

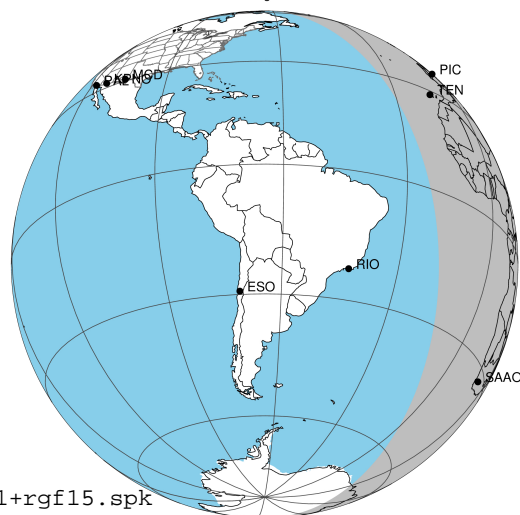
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-11-03T19:15:47.470
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068771370265655168
 2Mass ID (if available) : 17480199-2318155

Jupiter 2031-11-03T19:15:47 K9.12 G14.05 Pgt

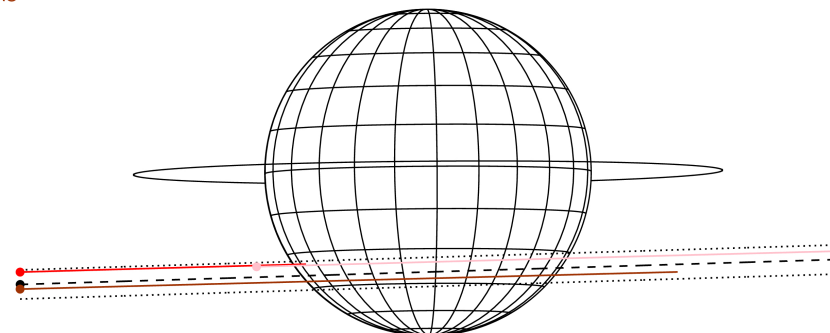
ICRS Star Coord at Epoch: 17h 48m 01.98559s -23:18:15.92574s

RUWE (>1.4 is poor) : 0.89
 K magnitude : 9.120
 G magnitude : 14.050
 RP magnitude : 12.789
 BP magnitude : 15.842
 DUPflag : 0
 Distance (au) : 5.864
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.73
 Sun-Target sep (deg) : 46.53
 Sun-Moon sep (deg) : 173.54
 B (ring opening deg) : -2.20
 PA of pole (deg) : 0.45
 Pole direction: RA (deg): 268.05680
 Dec (deg): 64.49652
 C/A sky separation (") : 10.244
 C/A sky separation (km) : 43564.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-11-03T19:15:47 K9.12 G14.05
 Pgt



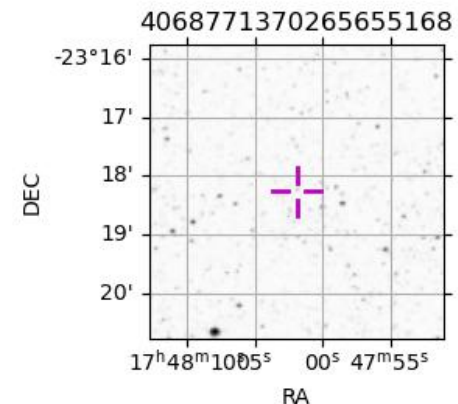
Earth
 PIC
 TEN
 SAAO



2031-11-03T19:15:47.4700 α: 17 48 01.9856 δ: -23 18 15.926 C/A ***** PA 1.75 deg v_sky +33.73 km/s D 05.86 AU
 Credit: Styled after SORA/Lucky Star

