

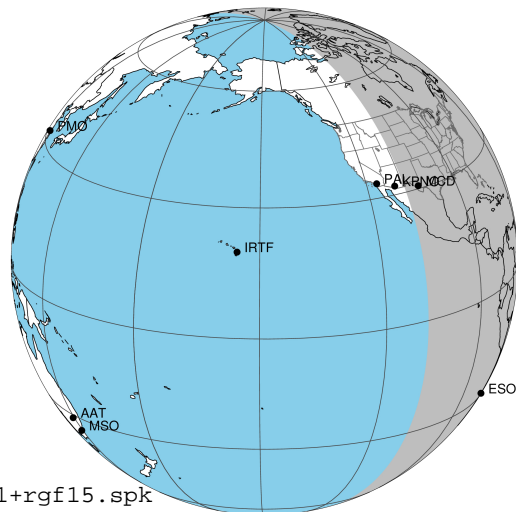
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2048-03-21T01:22:04.760
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 55830486039880576
 2Mass ID (if available) : 03210788+1740376

Jupiter 2048-03-21T01:22:04 K8.83 G10.32 Pgt

ICRS Star Coord at Epoch: 03h 21m 07.92775s +17:40:34.99387s

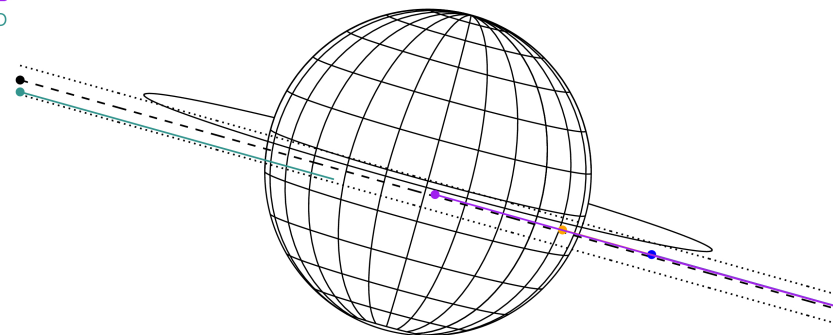
RUWE (>1.4 is poor) : 1.05
 K magnitude : 8.828
 G magnitude : 10.323
 RP magnitude : 9.763
 BP magnitude : 10.579
 DUPflag : 0
 Distance (au) : 5.574
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 31.43
 Sun-Target sep (deg) : 52.06
 Sun-Moon sep (deg) : 20.59
 B (ring opening deg) : 2.88
 PA of pole (deg) : -15.31
 Pole direction: RA (deg): 268.05727
 Dec (deg): 64.49723
 C/A sky separation (") : 2.289
 C/A sky separation (km) : 9252.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2048-03-21T01:22:04 K8.83 G10.32
 Pgt



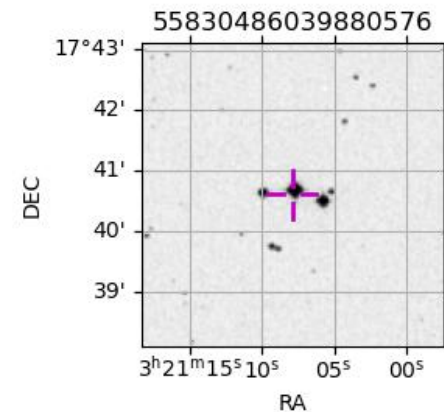
2048-03-21T01:22:04.7600 ex: 03 21 07.9277 8: +17 40 34.994 C/A 2.279" PA 344.33 deg v_sky +31.43 km/s D 05.57 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PAL
 KPNO
 MCD
 ESO



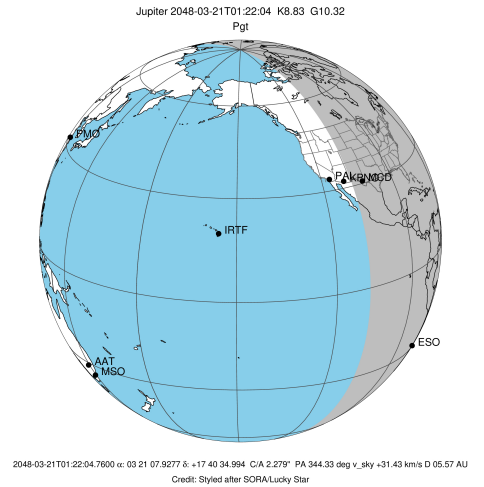
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 21 02:02 - MAR 21 02:02	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 21 02:02 - MAR 21 02:02	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	+	MAR 21 00:47 - MAR 21 00:47	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

