

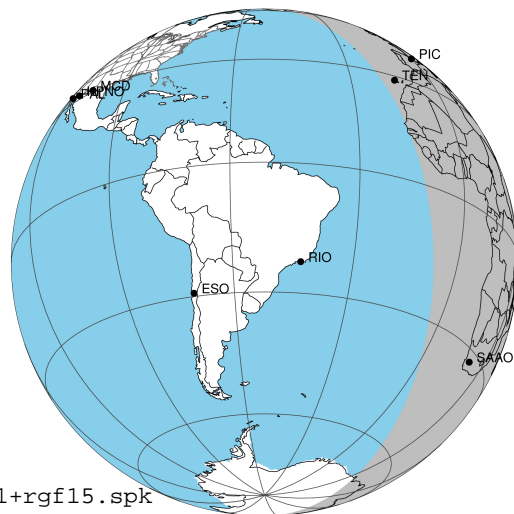
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-01T18:33:19.430
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068779754045967360
 2Mass ID (if available) : 17462187-2317272

Jupiter 2031-11-01T18:33:19 K8.91 G14.13 Pgt

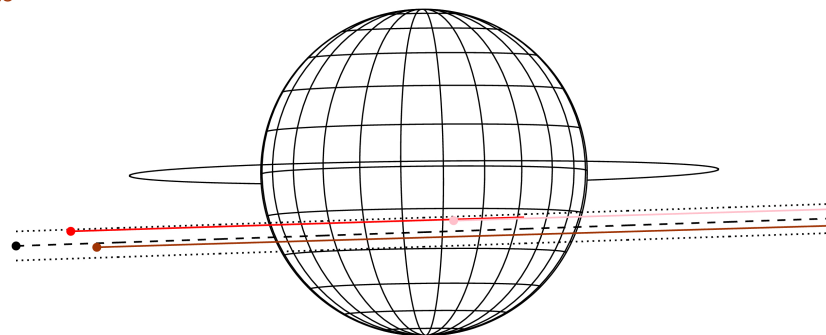
ICRS Star Coord at Epoch: 17h 46m 21.85965s -23:17:27.48066s

RUWE (>1.4 is poor) : 0.93
 K magnitude : 8.909
 G magnitude : 14.132
 RP magnitude : 12.796
 BP magnitude : 16.220
 DUPflag : 0
 Distance (au) : 5.841
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.09
 Sun-Target sep (deg) : 48.18
 Sun-Moon sep (deg) : 160.82
 B (ring opening deg) : -2.21
 PA of pole (deg) : 0.63
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 6.169
 C/A sky separation (km) : 26133.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-11-01T18:33:19 K8.91 G14.13
 Pgt



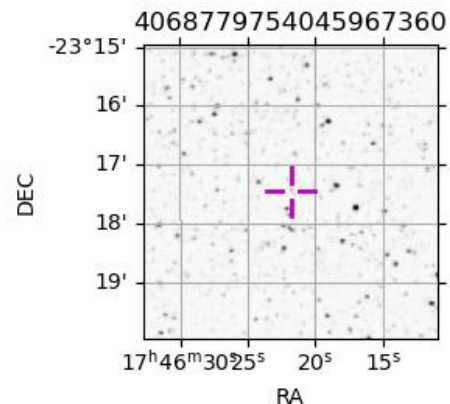
Earth
 PIC
 TEN
 SAAO



2031-11-01T18:33:19.4300 a: 17 46 21.8596 s: -23 17 27.481 C/A 6.177 PA 1.93 deg v_sky +33.09 km/s D 05.84 AU
 Credit: Styled after SORA/Lucky Star

