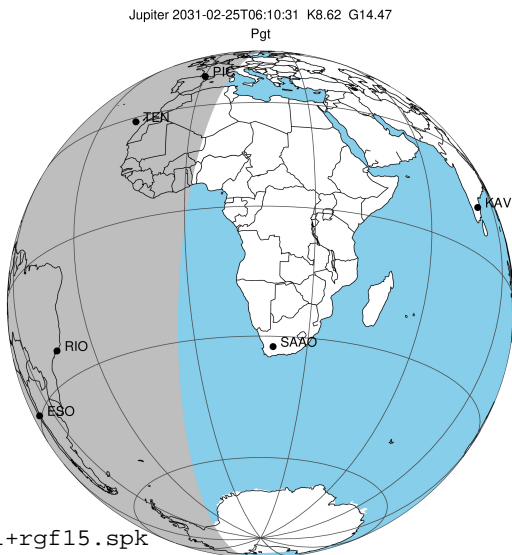


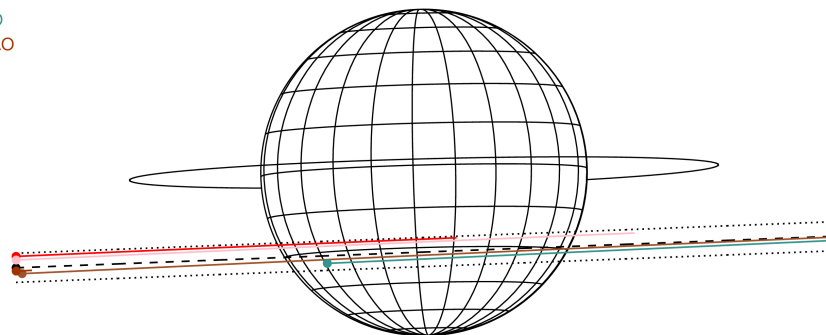
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-25T06:10:31.380  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116765087178554624  
 2Mass ID (if available) : 17381620-2248234

Jupiter 2031-02-25T06:10:31 K8.62 G14.47 Pgt

ICRS Star Coord at Epoch: 17h 38m 16.19969s -22:48:23.60488s  
 RUWE (>1.4 is poor) : 0.99  
 K magnitude : 8.624  
 G magnitude : 14.468  
 RP magnitude : 13.007  
 BP magnitude : 17.247  
 DUPflag : 0  
 Distance (au) : 5.556  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 22.83  
 Sun-Target sep (deg) : 71.01  
 Sun-Moon sep (deg) : 116.66  
 B (ring opening deg) : -2.65  
 PA of pole (deg) : 1.50  
 Pole direction: RA (deg): 268.05701  
 Dec (deg): 64.49651  
 C/A sky separation (") : 8.645  
 C/A sky separation (km) : 34832.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp



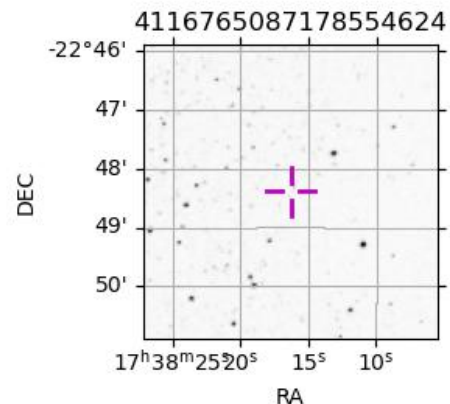
Earth  
 PIC  
 TEN  
 RIO  
 ESO  
 SAAO



2031-02-25T06:10:31.3800 az: 17.38 16.1997 δ: -22.48 23.605 C/A 8.655° PA 2.21 deg v\_sky +22.83 km/s D 05.56 AU  
 Credit: Styled after SORA/Lucky Star