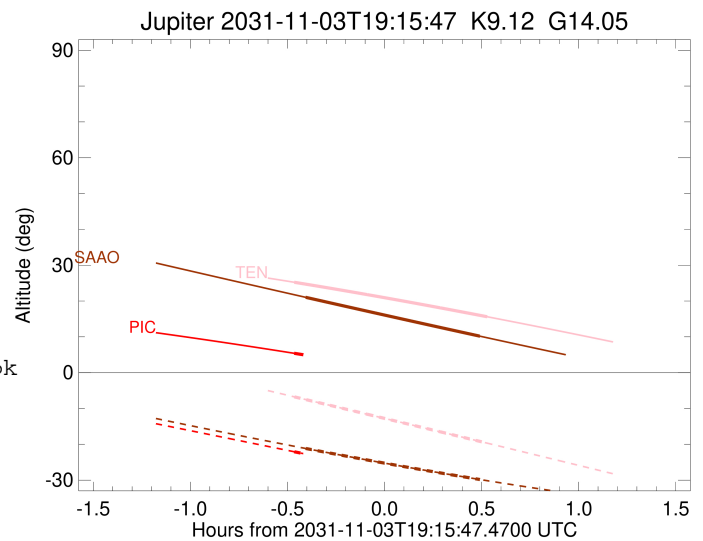
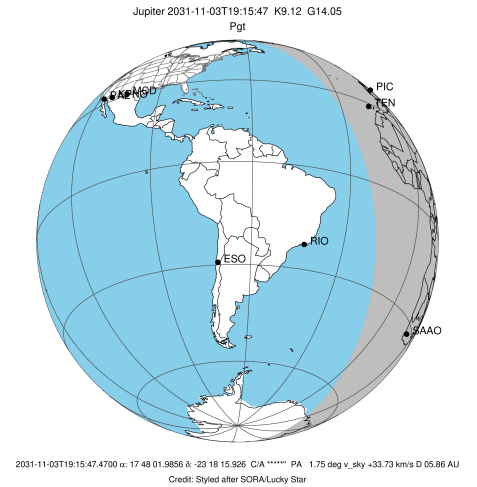
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1	+	NOV 03 18:47 - NOV 03 18:47	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 03 18:47 - NOV 03 19:47	Pie
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 03 18:51 - NOV 03 19:45	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-11-03T19:17:45.210
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     : 4068771370265655168
2Mass ID (if available) : 17480199-2318155
ICRS Star Coord at Epoch: 17h 48m 01.98559s -23:18:15.92574s
RUWE (>1.4 is poor) : 0.89
K magnitude        : 9.120
G magnitude        : 14.050
RP magnitude       : 12.789
BP magnitude       : 15.842
DUPflag           : 0
Distance (au)     : 5.864
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : 33.73
Sun-Target sep (deg) : 46.53
Sun-Moon sep (deg) : 172.67
B (ring opening deg) : -2.20
PA of pole (deg)   : 0.45
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 9.099
C/A sky separation (km) : 38695.5
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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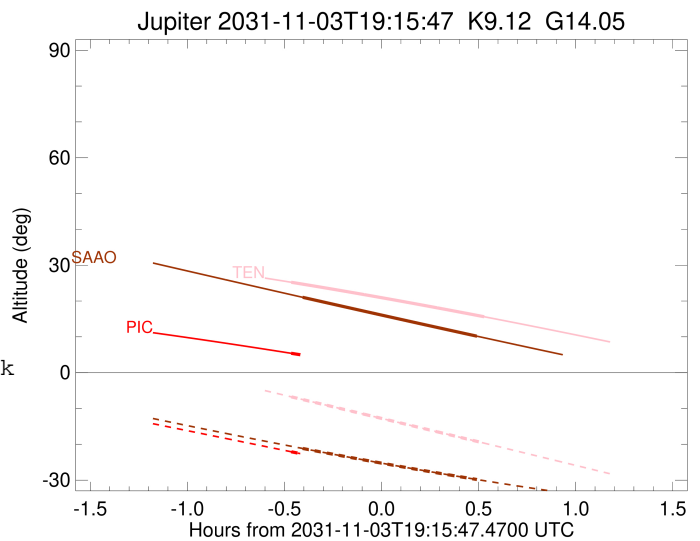
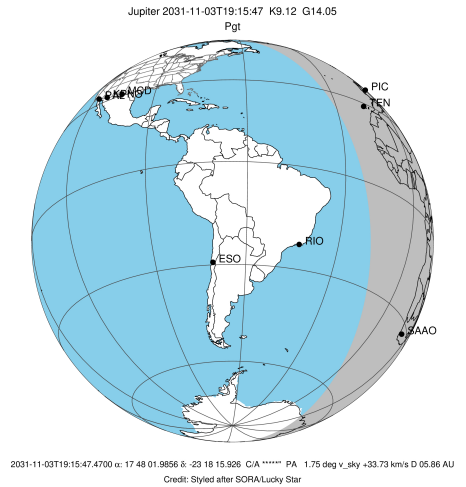


