

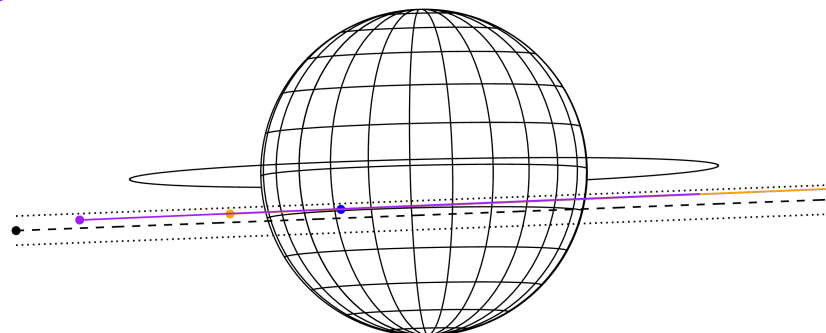
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-02-04T12:24:46.200
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116561570079924736
 2Mass ID (if available) : 17394689-2253326

Jupiter 2043-02-04T12:24:46 K9.32 G14.20 Pgt

ICRS Star Coord at Epoch: 17h 39m 46.90018s -22:53:32.55716s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 9.322
 G magnitude : 14.197
 RP magnitude : 12.977
 BP magnitude : 15.776
 DUPflag : 0
 Distance (au) : 5.897
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 32.51
 Sun-Target sep (deg) : 49.63
 Sun-Moon sep (deg) : 15.55
 B (ring opening deg) : -2.58
 PA of pole (deg) : 1.34
 Pole direction: RA (deg): 268.05661
 Dec (deg): 64.49732
 C/A sky separation (") : 4.355
 C/A sky separation (km) : 18626.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



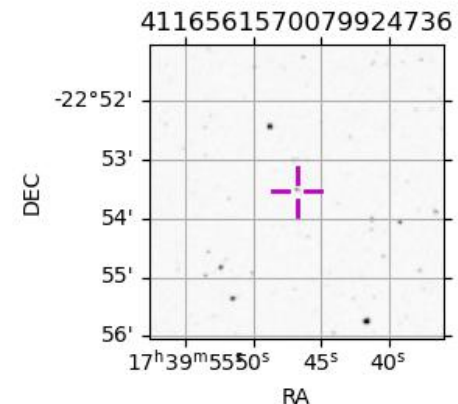
Earth
 PAL
 KPNO
 MCD



2043-02-04T12:24:46.2000 α: 17 39 46.9002 δ: -22 53 32.557 C/A 4.364" PA 2.18 deg v_sky +32.51 km/s D 05.90 AU
 Credit: Styled after SORA/Lucky Star

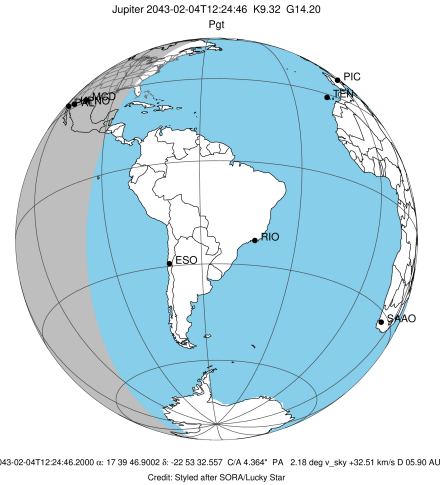
Observable events with sun below -5 deg and altitude above 5 deg

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	+	FEB 04 12:58 - FEB 04 12:58	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	FEB 04 11:46 - FEB 04 12:58	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	FEB 04 11:46 - FEB 04 12:58	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