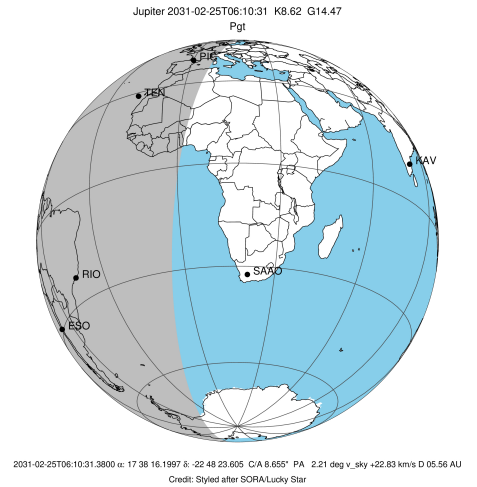
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	FEB 25 05:21 - FEB 25 05:21	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	+ +	FEB 25 05:20 - FEB 25 06:56	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	+ +	FEB 25 05:21 - FEB 25 06:52	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	FEB 25 06:51 - FEB 25 06:51	Pne
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

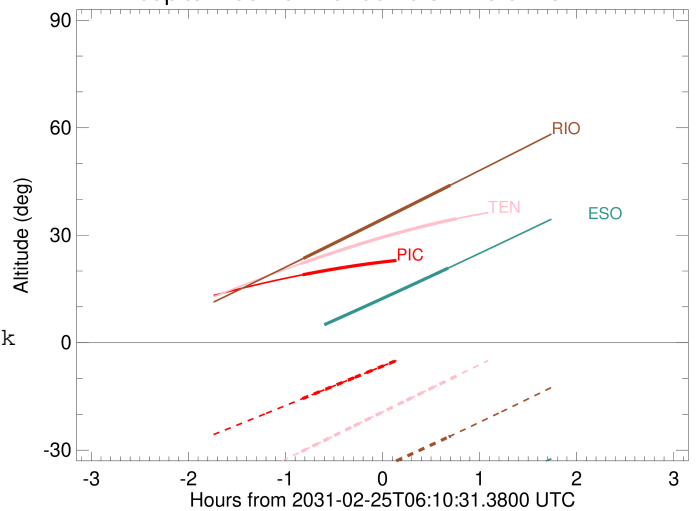


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T06:09:23.440
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     : 4116765087178554624
2Mass ID (if available) : 17381620-2248234
ICRS Star Coord at Epoch: 17h 38m 16.19969s -22:48:23.60488s
RUWE (>1.4 is poor) : 0.99
K magnitude        : 8.624
G magnitude        : 14.468
RP magnitude       : 13.007
BP magnitude       : 17.247
DUPflag           : 0
Distance (au)     : 5.556
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : 22.83
Sun-Target sep (deg) : 71.01
Sun-Moon sep (deg) : 116.90
B (ring opening deg) : -2.65
PA of pole (deg)  : 1.50
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 7.239
C/A sky separation (km) : 29170.9
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
    
