

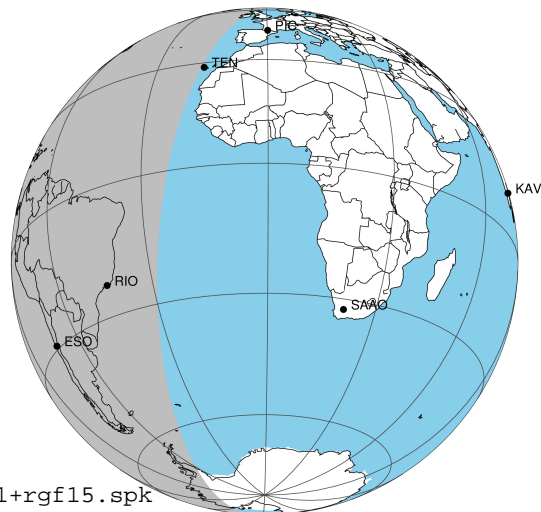
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-18T07:46:40.680  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4117460459558258432  
 2Mass ID (if available) : 17335776-2245524

Jupiter 2031-02-18T07:46:40 K9.16 G13.78 Pgt

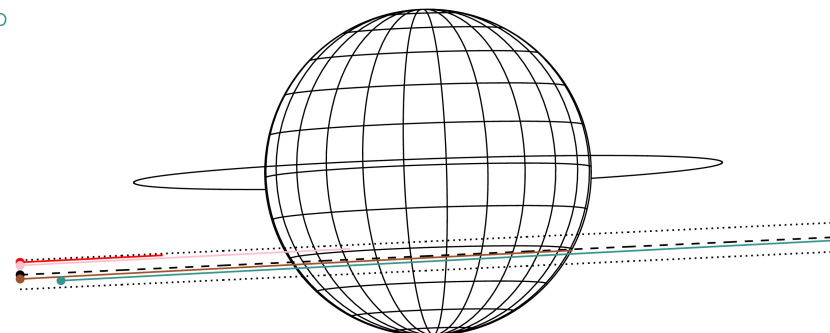
ICRS Star Coord at Epoch: 17h 33m 57.75550s -22:45:52.60756s

RUWE (>1.4 is poor) : 0.98  
 K magnitude : 9.163  
 G magnitude : 13.779  
 RP magnitude : 12.597  
 BP magnitude : 15.277  
 DUPflag : 0  
 Distance (au) : 5.660  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 25.74  
 Sun-Target sep (deg) : 65.02  
 Sun-Moon sep (deg) : 19.91  
 B (ring opening deg) : -2.67  
 PA of pole (deg) : 1.97  
 Pole direction: RA (deg): 268.05702  
 Dec (deg): 64.49651  
 C/A sky separation (") : 8.897  
 C/A sky separation (km) : 36526.2  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-02-18T07:46:40 K9.16 G13.78  
 Pgt



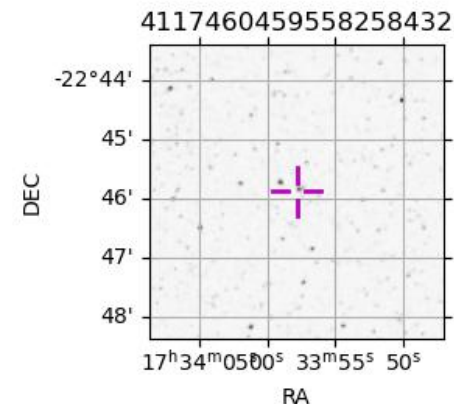
Earth  
 PIC  
 TEN  
 RIO  
 ESO



2031-02-18T07:46:40.6800 a: 17 33 57.7555 s: -22 45 52.608 C/A 8.9077 PA 2.64 deg v\_sky +25.74 km/s D 05.66 AU  
 Credit: Styled after SORA/Lucky Star

