

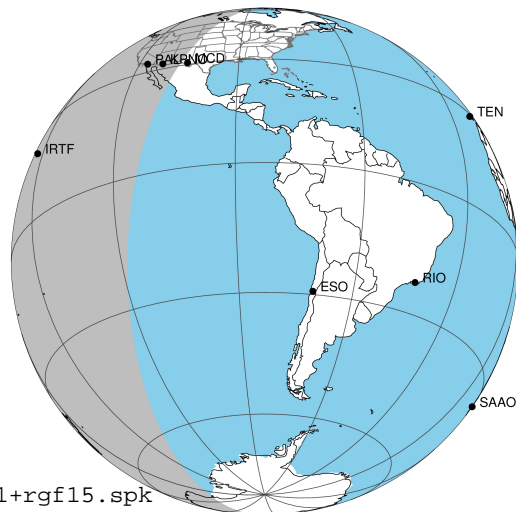
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-02-13T13:48:34.550  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068841945194267520  
 2Mass ID (if available) : 17464064-2256429

Jupiter 2043-02-13T13:48:34 K9.65 G14.18 Pgt

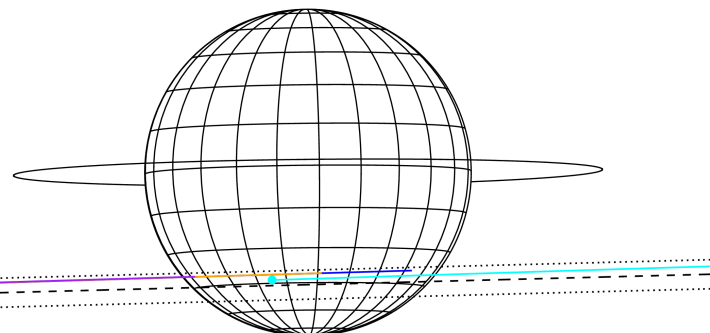
ICRS Star Coord at Epoch: 17h 46m 40.64630s -22:56:43.01382s

RUWE (>1.4 is poor) : 0.87  
 K magnitude : 9.652  
 G magnitude : 14.182  
 RP magnitude : 13.011  
 BP magnitude : 15.658  
 DUPflag : 0  
 Distance (au) : 5.778  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 29.32  
 Sun-Target sep (deg) : 57.22  
 Sun-Moon sep (deg) : 105.83  
 B (ring opening deg) : -2.55  
 PA of pole (deg) : 0.60  
 Pole direction: RA (deg): 268.05661  
 Dec (deg): 64.49732  
 C/A sky separation (") : 11.724  
 C/A sky separation (km) : 49131.2  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-02-13T13:48:34 K9.65 G14.18  
 Pgt



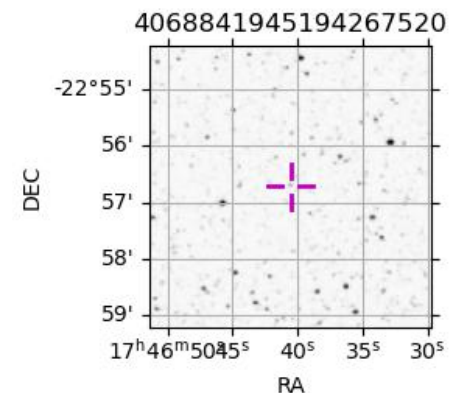
Earth  
 PAL  
 KPNO  
 MCD  
 IRTF



2043-02-13T13:48:34.5500 α: 17 46 40.6463 δ: -22 56 43.014 C/A \*\*\*\*\* PA 1.49 deg v\_sky +29.32 km/s D 05.78 AU  
 Credit: Styled after SORA/Lucky Star

