

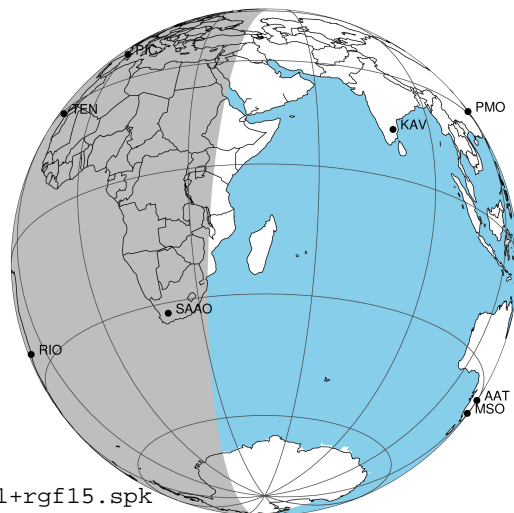
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-04T03:46:49.590
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116926474893419520
 2Mass ID (if available) : 17420644-2250041

Jupiter 2031-03-04T03:46:49 K8.03 G14.28 Pgt

ICRS Star Coord at Epoch: 17h 42m 06.43592s -22:50:04.26389s

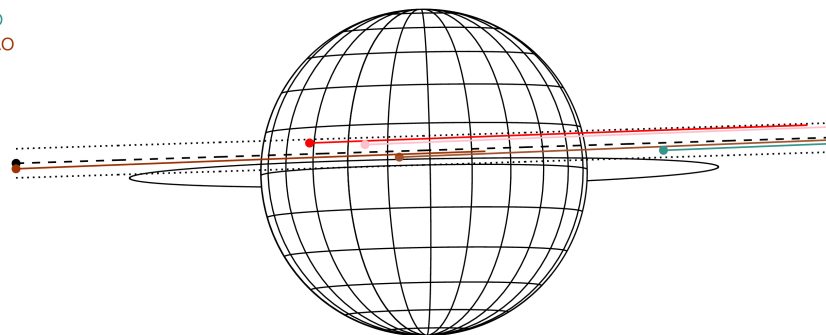
RUWE (>1.4 is poor) : 0.87
 K magnitude : 8.034
 G magnitude : 14.275
 RP magnitude : 12.737
 BP magnitude : 17.619
 DUPflag : 0
 Distance (au) : 5.448
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 19.80
 Sun-Target sep (deg) : 77.06
 Sun-Moon sep (deg) : 160.38
 B (ring opening deg) : -2.65
 PA of pole (deg) : 1.09
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 2.449
 C/A sky separation (km) : 9677.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-04T03:46:49 K8.03 G14.28
 Pgt



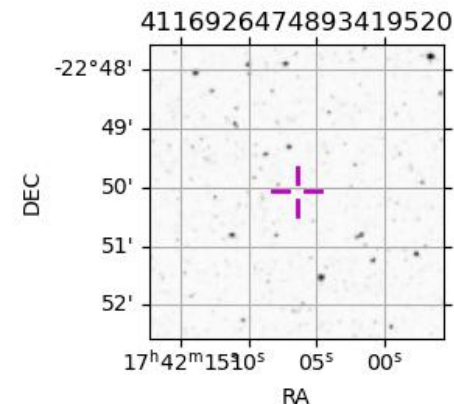
2031-03-04T03:46:49.5900 cc: 17 42 06.43592 s: -22 50 04.264 C/A 2.439° PA 181.82 deg v_sky +19.80 km/s D 05.45 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 TEN
 RIO
 ESO
 SAAO



