

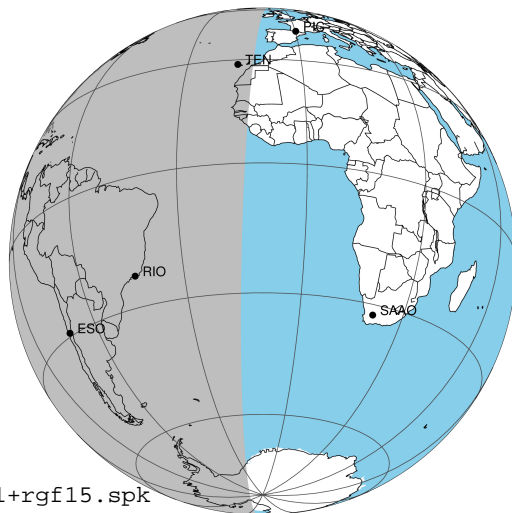
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-13T07:05:54.310
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068855482936628224
 2Mass ID (if available) : 17462602-2251332

Jupiter 2031-03-13T07:05:54 K9.10 G13.61 Pgt

ICRS Star Coord at Epoch: 17h 46m 26.03471s -22:51:33.53206s

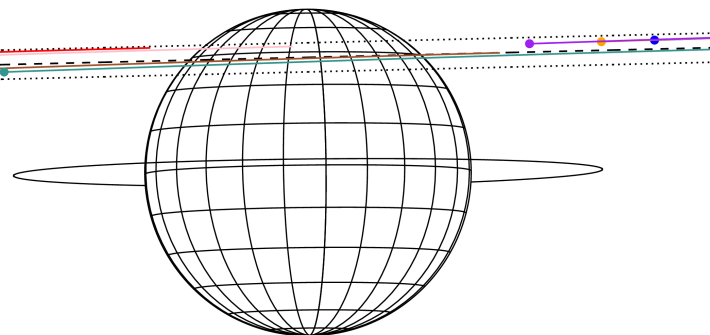
RUWE (>1.4 is poor) : 0.94
 K magnitude : 9.099
 G magnitude : 13.610
 RP magnitude : 12.450
 BP magnitude : 15.058
 DUPflag : 0
 Distance (au) : 5.302
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 15.64
 Sun-Target sep (deg) : 85.20
 Sun-Moon sep (deg) : 43.49
 B (ring opening deg) : -2.64
 PA of pole (deg) : 0.62
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 13.115
 C/A sky separation (km) : 50431.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-13T07:05:54 K9.10 G13.61
 Pgt



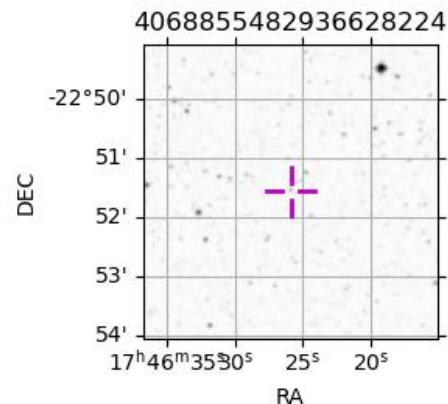
2031-03-13T07:05:54.3100 α: 17 46 26.0347 δ: -22 51 33.532 C/A ***** PA 181.37 deg v_sky +15.64 km/s D 05.30 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 RIO
 ESO
 SAAO



