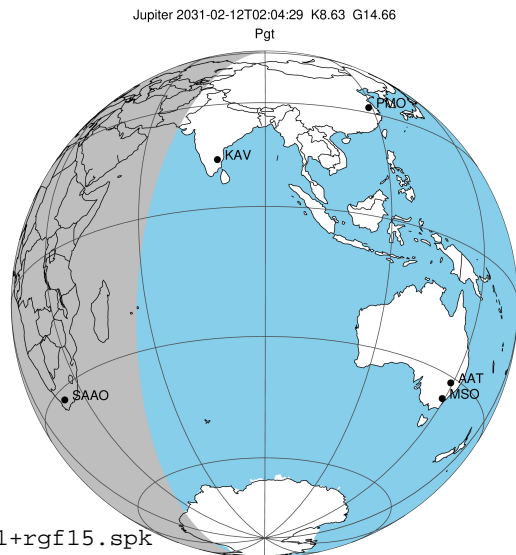


target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-12T02:04:29.850  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4117505672618269440  
 2Mass ID (if available) : 17294413-2243044

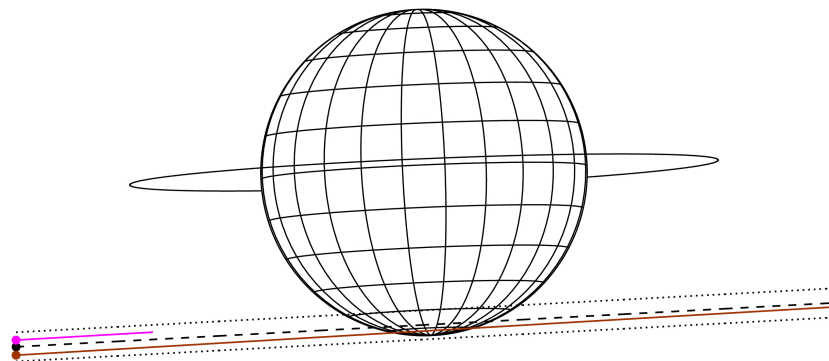
Jupiter 2031-02-12T02:04:29 K8.63 G14.66 Pgt

ICRS Star Coord at Epoch: 17h 29m 44.12105s -22:43:04.59421s  
 RUWE (>1.4 is poor) : 0.90  
 K magnitude : 8.626  
 G magnitude : 14.664  
 RP magnitude : 13.185  
 BP magnitude : 17.687  
 DUPflag : 0  
 Distance (au) : 5.750  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 28.19  
 Sun-Target sep (deg) : 59.69  
 Sun-Moon sep (deg) : 66.42  
 B (ring opening deg) : -2.68  
 PA of pole (deg) : 2.42  
 Pole direction: RA (deg): 268.05702  
 Dec (deg): 64.49651  
 C/A sky separation (") : 15.986  
 C/A sky separation (km) : 66670.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp



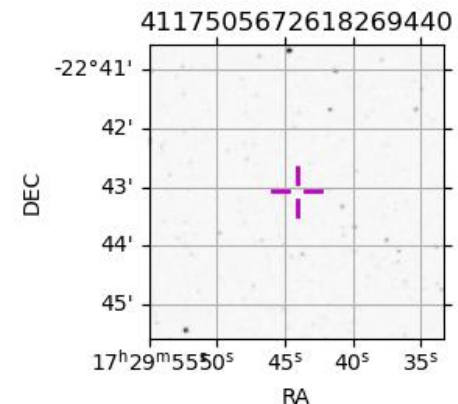
2031-02-12T02:04:29.8500 α: 17 29 44.1211 δ: -22 43 04.594 C/A \*\*\*\*\* PA 3.08 deg v\_sky +28.19 km/s D 05.75 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 KAV  
 SAAO



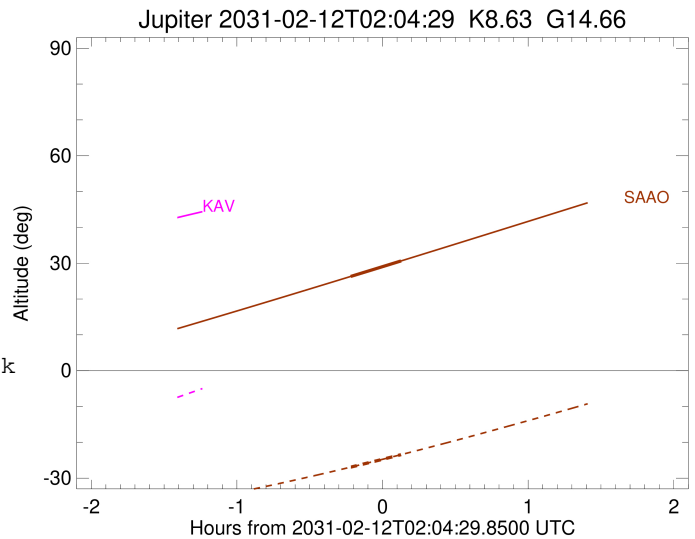
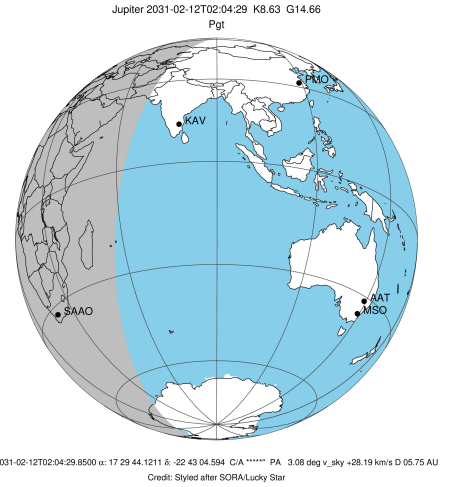
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
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			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	+ +	FEB 12 01:51 - FEB 12 02:12	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-12T02:01:48.010
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        : 4117505672618269440
2Mass ID (if available) : 17294413-2243044
ICRS Star Coord at Epoch: 17h 29m 44.12105s -22:43:04.59421s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 8.626
G magnitude           : 14.664
RP magnitude          : 13.185
BP magnitude          : 17.687
DUPflag              : 0
Distance (au)         : 5.750
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 28.19
Sun-Target sep (deg) : 59.69
Sun-Moon sep (deg)   : 66.55
B (ring opening deg) : -2.68
PA of pole (deg)     : 2.42
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 16.624
C/A sky separation (km) : 69332.8
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	2031-02-12T01:51:28.182	26.32	-26.91	71482.7	-76.61	-78.15
Jupiter	E	2031-02-12T02:12:08.297	30.63	-23.44	71482.9	-74.72	-76.46