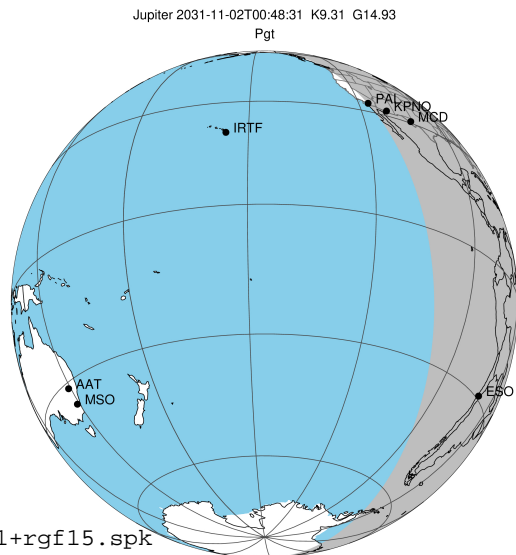


target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-11-02T00:48:31.510  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068780441240446848  
 2Mass ID (if available) : 17463468-2317123

Jupiter 2031-11-02T00:48:31 K9.31 G14.93 Pgt

ICRS Star Coord at Epoch: 17h 46m 34.67851s -23:17:12.51777s

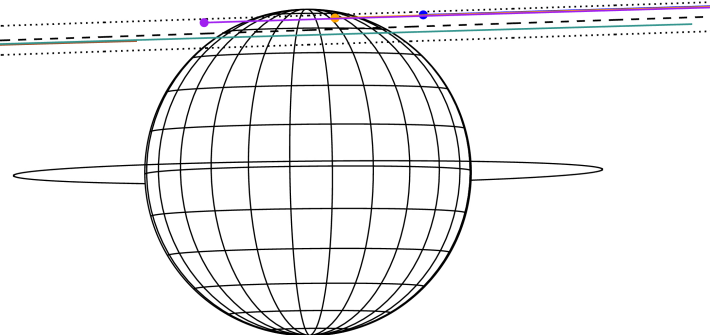
RUWE (>1.4 is poor) : 1.34  
 K magnitude : 9.311  
 G magnitude : 14.926  
 RP magnitude : 13.460  
 BP magnitude : 17.096  
 DUPflag : 0  
 Distance (au) : 5.844  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 33.17  
 Sun-Target sep (deg) : 47.97  
 Sun-Moon sep (deg) : 163.97  
 B (ring opening deg) : -2.21  
 PA of pole (deg) : 0.61  
 Pole direction: RA (deg): 268.05680  
 Dec (deg): 64.49652  
 C/A sky separation (") : 14.706  
 C/A sky separation (km) : 62330.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



2031-11-02T00:48:31.5100 @: 17 46 34.6785 @: -23 17 12.518 C/A \*\*\*\*\* PA 181.91 deg v\_sky +33.17 km/s D 05.84 AU  
 Credit: Styled after SORA/Lucky Star

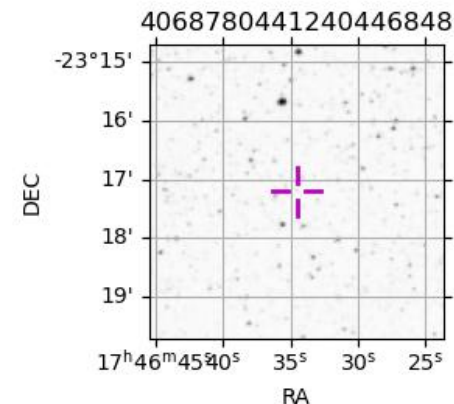
Earth

- PAL
- KPNO
- MCD
- RIO
- ESO



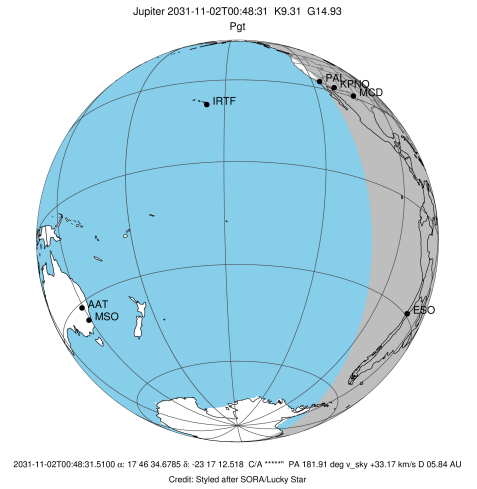
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	NOV 02 01:02 - NOV 02 01:02	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	NOV 02 00:37 - NOV 02 01:03	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	+ +	NOV 02 00:31 - NOV 02 01:10	Pie
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

