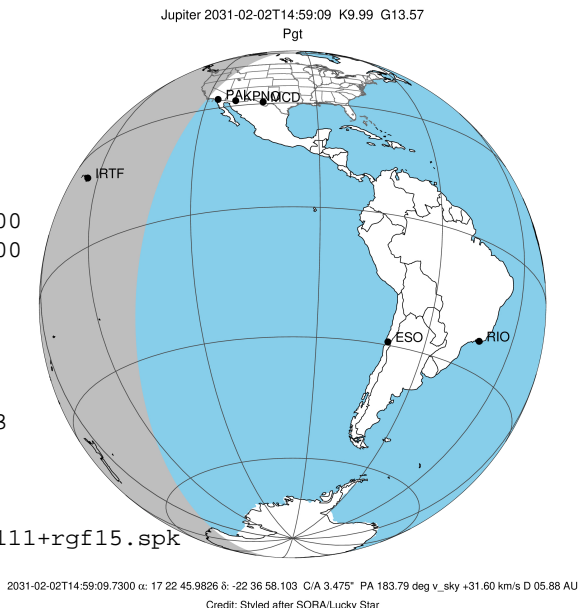


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-02-02T14:59:09.730
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114652238127704960
 2Mass ID (if available) : 17224598-2236579

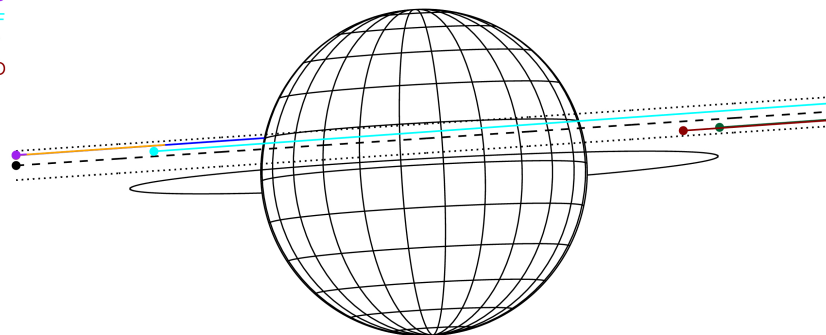
Jupiter 2031-02-02T14:59:09 K9.99 G13.57 Pgt

ICRS Star Coord at Epoch: 17h 22m 45.98265s -22:36:58.10322s

RUWE (>1.4 is poor) : 1.09
 K magnitude : 9.988
 G magnitude : 13.574
 RP magnitude : 12.575
 BP magnitude : 14.602
 DUPflag : 0
 Distance (au) : 5.878
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 31.60
 Sun-Target sep (deg) : 51.72
 Sun-Moon sep (deg) : 177.55
 B (ring opening deg) : -2.70
 PA of pole (deg) : 3.17
 Pole direction: RA (deg): 268.05703
 Dec (deg): 64.49651
 C/A sky separation (") : 3.484
 C/A sky separation (km) : 14852.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



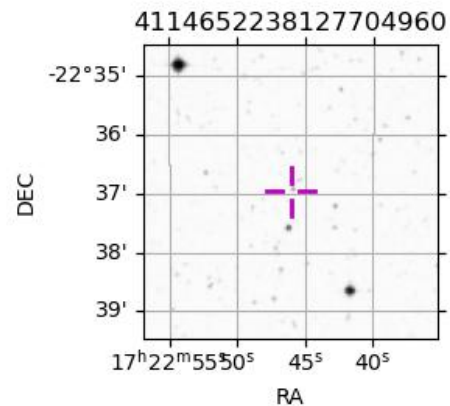
Earth
 PAL
 KPNO
 MCD
 IRTF
 AAT
 MSO



2031-02-02T14:59:09.7300 cc: 17 22 45.9826 6: -22 36 58.103 C/A 3.4757 PA 183.79 deg v_sky +31.60 km/s D 05.88 AU
 Credit: Styled after SORA/Lucky Star

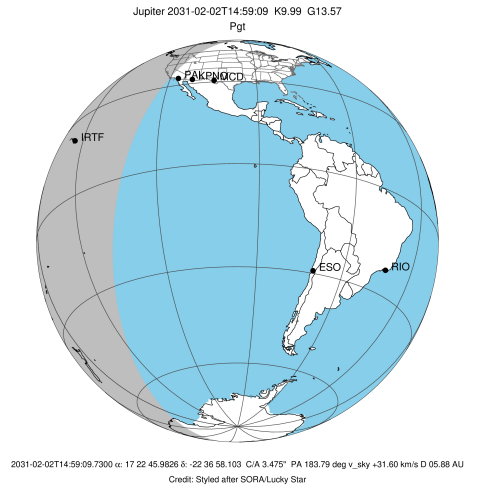
Observable events with sun below -5 deg and altitude above 5 deg

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 02 14:21 - FEB 02 14:21	Pin
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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	FEB 02 14:19 - FEB 02 15:33	Pie
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