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-03T18:47:54.255	5.40	-22.08	71490.0	-33.85	-37.40
Jupiter	E	2031-11-03T19:47:33.657	-3.72x	-32.99	71490.2	-31.66	-35.11

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-03T19:17:44.520
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        : 4068771370265655168
2Mass ID (if available) : 17480199-2318155
ICRS Star Coord at Epoch: 17h 48m 01.98559s -23:18:15.92574s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 9.120
G magnitude           : 14.050
RP magnitude          : 12.789
BP magnitude          : 15.842
DUPflag              : 0
Distance (au)         : 5.864
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.73
Sun-Target sep (deg) : 46.53
Sun-Moon sep (deg)   : 172.76
B (ring opening deg) : -2.20
PA of pole (deg)     : 0.45
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation ("): 9.220
C/A sky separation (km): 39211.0
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
    
```

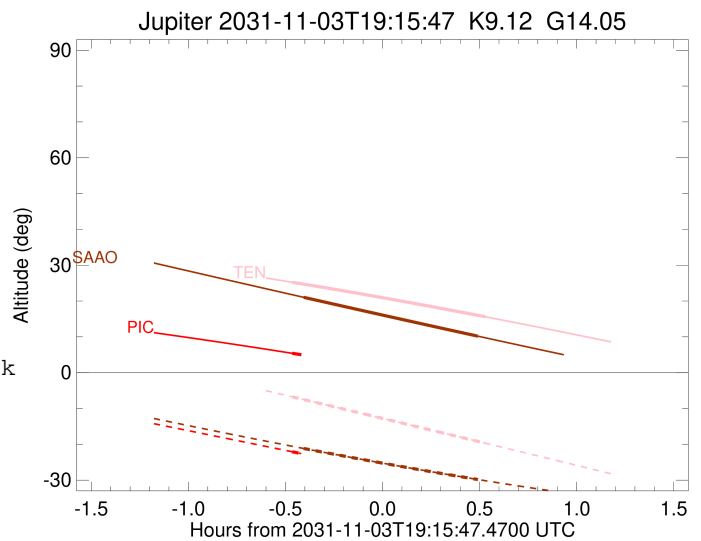
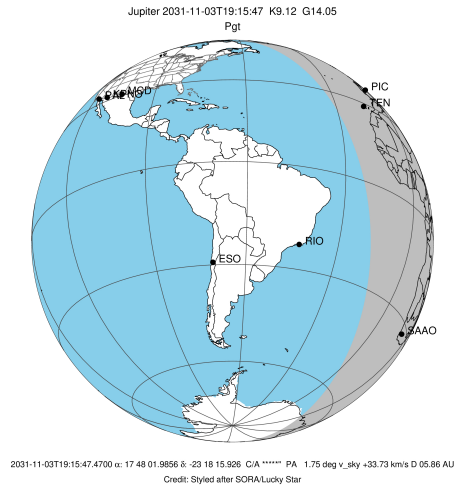


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-11-03T18:47:56.874	25.22	-6.75	71489.9	-34.35	-37.93
Jupiter	E	2031-11-03T19:47:29.686	15.61	-19.67	71490.1	-32.15	-35.63

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-11-03T19:18:22.940
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        : 4068771370265655168
2Mass ID (if available) : 17480199-2318155
ICRS Star Coord at Epoch: 17h 48m 01.98559s -23:18:15.92574s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 9.120
G magnitude           : 14.050
RP magnitude          : 12.789
BP magnitude          : 15.842
DUPflag              : 0
Distance (au)         : 5.864
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 33.73
Sun-Target sep (deg)  : 46.53
Sun-Moon sep (deg)   : 173.11
B (ring opening deg) : -2.20
PA of pole (deg)     : 0.45
Pole direction: RA (deg): 268.05680
Dec (deg): 64.49652
C/A sky separation (") : 10.906
C/A sky separation (km) : 46379.7
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	2031-11-03T18:51:27.415	21.03	-21.16	71489.1	-41.45	-45.17
Jupiter	E	2031-11-03T19:45:15.974	10.19	-29.82	71489.3	-39.38	-43.08