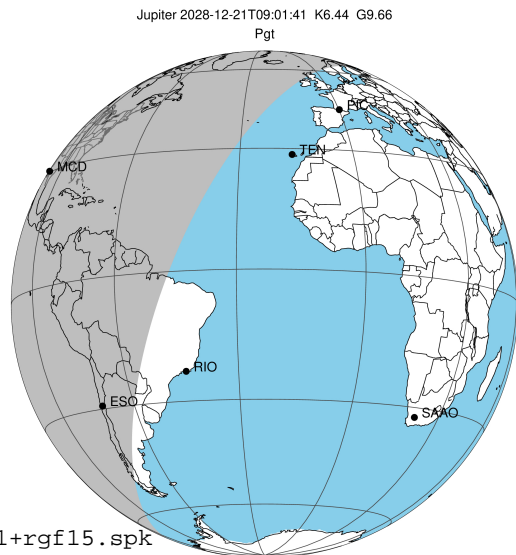


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2028-12-21T09:01:41.780
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3630412679942456064
 2Mass ID (if available) : 13274116-0752030

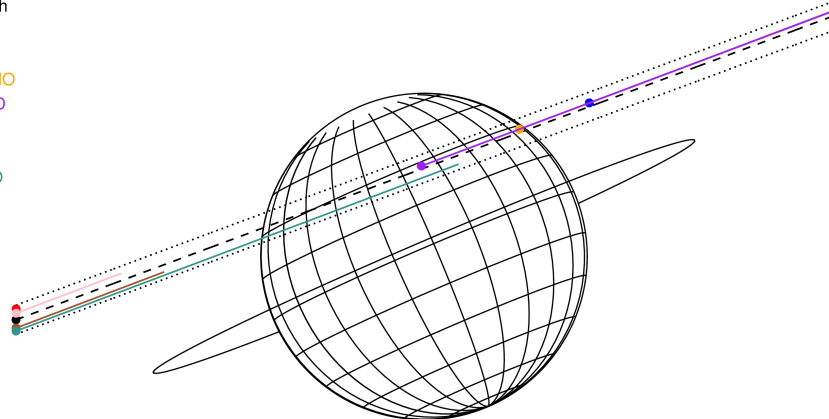
Jupiter 2028-12-21T09:01:41 K6.44 G9.66 Pgt

ICRS Star Coord at Epoch: 13h 27m 41.15840s -07:52:03.26818s

RUWE (>1.4 is poor) : 1.03
 K magnitude : 6.437
 G magnitude : 9.665
 RP magnitude : 8.724
 BP magnitude : 10.571
 DUPflag : 0
 Distance (au) : 5.772
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 24.28
 Sun-Target sep (deg) : 66.44
 Sun-Moon sep (deg) : 128.57
 B (ring opening deg) : -2.81
 PA of pole (deg) : 23.22
 Pole direction: RA (deg): 268.05755
 Dec (deg): 64.49657
 C/A sky separation (") : 8.670
 C/A sky separation (km) : 36294.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 RIO
 ESO

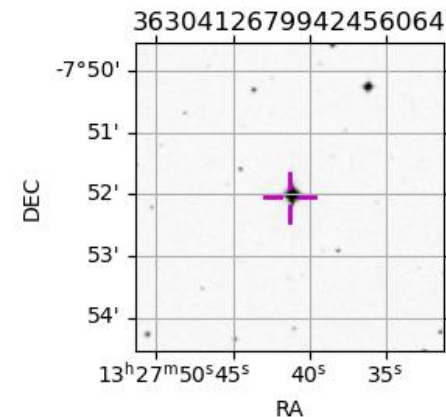


2028-12-21T09:01:41.7800 ex: 13 27 41.1584 s: -07 52 03.2681 C/A 8.663° PA 200.39 deg v_sky +24.28 km/s D 05.77 AU

