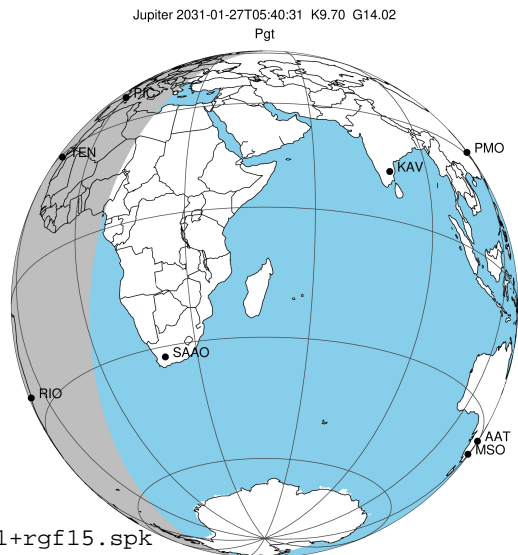


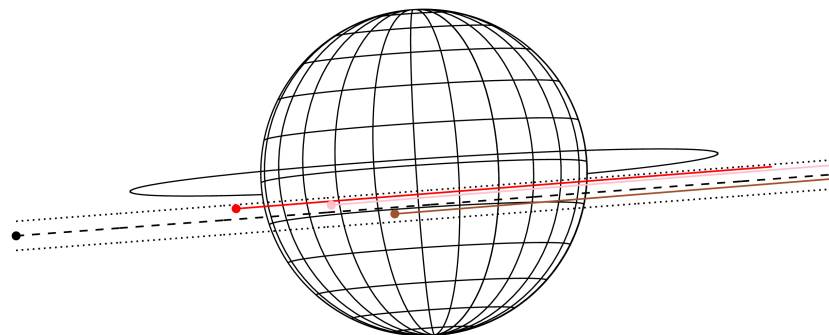
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-01-27T05:40:31.730
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114884716101797632
 2Mass ID (if available) : 17174344-2232086

Jupiter 2031-01-27T05:40:31 K9.70 G14.02 Pgt

ICRS Star Coord at Epoch: 17h 17m 43.43099s -22:32:08.72797s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 9.703
 G magnitude : 14.022
 RP magnitude : 12.892
 BP magnitude : 15.373
 DUPflag : 0
 Distance (au) : 5.957
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 33.70
 Sun-Target sep (deg) : 46.40
 Sun-Moon sep (deg) : 100.12
 B (ring opening deg) : -2.71
 PA of pole (deg) : 3.71
 Pole direction: RA (deg): 268.05704
 Dec (deg): 64.49651
 C/A sky separation (") : 3.303
 C/A sky separation (km) : 14271.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



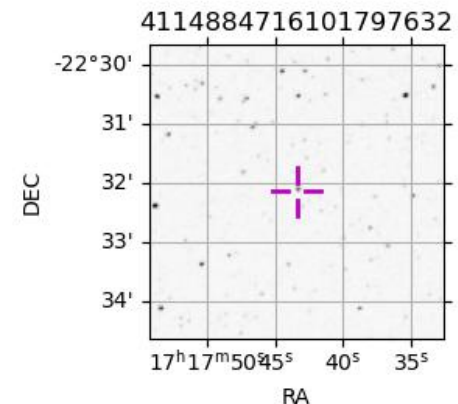
Earth
 PIC
 TEN
 RIO



2031-01-27T05:40:31.7300 a: 17 17 43.4310 d: -22 32 08.728 C/A 3.313" PA 4.30 deg v_sky +33.71 km/s D 05.96 AU
 Credit: Styled after SORA/Lucky Star