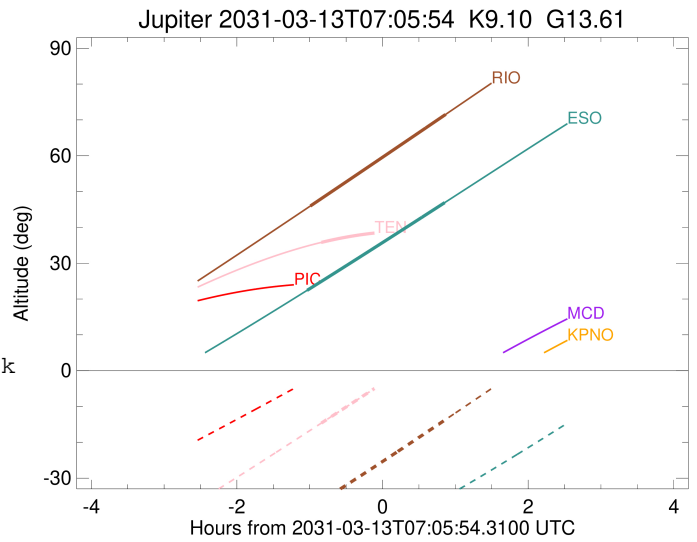
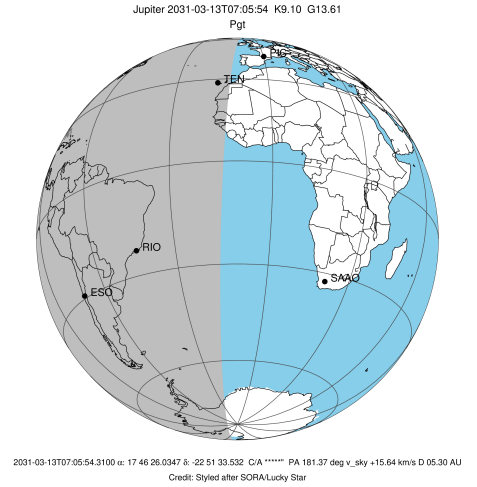
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			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	+	MAR 13 06:15 - MAR 13 06:15	Pin
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 13 06:06 - MAR 13 07:57	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAR 13 06:03 - MAR 13 07:57	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            : 2031-03-13T07:05:00.310
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      : 4068855482936628224
2Mass ID (if available) : 17462602-2251332
ICRS Star Coord at Epoch: 17h 46m 26.03471s -22:51:33.53206s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.099
G magnitude          : 13.610
RP magnitude         : 12.450
BP magnitude         : 15.058
DUPflag             : 0
Distance (au)       : 5.302
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 15.64
Sun-Target sep (deg) : 85.20
Sun-Moon sep (deg)  : 43.87
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.62
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 14.397
C/A sky separation (km) : 55357.2
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
    
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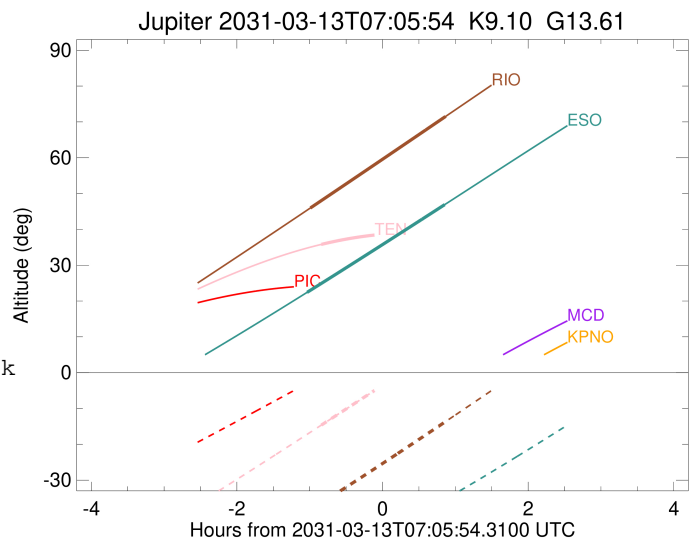
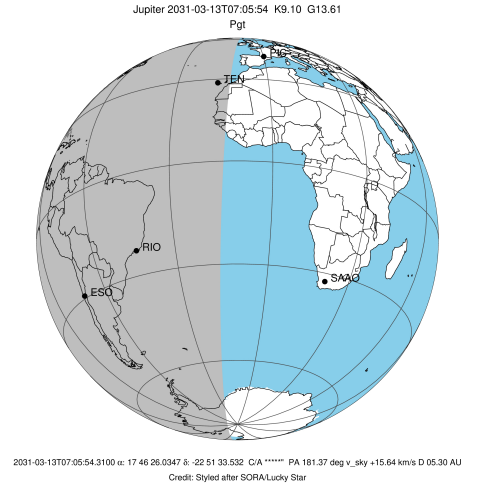


