

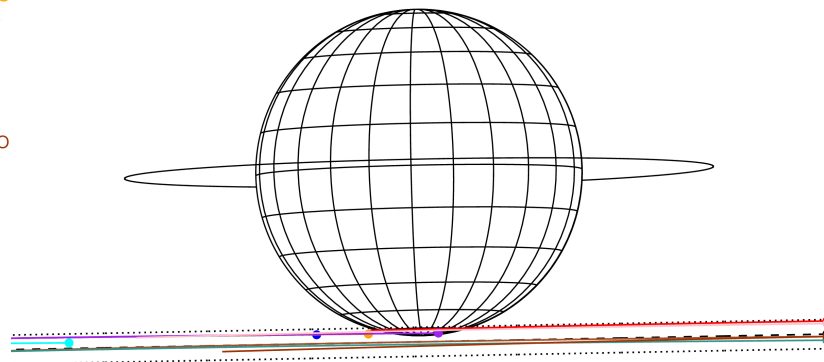
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-05-30T03:35:34.520
 Event type : Pt
 : Jupiter occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4116552812784142336
 2Mass ID (if available) : 17411204-2252394

Jupiter 2031-05-30T03:35:34 K8.37 G14.70 Pt

ICRS Star Coord at Epoch: 17h 41m 12.03110s -22:52:39.84229s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 8.365
 G magnitude : 14.700
 RP magnitude : 13.175
 BP magnitude : 18.187
 DUPflag : 0
 Distance (au) : 4.311
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.08
 Sun-Target sep (deg) : 162.46
 Sun-Moon sep (deg) : 99.71
 B (ring opening deg) : -2.60
 PA of pole (deg) : 1.19
 Pole direction: RA (deg): 268.05693
 Dec (deg): 64.49651
 C/A sky separation (") : 23.724
 C/A sky separation (km) : 74172.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLvl.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



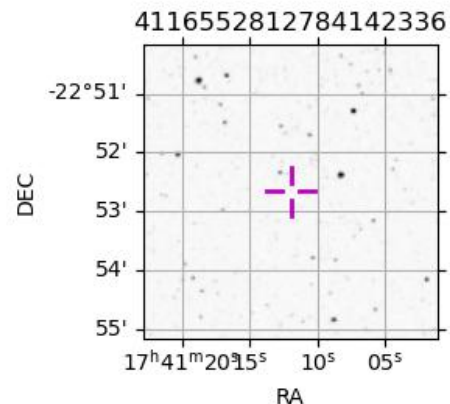
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 SAAO



2031-05-30T03:35:34.5200 α: 17 41 12.0311 δ: -22 52 39.842 C/A ***** PA 1.09 deg v_sky -15.08 km/s D 04.31 AU
 Credit: Styled after SORA/Lucky Star

