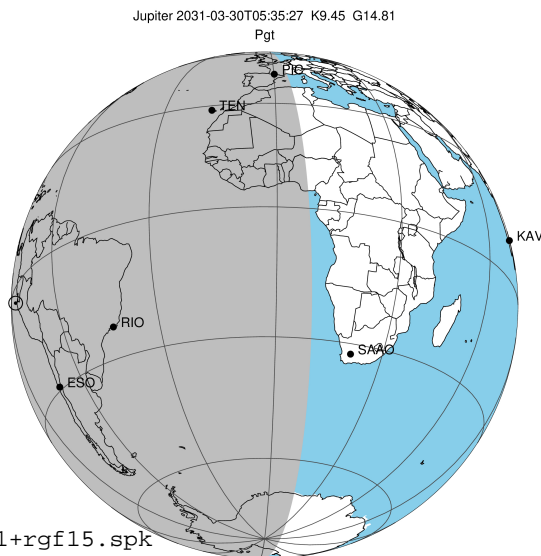


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-30T05:35:27.340
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068714298783362176
 2Mass ID (if available) : 17515385-2252567

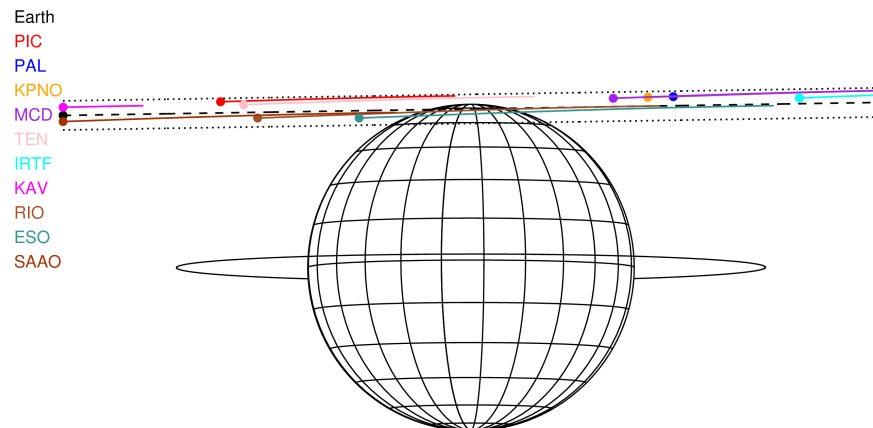
Jupiter 2031-03-30T05:35:27 K9.45 G14.81 Pgt

ICRS Star Coord at Epoch: 17h 51m 53.84851s -22:52:56.95533s

RUWE (>1.4 is poor) : 0.92
 K magnitude : 9.453
 G magnitude : 14.810
 RP magnitude : 13.483
 BP magnitude : 16.877
 DUPflag : 0
 Distance (au) : 5.028
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 7.58
 Sun-Target sep (deg) : 100.76
 Sun-Moon sep (deg) : 176.92
 B (ring opening deg) : -2.62
 PA of pole (deg) : 0.04
 Pole direction: RA (deg): 268.05698
 Dec (deg): 64.49651
 C/A sky separation (") : 19.045
 C/A sky separation (km) : 69453.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



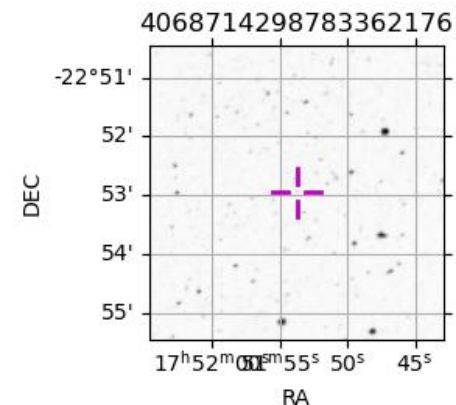
2031-03-30T05:35:27.3400 α: 17 51 53.8485 δ: -22 52 56.955 C/A ***** PA 180.91 deg v_sky + 7.58 km/s D 05.03 AU
 Credit: Styled after SORA/Lucky Star



Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 SAAO

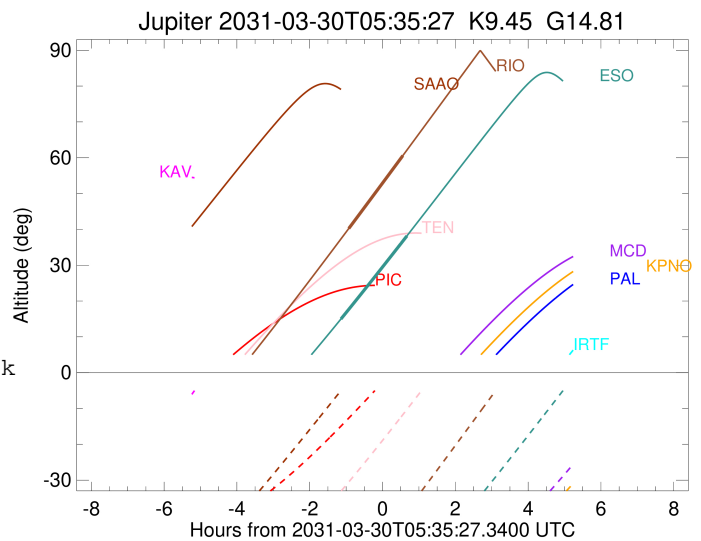
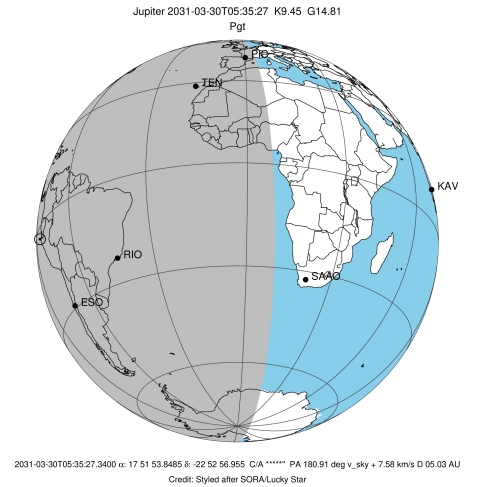
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			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			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			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAR 30 04:39 - MAR 30 06:09	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAR 30 04:27 - MAR 30 06:15	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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-30T05:24:10.480
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      : 4068714298783362176
2Mass ID (if available) : 17515385-2252567
ICRS Star Coord at Epoch: 17h 51m 53.84851s -22:52:56.95533s
RUWE (>1.4 is poor) : 0.92
K magnitude         : 9.453
G magnitude         : 14.810
RP magnitude        : 13.483
BP magnitude        : 16.877
DUPflag            : 0
Distance (au)       : 5.028
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 7.58
Sun-Target sep (deg) : 100.76
Sun-Moon sep (deg)  : 177.37
B (ring opening deg) : -2.62
PA of pole (deg)    : 0.04
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 18.867
C/A sky separation (km) : 68806.7
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
    
```

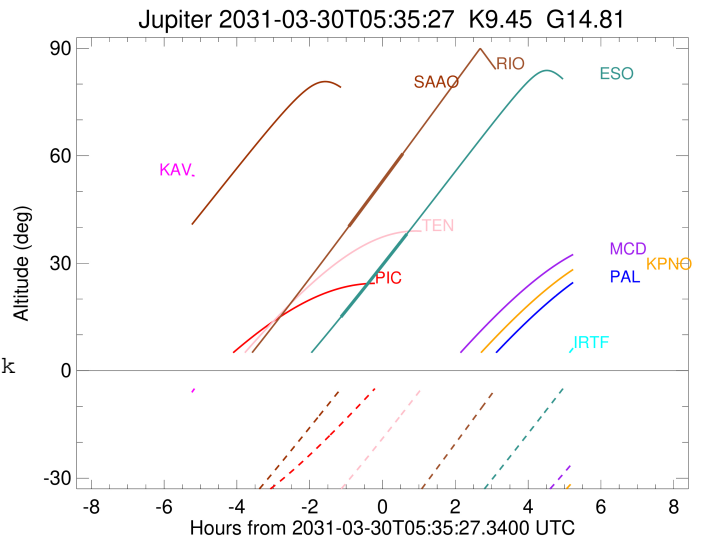
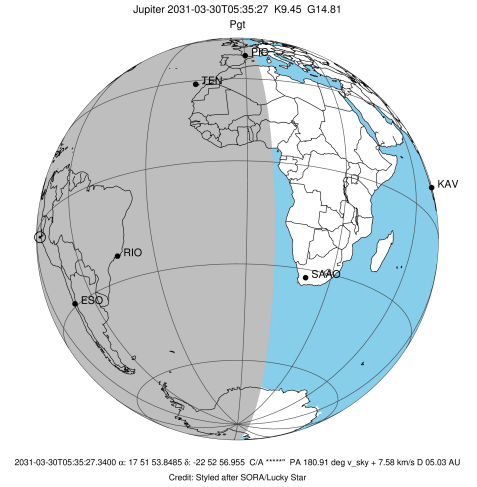


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-30T04:39:48.407	40.23	-58.75	71483.5	72.20	74.20
Jupiter	E	2031-03-30T06:09:01.681	60.59	-39.95	71483.2	75.75	77.38

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-30T05:20:54.480
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        : 4068714298783362176
2Mass ID (if available) : 17515385-2252567
ICRS Star Coord at Epoch: 17h 51m 53.84851s -22:52:56.95533s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.453
G magnitude           : 14.810
RP magnitude          : 13.483
BP magnitude          : 16.877
DUPflag              : 0
Distance (au)         : 5.028
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 7.58
Sun-Target sep (deg)  : 100.76
Sun-Moon sep (deg)   : 177.64
B (ring opening deg) : -2.62
PA of pole (deg)     : 0.04
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 18.435
C/A sky separation (km) : 67231.1
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	2031-03-30T04:27:00.674	14.99	-64.12	71484.0	67.93	70.34
Jupiter	E	2031-03-30T06:15:39.938	38.17	-57.11	71483.5	71.95	73.98