

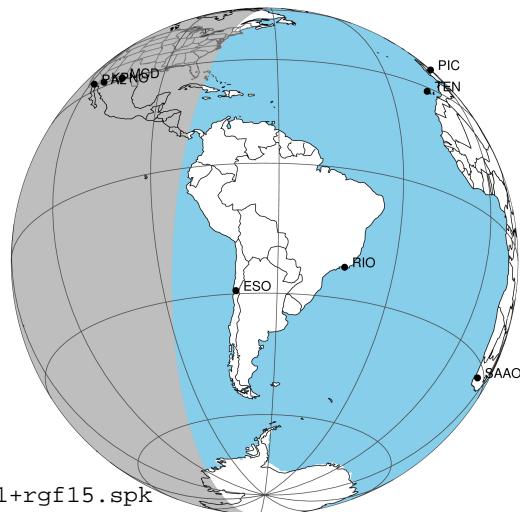
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-02-22T11:42:44.950
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116786660718119680
 2Mass ID (if available) : 17363613-2247205

Jupiter 2031-02-22T11:42:44 K9.08 G14.04 Pgt

ICRS Star Coord at Epoch: 17h 36m 36.12377s -22:47:20.64602s

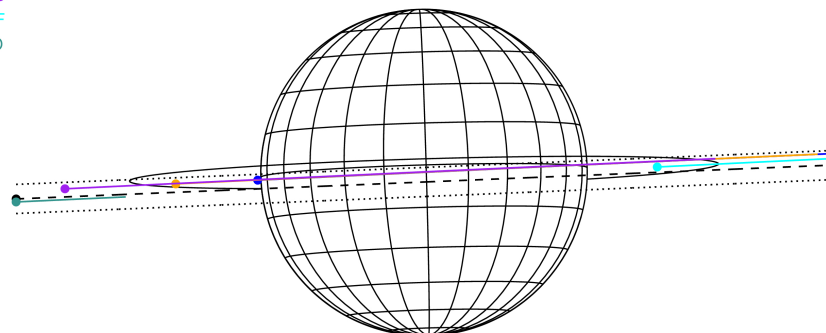
RUWE (>1.4 is poor) : 0.89
 K magnitude : 9.076
 G magnitude : 14.035
 RP magnitude : 12.750
 BP magnitude : 15.843
 DUPflag : 0
 Distance (au) : 5.598
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 24.01
 Sun-Target sep (deg) : 68.61
 Sun-Moon sep (deg) : 79.57
 B (ring opening deg) : -2.66
 PA of pole (deg) : 1.68
 Pole direction: RA (deg): 268.05702
 Dec (deg): 64.49651
 C/A sky separation (") : 1.026
 C/A sky separation (km) : 4164.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-02-22T11:42:44 K9.08 G14.04
 Pgt



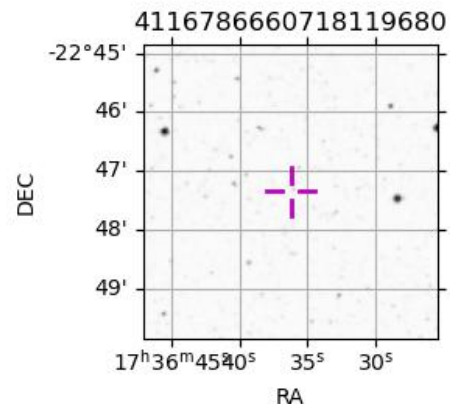
2031-02-22T11:42:44.9500 @: 17 36 36.1238 @: -22 47 20.646 C/A 1.036" PA 2.37 deg v_sky +24.01 km/s D 05.60 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO