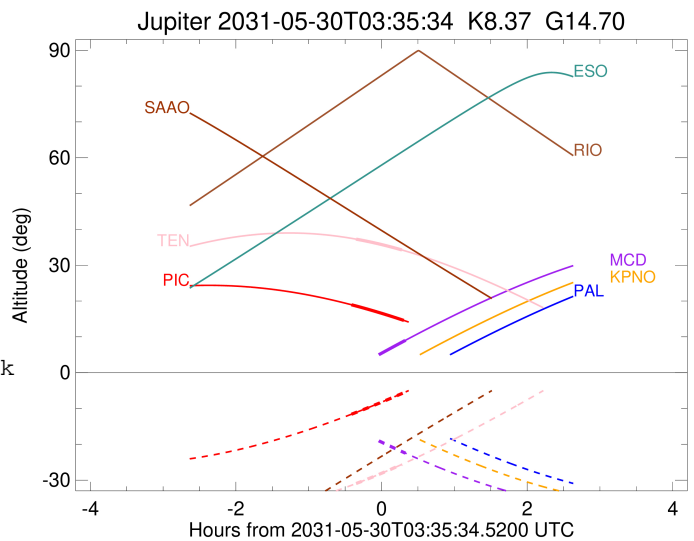
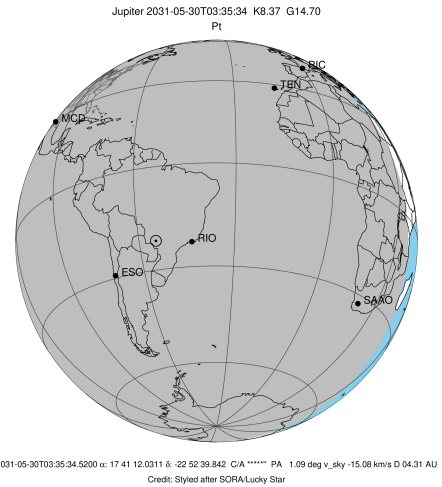
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	MAY 30 03:10 - MAY 30 03:53	Pie
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			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 30 03:55 - MAY 30 03:55	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	MAY 30 03:14 - MAY 30 03:52	Pie
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             : 2031-05-30T03:32:21.380
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 4116552812784142336
2Mass ID (if available) : 17411204-2252394
ICRS Star Coord at Epoch: 17h 41m 12.03110s -22:52:39.84229s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 8.365
G magnitude           : 14.700
RP magnitude          : 13.175
BP magnitude          : 18.187
DUPflag              : 0
Distance (au)        : 4.311
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg) : 162.46
Sun-Moon sep (deg)   : 99.89
B (ring opening deg) : -2.60
PA of pole (deg)     : 1.19
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 21.960
C/A sky separation (km) : 68656.0
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
    
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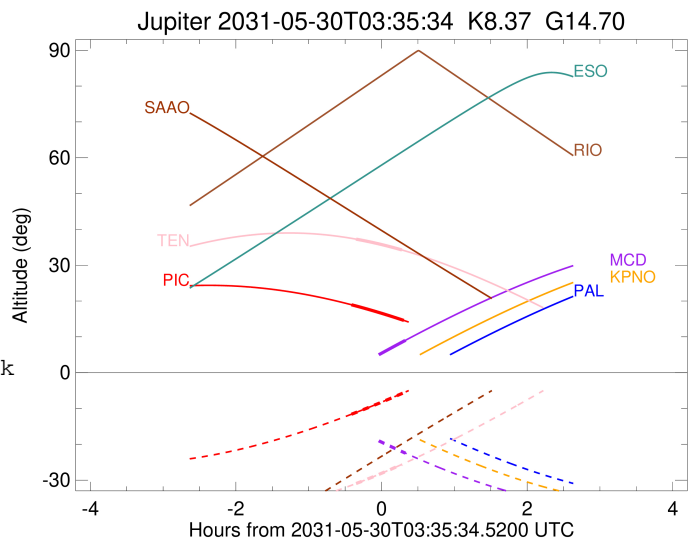
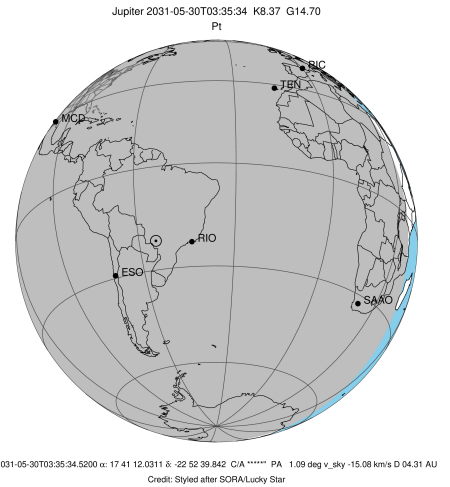


