

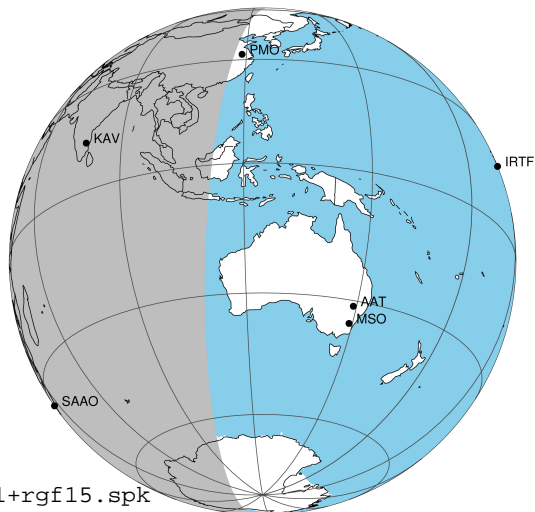
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-03-03T22:40:33.510  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116926852850639104  
 2Mass ID (if available) : 17415977-2249574

Jupiter 2031-03-03T22:40:33 K7.33 G14.24 Pgt

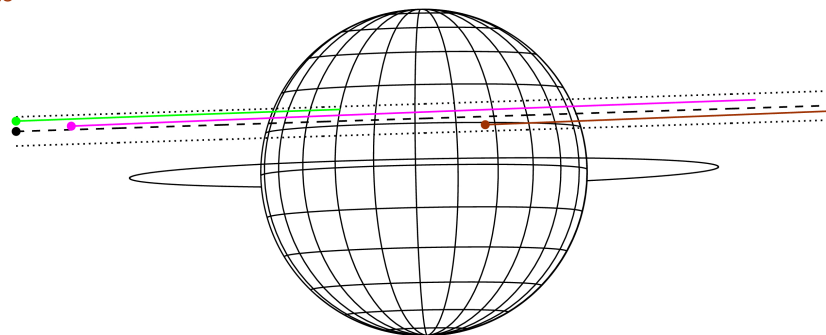
ICRS Star Coord at Epoch: 17h 41m 59.77324s -22:49:57.79527s

RUWE (>1.4 is poor) : 0.78  
 K magnitude : 7.327  
 G magnitude : 14.240  
 RP magnitude : 12.634  
 BP magnitude : 18.340  
 DUPflag : 0  
 Distance (au) : 5.451  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 19.89  
 Sun-Target sep (deg) : 76.87  
 Sun-Moon sep (deg) : 162.88  
 B (ring opening deg) : -2.65  
 PA of pole (deg) : 1.10  
 Pole direction: RA (deg): 268.05701  
 Dec (deg): 64.49651  
 C/A sky separation (") : 5.987  
 C/A sky separation (km) : 23670.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-03-03T22:40:33 K7.33 G14.24  
 Pgt



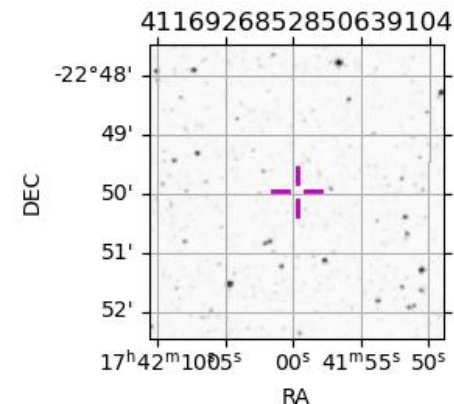
Earth  
 PMO  
 KAV  
 SAAO



2031-03-03T22:40:33.5100 cc: 17 41 59.7732 s: -22 49 57.795 C/A 5.9777 PA 181.83 deg v\_sky +19.89 km/s D 05.45 AU  
 Credit: Styled after SORA/Lucky Star

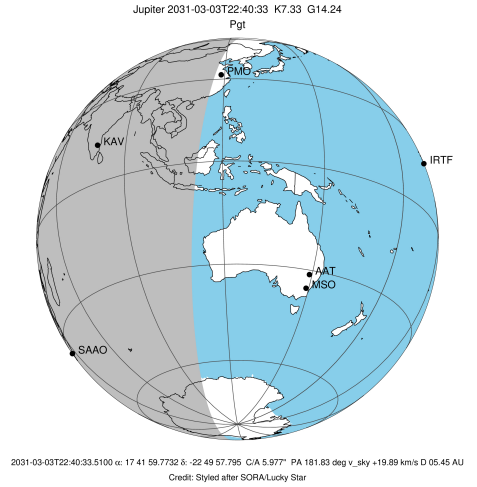
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 03 21:44 - MAR 03 21:44	Pin
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 03 21:40 - MAR 03 23:33	Pie
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 03 23:33 - MAR 03 23:33	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