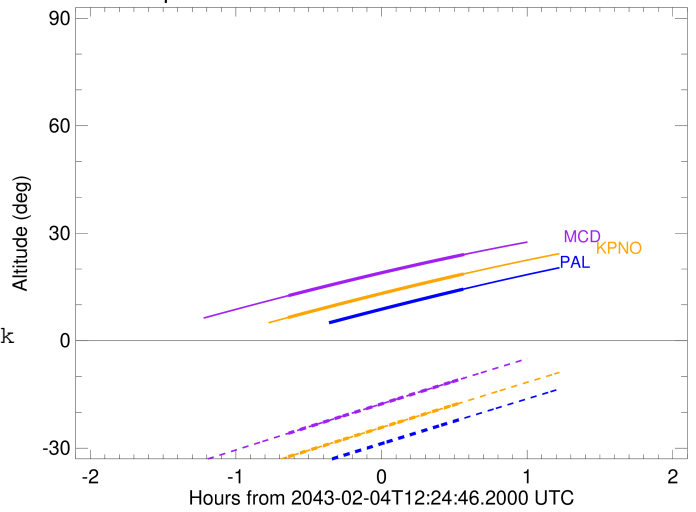


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-04T12:22:18.650
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4116561570079924736
2Mass ID (if available) : 17394689-2253326
ICRS Star Coord at Epoch: 17h 39m 46.90018s -22:53:32.55716s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 9.322
G magnitude          : 14.197
RP magnitude         : 12.977
BP magnitude         : 15.776
DUPflag             : 0
Distance (au)        : 5.897
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.51
Sun-Target sep (deg) : 49.63
Sun-Moon sep (deg)  : 15.15
B (ring opening deg) : -2.58
PA of pole (deg)    : 1.34
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation ("): 3.416
C/A sky separation (km): 14608.8
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
    
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Jupiter 2043-02-04T12:24:46 K9.32 G14.20

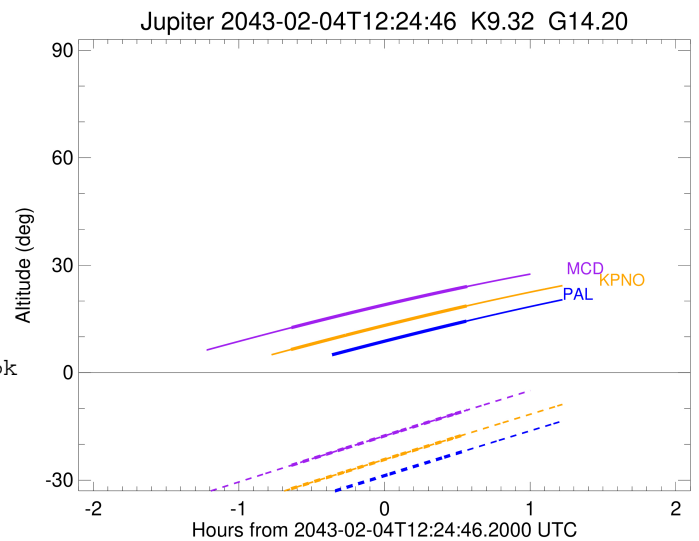
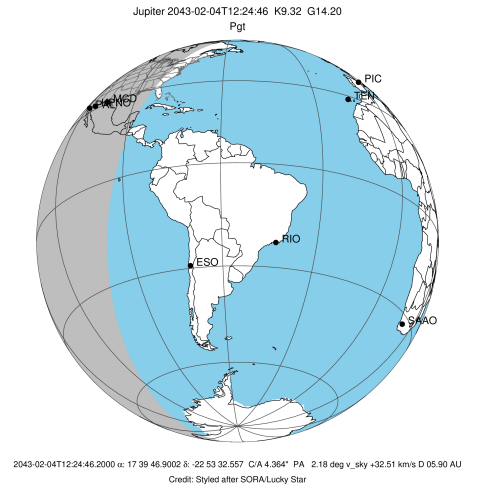


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-04T11:46:16.637	1.94x	-36.79	71491.5	-12.88	-14.64
Jupiter	E	2043-02-04T12:58:24.964	14.37	-21.71	71491.7	-10.70	-12.19