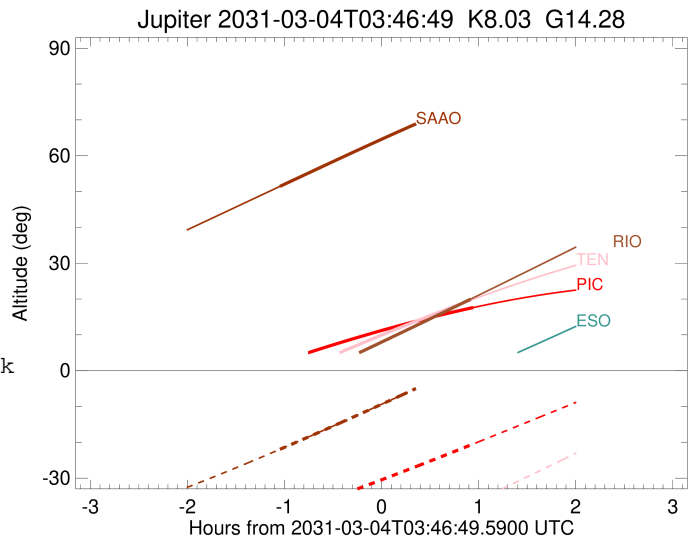
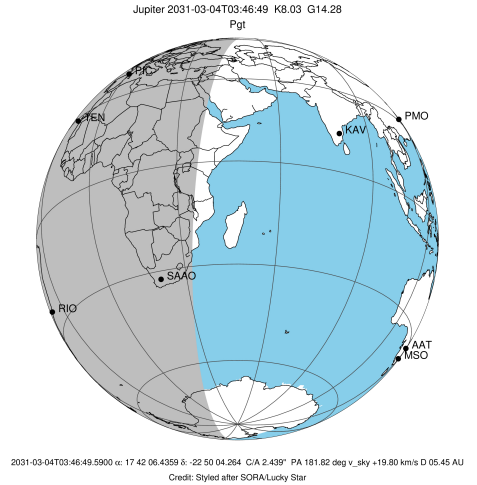
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAR 04 04:43 - MAR 04 04:43	Pne
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			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAR 04 04:42 - MAR 04 04:42	Pne
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 04 04:41 - MAR 04 04:41	Pne
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	+	MAR 04 02:44 - MAR 04 02:44	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-04T03:43:42.010
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: 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        : 4116926474893419520
2Mass ID (if available) : 17420644-2250041
ICRS Star Coord at Epoch: 17h 42m 06.43592s -22:50:04.26389s
RUWE (>1.4 is poor)  : 0.87
K magnitude           : 8.034
G magnitude           : 14.275
RP magnitude          : 12.737
BP magnitude          : 17.619
DUPflag              : 0
Distance (au)         : 5.448
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.80
Sun-Target sep (deg)  : 77.06
Sun-Moon sep (deg)    : 160.79
B (ring opening deg) : -2.65
PA of pole (deg)      : 1.09
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 3.739
C/A sky separation (km) : 14772.1
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
    
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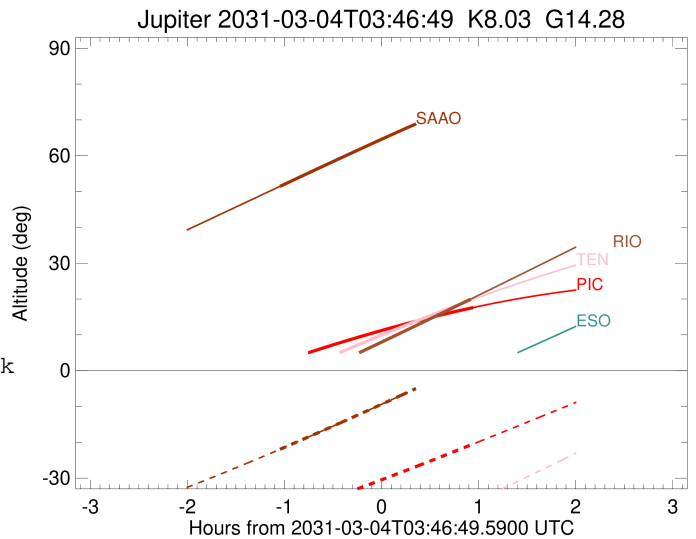
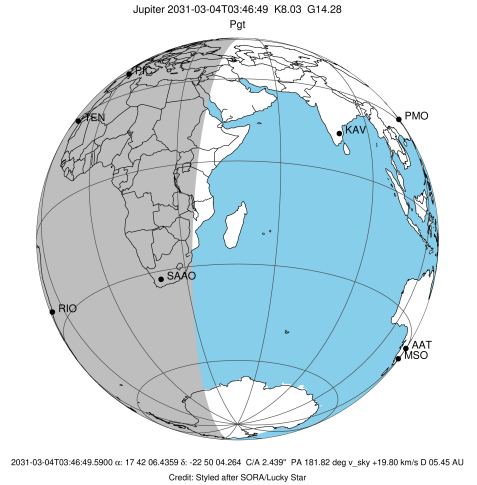