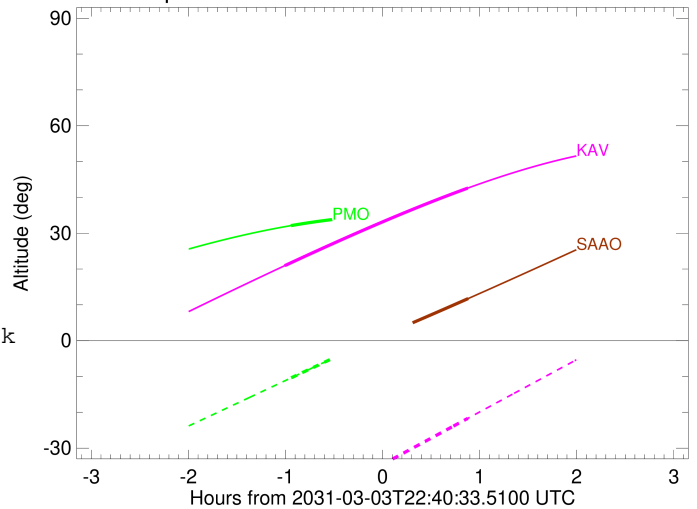


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-03T22:39:57.340
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)        : 32.06667
E. Longitude (deg)    : 118.82089
Altitude (km)         : 0.364
Gaia source ID        : 4116926852850639104
2Mass ID (if available) : 17415977-2249574
ICRS Star Coord at Epoch: 17h 41m 59.77324s -22:49:57.79527s
RUWE (>1.4 is poor) : 0.78
K magnitude           : 7.327
G magnitude           : 14.240
RP magnitude          : 12.634
BP magnitude          : 18.340
DUPflag              : 0
Distance (au)         : 5.451
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.89
Sun-Target sep (deg) : 76.87
Sun-Moon sep (deg)   : 162.98
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.10
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 7.296
C/A sky separation (km) : 28846.7
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
    
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Jupiter 2031-03-03T22:40:33 K7.33 G14.24

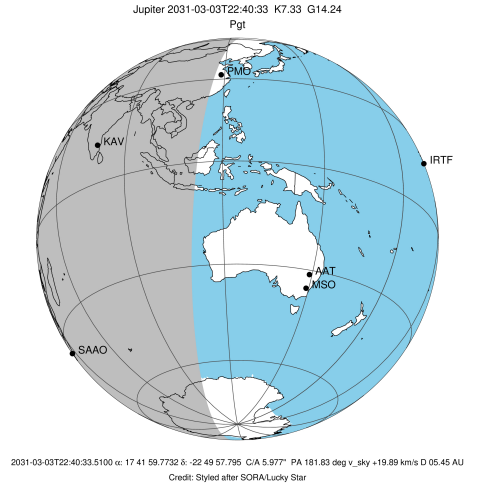


x: target alt < 5.0 deg or sun > -5.0 deg

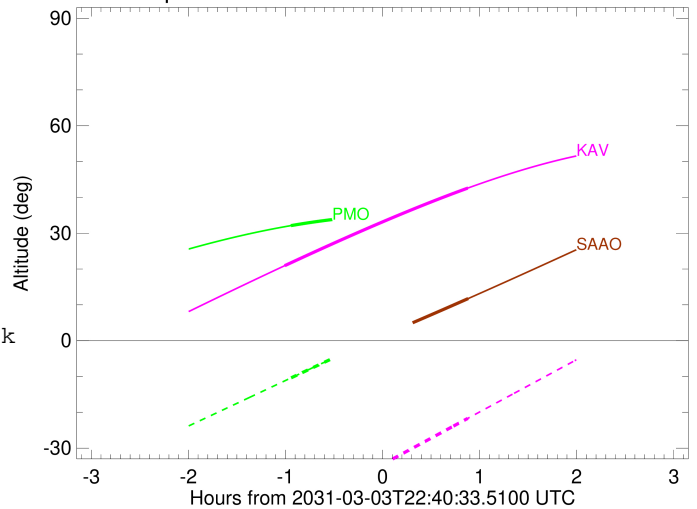
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-03T21:44:04.924	32.12	-10.38	71490.5	22.92	25.77
Jupiter	E	2031-03-03T23:35:54.951	34.68	13.03x	71490.3	24.51	27.50

