

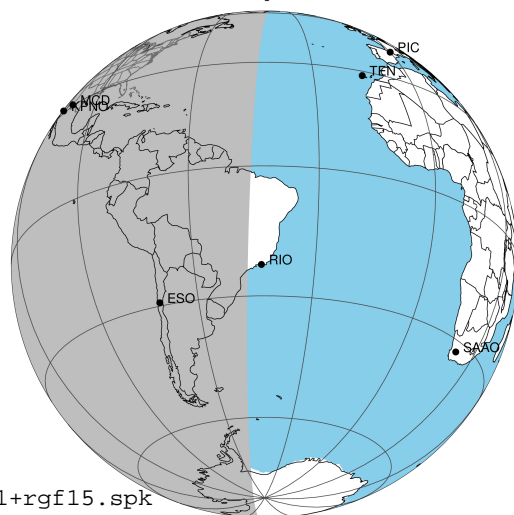
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-14T09:11:17.800
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068936674962277632
 2Mass ID (if available) : 17465327-2251395

Jupiter 2031-03-14T09:11:17 K8.04 G13.61 Pgt

ICRS Star Coord at Epoch: 17h 46m 53.27158s -22:51:39.65114s

RUWE (>1.4 is poor) : 0.82
 K magnitude : 8.044
 G magnitude : 13.610
 RP magnitude : 12.201
 BP magnitude : 16.160
 DUPflag : 0
 Distance (au) : 5.284
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 15.14
 Sun-Target sep (deg) : 86.18
 Sun-Moon sep (deg) : 28.48
 B (ring opening deg) : -2.64
 PA of pole (deg) : 0.58
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 15.894
 C/A sky separation (km) : 60912.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

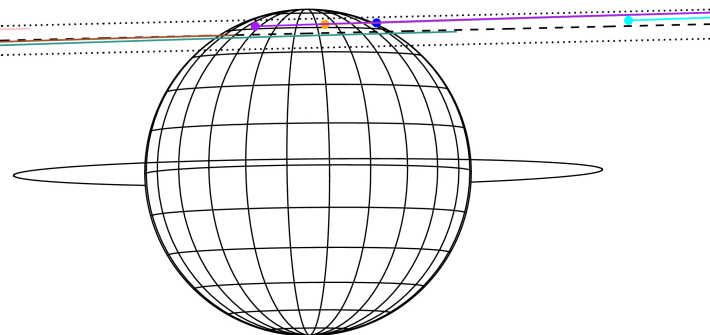
Jupiter 2031-03-14T09:11:17 K8.04 G13.61
 Pgt



2031-03-14T09:11:17.8000 α: 17 46 53.27158 δ: -22 51 39.651 C/A ***** PA 181.32 deg v_sky +15.14 km/s D 05.28 AU
 Credit: Styled after SORA/Lucky Star

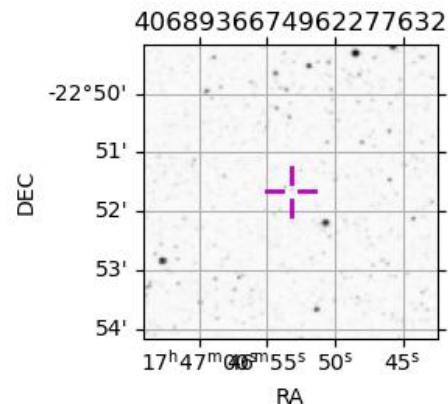
Earth

- PAL
- KPNO
- MCD
- TEN
- IRTF
- RIO
- ESO



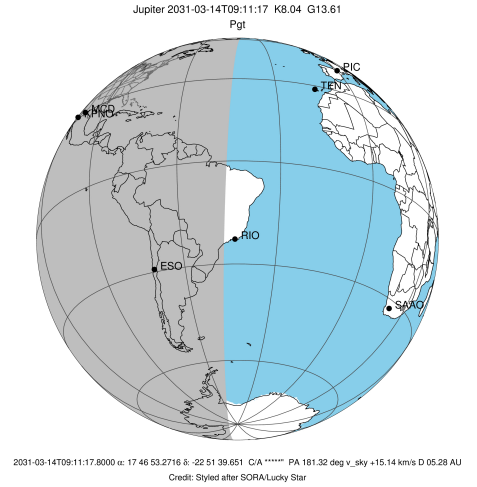
Observable events with sun below -5 deg and altitude above 5 deg

