

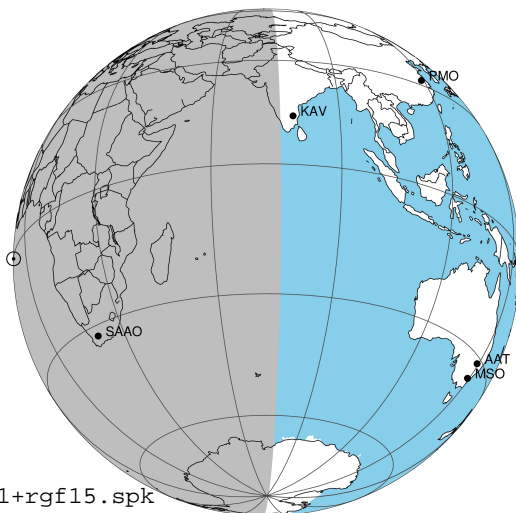
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-22T01:03:19.740
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068901387499961984
 2Mass ID (if available) : 17494167-2253003

Jupiter 2031-03-22T01:03:19 K8.89 G14.41 Pgt

ICRS Star Coord at Epoch: 17h 49m 41.66970s -22:53:00.50980s

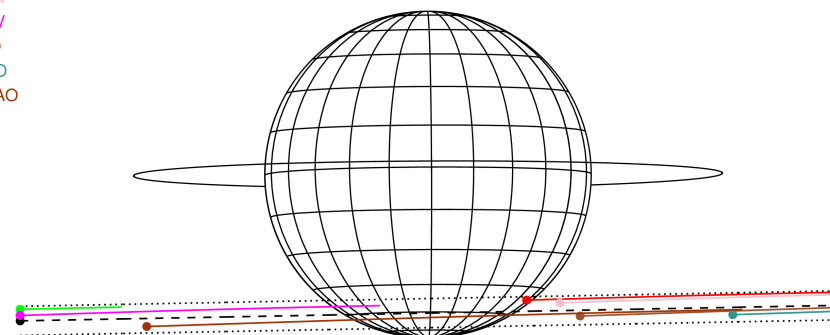
RUWE (>1.4 is poor) : 0.87
 K magnitude : 8.886
 G magnitude : 14.407
 RP magnitude : 13.066
 BP magnitude : 16.535
 DUPflag : 0
 Distance (au) : 5.160
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 11.51
 Sun-Target sep (deg) : 93.15
 Sun-Moon sep (deg) : 78.97
 B (ring opening deg) : -2.62
 PA of pole (deg) : 0.27
 Pole direction: RA (deg): 268.05699
 Dec (deg): 64.49651
 C/A sky separation (") : 16.224
 C/A sky separation (km) : 60714.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-22T01:03:19 K8.89 G14.41
 Pgt



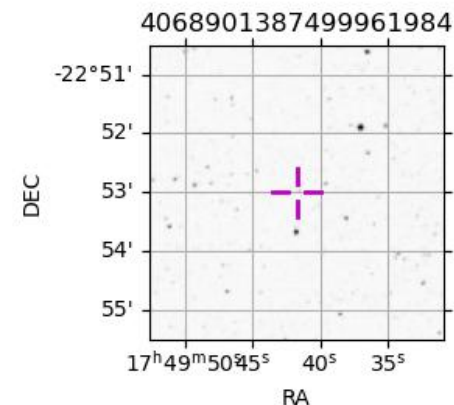
2031-03-22T01:03:19.7400 α: 17 49 41.6697 δ: -22 53 00.510 C/A ***** PA 1.09 deg v_sky +11.51 km/s D 05.16 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 SAAO



