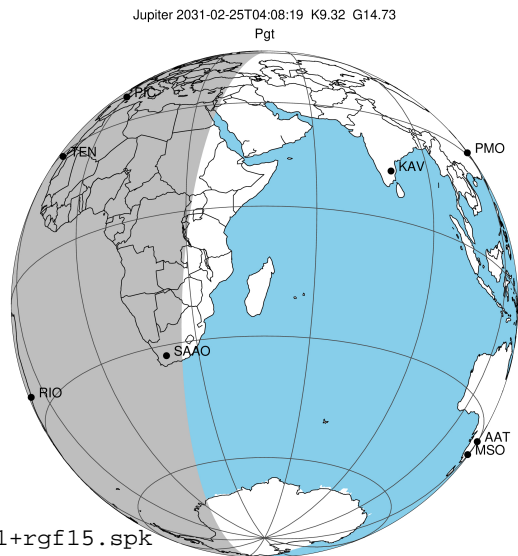


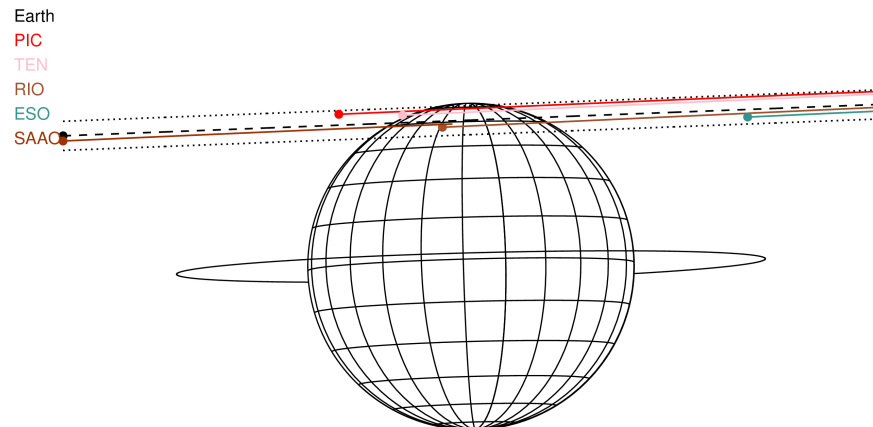
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-02-25T04:08:19.610
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116765155898081152
 2Mass ID (if available) : 17381326-2247574

Jupiter 2031-02-25T04:08:19 K9.32 G14.73 Pgt

ICRS Star Coord at Epoch: 17h 38m 13.26442s -22:47:57.47837s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.321
 G magnitude : 14.729
 RP magnitude : 13.397
 BP magnitude : 16.780
 DUPflag : 0
 Distance (au) : 5.557
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 22.86
 Sun-Target sep (deg) : 70.94
 Sun-Moon sep (deg) : 115.57
 B (ring opening deg) : -2.66
 PA of pole (deg) : 1.51
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 15.899
 C/A sky separation (km) : 64078.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

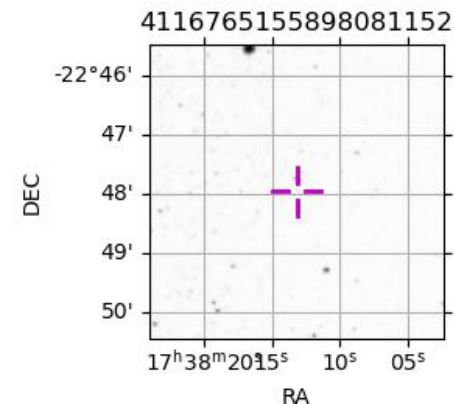


2031-02-25T04:08:19.6100 α: 17 38 13.2644 δ: -22 47 57.478 C/A ***** PA 182.20 deg v_sky +22.86 km/s D 05.56 AU
 Credit: Styled after SORA/Lucky Star



