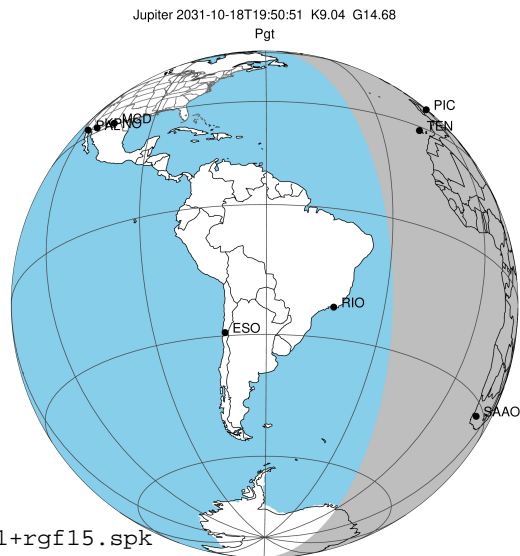


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-10-18T19:50:51.060
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116637887426642176
 2Mass ID (if available) : 17353933-2310451

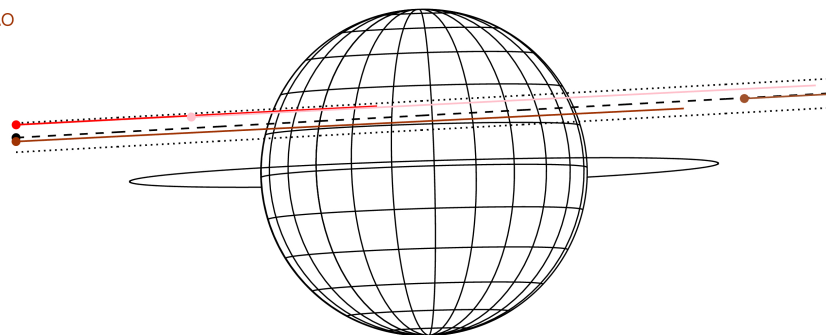
Jupiter 2031-10-18T19:50:51 K9.04 G14.68 Pgt

ICRS Star Coord at Epoch: 17h 35m 39.32875s -23:10:45.20987s

RUWE (>1.4 is poor) : 1.00
 K magnitude : 9.039
 G magnitude : 14.680
 RP magnitude : 13.276
 BP magnitude : 17.191
 DUPflag : 0
 Distance (au) : 5.670
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 28.24
 Sun-Target sep (deg) : 59.61
 Sun-Moon sep (deg) : 28.37
 B (ring opening deg) : -2.26
 PA of pole (deg) : 1.78
 Pole direction: RA (deg): 268.05682
 Dec (deg): 64.49652
 C/A sky separation (") : 6.075
 C/A sky separation (km) : 24979.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



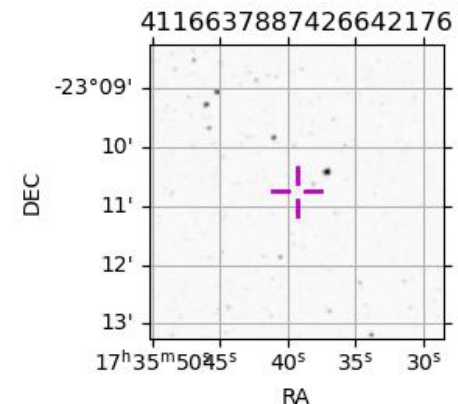
Earth
 PIC
 TEN
 RIO
 SAAO



2031-10-18T19:50:51.0600 ex: 17 35 39.3287 5: -23 10 45.210 C/A 6.0667 PA 183.12 deg v_sky +28.24 km/s D 05.67 AU
 Credit: Styled after SORA/Lucky Star