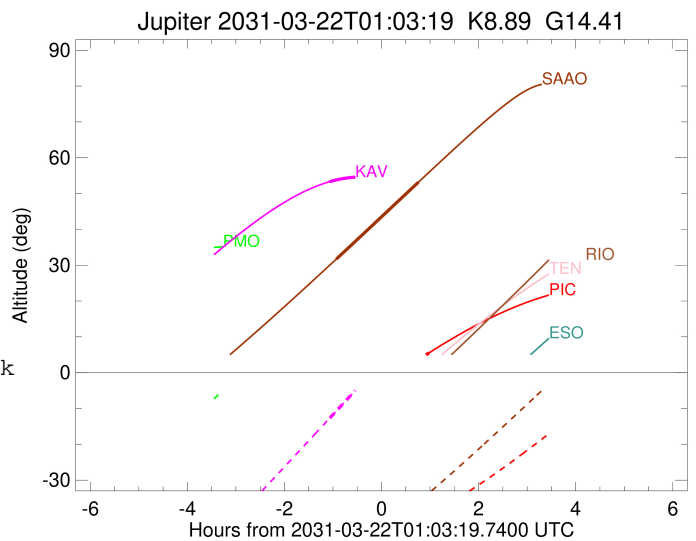
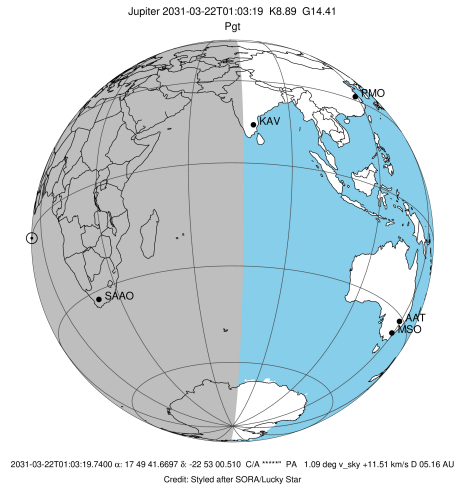
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAR 22 02:02 - MAR 22 02:02	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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	MAR 21 23:59 - MAR 21 23:59	Pin
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	+	MAR 22 00:07 - MAR 22 01:49	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-22T00:57:38.220
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      : 4068901387499961984
2Mass ID (if available) : 17494167-2253003
ICRS Star Coord at Epoch: 17h 49m 41.66970s -22:53:00.50980s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 8.886
G magnitude          : 14.407
RP magnitude         : 13.066
BP magnitude         : 16.535
DUPflag             : 0
Distance (au)       : 5.160
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.51
Sun-Target sep (deg) : 93.15
Sun-Moon sep (deg)  : 79.03
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.27
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation ("): 15.045
C/A sky separation (km): 56303.8
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
    
```

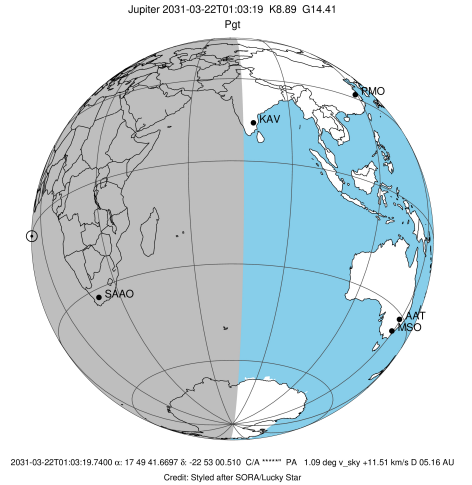


x: target alt < 5.0 deg or sun > -5.0 deg

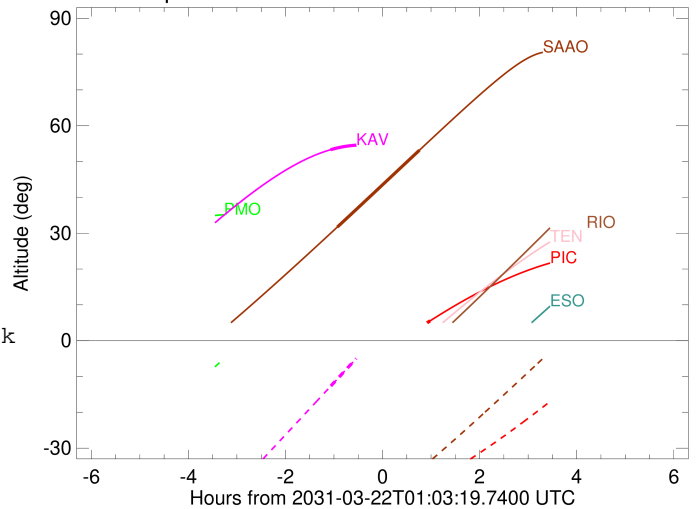
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-21T23:53:41.810	-15.32x	-46.69	71485.9	-53.35	-56.81
Jupiter	E	2031-03-22T02:02:11.976	5.53	-39.55	71486.4	-50.46	-54.03

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-22T01:04:08.750
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : KAV
Location            : Kavalur Observatory
Latitude (deg)      : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)       : 0.722
Gaia source ID      : 4068901387499961984
2Mass ID (if available) : 17494167-2253003
ICRS Star Coord at Epoch: 17h 49m 41.66970s -22:53:00.50980s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 8.886
G magnitude          : 14.407
RP magnitude         : 13.066
BP magnitude         : 16.535
DUPflag             : 0
Distance (au)       : 5.160
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.51
Sun-Target sep (deg) : 93.15
Sun-Moon sep (deg)  : 79.72
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.27
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (" ) : 15.238
C/A sky separation (km) : 57026.3
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
    
```