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-03T22:36:33.080
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       : 4116926852850639104
2Mass ID (if available) : 17415977-2249574
ICRS Star Coord at Epoch: 17h 41m 59.77324s -22:49:57.79527s
RUWE (>1.4 is poor) : 0.78
K magnitude           : 7.327
G magnitude           : 14.240
RP magnitude          : 12.634
BP magnitude          : 18.340
DUPflag              : 0
Distance (au)        : 5.451
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.89
Sun-Target sep (deg) : 76.87
Sun-Moon sep (deg)   : 163.55
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.10
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 6.697
C/A sky separation (km) : 26477.3
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 2031-03-03T22:40:33 K7.33 G14.24

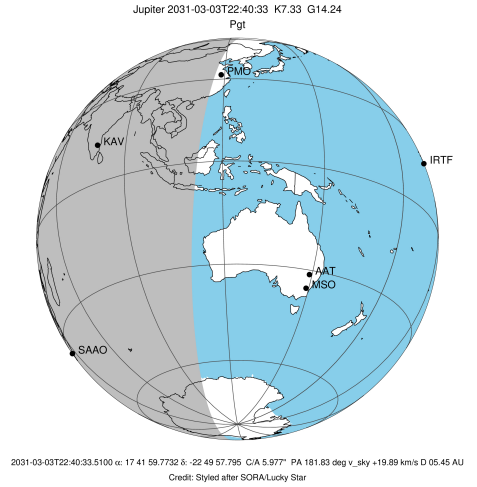


x: target alt < 5.0 deg or sun > -5.0 deg

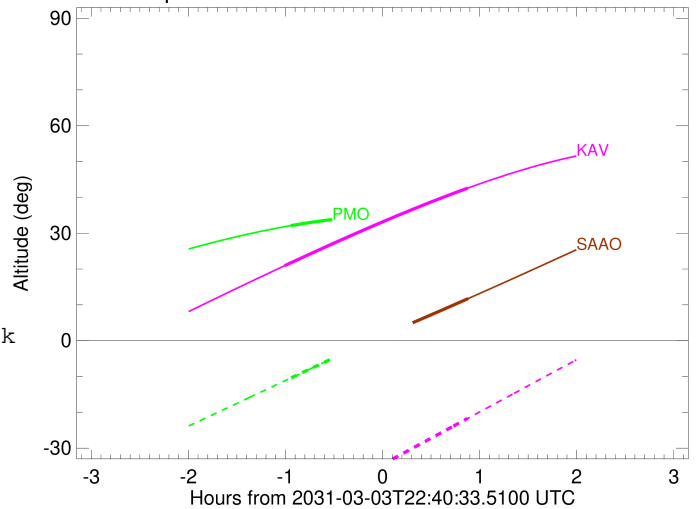
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-03T21:40:11.007	20.94	-49.28	71490.8	20.56	23.19
Jupiter	E	2031-03-03T23:33:12.942	42.58	-21.70	71490.6	22.79	25.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-03T22:36:09.300
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       : 4116926852850639104
2Mass ID (if available) : 17415977-2249574
ICRS Star Coord at Epoch: 17h 41m 59.77324s -22:49:57.79527s
RUWE (>1.4 is poor) : 0.78
K magnitude           : 7.327
G magnitude           : 14.240
RP magnitude         : 12.634
BP magnitude         : 18.340
DUPflag              : 0
Distance (au)        : 5.451
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.89
Sun-Target sep (deg) : 76.87
Sun-Moon sep (deg)   : 163.65
B (ring opening deg) : -2.65
PA of pole (deg)     : 1.10
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 5.024
C/A sky separation (km) : 19865.2
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
    
```



Jupiter 2031-03-03T22:40:33 K7.33 G14.24



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	2031-03-03T21:39:05.196	-9.79x	-47.78	71491.4	15.00	17.03
Jupiter	E	2031-03-03T23:33:33.174	11.76	-49.74	71491.2	17.27	19.55