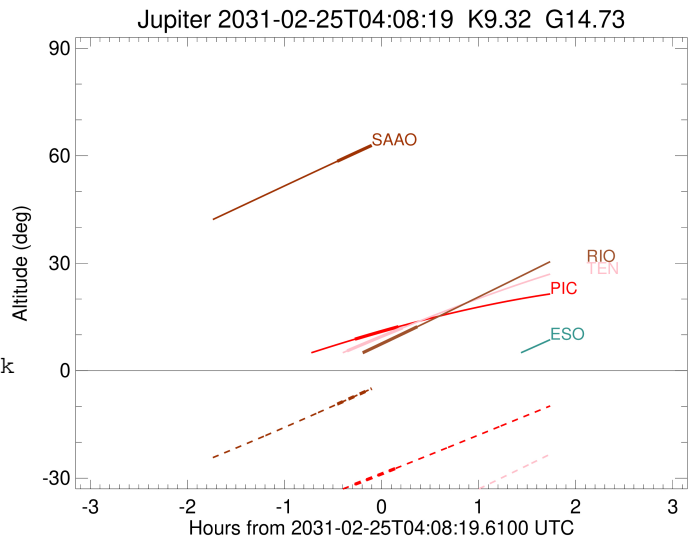
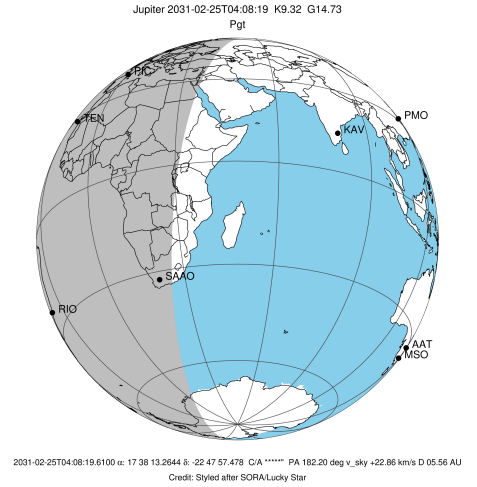
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	FEB 25 03:52 - FEB 25 04:18	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	+ +	FEB 25 03:47 - FEB 25 04:21	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 04:30 - FEB 25 04:30	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	+	FEB 25 03:40 - FEB 25 03:40	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T04:05:23.660
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     : 4116765155898081152
2Mass ID (if available) : 17381326-2247574
ICRS Star Coord at Epoch: 17h 38m 13.26442s -22:47:57.47837s
RUWE (>1.4 is poor) : 0.93
K magnitude        : 9.321
G magnitude        : 14.729
RP magnitude       : 13.397
BP magnitude       : 16.780
DUPflag           : 0
Distance (au)     : 5.557
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : 22.86
Sun-Target sep (deg) : 70.94
Sun-Moon sep (deg)  : 115.52
B (ring opening deg) : -2.66
PA of pole (deg)   : 1.51
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 17.154
C/A sky separation (km) : 69135.7
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
    