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-13T06:15:30.759	35.80	-14.64	71486.5	49.77	53.36
Jupiter	E	2031-03-13T07:54:35.514	38.69	7.18x	71486.2	51.45	54.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-13T07:02:03.320
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       : 4068855482936628224
2Mass ID (if available) : 17462602-2251332
ICRS Star Coord at Epoch: 17h 46m 26.03471s -22:51:33.53206s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.099
G magnitude          : 13.610
RP magnitude         : 12.450
BP magnitude         : 15.058
DUPflag             : 0
Distance (au)        : 5.302
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 15.64
Sun-Target sep (deg) : 85.20
Sun-Moon sep (deg)   : 43.72
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.62
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation ("): 12.999
C/A sky separation (km): 49984.8
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
    
```

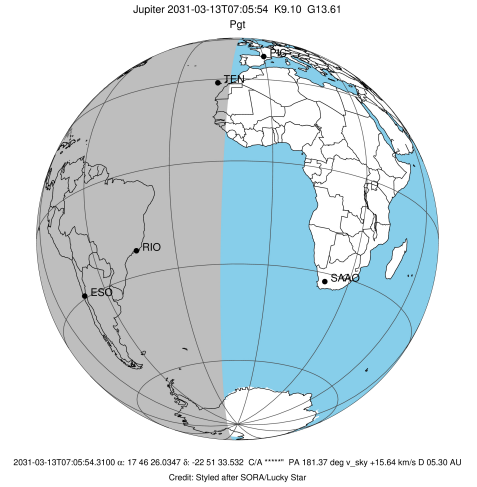


x: target alt < 5.0 deg or sun > -5.0 deg

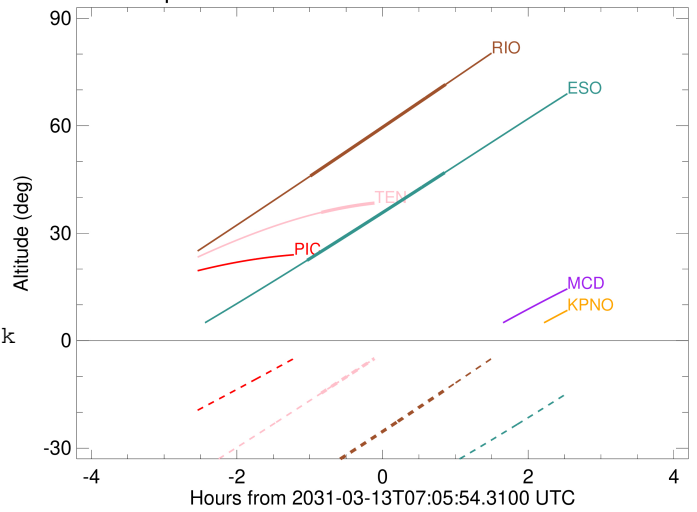
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-13T06:06:26.928	45.96	-38.29	71487.6	43.13	46.84
Jupiter	E	2031-03-13T07:57:57.417	71.53	-13.64	71487.2	45.36	49.06

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-13T07:00:13.510
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        : 4068855482936628224
2Mass ID (if available) : 17462602-2251332
ICRS Star Coord at Epoch: 17h 46m 26.03471s -22:51:33.53206s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.099
G magnitude           : 13.610
RP magnitude          : 12.450
BP magnitude          : 15.058
DUPflag              : 0
Distance (au)         : 5.302
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 15.64
Sun-Target sep (deg) : 85.20
Sun-Moon sep (deg)   : 43.34
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.62
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 12.611
C/A sky separation (km) : 48491.0
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
    
```



Jupiter 2031-03-13T07:05:54 K9.10 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	2031-03-13T06:03:46.150	22.42	-53.65	71487.8	41.36	45.07
Jupiter	E	2031-03-13T07:57:05.456	46.89	-35.41	71487.4	43.90	47.61