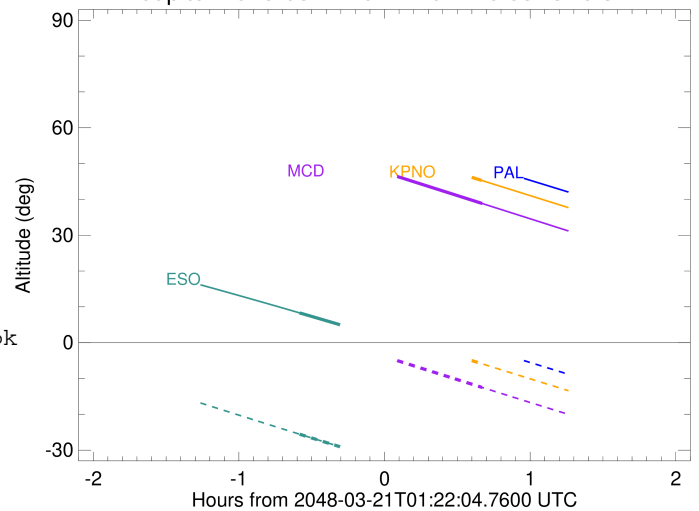


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-03-21T01:24:02.250
Event type          : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code       : KPNO
Location            : Kitt Peak Natl Obs
Latitude (deg)      : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)       : 2.120
Gaia source ID      : 55830486039880576
2Mass ID (if available) : 03210788+1740376
ICRS Star Coord at Epoch: 03h 21m 07.92775s +17:40:34.99387s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 8.828
G magnitude          : 10.323
RP magnitude         : 9.763
BP magnitude         : 10.579
DUPflag             : 0
Distance (au)       : 5.574
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.43
Sun-Target sep (deg) : 52.06
Sun-Moon sep (deg)  : 20.35
B (ring opening deg) : 2.88
PA of pole (deg)    : -15.31
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49723
C/A sky separation (") : 2.058
C/A sky separation (km) : 8320.7
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
    
