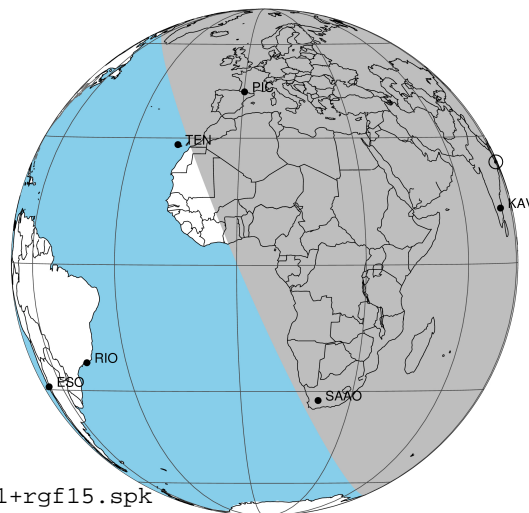


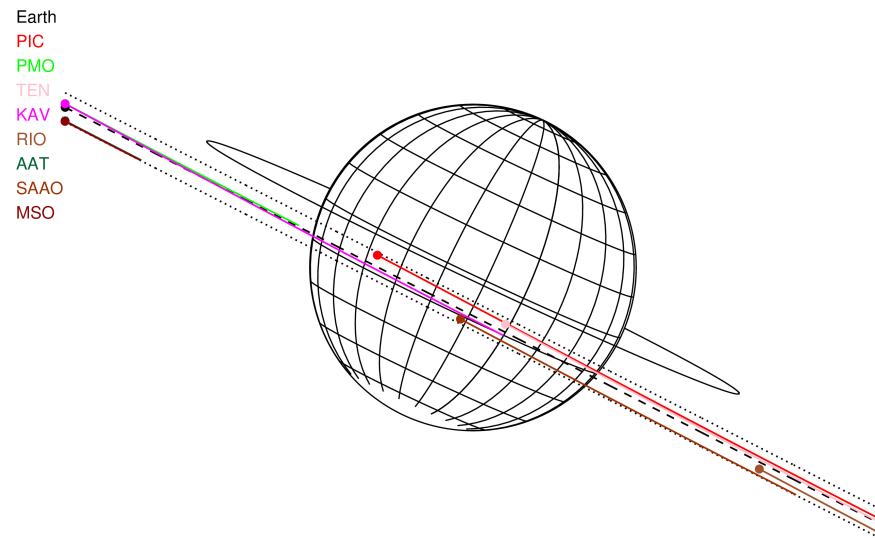
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2034-12-20T17:56:48.720  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 2545560359664356352  
 2Mass ID (if available) : 00180313+0028493

Jupiter 2034-12-20T17:56:48 K6.59 G9.02 Pgt

ICRS Star Coord at Epoch: 00h 18m 03.15830s +00:28:48.21512s  
 RUWE (>1.4 is poor) : 1.07  
 K magnitude : 6.587  
 G magnitude : 9.020  
 RP magnitude : 8.285  
 BP magnitude : 9.613  
 DUPflag : 0  
 Distance (au) : 4.754  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 10.49  
 Sun-Target sep (deg) : 95.90  
 Sun-Moon sep (deg) : 19.78  
 B (ring opening deg) : 2.34  
 PA of pole (deg) : -25.35  
 Pole direction: RA (deg): 268.05640  
 Dec (deg): 64.49676  
 C/A sky separation (") : 5.469  
 C/A sky separation (km) : 18856.4  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

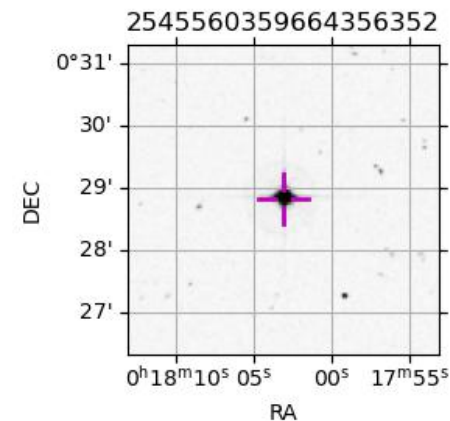


2034-12-20T17:56:48.7200 ex: 00 18 03.1583 s: +00 28 48.215 C/A 5.469 PA 332.94 deg v\_sky +10.49 km/s D 04.75 AU  
 Credit: Styled after SORA/Lucky Star