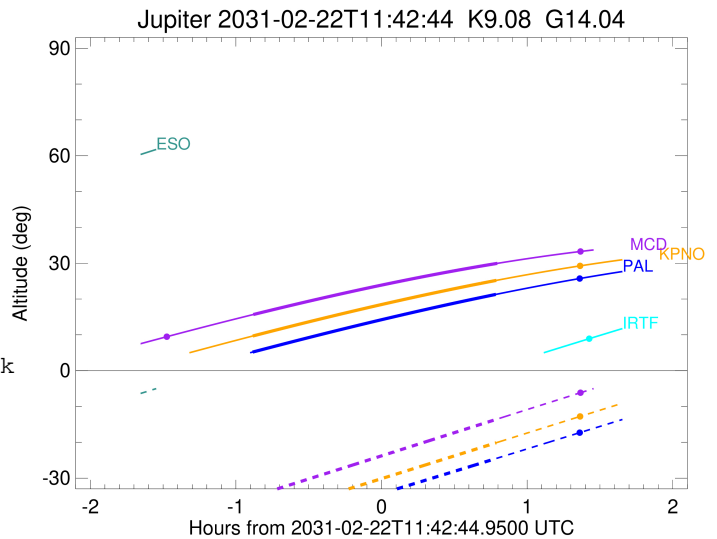
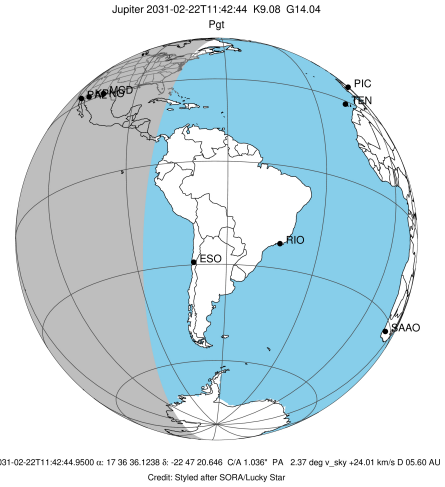
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	FEB 22 10:49 - FEB 22 12:29	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	FEB 22 10:49 - FEB 22 12:30	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	FEB 22 10:49 - FEB 22 12:30	Pie
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			Pnn
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            : 2031-02-22T11:39:37.390
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4116786660718119680
2Mass ID (if available) : 17363613-2247205
ICRS Star Coord at Epoch: 17h 36m 36.12377s -22:47:20.64602s
RUWE (>1.4 is poor) : 0.89
K magnitude          : 9.076
G magnitude          : 14.035
RP magnitude         : 12.750
BP magnitude         : 15.843
DUPflag             : 0
Distance (au)       : 5.598
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 24.01
Sun-Target sep (deg) : 68.61
Sun-Moon sep (deg)  : 79.92
B (ring opening deg) : -2.66
PA of pole (deg)    : 1.68
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 0.021
C/A sky separation (km) : 85.7
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
    
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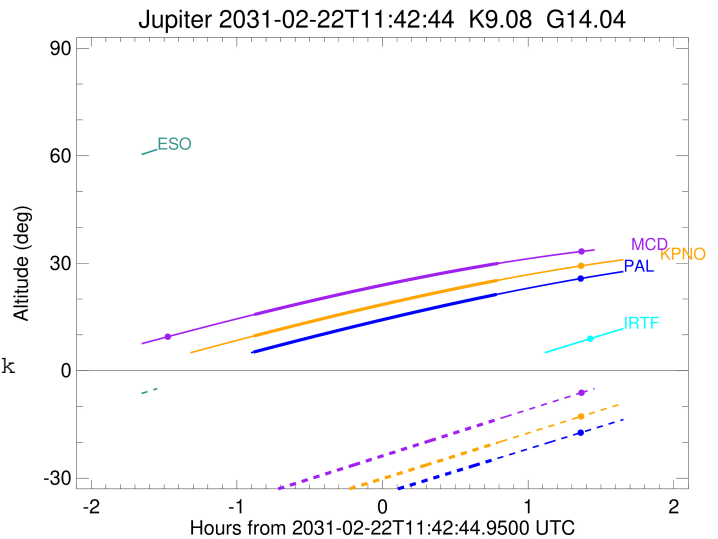
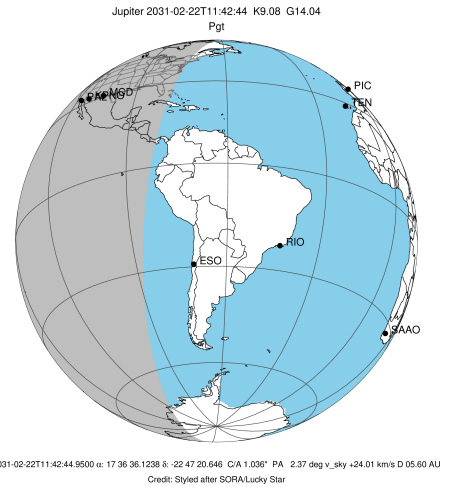