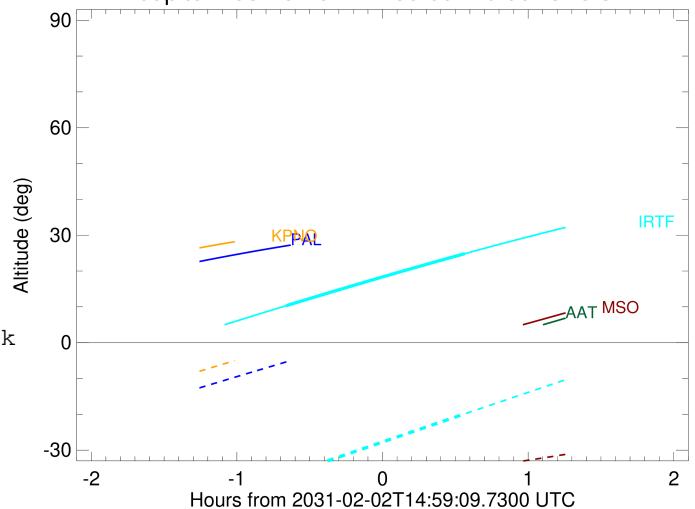


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-02T14:57:57.820
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        : 4114652238127704960
2Mass ID (if available) : 17224598-2236579
ICRS Star Coord at Epoch: 17h 22m 45.98265s -22:36:58.10322s
RUWE (>1.4 is poor)  : 1.09
K magnitude           : 9.988
G magnitude           : 13.574
RP magnitude          : 12.575
BP magnitude          : 14.602
DUPflag              : 0
Distance (au)         : 5.878
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 31.60
Sun-Target sep (deg)  : 51.72
Sun-Moon sep (deg)    : 177.01
B (ring opening deg)  : -2.70
PA of pole (deg)      : 3.17
Pole direction: RA (deg): 268.05703
Dec (deg): 64.49651
C/A sky separation (") : 4.659
C/A sky separation (km) : 19860.5
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
    
```



Jupiter 2031-02-02T14:59:09 K9.99 G13.57

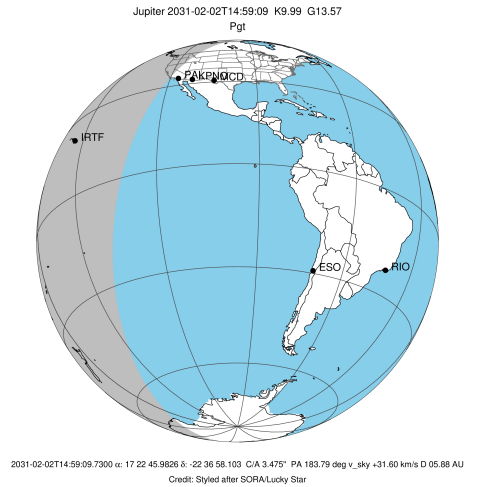


x: target alt < 5.0 deg or sun > -5.0 deg

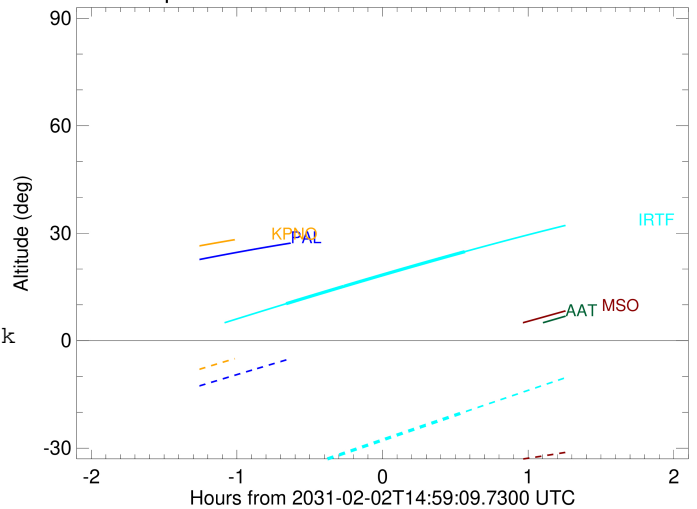
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-02T14:21:20.610	27.23	-5.00	71491.3	15.33	17.40
Jupiter	E	2031-02-02T15:34:37.455	33.06	9.23x	71491.2	16.85	19.09

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-02T14:56:16.440
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       : 4114652238127704960
2Mass ID (if available) : 17224598-2236579
ICRS Star Coord at Epoch: 17h 22m 45.98265s -22:36:58.10322s
RUWE (>1.4 is poor) : 1.09
K magnitude          : 9.988
G magnitude          : 13.574
RP magnitude         : 12.575
BP magnitude         : 14.602
DUPflag             : 0
Distance (au)        : 5.878
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.60
Sun-Target sep (deg) : 51.72
Sun-Moon sep (deg)  : 176.72
B (ring opening deg) : -2.70
PA of pole (deg)    : 3.17
Pole direction: RA (deg): 268.05703
Dec (deg): 64.49651
C/A sky separation (") : 4.143
C/A sky separation (km) : 17663.5
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
    
```



Jupiter 2031-02-02T14:59:09 K9.99 G13.57



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	2031-02-02T14:19:32.132	10.33	-36.97	71491.5	13.37	15.20
Jupiter	E	2031-02-02T15:33:05.842	24.85	-19.87	71491.3	15.19	17.23