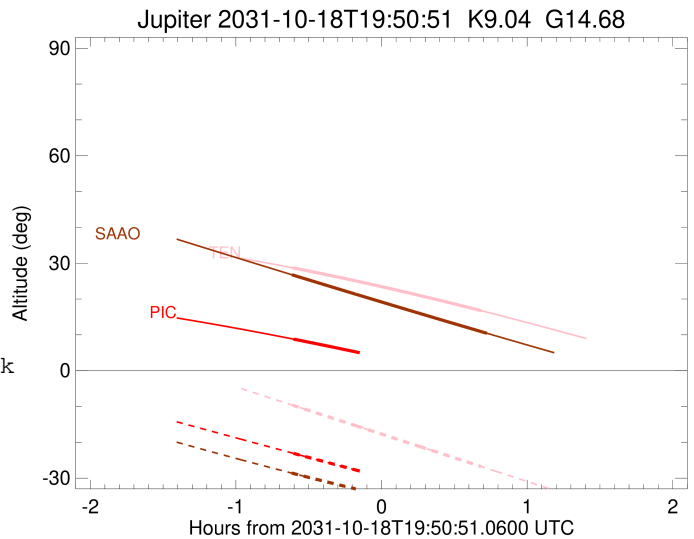
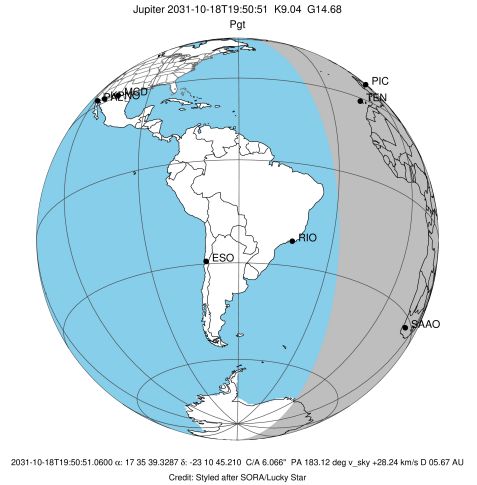
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	OCT 18 19:14 - OCT 18 19:14	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	+ +	OCT 18 19:14 - OCT 18 20:31	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	+ +	OCT 18 19:13 - OCT 18 20:34	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-18T19:53:11.340
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       : 4116637887426642176
2Mass ID (if available) : 17353933-2310451
ICRS Star Coord at Epoch: 17h 35m 39.32875s -23:10:45.20987s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.039
G magnitude           : 14.680
RP magnitude         : 13.276
BP magnitude         : 17.191
DUPflag              : 0
Distance (au)        : 5.670
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 28.24
Sun-Target sep (deg) : 59.61
Sun-Moon sep (deg)  : 28.91
B (ring opening deg) : -2.26
PA of pole (deg)    : 1.78
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation ("): 7.307
C/A sky separation (km): 30046.3
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
    
```

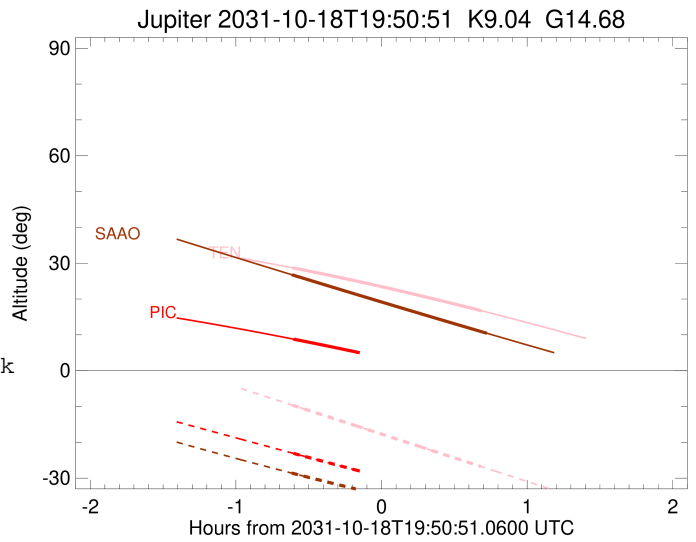
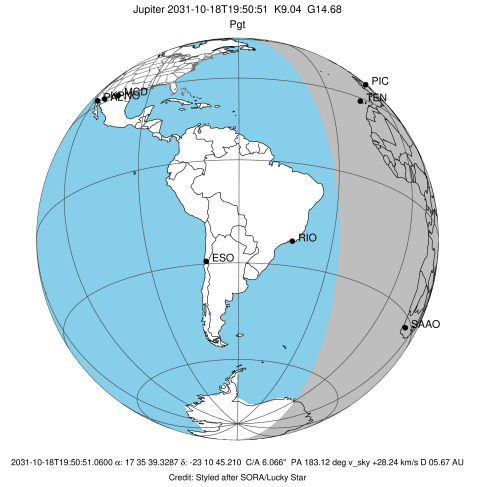


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-18T19:14:37.416	8.80	-23.09	71490.9	23.70	26.62
Jupiter	E	2031-10-18T20:31:40.162	-2.60x	-36.69	71490.7	25.93	29.03

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-10-18T19:53:06.230
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       : 4116637887426642176
2Mass ID (if available) : 17353933-2310451
ICRS Star Coord at Epoch: 17h 35m 39.32875s -23:10:45.20987s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.039
G magnitude           : 14.680
RP magnitude          : 13.276
BP magnitude          : 17.191
DUPflag              : 0
Distance (au)        : 5.670
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 28.24
Sun-Target sep (deg) : 59.61
Sun-Moon sep (deg)   : 29.05
B (ring opening deg) : -2.26
PA of pole (deg)     : 1.78
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation ("): 7.178
C/A sky separation (km): 29517.9
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
    
```