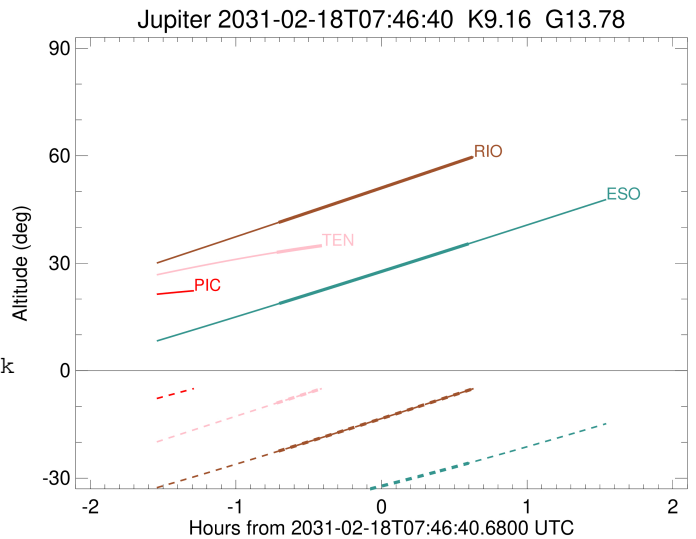
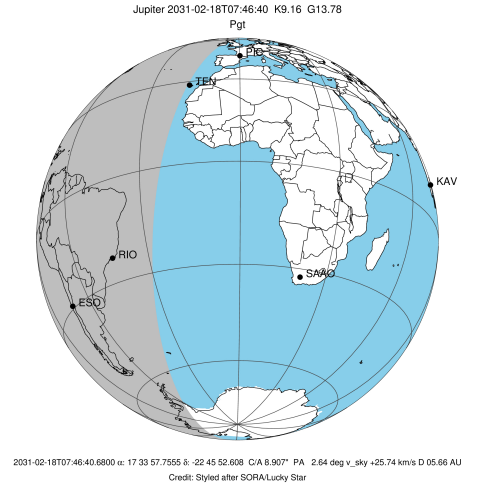
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
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 18 07:03 - FEB 18 07:03	Pin
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 18 07:04 - FEB 18 08:24	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	FEB 18 07:04 - FEB 18 08:22	Pie
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



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-18T07:45:35.450
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        : 4117460459558258432
2Mass ID (if available) : 17335776-2245524
ICRS Star Coord at Epoch: 17h 33m 57.75550s -22:45:52.60756s
RUWE (>1.4 is poor)  : 0.98
K magnitude           : 9.163
G magnitude           : 13.779
RP magnitude          : 12.597
BP magnitude          : 15.277
DUPflag              : 0
Distance (au)         : 5.660
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 25.74
Sun-Target sep (deg)  : 65.02
Sun-Moon sep (deg)    : 20.29
B (ring opening deg)  : -2.67
PA of pole (deg)      : 1.97
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 7.730
C/A sky separation (km) : 31732.3
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
    
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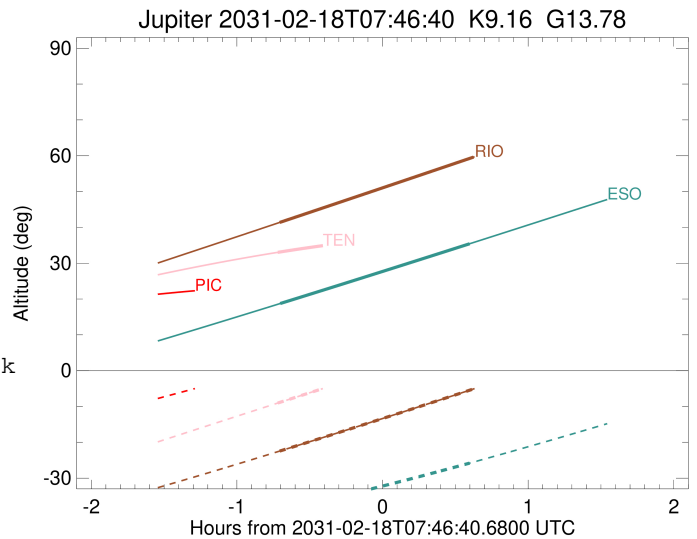
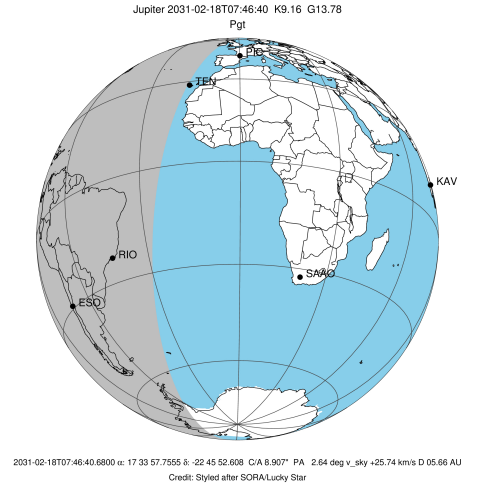