```



Jupiter 2031-02-25T06:10:31 K8.62 G14.47

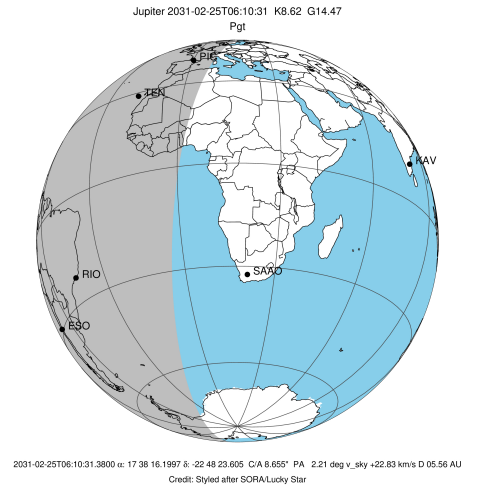


x: target alt < 5.0 deg or sun > -5.0 deg

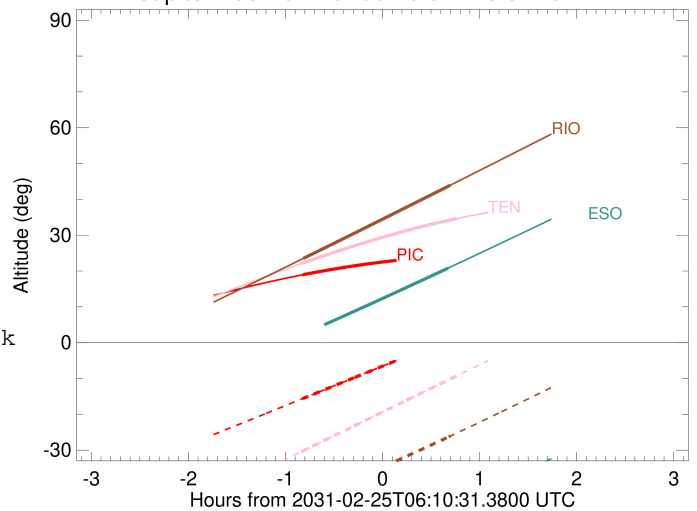
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T05:21:06.721	18.94	-15.62	71490.3	-24.92	-27.94
Jupiter	E	2031-02-25T06:57:45.203	24.24	1.97x	71490.5	-23.25	-26.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-25T06:08:10.690
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        : 4116765087178554624
2Mass ID (if available) : 17381620-2248234
ICRS Star Coord at Epoch: 17h 38m 16.19969s -22:48:23.60488s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 8.624
G magnitude           : 14.468
RP magnitude          : 13.007
BP magnitude          : 17.247
DUPflag              : 0
Distance (au)         : 5.556
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 22.83
Sun-Target sep (deg) : 71.01
Sun-Moon sep (deg)   : 116.87
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.50
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 7.540
C/A sky separation (km) : 30381.7
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
    
```



Jupiter 2031-02-25T06:10:31 K8.62 G14.47

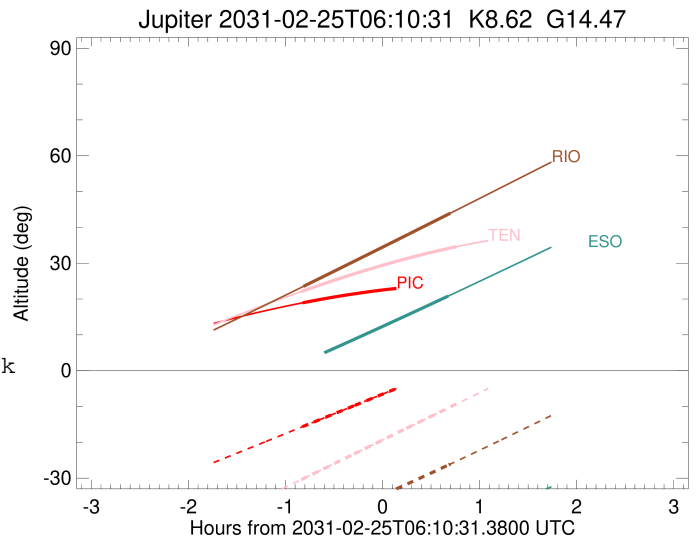
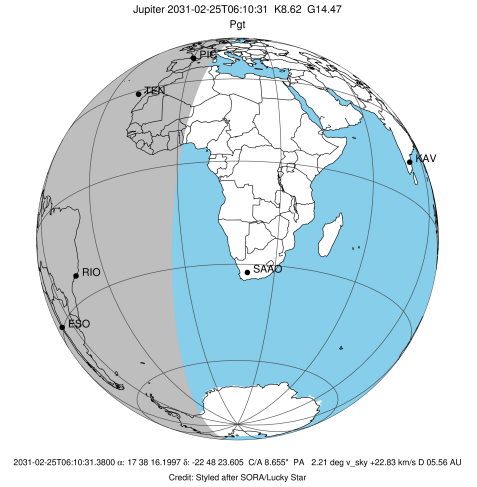