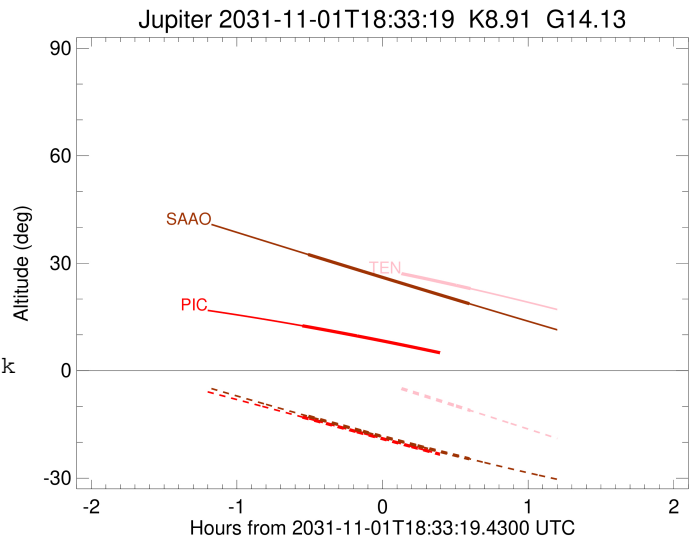
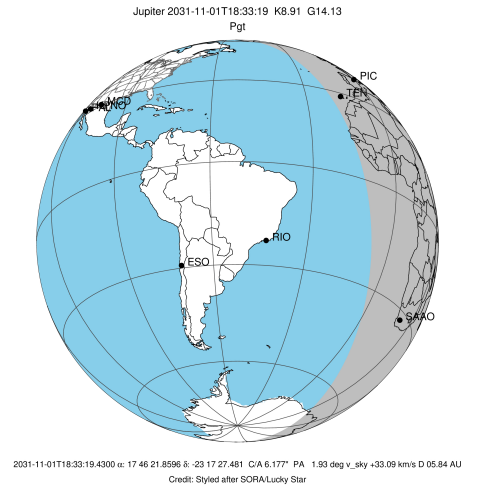
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	NOV 01 18:00 - NOV 01 18:00	Pin
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			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+	NOV 01 19:09 - NOV 01 19:09	Pne
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	+	NOV 01 18:02 - NOV 01 19:09	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-01T18:35:05.250
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 4068779754045967360
2Mass ID (if available) : 17462187-2317272
ICRS Star Coord at Epoch: 17h 46m 21.85965s -23:17:27.48066s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 8.909
G magnitude          : 14.132
RP magnitude         : 12.796
BP magnitude         : 16.220
DUPflag             : 0
Distance (au)        : 5.841
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.09
Sun-Target sep (deg) : 48.18
Sun-Moon sep (deg)   : 161.28
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.63
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 4.941
C/A sky separation (km) : 20929.5
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
    
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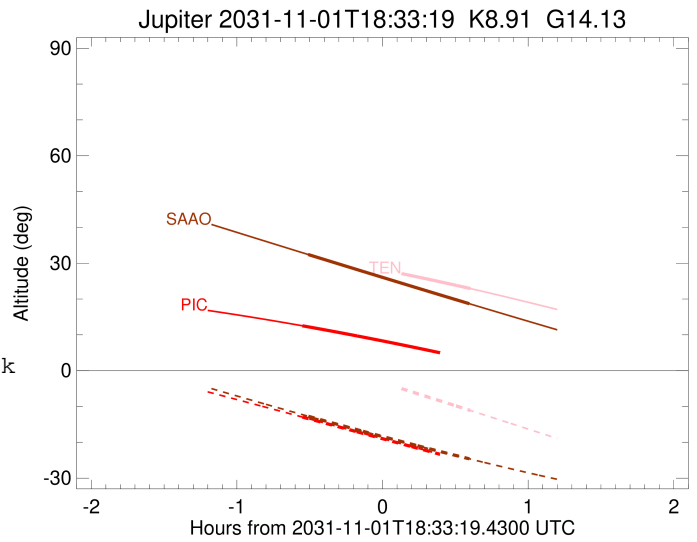
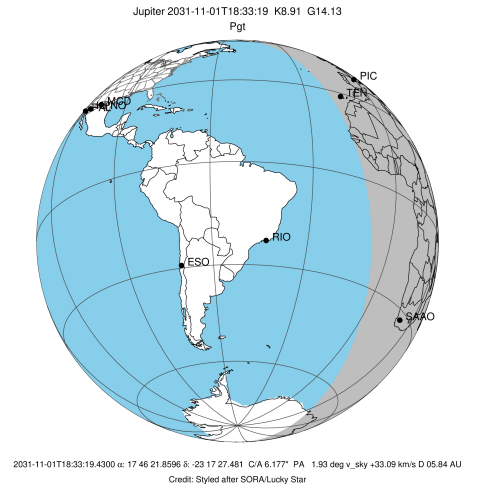