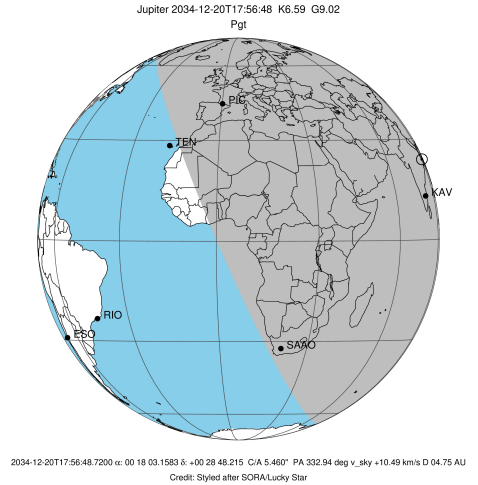
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	DEC 20 19:53 - DEC 20 19:53	Pne
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	+	DEC 20 19:50 - DEC 20 19:50	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	DEC 20 16:14 - DEC 20 16:14	Pin
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	+	DEC 20 19:46 - DEC 20 19:46	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

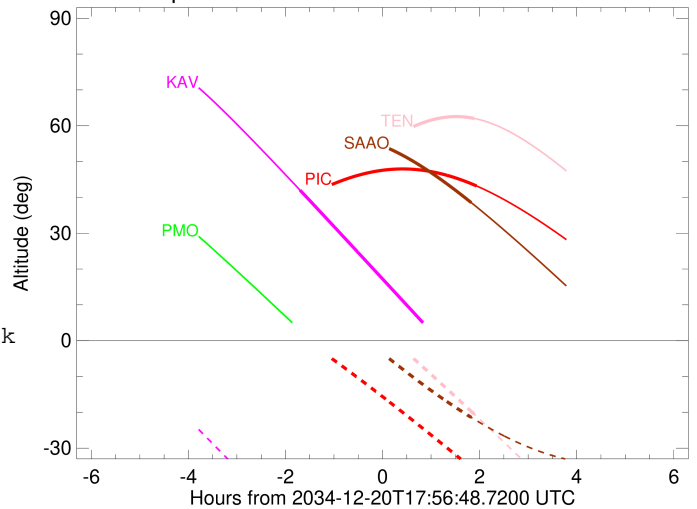


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-12-20T17:58:52.850
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        : 2545560359664356352
2Mass ID (if available) : 00180313+0028493
ICRS Star Coord at Epoch: 00h 18m 03.15830s +00:28:48.21512s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 6.587
G magnitude           : 9.020
RP magnitude          : 8.285
BP magnitude          : 9.613
DUPflag              : 0
Distance (au)         : 4.754
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.49
Sun-Target sep (deg)  : 95.90
Sun-Moon sep (deg)    : 19.91
B (ring opening deg) : 2.34
PA of pole (deg)      : -25.35
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 4.305
C/A sky separation (km) : 14844.4
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 2034-12-20T17:56:48 K6.59 G9.02