Credit: Styled after SORA/Lucky Star

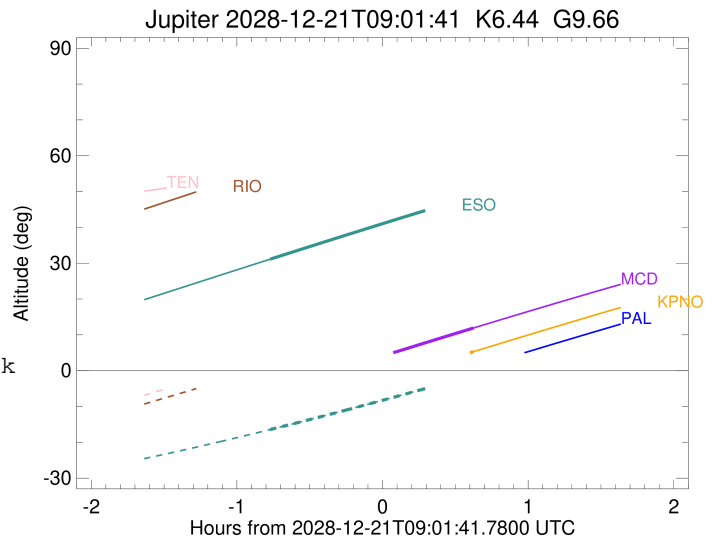
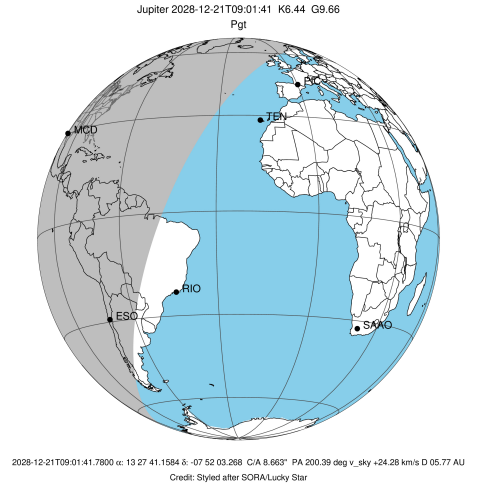
Observable events with sun below -5 deg and altitude above 5 deg

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	+	DEC 21 09:39 - DEC 21 09:39	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	DEC 21 09:39 - DEC 21 09:39	Pne
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	DEC 21 08:15 - DEC 21 08:15	Pin
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            : 2028-12-21T08:57:21.340
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 3630412679942456064
2Mass ID (if available) : 13274116-0752030
ICRS Star Coord at Epoch: 13h 27m 41.15840s -07:52:03.26818s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 6.437
G magnitude          : 9.665
RP magnitude         : 8.724
BP magnitude         : 10.571
DUPflag             : 0
Distance (au)        : 5.772
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 24.28
Sun-Target sep (deg) : 66.44
Sun-Moon sep (deg)   : 128.00
B (ring opening deg) : -2.81
PA of pole (deg)     : 23.22
Pole direction: RA (deg): 268.05755
Dec (deg): 64.49657
C/A sky separation (") : 8.968
C/A sky separation (km) : 37541.6
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
    
```

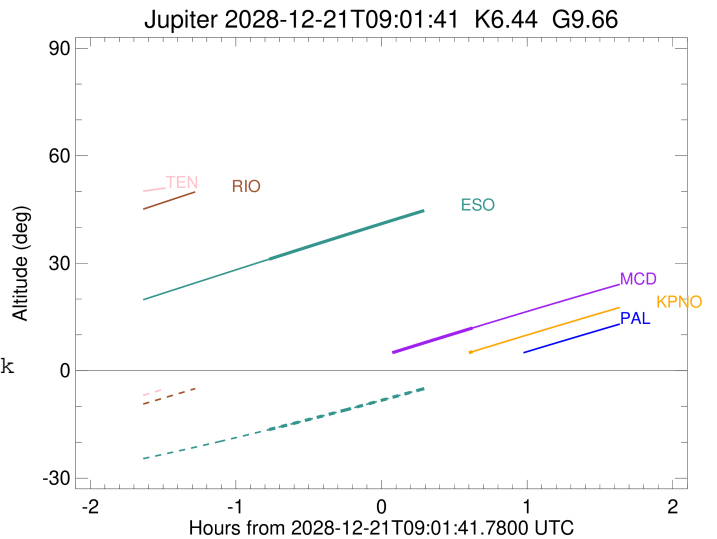
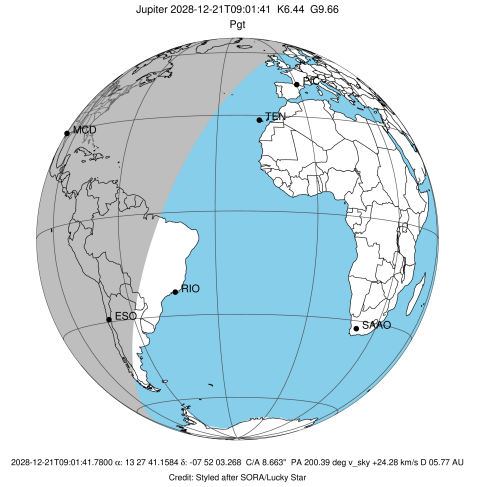


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-12-21T08:15:41.700	-12.30x	-75.96	71488.6	34.36	37.94
Jupiter	E	2028-12-21T09:39:09.480	5.30	-59.20	71489.5	28.96	32.27

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2028-12-21T08:57:19.860
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MCD
Location            : McDonald Obs. 2.7m
Latitude (deg)      : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)       : 2.075
Gaia source ID      : 3630412679942456064
2Mass ID (if available) : 13274116-0752030
ICRS Star Coord at Epoch: 13h 27m 41.15840s -07:52:03.26818s
RUWE (>1.4 is poor) : 1.03
K magnitude         : 6.437
G magnitude         : 9.665
RP magnitude        : 8.724
BP magnitude        : 10.571
DUPflag            : 0
Distance (au)       : 5.772
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 24.28
Sun-Target sep (deg) : 66.44
Sun-Moon sep (deg)  : 128.08
B (ring opening deg) : -2.81
PA of pole (deg)    : 23.22
Pole direction: RA (deg): 268.05755
Dec (deg): 64.49657
C/A sky separation (" ) : 8.962
C/A sky separation (km) : 37517.5
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
    
```