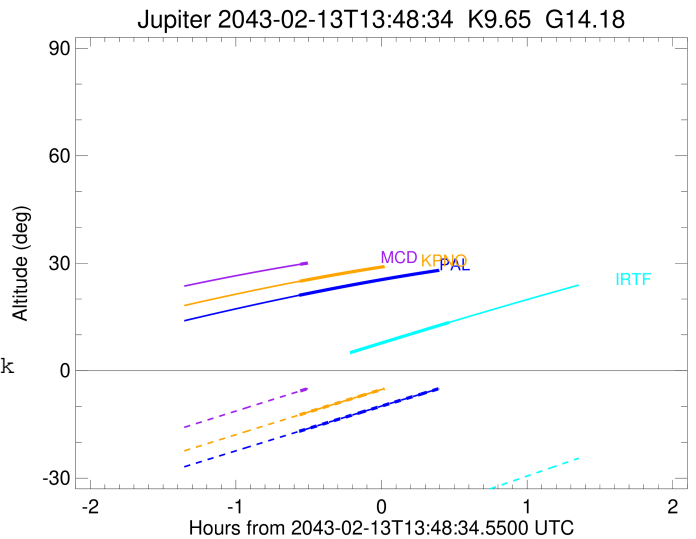
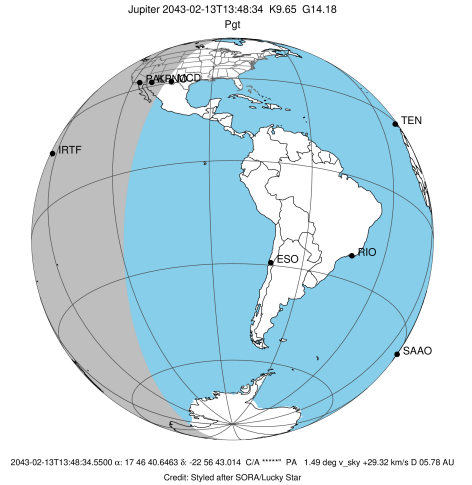
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+	FEB 13 13:14 - FEB 13 13:14	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	FEB 13 13:14 - FEB 13 13:14	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	FEB 13 13:15 - FEB 13 13:15	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	FEB 13 14:16 - FEB 13 14:16	Pne
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            : 2043-02-13T13:46:54.150
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       : 4068841945194267520
2Mass ID (if available) : 17464064-2256429
ICRS Star Coord at Epoch: 17h 46m 40.64630s -22:56:43.01382s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.652
G magnitude          : 14.182
RP magnitude         : 13.011
BP magnitude         : 15.658
DUPflag             : 0
Distance (au)        : 5.778
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 29.32
Sun-Target sep (deg) : 57.22
Sun-Moon sep (deg)   : 106.11
B (ring opening deg) : -2.55
PA of pole (deg)     : 0.60
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (") : 10.561
C/A sky separation (km) : 44258.6
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
    