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-02-04T12:22:24.000
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        : 4116561570079924736
2Mass ID (if available) : 17394689-2253326
ICRS Star Coord at Epoch: 17h 39m 46.90018s -22:53:32.55716s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 9.322
G magnitude           : 14.197
RP magnitude          : 12.977
BP magnitude          : 15.776
DUPflag              : 0
Distance (au)         : 5.897
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 32.51
Sun-Target sep (deg) : 49.63
Sun-Moon sep (deg)   : 15.20
B (ring opening deg) : -2.58
PA of pole (deg)     : 1.34
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (") : 3.400
C/A sky separation (km) : 14539.4
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
    
```

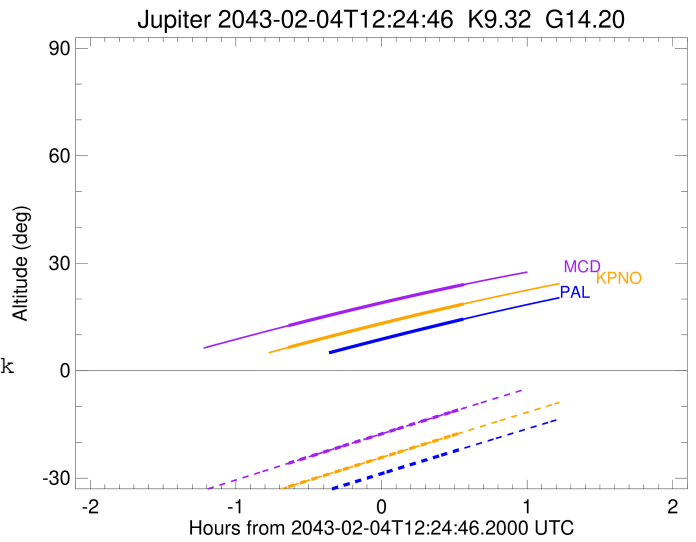
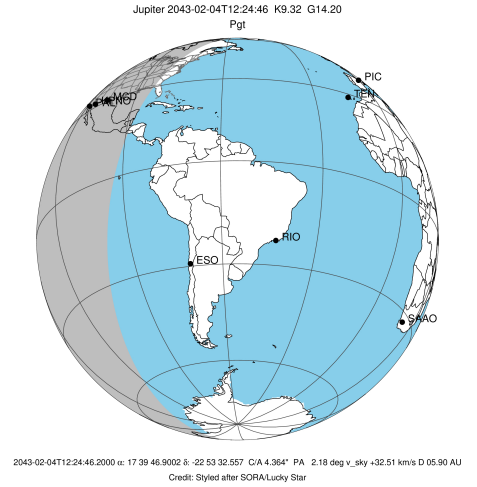


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-04T11:46:19.202	6.47	-32.40	71491.6	-12.82	-14.58
Jupiter	E	2043-02-04T12:58:32.994	18.62	-17.11	71491.7	-10.65	-12.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-04T12:22:35.260
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      : 4116561570079924736
2Mass ID (if available) : 17394689-2253326
ICRS Star Coord at Epoch: 17h 39m 46.90018s -22:53:32.55716s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 9.322
G magnitude          : 14.197
RP magnitude         : 12.977
BP magnitude         : 15.776
DUPflag             : 0
Distance (au)        : 5.897
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 32.51
Sun-Target sep (deg) : 49.63
Sun-Moon sep (deg)  : 15.28
B (ring opening deg) : -2.58
PA of pole (deg)    : 1.34
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (" ) : 3.366
C/A sky separation (km) : 14396.1
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	2043-02-04T11:46:26.350	12.58	-25.85	71491.6	-12.69	-14.43
Jupiter	E	2043-02-04T12:58:48.095	24.05	-10.44	71491.7	-10.55	-12.02