```

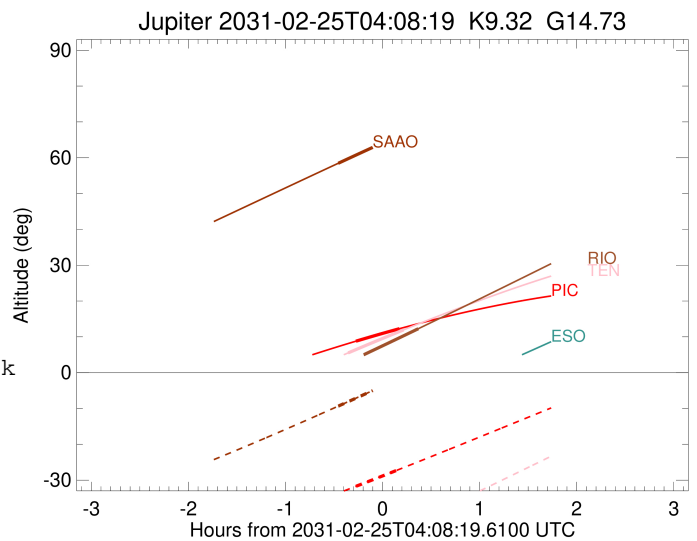
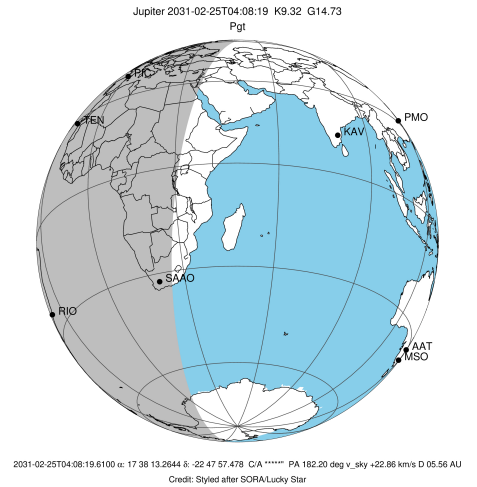


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T03:52:01.337	8.80	-31.70	71483.1	74.08	75.89
Jupiter	E	2031-02-25T04:18:46.683	12.27	-26.97	71482.9	75.99	77.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-25T04:04:10.450
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        : 4116765155898081152
2Mass ID (if available) : 17381326-2247574
ICRS Star Coord at Epoch: 17h 38m 13.26442s -22:47:57.47837s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.321
G magnitude           : 14.729
RP magnitude          : 13.397
BP magnitude          : 16.780
DUPflag              : 0
Distance (au)         : 5.557
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 22.86
Sun-Target sep (deg) : 70.94
Sun-Moon sep (deg)   : 115.39
B (ring opening deg) : -2.66
PA of pole (deg)     : 1.51
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 16.764
C/A sky separation (km) : 67567.4
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
    
```

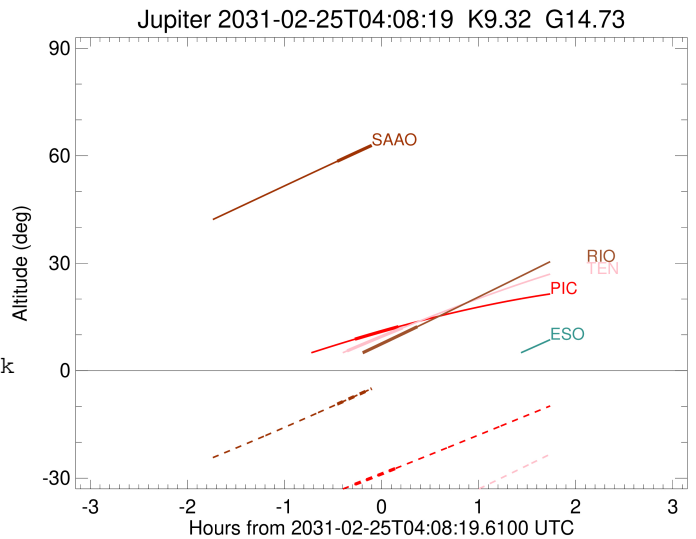
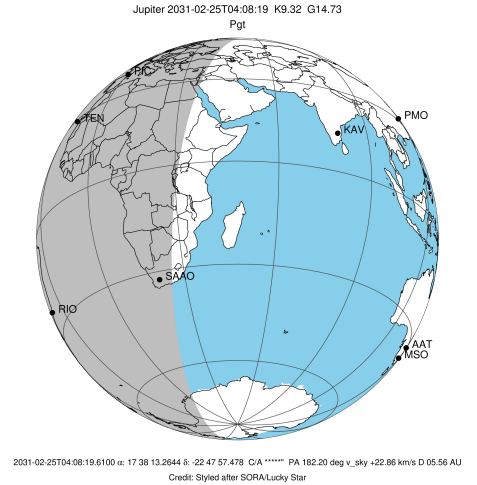