```



Jupiter 2048-03-21T01:22:04 K8.83 G10.32

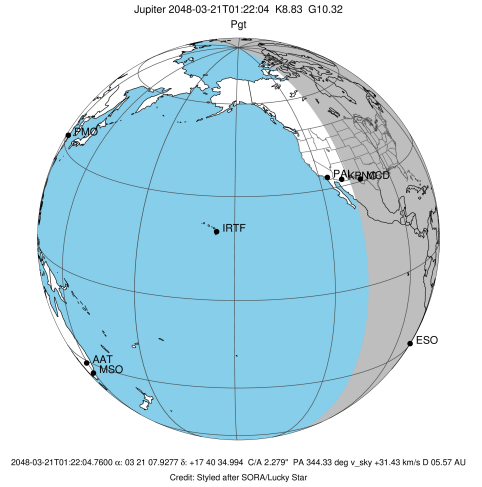


x: target alt < 5.0 deg or sun > -5.0 deg

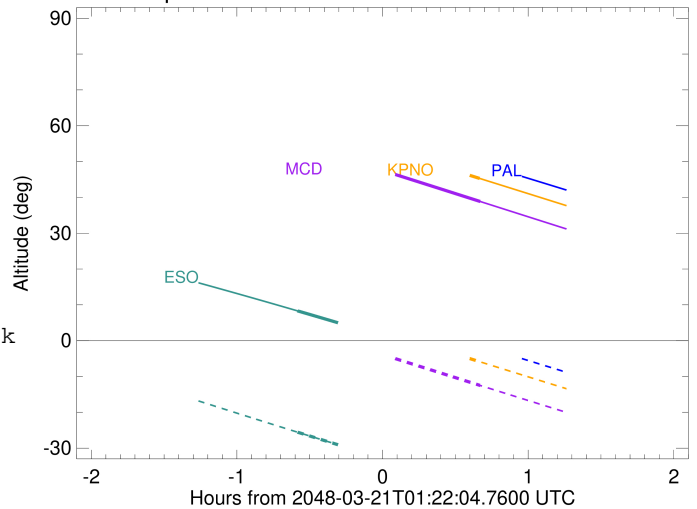
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-03-21T00:45:58.390	61.00	10.28x	71491.9	-6.28	-7.17
Jupiter	E	2048-03-21T02:02:02.833	45.29	-5.85	71491.8	-7.02	-8.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-03-21T01:24:20.780
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      : 55830486039880576
2Mass ID (if available) : 03210788+1740376
ICRS Star Coord at Epoch: 03h 21m 07.92775s +17:40:34.99387s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 8.828
G magnitude          : 10.323
RP magnitude         : 9.763
BP magnitude         : 10.579
DUPflag             : 0
Distance (au)       : 5.574
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.43
Sun-Target sep (deg) : 52.06
Sun-Moon sep (deg)  : 20.25
B (ring opening deg) : 2.88
PA of pole (deg)    : -15.31
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49723
C/A sky separation (") : 2.094
C/A sky separation (km) : 8465.0
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 2048-03-21T01:22:04 K8.83 G10.32

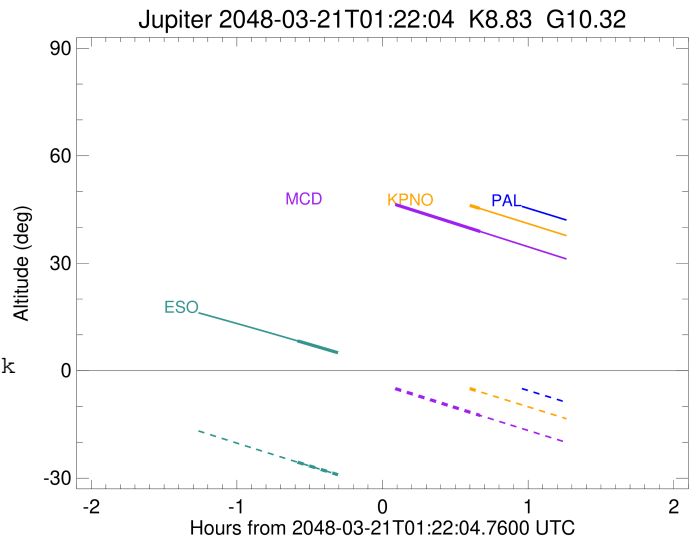
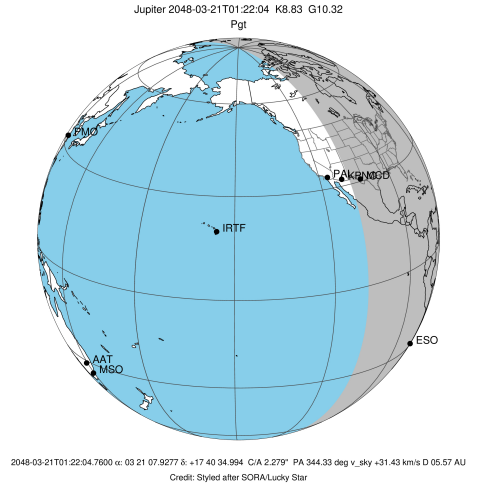


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2048-03-21T00:46:19.139	55.12	3.82x	71491.9	-6.43	-7.34
Jupiter	E	2048-03-21T02:02:18.614	38.85	-12.49	71491.8	-7.10	-8.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2048-03-21T01:24:25.790
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       : 55830486039880576
2Mass ID (if available) : 03210788+1740376
ICRS Star Coord at Epoch: 03h 21m 07.92775s +17:40:34.99387s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 8.828
G magnitude           : 10.323
RP magnitude         : 9.763
BP magnitude         : 10.579
DUPflag              : 0
Distance (au)        : 5.574
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 31.43
Sun-Target sep (deg) : 52.06
Sun-Moon sep (deg)   : 20.09
B (ring opening deg) : 2.88
PA of pole (deg)     : -15.31
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49723
C/A sky separation (") : 3.432
C/A sky separation (km) : 13875.1
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	2048-03-21T00:47:04.211	8.31	-25.55	71491.6	-10.98	-12.50
Jupiter	E	2048-03-21T02:01:42.223	-6.92x	-40.75	71491.6	-11.33	-12.91