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 14 09:38 - MAR 14 09:38	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 14 09:38 - MAR 14 09:38	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	+	MAR 14 08:28 - MAR 14 08:28	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 14 08:24 - MAR 14 09:52	Pie
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

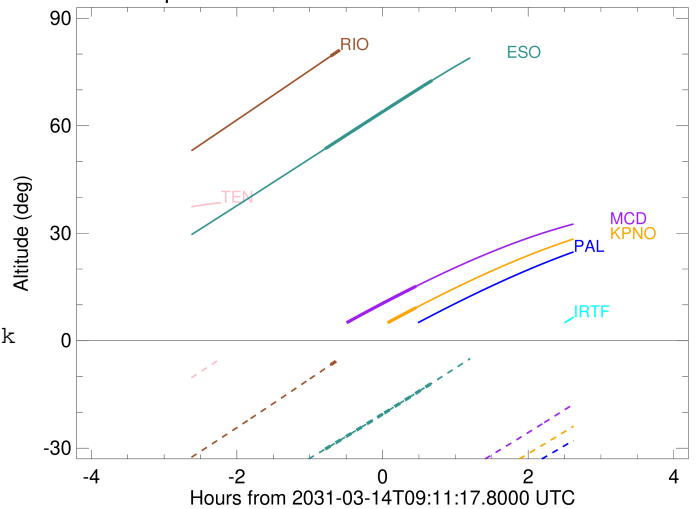


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-14T09:04:53.000
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 4068936674962277632
2Mass ID (if available) : 17465327-2251395
ICRS Star Coord at Epoch: 17h 46m 53.27158s -22:51:39.65114s
RUWE (>1.4 is poor) : 0.82
K magnitude           : 8.044
G magnitude           : 13.610
RP magnitude          : 12.201
BP magnitude          : 16.160
DUPflag              : 0
Distance (au)         : 5.284
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 15.14
Sun-Target sep (deg) : 86.18
Sun-Moon sep (deg)   : 27.83
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.58
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 16.856
C/A sky separation (km) : 64600.9
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
    
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Jupiter 2031-03-14T09:11:17 K8.04 G13.61

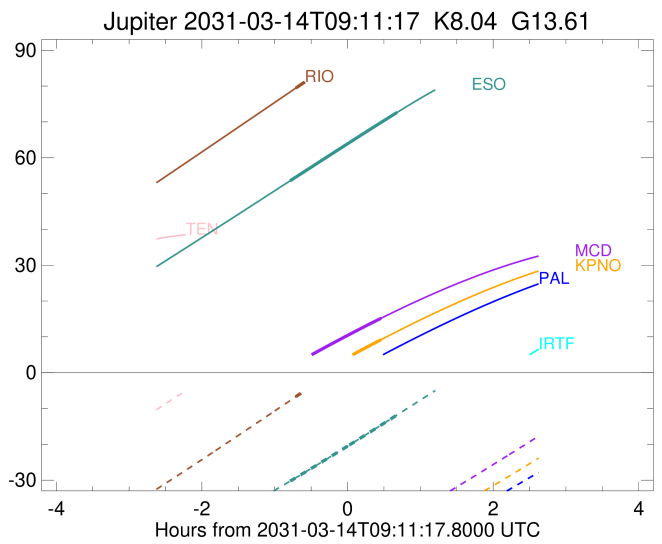
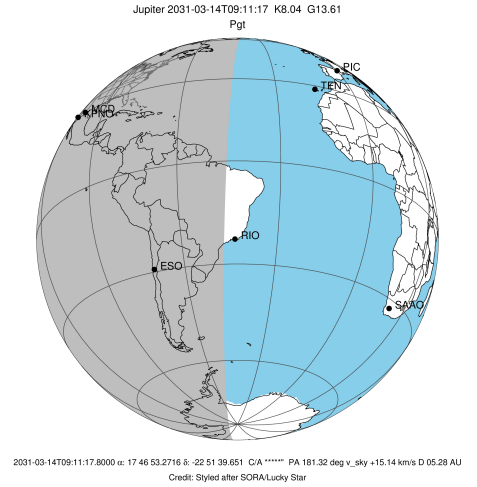