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-18T07:03:30.443	33.02	-9.04	71490.0	-27.16	-30.35
Jupiter	E	2031-02-18T08:27:44.015	38.82	9.02x	71490.2	-25.54	-28.61

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-18T07:44:13.130
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        : 4117460459558258432
2Mass ID (if available) : 17335776-2245524
ICRS Star Coord at Epoch: 17h 33m 57.75550s -22:45:52.60756s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 9.163
G magnitude           : 13.779
RP magnitude          : 12.597
BP magnitude          : 15.277
DUPflag              : 0
Distance (au)         : 5.660
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 25.74
Sun-Target sep (deg) : 65.02
Sun-Moon sep (deg)   : 20.78
B (ring opening deg) : -2.67
PA of pole (deg)     : 1.97
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (" ) : 9.088
C/A sky separation (km) : 37307.9
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
    
```

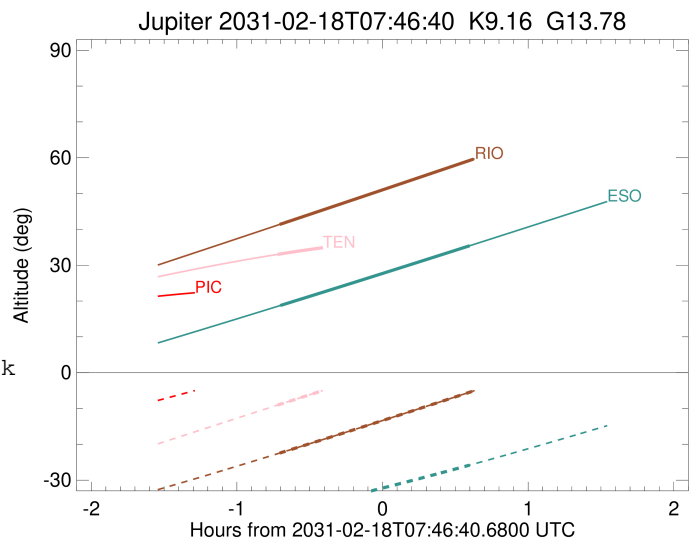
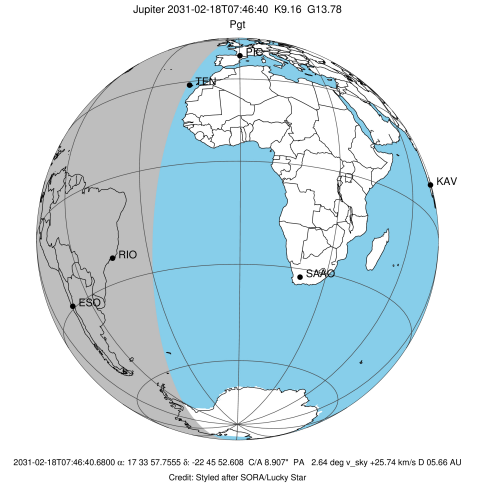


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-18T07:04:18.678	41.37	-22.44	71489.2	-32.40	-35.90
Jupiter	E	2031-02-18T08:24:13.670	59.62	-5.09	71489.5	-30.48	-33.88

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-18T07:43:29.180
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      : 4117460459558258432
2Mass ID (if available) : 17335776-2245524
ICRS Star Coord at Epoch: 17h 33m 57.75550s -22:45:52.60756s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 9.163
G magnitude          : 13.779
RP magnitude         : 12.597
BP magnitude         : 15.277
DUPflag             : 0
Distance (au)       : 5.660
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.74
Sun-Target sep (deg) : 65.02
Sun-Moon sep (deg)  : 20.88
B (ring opening deg) : -2.67
PA of pole (deg)    : 1.97
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 9.475
C/A sky separation (km) : 38897.0
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	2031-02-18T07:04:30.829	18.74	-38.90	71489.0	-33.95	-37.51
Jupiter	E	2031-02-18T08:22:34.653	35.42	-25.80	71489.3	-31.91	-35.38