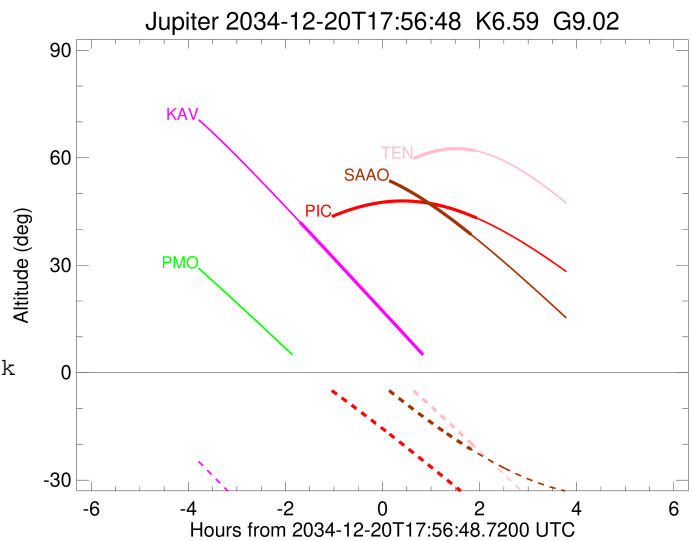
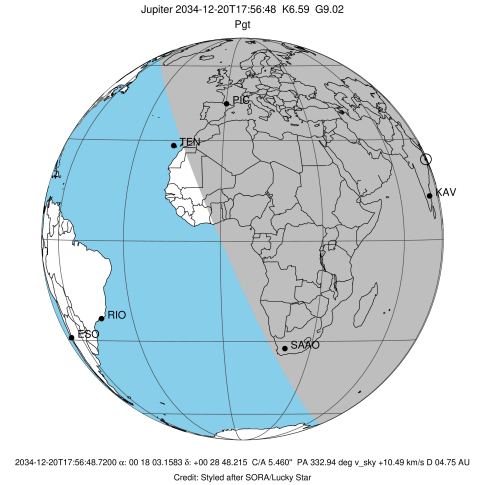


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-20T16:04:27.949	37.89	2.75x	71491.8	-9.45	-10.77
Jupiter	E	2034-12-20T19:53:02.383	43.19	-36.61	71491.5	-14.52	-16.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-12-20T17:55:23.420
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     : 2545560359664356352
2Mass ID (if available) : 00180313+0028493
ICRS Star Coord at Epoch: 00h 18m 03.15830s +00:28:48.21512s
RUWE (>1.4 is poor) : 1.07
K magnitude         : 6.587
G magnitude         : 9.020
RP magnitude        : 8.285
BP magnitude        : 9.613
DUPflag            : 0
Distance (au)      : 4.754
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 10.49
Sun-Target sep (deg) : 95.90
Sun-Moon sep (deg)  : 20.23
B (ring opening deg) : 2.34
PA of pole (deg)    : -25.35
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 4.417
C/A sky separation (km) : 15228.1
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
    
```

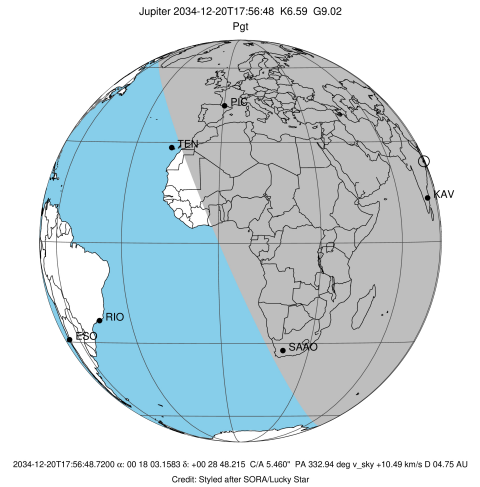


x: target alt < 5.0 deg or sun > -5.0 deg

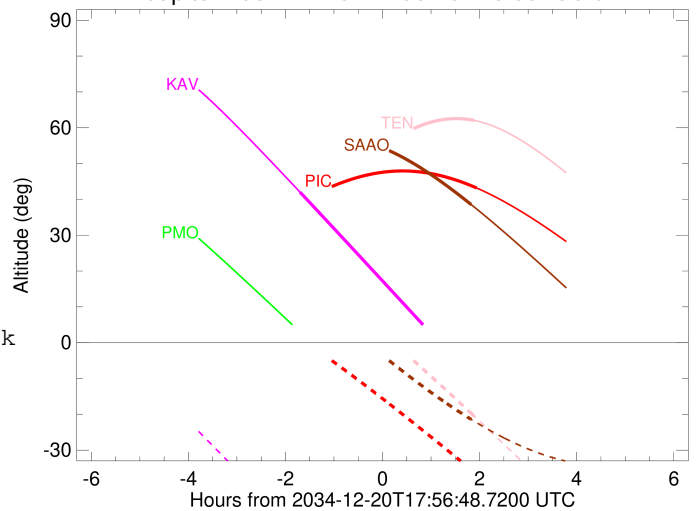
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-20T16:01:05.857	33.38	23.01x	71491.8	-9.74	-11.10
Jupiter	E	2034-12-20T19:50:03.137	62.04	-20.49	71491.5	-15.02	-17.04

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2034-12-20T18:06:08.830
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 2545560359664356352
2Mass ID (if available) : 00180313+0028493
ICRS Star Coord at Epoch: 00h 18m 03.15830s +00:28:48.21512s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 6.587
G magnitude           : 9.020
RP magnitude         : 8.285
BP magnitude         : 9.613
DUPflag              : 0
Distance (au)        : 4.754
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.49
Sun-Target sep (deg) : 95.90
Sun-Moon sep (deg)   : 18.98
B (ring opening deg) : 2.34
PA of pole (deg)     : -25.35
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation ("): 5.910
C/A sky separation (km): 20376.6
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
    
```