```

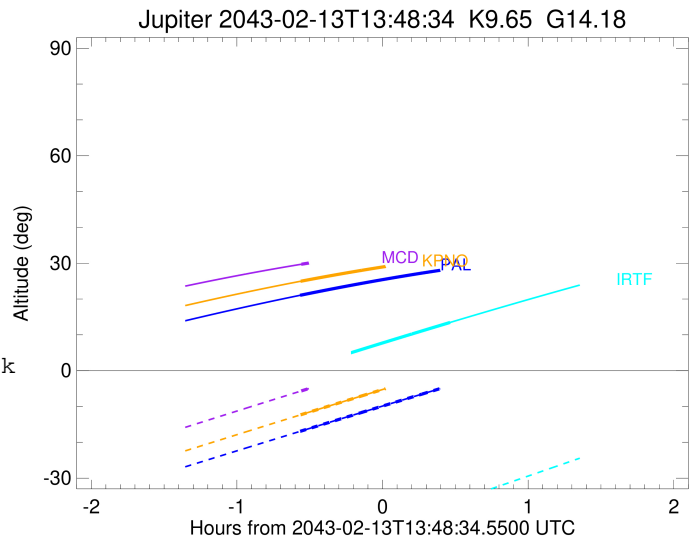
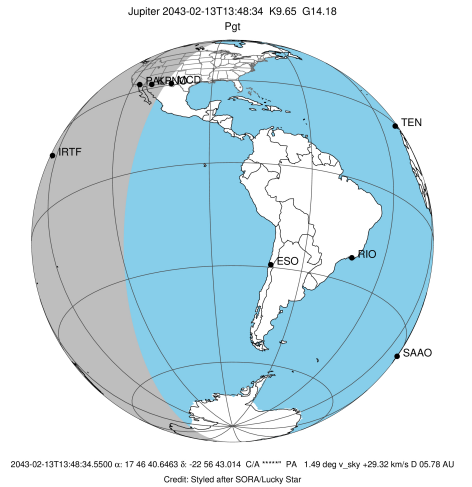


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-13T13:14:40.301	21.04	-16.93	71488.4	-39.29	-42.99
Jupiter	E	2043-02-13T14:19:10.706	28.69	-3.61x	71488.7	-37.15	-40.81

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-13T13:47:06.650
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      : 4068841945194267520
2Mass ID (if available) : 17464064-2256429
ICRS Star Coord at Epoch: 17h 46m 40.64630s -22:56:43.01382s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.652
G magnitude          : 14.182
RP magnitude         : 13.011
BP magnitude         : 15.658
DUPflag             : 0
Distance (au)       : 5.778
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 29.32
Sun-Target sep (deg) : 57.22
Sun-Moon sep (deg)  : 106.18
B (ring opening deg) : -2.55
PA of pole (deg)    : 0.60
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (") : 10.557
C/A sky separation (km) : 44241.1
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
    
```

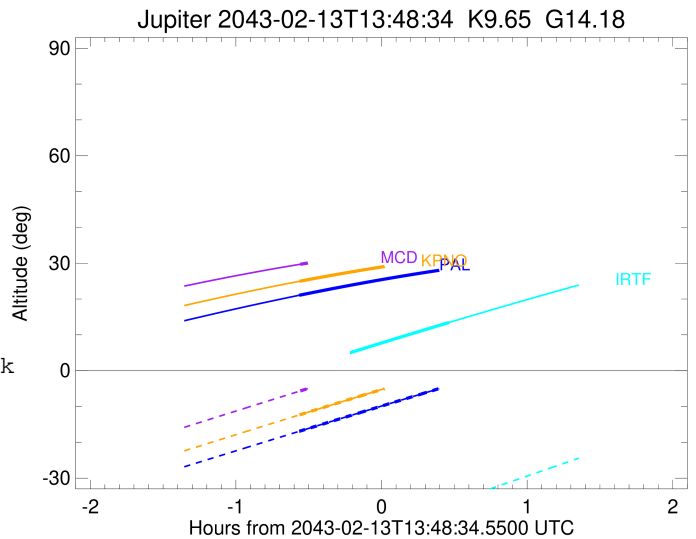
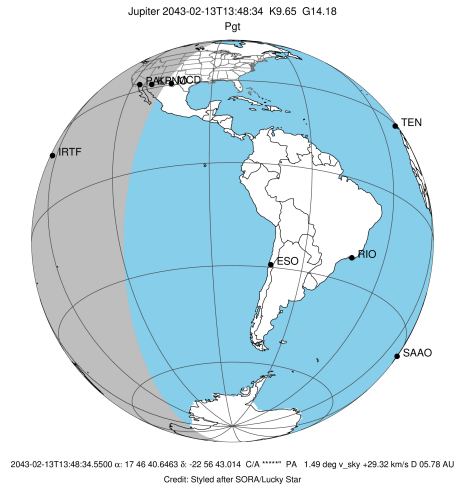


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-13T13:14:50.614	24.96	-12.32	71488.4	-39.26	-42.96
Jupiter	E	2043-02-13T14:19:25.149	31.83	1.09x	71488.7	-37.16	-40.82