Jupiter 2031-03-22T01:03:19 K8.89 G14.41

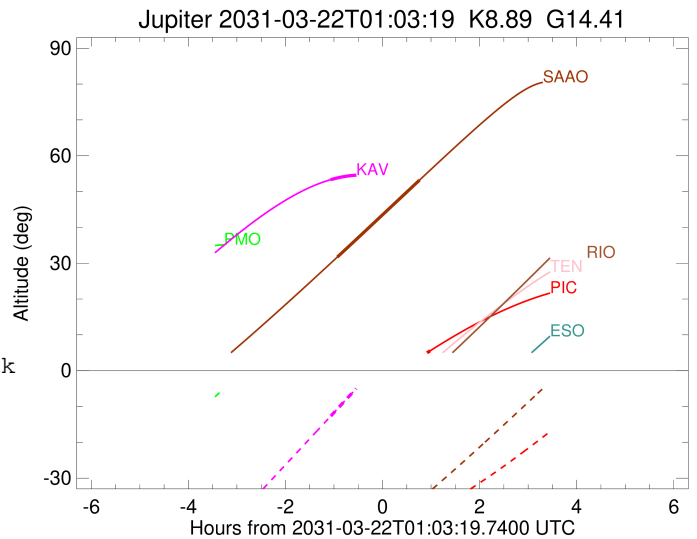
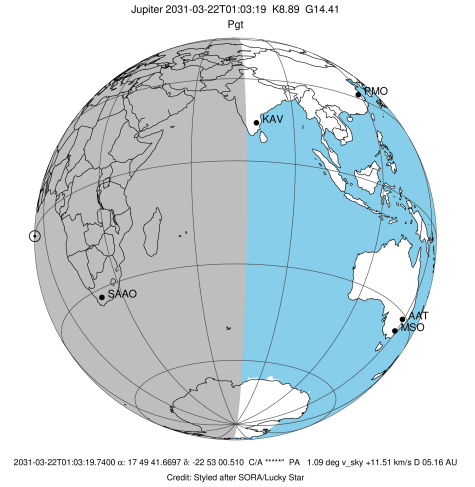


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-21T23:59:25.862	53.32	-12.66	71485.9	-53.71	-57.14
Jupiter	E	2031-03-22T02:08:55.307	48.29	18.94x	71486.1	-52.22	-55.72

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-22T00:58:08.000
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        : 4068901387499961984
2Mass ID (if available) : 17494167-2253003
ICRS Star Coord at Epoch: 17h 49m 41.66970s -22:53:00.50980s
RUWE (>1.4 is poor)  : 0.87
K magnitude           : 8.886
G magnitude           : 14.407
RP magnitude          : 13.066
BP magnitude          : 16.535
DUPflag              : 0
Distance (au)         : 5.160
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.51
Sun-Target sep (deg)  : 93.15
Sun-Moon sep (deg)    : 79.75
B (ring opening deg) : -2.62
PA of pole (deg)      : 0.27
Pole direction: RA (deg): 268.05699
Dec (deg): 64.49651
C/A sky separation (" ) : 16.743
C/A sky separation (km) : 62659.1
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	2031-03-22T00:07:33.577	31.72	-52.62	71484.6	-62.61	-65.48
Jupiter	E	2031-03-22T01:49:05.251	53.19	-36.09	71485.0	-59.72	-62.80