Jupiter 2034-12-20T17:56:48 K6.59 G9.02

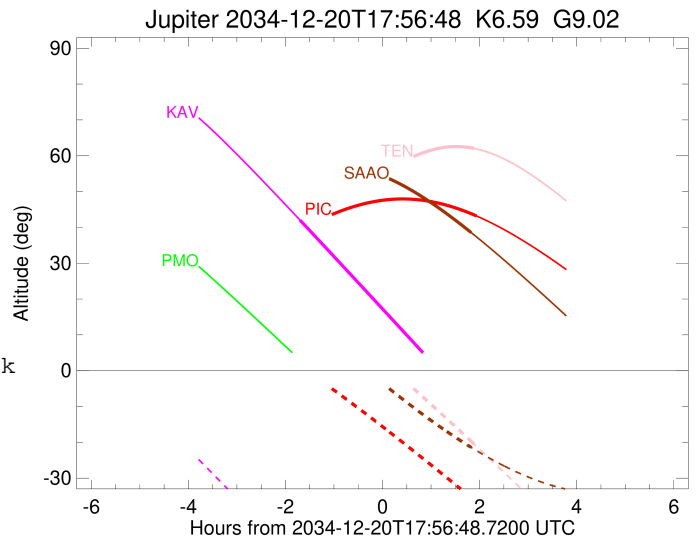
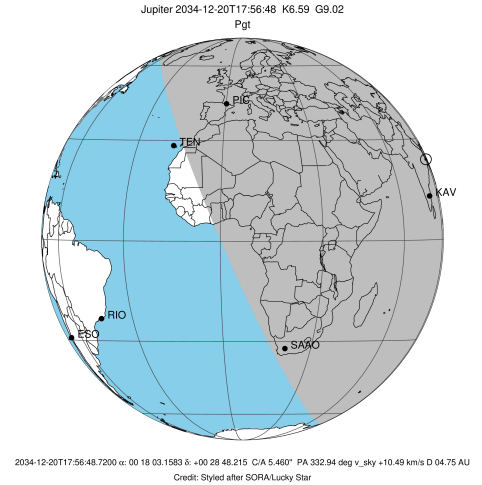


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2034-12-20T16:14:48.992	42.02	-53.38	71491.5	-14.31	-16.25
Jupiter	E	2034-12-20T19:55:06.831	-11.69x	-69.57	71491.3	-18.24	-20.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2034-12-20T17:55:34.210
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       : 2545560359664356352
2Mass ID (if available) : 00180313+0028493
ICRS Star Coord at Epoch: 00h 18m 03.15830s +00:28:48.21512s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 6.587
G magnitude           : 9.020
RP magnitude         : 8.285
BP magnitude         : 9.613
DUPflag              : 0
Distance (au)        : 4.754
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.49
Sun-Target sep (deg) : 95.90
Sun-Moon sep (deg)   : 20.03
B (ring opening deg) : 2.34
PA of pole (deg)     : -25.35
Pole direction: RA (deg): 268.05640
Dec (deg): 64.49676
C/A sky separation (") : 6.537
C/A sky separation (km) : 22539.0
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	2034-12-20T16:03:48.927	54.60	18.37x	71491.5	-15.65	-17.75
Jupiter	E	2034-12-20T19:46:30.176	38.53	-21.42	71491.0	-20.92	-23.59