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-14T08:30:58.087	-3.39x	-58.00	71484.5	63.21	66.03
Jupiter	E	2031-03-14T09:38:57.365	9.21	-48.81	71484.1	65.81	68.42

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-14T09:05:08.290
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       : 4068936674962277632
2Mass ID (if available) : 17465327-2251395
ICRS Star Coord at Epoch: 17h 46m 53.27158s -22:51:39.65114s
RUWE (>1.4 is poor) : 0.82
K magnitude          : 8.044
G magnitude          : 13.610
RP magnitude         : 12.201
BP magnitude         : 16.160
DUPflag             : 0
Distance (au)        : 5.284
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 15.14
Sun-Target sep (deg) : 86.18
Sun-Moon sep (deg)   : 27.91
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.58
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation ("): 16.899
C/A sky separation (km): 64763.5
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
    
```

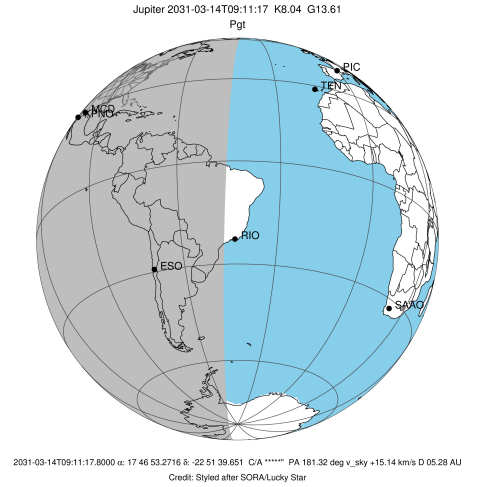


x: target alt < 5.0 deg or sun > -5.0 deg

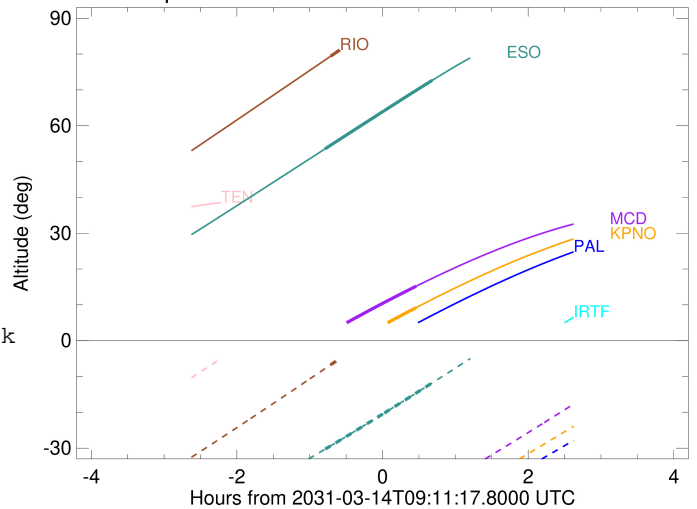
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-14T08:31:28.890	3.08x	-55.42	71484.4	63.53	66.32
Jupiter	E	2031-03-14T09:38:56.722	15.18	-44.19	71484.1	66.09	68.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-14T09:11:09.180
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : RIO
Location            : Rio de Janeiro
Latitude (deg)      : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)       : 0.033
Gaia source ID      : 4068936674962277632
2Mass ID (if available) : 17465327-2251395
ICRS Star Coord at Epoch: 17h 46m 53.27158s -22:51:39.65114s
RUWE (>1.4 is poor) : 0.82
K magnitude          : 8.044
G magnitude          : 13.610
RP magnitude         : 12.201
BP magnitude         : 16.160
DUPflag             : 0
Distance (au)       : 5.284
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 15.14
Sun-Target sep (deg) : 86.18
Sun-Moon sep (deg)  : 28.94
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.58
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 15.897
C/A sky separation (km) : 60922.9
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
    
```