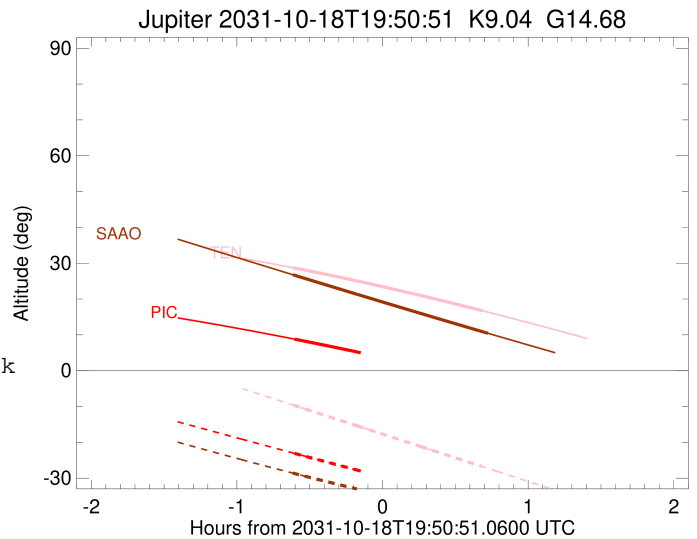
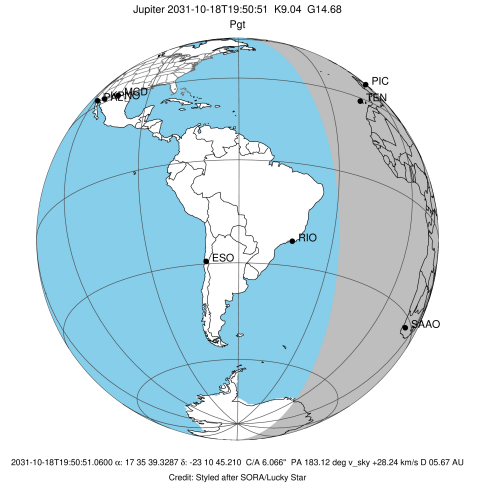


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-18T19:14:13.031	28.70	-9.64	71490.9	23.20	26.08
Jupiter	E	2031-10-18T20:31:54.422	16.75	-26.75	71490.7	25.48	28.55

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-18T19:54:09.340
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      : 4116637887426642176
2Mass ID (if available) : 17353933-2310451
ICRS Star Coord at Epoch: 17h 35m 39.32875s -23:10:45.20987s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.039
G magnitude          : 14.680
RP magnitude         : 13.276
BP magnitude         : 17.191
DUPflag             : 0
Distance (au)       : 5.670
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 28.24
Sun-Target sep (deg) : 59.61
Sun-Moon sep (deg)  : 29.26
B (ring opening deg) : -2.26
PA of pole (deg)    : 1.78
Pole direction: RA (deg): 268.05682
Dec (deg): 64.49652
C/A sky separation (" ) : 5.454
C/A sky separation (km) : 22427.0
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	2031-10-18T19:13:56.644	26.77	-28.60	71491.4	17.23	19.51
Jupiter	E	2031-10-18T20:34:15.113	10.44	-40.78	71491.2	19.29	21.80