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T05:20:19.021	22.09	-30.42	71490.1	-26.12	-29.23
Jupiter	E	2031-02-25T06:56:10.730	34.60	-9.31	71490.4	-24.19	-27.15

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-02-25T06:06:57.560
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        : 4116765087178554624
2Mass ID (if available) : 17381620-2248234
ICRS Star Coord at Epoch: 17h 38m 16.19969s -22:48:23.60488s
RUWE (>1.4 is poor)  : 0.99
K magnitude            : 8.624
G magnitude            : 14.468
RP magnitude           : 13.007
BP magnitude           : 17.247
DUPflag               : 0
Distance (au)         : 5.556
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : 22.83
Sun-Target sep (deg)  : 71.01
Sun-Moon sep (deg)    : 116.79
B (ring opening deg)  : -2.65
PA of pole (deg)      : 1.50
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 8.985
C/A sky separation (km) : 36203.6
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
    
```

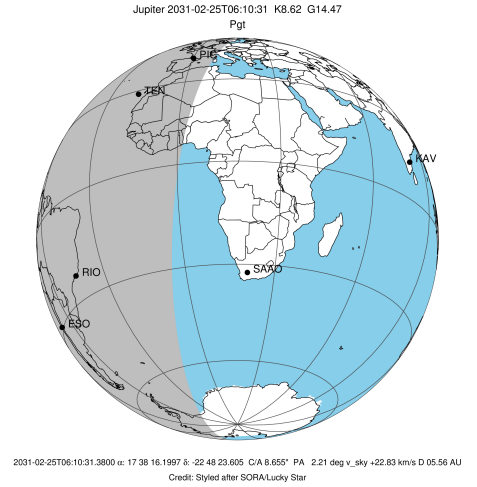


x: target alt < 5.0 deg or sun > -5.0 deg

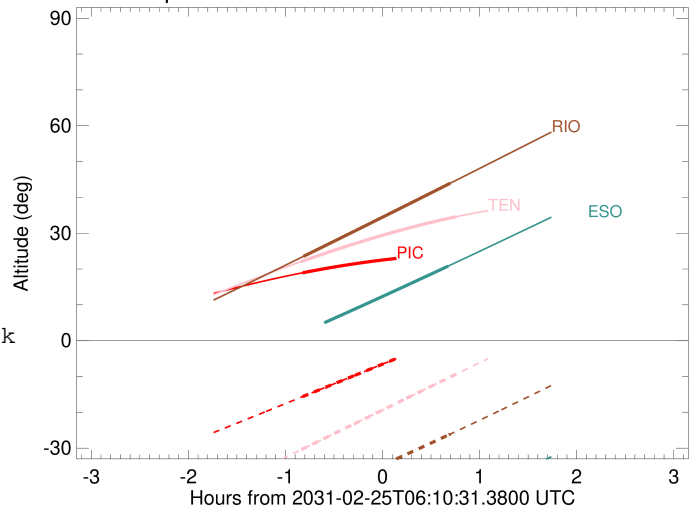
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T05:21:39.552	23.53	-43.94	71489.4	-31.50	-34.95
Jupiter	E	2031-02-25T06:52:26.361	43.95	-26.08	71489.7	-29.32	-32.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T06:06:43.330
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      : 4116765087178554624
2Mass ID (if available) : 17381620-2248234
ICRS Star Coord at Epoch: 17h 38m 16.19969s -22:48:23.60488s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 8.624
G magnitude          : 14.468
RP magnitude         : 13.007
BP magnitude         : 17.247
DUPflag             : 0
Distance (au)       : 5.556
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 22.83
Sun-Target sep (deg) : 71.01
Sun-Moon sep (deg)  : 116.46
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.50
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 9.394
C/A sky separation (km) : 37854.4
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 2031-02-25T06:10:31 K8.62 G14.47



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	2031-02-25T05:22:32.082	2.60x	-51.22	71489.1	-33.03	-36.55
Jupiter	E	2031-02-25T06:51:05.341	20.81	-42.77	71489.5	-30.83	-34.25