Jupiter 2031-03-14T09:11:17 K8.04 G13.61

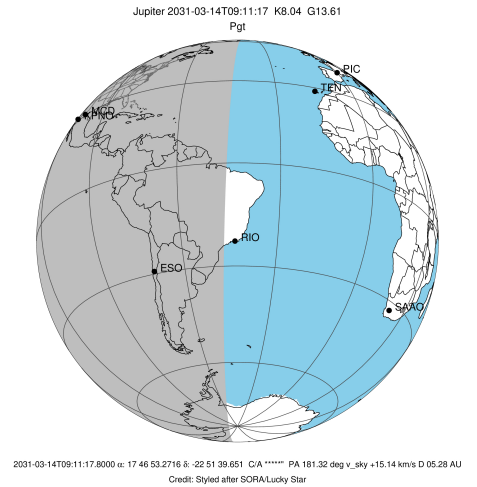


x: target alt < 5.0 deg or sun > -5.0 deg

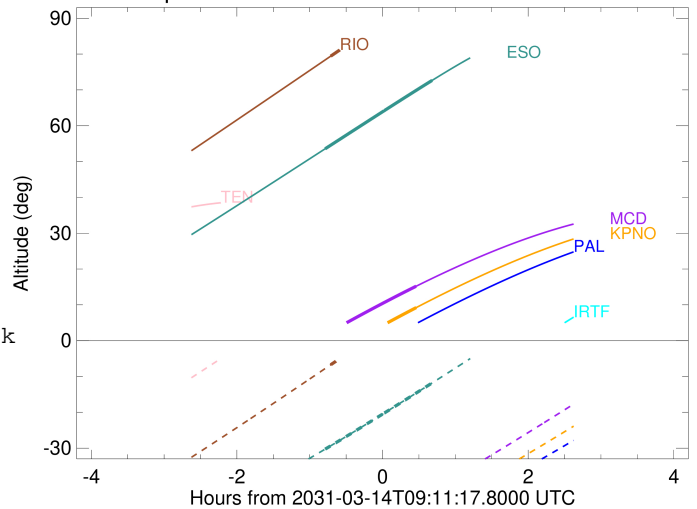
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-14T08:28:43.941	79.44	-6.70	71485.3	57.51	60.74
Jupiter	E	2031-03-14T09:53:37.343	80.95	12.84x	71485.0	59.09	62.21

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-14T09:07:57.430
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       : 4068936674962277632
2Mass ID (if available) : 17465327-2251395
ICRS Star Coord at Epoch: 17h 46m 53.27158s -22:51:39.65114s
RUWE (>1.4 is poor) : 0.82
K magnitude          : 8.044
G magnitude           : 13.610
RP magnitude         : 12.201
BP magnitude         : 16.160
DUPflag             : 0
Distance (au)        : 5.284
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 15.14
Sun-Target sep (deg) : 86.18
Sun-Moon sep (deg)   : 28.54
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.58
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation ("): 15.628
C/A sky separation (km): 59894.2
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 2031-03-14T09:11:17 K8.04 G13.61



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	2031-03-14T08:23:59.665	53.55	-30.28	71485.5	55.70	59.04
Jupiter	E	2031-03-14T09:52:05.163	72.62	-11.82	71485.2	57.84	61.04