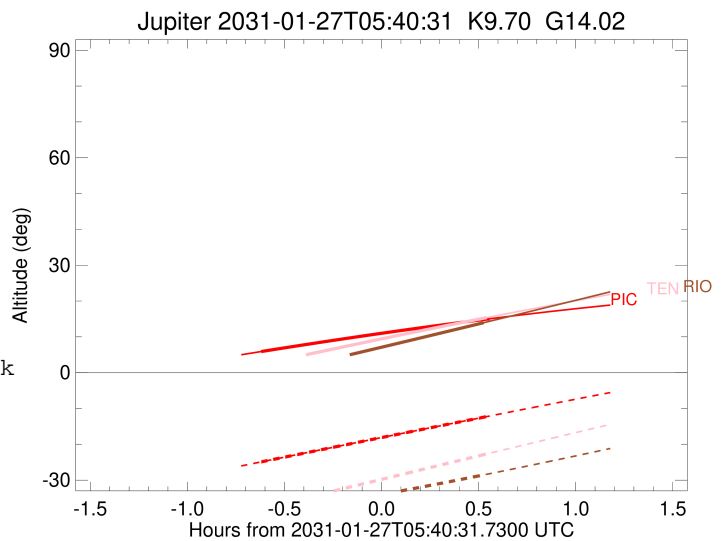
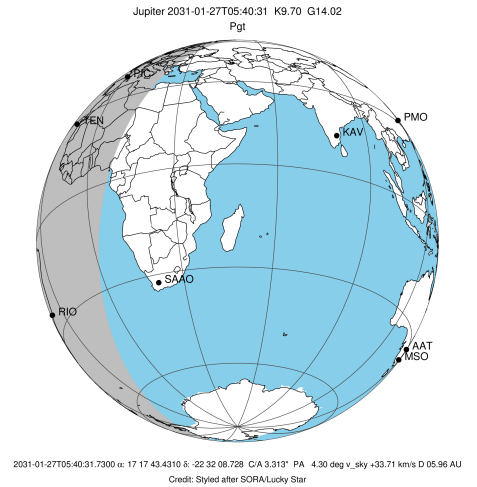
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	JAN 27 05:03 - JAN 27 06:13	Pie
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	+	JAN 27 06:13 - JAN 27 06:13	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	+	JAN 27 06:12 - JAN 27 06:12	Pne
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			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-01-27T05:38:37.510
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      : 4114884716101797632
2Mass ID (if available) : 17174344-2232086
ICRS Star Coord at Epoch: 17h 17m 43.43099s -22:32:08.72797s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.703
G magnitude          : 14.022
RP magnitude         : 12.892
BP magnitude         : 15.373
DUPflag             : 0
Distance (au)        : 5.957
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.70
Sun-Target sep (deg) : 46.40
Sun-Moon sep (deg)   : 100.21
B (ring opening deg) : -2.71
PA of pole (deg)     : 3.71
Pole direction: RA (deg): 268.05704
Dec (deg): 64.49651
C/A sky separation (") : 2.167
C/A sky separation (km) : 9361.4
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
    
```

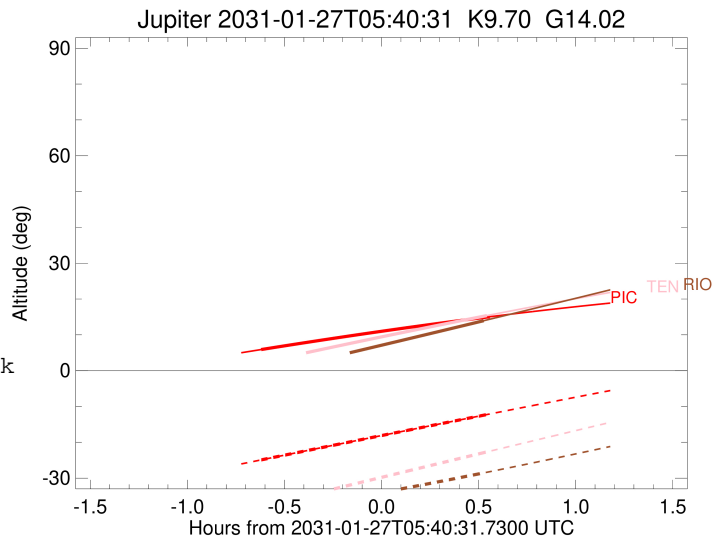
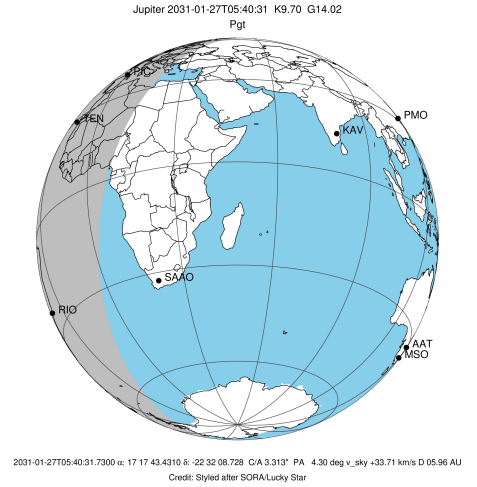


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-01-27T05:03:22.746	5.90	-24.90	71491.8	-8.31	-9.48
Jupiter	E	2031-01-27T06:13:55.417	15.04	-12.10	71491.9	-6.74	-7.70

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-01-27T05:37:53.900
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      : 4114884716101797632
2Mass ID (if available) : 17174344-2232086
ICRS Star Coord at Epoch: 17h 17m 43.43099s -22:32:08.72797s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.703
G magnitude          : 14.022
RP magnitude         : 12.892
BP magnitude         : 15.373
DUPflag             : 0
Distance (au)        : 5.957
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 33.70
Sun-Target sep (deg) : 46.40
Sun-Moon sep (deg)  : 100.14
B (ring opening deg) : -2.71
PA of pole (deg)    : 3.71
Pole direction: RA (deg): 268.05704
Dec (deg): 64.49651
C/A sky separation (") : 2.542
C/A sky separation (km) : 10981.5
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
    
```