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-22T10:49:37.521	5.18	-45.01	71492.0	-0.96	-1.09
Jupiter	E	2031-02-22T12:29:48.232	21.28	-24.55	71492.0	1.05	1.20

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-22T11:39:47.390
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        : 4116786660718119680
2Mass ID (if available) : 17363613-2247205
ICRS Star Coord at Epoch: 17h 36m 36.12377s -22:47:20.64602s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 9.076
G magnitude           : 14.035
RP magnitude          : 12.750
BP magnitude          : 15.843
DUPflag              : 0
Distance (au)         : 5.598
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.01
Sun-Target sep (deg) : 68.61
Sun-Moon sep (deg)   : 79.98
B (ring opening deg) : -2.66
PA of pole (deg)     : 1.68
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 0.036
C/A sky separation (km) : 146.8
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
    
```

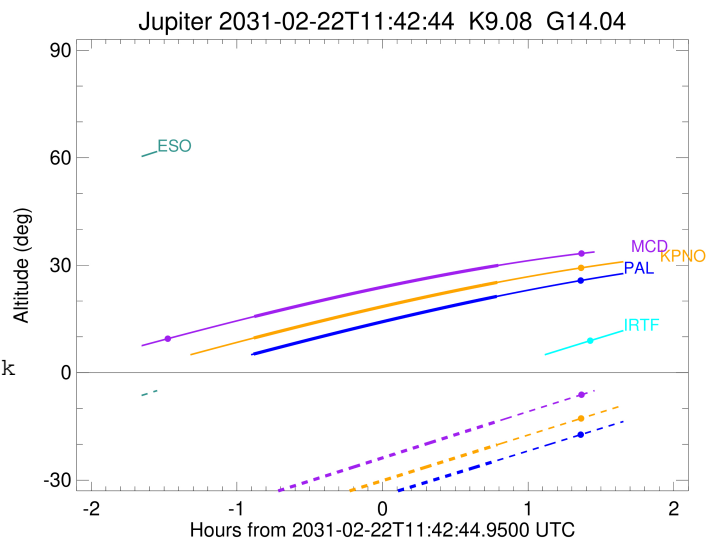
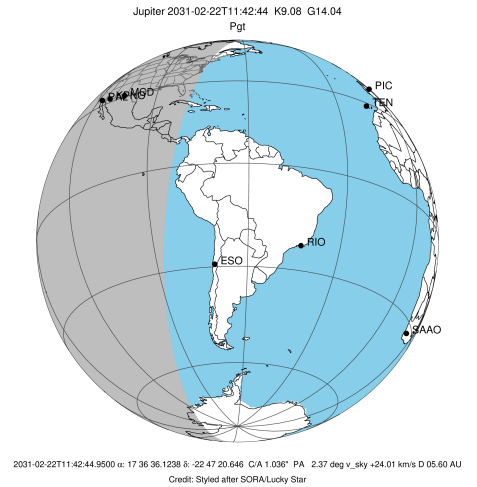


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-22T10:49:43.219	9.68	-41.20	71492.0	-0.90	-1.03
Jupiter	E	2031-02-22T12:30:02.101	25.19	-20.12	71492.0	1.08	1.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-22T11:40:06.350
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        : 4116786660718119680
2Mass ID (if available) : 17363613-2247205
ICRS Star Coord at Epoch: 17h 36m 36.12377s -22:47:20.64602s
RUWE (>1.4 is poor) : 0.89
K magnitude           : 9.076
G magnitude           : 14.035
RP magnitude          : 12.750
BP magnitude          : 15.843
DUPflag              : 0
Distance (au)         : 5.598
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.01
Sun-Target sep (deg)  : 68.61
Sun-Moon sep (deg)    : 80.05
B (ring opening deg) : -2.66
PA of pole (deg)      : 1.68
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 0.067
C/A sky separation (km) : 273.4
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	2031-02-22T10:49:56.453	15.67	-35.10	71492.0	-0.77	-0.89
Jupiter	E	2031-02-22T12:30:25.922	29.94	-13.51	71492.0	1.15	1.32