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-04T02:44:16.750	2.44x	-40.57	71491.7	10.85	12.36
Jupiter	E	2031-03-04T04:43:23.323	17.60	-20.48	71491.5	12.91	14.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-04T03:42:21.580
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: 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        : 4116926474893419520
2Mass ID (if available) : 17420644-2250041
ICRS Star Coord at Epoch: 17h 42m 06.43592s -22:50:04.26389s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.034
G magnitude           : 14.275
RP magnitude          : 12.737
BP magnitude          : 17.619
DUPflag              : 0
Distance (au)         : 5.448
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.80
Sun-Target sep (deg)  : 77.06
Sun-Moon sep (deg)   : 161.03
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.09
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 3.345
C/A sky separation (km) : 13217.9
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
    
```

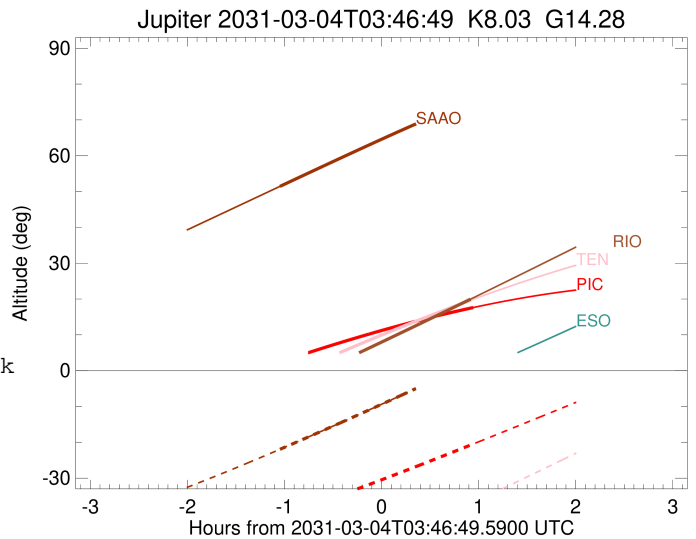
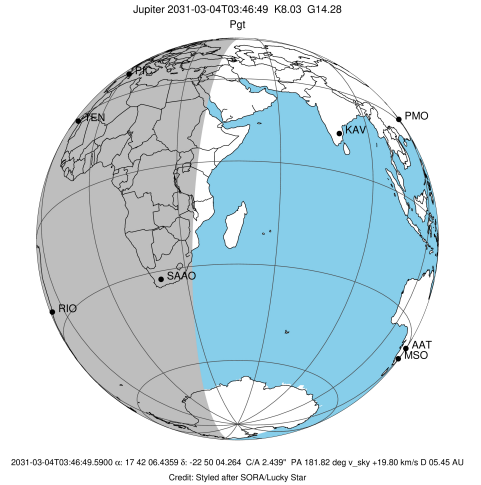


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-04T02:42:53.738	-2.47x	-60.48	71491.7	9.47	10.79
Jupiter	E	2031-03-04T04:42:11.026	19.71	-37.14	71491.6	11.78	13.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-04T03:41:53.330
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       : 4116926474893419520
2Mass ID (if available) : 17420644-2250041
ICRS Star Coord at Epoch: 17h 42m 06.43592s -22:50:04.26389s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 8.034
G magnitude           : 14.275
RP magnitude          : 12.737
BP magnitude          : 17.619
DUPflag              : 0
Distance (au)        : 5.448
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.80
Sun-Target sep (deg) : 77.06
Sun-Moon sep (deg)   : 161.24
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.09
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 1.812
C/A sky separation (km) : 7158.4
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
    
```