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-02-13T13:47:27.230
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        : 4068841945194267520
2Mass ID (if available) : 17464064-2256429
ICRS Star Coord at Epoch: 17h 46m 40.64630s -22:56:43.01382s
RUWE (>1.4 is poor)  : 0.87
K magnitude           : 9.652
G magnitude           : 14.182
RP magnitude          : 13.011
BP magnitude          : 15.658
DUPflag              : 0
Distance (au)         : 5.778
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 29.32
Sun-Target sep (deg)  : 57.22
Sun-Moon sep (deg)   : 106.26
B (ring opening deg) : -2.55
PA of pole (deg)     : 0.60
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (") : 10.546
C/A sky separation (km) : 44194.6
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
    
```

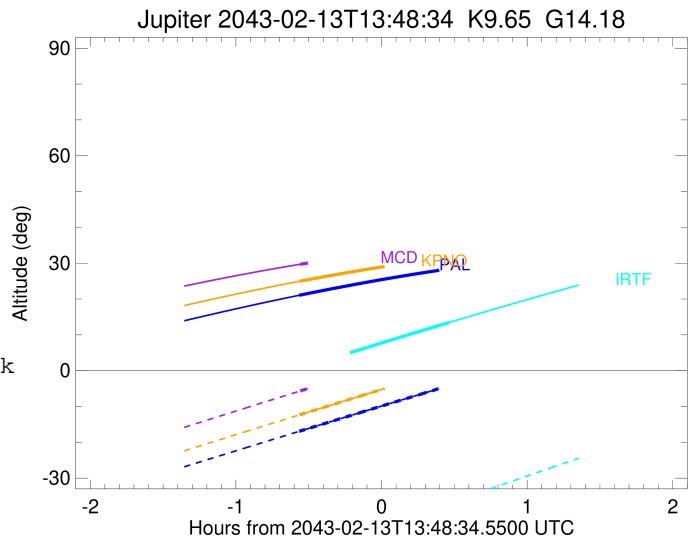
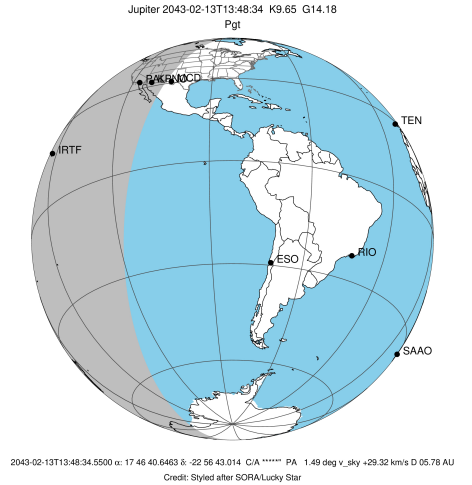


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-13T13:15:07.916	29.70	-5.65	71488.4	-39.18	-42.88
Jupiter	E	2043-02-13T14:19:48.588	35.13	7.73x	71488.7	-37.14	-40.80

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-13T13:45:25.880
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 4068841945194267520
2Mass ID (if available) : 17464064-2256429
ICRS Star Coord at Epoch: 17h 46m 40.64630s -22:56:43.01382s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.652
G magnitude           : 14.182
RP magnitude         : 13.011
BP magnitude         : 15.658
DUPflag             : 0
Distance (au)        : 5.778
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 29.32
Sun-Target sep (deg) : 57.22
Sun-Moon sep (deg)   : 105.72
B (ring opening deg) : -2.55
PA of pole (deg)     : 0.60
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49732
C/A sky separation (") : 11.117
C/A sky separation (km) : 46587.1
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	2043-02-13T13:14:31.094	0.52x	-51.54	71488.0	-41.84	-45.56
Jupiter	E	2043-02-13T14:16:24.836	13.45	-36.98	71488.4	-39.41	-43.11