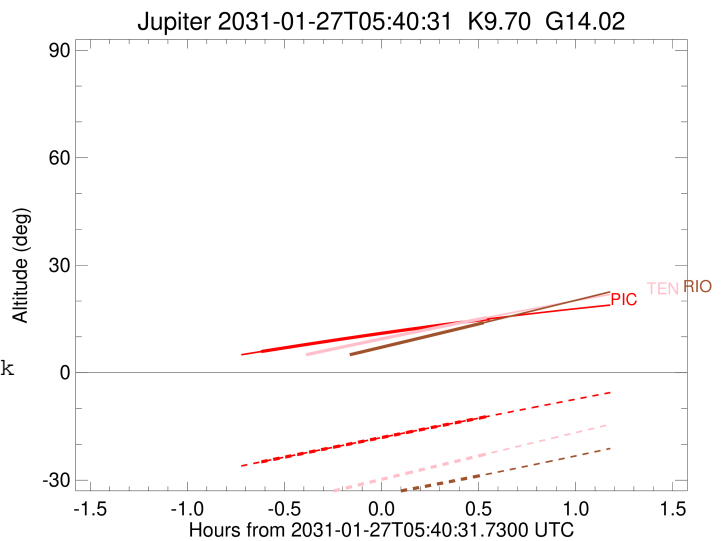
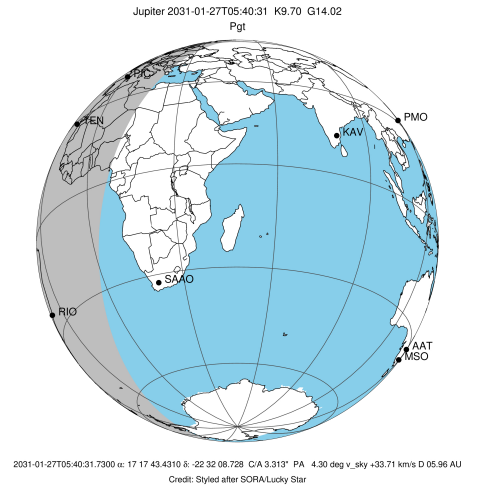


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-01-27T05:02:50.297	2.19x	-38.07	71491.7	-9.69	-11.04
Jupiter	E	2031-01-27T06:13:01.713	15.36	-22.69	71491.8	-7.98	-9.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-01-27T05:37:45.400
Event type          : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code       : RIO
Location           : Rio de Janeiro
Latitude (deg)     : -22.89506
E. Longitude (deg) : 316.77708
Altitude (km)      : 0.033
Gaia source ID     : 4114884716101797632
2Mass ID (if available) : 17174344-2232086
ICRS Star Coord at Epoch: 17h 17m 43.43099s -22:32:08.72797s
RUWE (>1.4 is poor) : 1.05
K magnitude        : 9.703
G magnitude        : 14.022
RP magnitude       : 12.892
BP magnitude       : 15.373
DUPflag           : 0
Distance (au)     : 5.957
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : 33.70
Sun-Target sep (deg) : 46.40
Sun-Moon sep (deg)  : 100.08
B (ring opening deg) : -2.71
PA of pole (deg)   : 3.71
Pole direction: RA (deg): 268.05704
Dec (deg): 64.49651
C/A sky separation (") : 3.948
C/A sky separation (km) : 17057.6
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	2031-01-27T05:03:29.604	-0.77x	-39.67	71491.4	-14.65	-16.63
Jupiter	E	2031-01-27T06:12:05.633	13.94	-28.54	71491.5	-12.92	-14.69