61
Jupiter	E	2031-10-11T03:34:50.986	11.57	-33.52	71486.4	61.82	64.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-11T03:11:53.950
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        : 4111432799358057472
2Mass ID (if available) : 17302356-2306150
ICRS Star Coord at Epoch: 17h 30m 23.53662s -23:06:15.67128s
RUWE (>1.4 is poor) : 25.30
K magnitude           : 8.728
G magnitude           : 10.535
RP magnitude          : 9.898
BP magnitude          : 10.950
DUPflag              : 0
Distance (au)         : 5.565
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 25.22
Sun-Target sep (deg) : 66.03
Sun-Moon sep (deg)   : 126.34
B (ring opening deg) : -2.30
PA of pole (deg)     : 2.35
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 15.379
C/A sky separation (km) : 62072.9
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
    
```

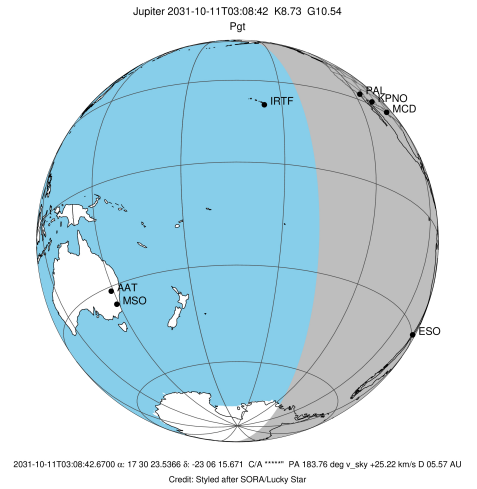


x: target alt < 5.0 deg or sun > -5.0 deg

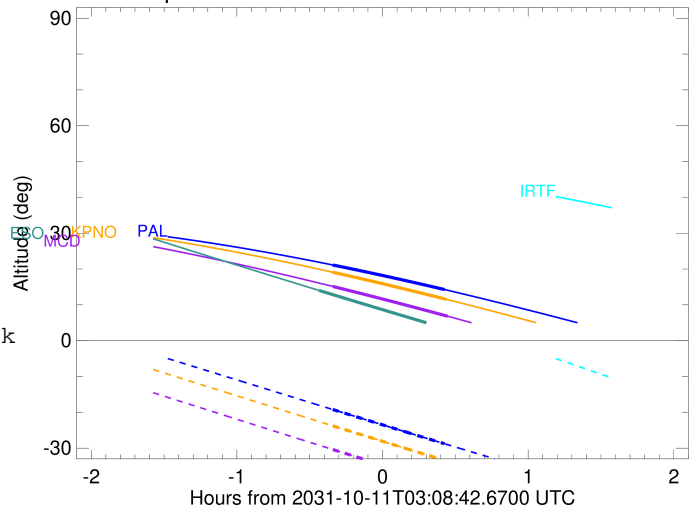
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-11T02:48:14.572	15.13	-30.38	71486.7	59.05	62.18
Jupiter	E	2031-10-11T03:35:30.811	6.83	-40.25	71486.5	61.29	64.26

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-11T03:12:43.940
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        : 4111432799358057472
2Mass ID (if available) : 17302356-2306150
ICRS Star Coord at Epoch: 17h 30m 23.53662s -23:06:15.67128s
RUWE (>1.4 is poor) : 25.30
K magnitude           : 8.728
G magnitude           : 10.535
RP magnitude          : 9.898
BP magnitude          : 10.950
DUPflag              : 0
Distance (au)         : 5.565
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 25.22
Sun-Target sep (deg) : 66.03
Sun-Moon sep (deg)   : 126.27
B (ring opening deg) : -2.30
PA of pole (deg)     : 2.35
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (") : 13.650
C/A sky separation (km) : 55094.3
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 2031-10-11T03:08:42 K8.73 G10.54



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	2031-10-11T02:42:36.483	14.01	-45.71	71487.9	49.32	52.93
Jupiter	E	2031-10-11T03:42:46.784	1.82x	-52.25	71487.6	51.40	54.93