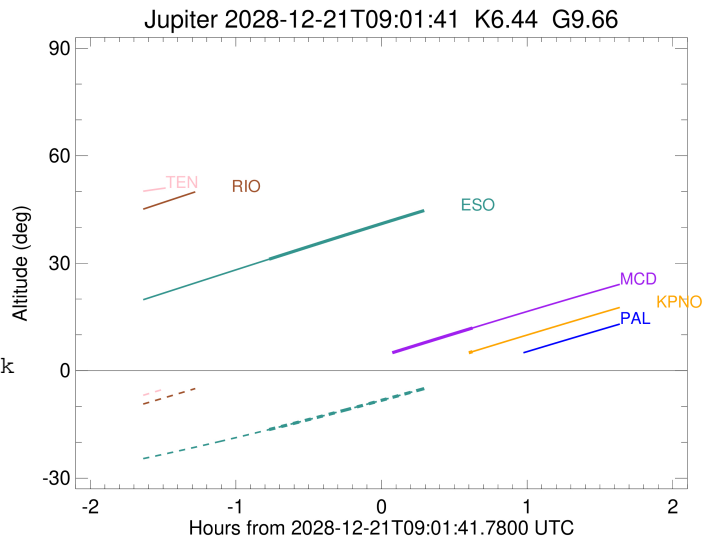
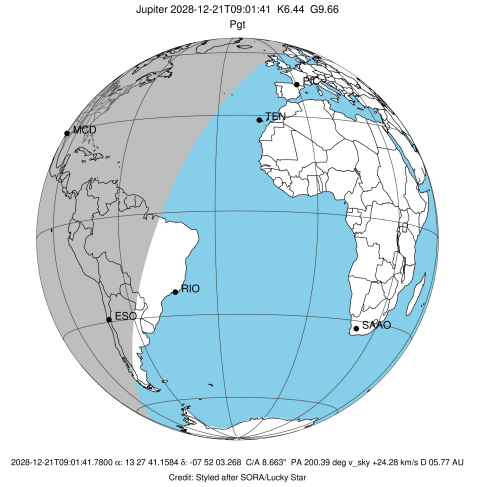


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-12-21T08:15:34.562	-5.77x	-70.61	71488.6	34.30	37.87
Jupiter	E	2028-12-21T09:39:13.788	11.92	-52.81	71489.5	28.98	32.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2028-12-21T08:59:31.610
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        : 3630412679942456064
2Mass ID (if available) : 13274116-0752030
ICRS Star Coord at Epoch: 13h 27m 41.15840s -07:52:03.26818s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 6.437
G magnitude           : 9.665
RP magnitude          : 8.724
BP magnitude          : 10.571
DUPflag              : 0
Distance (au)         : 5.772
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.28
Sun-Target sep (deg)  : 66.44
Sun-Moon sep (deg)   : 128.75
B (ring opening deg) : -2.81
PA of pole (deg)     : 23.22
Pole direction: RA (deg): 268.05755
Dec (deg): 64.49657
C/A sky separation (") : 7.757
C/A sky separation (km) : 32475.2
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	2028-12-21T08:15:26.297	31.12	-16.43	71489.4	29.51	32.85
Jupiter	E	2028-12-21T09:43:44.951	49.68	-0.32x	71490.1	24.49	27.48