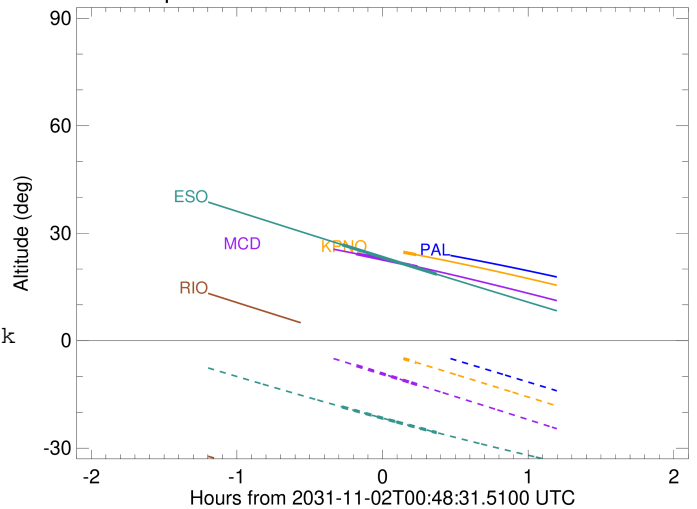


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-02T00:50:05.480
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       : 4068780441240446848
2Mass ID (if available) : 17463468-2317123
ICRS Star Coord at Epoch: 17h 46m 34.67851s -23:17:12.51777s
RUWE (>1.4 is poor) : 1.34
K magnitude           : 9.311
G magnitude           : 14.926
RP magnitude          : 13.460
BP magnitude          : 17.096
DUPflag              : 0
Distance (au)        : 5.844
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.17
Sun-Target sep (deg) : 47.97
Sun-Moon sep (deg)   : 164.39
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.61
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 15.870
C/A sky separation (km): 67262.4
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
    
```



Jupiter 2031-11-02T00:48:31 K9.31 G14.93

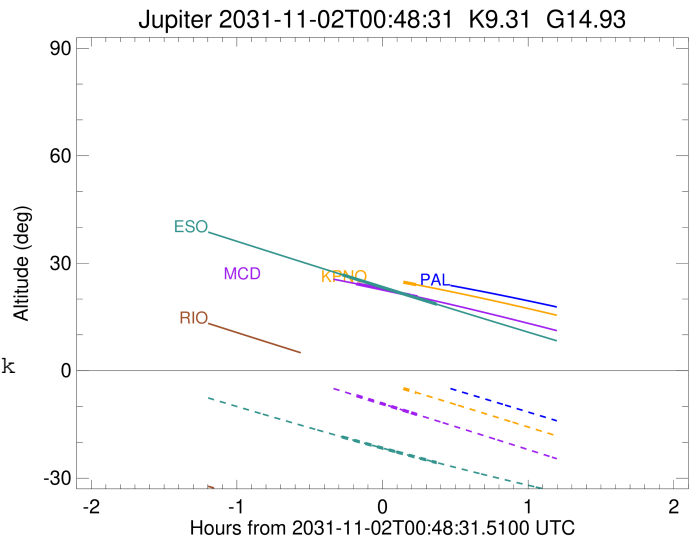
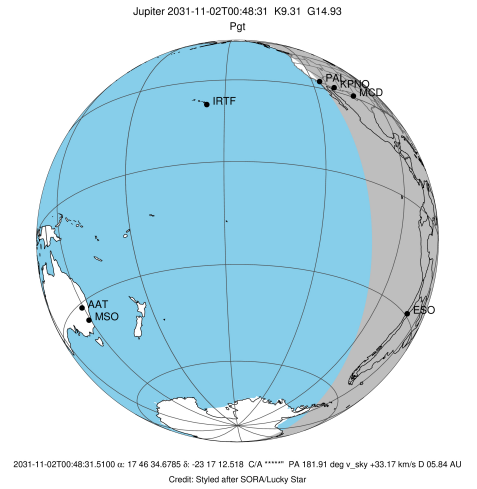


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-02T00:37:48.029	27.06	-1.03x	71486.2	68.92	71.25
Jupiter	E	2031-11-02T01:02:22.568	24.01	-6.08	71486.0	71.24	73.34

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-02T00:50:25.380
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      : 4068780441240446848
2Mass ID (if available) : 17463468-2317123
ICRS Star Coord at Epoch: 17h 46m 34.67851s -23:17:12.51777s
RUWE (>1.4 is poor) : 1.34
K magnitude          : 9.311
G magnitude          : 14.926
RP magnitude         : 13.460
BP magnitude         : 17.096
DUPflag             : 0
Distance (au)       : 5.844
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.17
Sun-Target sep (deg) : 47.97
Sun-Moon sep (deg)  : 164.47
B (ring opening deg) : -2.21
PA of pole (deg)    : 0.61
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 15.811
C/A sky separation (km) : 67011.1
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
    
```