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T18:00:24.771	12.51	-12.96	71491.4	-18.15	-20.53
Jupiter	E	2031-11-01T19:09:42.584	3.14x	-25.67	71491.5	-15.90	-18.03

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-01T18:34:53.410
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 4068779754045967360
2Mass ID (if available) : 17462187-2317272
ICRS Star Coord at Epoch: 17h 46m 21.85965s -23:17:27.48066s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.909
G magnitude           : 14.132
RP magnitude          : 12.796
BP magnitude          : 16.220
DUPflag              : 0
Distance (au)         : 5.841
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.09
Sun-Target sep (deg) : 48.18
Sun-Moon sep (deg)   : 161.33
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.63
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (" ) : 5.069
C/A sky separation (km) : 21475.1
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
    
```

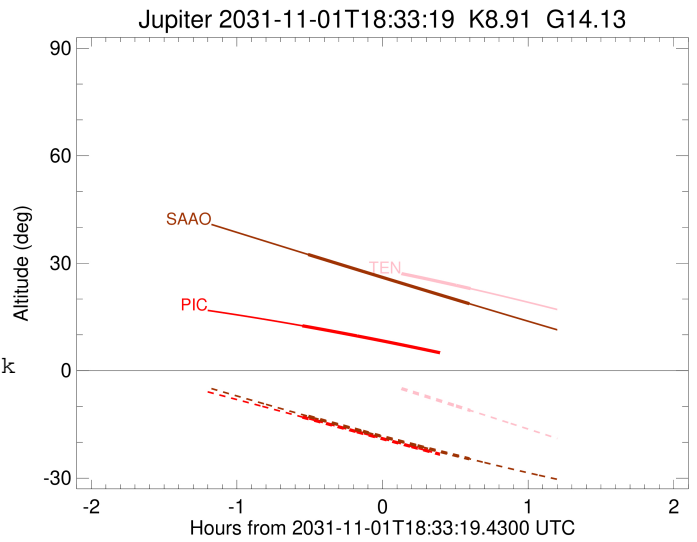
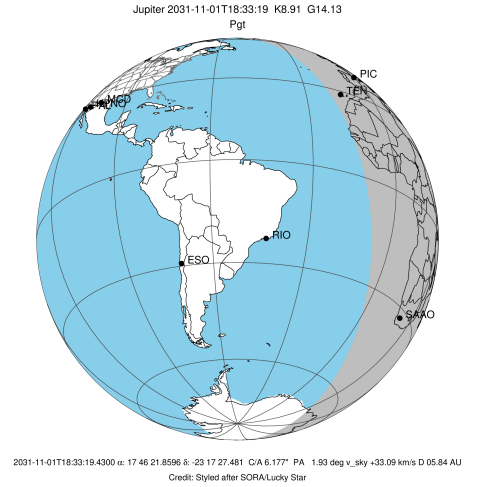


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-01T18:00:10.458	32.22	3.68x	71491.3	-18.64	-21.07
Jupiter	E	2031-11-01T19:09:33.518	22.91	-11.12	71491.5	-16.34	-18.52

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-01T18:35:54.190
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : SAAO
Location              : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)        : -32.37953
E. Longitude (deg)    : 20.81070
Altitude (km)         : 1.768
Gaia source ID        : 4068779754045967360
2Mass ID (if available) : 17462187-2317272
ICRS Star Coord at Epoch: 17h 46m 21.85965s -23:17:27.48066s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 8.909
G magnitude           : 14.132
RP magnitude          : 12.796
BP magnitude          : 16.220
DUPflag              : 0
Distance (au)         : 5.841
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.09
Sun-Target sep (deg) : 48.18
Sun-Moon sep (deg)   : 161.69
B (ring opening deg) : -2.21
PA of pole (deg)     : 0.63
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 6.726
C/A sky separation (km) : 28492.0
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
    
```



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	2031-11-01T18:02:43.954	32.41	-12.73	71490.9	-24.52	-27.51
Jupiter	E	2031-11-01T19:09:00.643	18.71	-24.59	71491.0	-22.43	-25.24