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-30T03:10:47.589	18.96	-11.61	71483.5	-73.48	-75.36
Jupiter	E	2031-05-30T03:53:56.564	14.59	-5.60	71483.4	-73.81	-75.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-30T03:41:57.990
Event type           : Pt
: Jupiter occs: topocentric, not geocentric
: 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       : 4116552812784142336
2Mass ID (if available) : 17411204-2252394
ICRS Star Coord at Epoch: 17h 41m 12.03110s -22:52:39.84229s
RUWE (>1.4 is poor) : 0.90
K magnitude          : 8.365
G magnitude          : 14.700
RP magnitude         : 13.175
BP magnitude         : 18.187
DUPflag             : 0
Distance (au)       : 4.311
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg) : 162.46
Sun-Moon sep (deg)  : 99.92
B (ring opening deg) : -2.60
PA of pole (deg)    : 1.19
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 22.529
C/A sky separation (km) : 70433.9
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
    
```

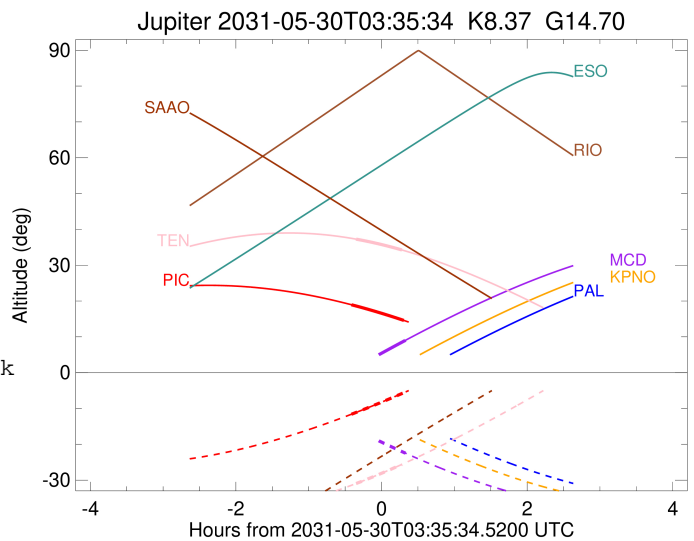
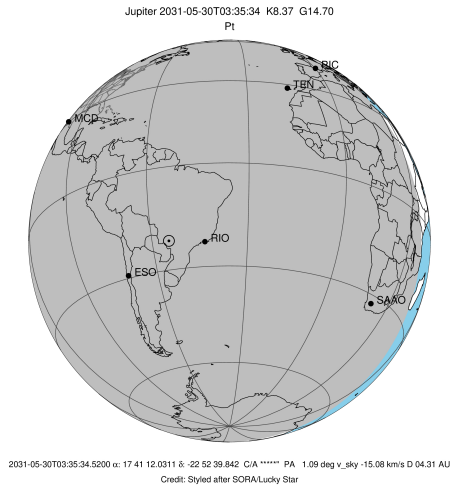


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-30T03:28:37.010	4.11x	-18.25	71483.0	-80.47	-81.58
Jupiter	E	2031-05-30T03:55:17.753	9.03	-22.47	71483.0	-79.21	-80.47

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-30T03:33:27.620
Event type            : Pt
: Jupiter occs: topocentric, not geocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 4116552812784142336
2Mass ID (if available) : 17411204-2252394
ICRS Star Coord at Epoch: 17h 41m 12.03110s -22:52:39.84229s
RUWE (>1.4 is poor)  : 0.90
K magnitude           : 8.365
G magnitude           : 14.700
RP magnitude          : 13.175
BP magnitude          : 18.187
DUPflag              : 0
Distance (au)         : 4.311
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.08
Sun-Target sep (deg)  : 162.46
Sun-Moon sep (deg)    : 100.19
B (ring opening deg)  : -2.60
PA of pole (deg)      : 1.19
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 22.167
C/A sky separation (km) : 69302.7
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
    
```



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	2031-05-30T03:14:36.996	37.27	-30.95	71483.3	-75.54	-77.20
Jupiter	E	2031-05-30T03:52:18.895	34.26	-25.61	71483.3	-75.67	-77.31