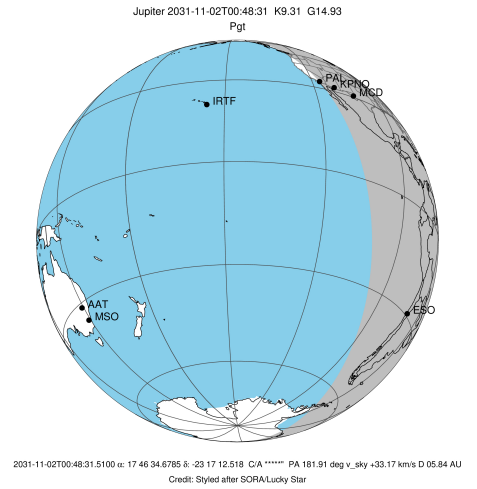


x: target alt < 5.0 deg or sun > -5.0 deg

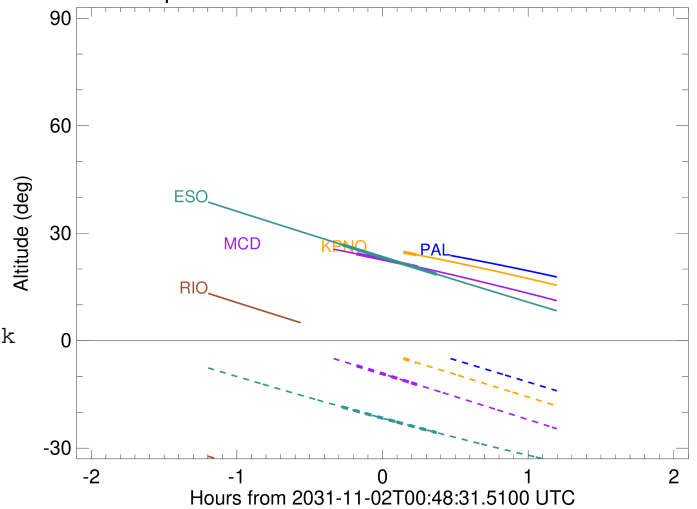
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-02T00:37:47.637	24.25	-6.98	71486.2	68.37	70.75
Jupiter	E	2031-11-02T01:03:02.676	20.58	-12.31	71486.1	70.62	72.79

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-02T00:51:24.950
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      : 4068780441240446848
2Mass ID (if available) : 17463468-2317123
ICRS Star Coord at Epoch: 17h 46m 34.67851s -23:17:12.51777s
RUWE (>1.4 is poor) : 1.34
K magnitude          : 9.311
G magnitude          : 14.926
RP magnitude         : 13.460
BP magnitude         : 17.096
DUPflag             : 0
Distance (au)       : 5.844
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.17
Sun-Target sep (deg) : 47.97
Sun-Moon sep (deg)  : 164.86
B (ring opening deg) : -2.21
PA of pole (deg)    : 0.61
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 14.198
C/A sky separation (km) : 60175.0
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
    
```



Jupiter 2031-11-02T00:48:31 K9.31 G14.93



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	2031-11-02T00:31:57.135	26.78	-18.51	71487.4	56.22	59.52
Jupiter	E	2031-11-02T01:10:51.368	18.55	-25.66	71487.2	58.29	61.47