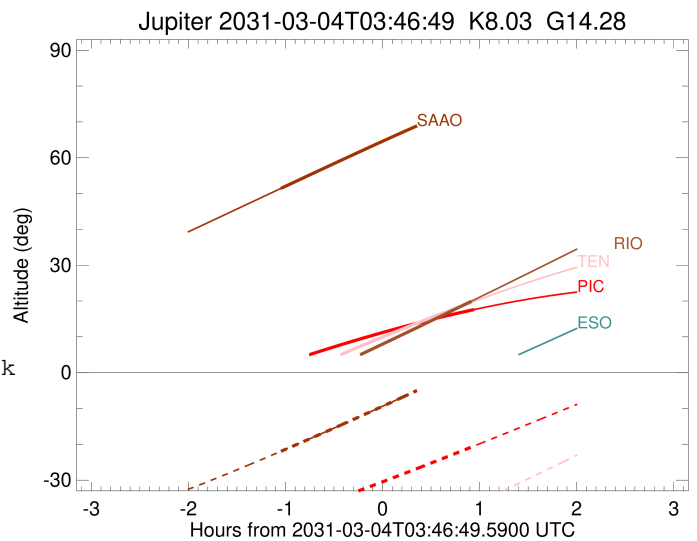
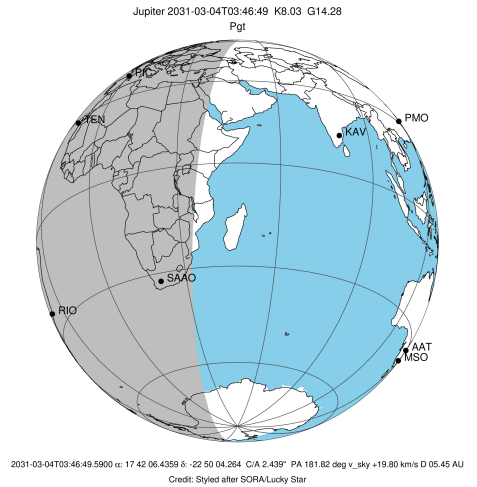


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-04T02:42:16.475	-5.61x	-60.18	71491.9	4.55	5.20
Jupiter	E	2031-03-04T04:41:54.198	19.97	-52.29	71491.9	6.94	7.93

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-04T03:44:44.870
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : SAAO
Location            : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)      : -32.37953
E. Longitude (deg)  : 20.81070
Altitude (km)       : 1.768
Gaia source ID      : 4116926474893419520
2Mass ID (if available) : 17420644-2250041
ICRS Star Coord at Epoch: 17h 42m 06.43592s -22:50:04.26389s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 8.034
G magnitude          : 14.275
RP magnitude         : 12.737
BP magnitude         : 17.619
DUPflag             : 0
Distance (au)       : 5.448
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 19.80
Sun-Target sep (deg) : 77.06
Sun-Moon sep (deg)  : 160.99
B (ring opening deg) : -2.65
PA of pole (deg)    : 1.09
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 2.110
C/A sky separation (km) : 8338.3
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	2031-03-04T02:44:01.603	51.43	-21.96	71491.9	5.68	6.49
Jupiter	E	2031-03-04T04:45:41.323	75.84	2.86x	71491.8	7.59	8.67