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T03:47:03.073	5.51	-50.41	71483.5	69.70	71.95
Jupiter	E	2031-02-25T04:21:19.383	11.94	-43.22	71483.3	71.83	73.87

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-25T04:03:47.110
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      : 4116765155898081152
2Mass ID (if available) : 17381326-2247574
ICRS Star Coord at Epoch: 17h 38m 13.26442s -22:47:57.47837s
RUWE (>1.4 is poor) : 0.93
K magnitude          : 9.321
G magnitude          : 14.729
RP magnitude         : 13.397
BP magnitude         : 16.780
DUPflag             : 0
Distance (au)       : 5.557
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 22.86
Sun-Target sep (deg) : 70.94
Sun-Moon sep (deg)  : 115.30
B (ring opening deg) : -2.66
PA of pole (deg)    : 1.51
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 15.260
C/A sky separation (km) : 61503.5
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
    
```

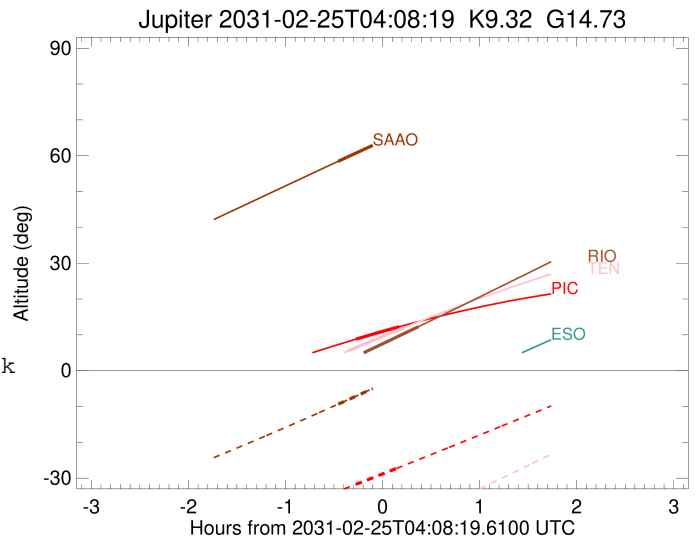
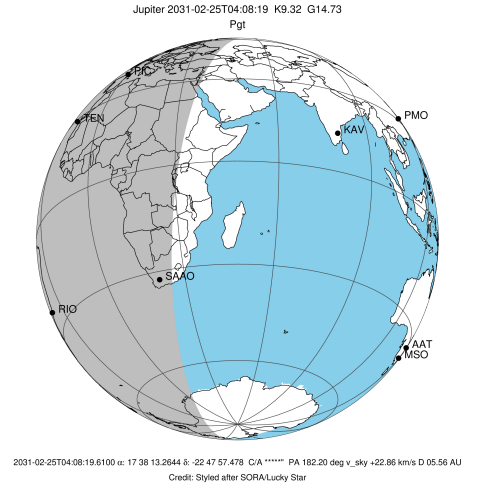


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-25T03:37:17.643	0.89x	-57.15	71485.0	58.15	61.34
Jupiter	E	2031-02-25T04:30:20.719	12.24	-51.98	71484.7	60.36	63.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-25T04:06:21.510
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        : 4116765155898081152
2Mass ID (if available) : 17381326-2247574
ICRS Star Coord at Epoch: 17h 38m 13.26442s -22:47:57.47837s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.321
G magnitude           : 14.729
RP magnitude          : 13.397
BP magnitude          : 16.780
DUPflag              : 0
Distance (au)         : 5.557
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 22.86
Sun-Target sep (deg) : 70.94
Sun-Moon sep (deg)   : 116.17
B (ring opening deg) : -2.66
PA of pole (deg)     : 1.51
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 15.559
C/A sky separation (km) : 62709.8
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	2031-02-25T03:40:57.862	58.44	-9.34	71484.7	60.28	63.32
Jupiter	E	2031-02-25T04:31:47.199	68.87	1.10x	71484.5	62.09	65.00