

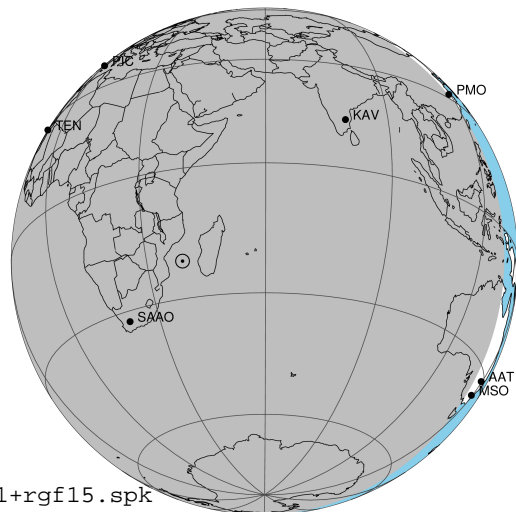
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-05-28T21:19:46.910
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116925199210105088
 2Mass ID (if available) : 17414981-2252039

Jupiter 2031-05-28T21:19:46 K9.42 G14.82 Pgt

ICRS Star Coord at Epoch: 17h 41m 49.81018s -22:52:04.15272s

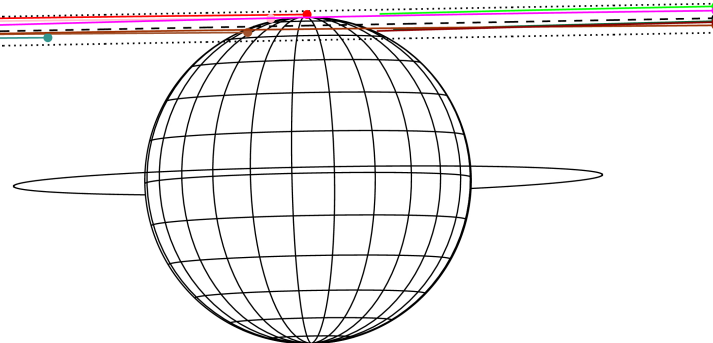
RUWE (>1.4 is poor) : 1.05
 K magnitude : 9.421
 G magnitude : 14.819
 RP magnitude : 13.428
 BP magnitude : 17.032
 DUPflag : 0
 Distance (au) : 4.317
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.86
 Sun-Target sep (deg) : 161.11
 Sun-Moon sep (deg) : 115.46
 B (ring opening deg) : -2.61
 PA of pole (deg) : 1.12
 Pole direction: RA (deg): 268.05693
 Dec (deg): 64.49651
 C/A sky separation (") : 21.666
 C/A sky separation (km) : 67841.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-05-28T21:19:46 K9.42 G14.82
 Pgt



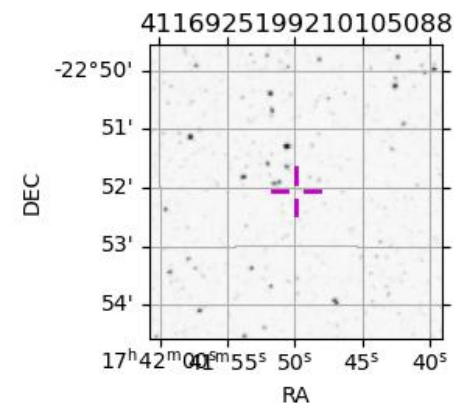
2031-05-28T21:19:46.9100 a: 17 41 49.8102 d: -22 52 04.153 C/A ***** PA 181.04 deg v_sky -14.87 km/s D 04.32 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



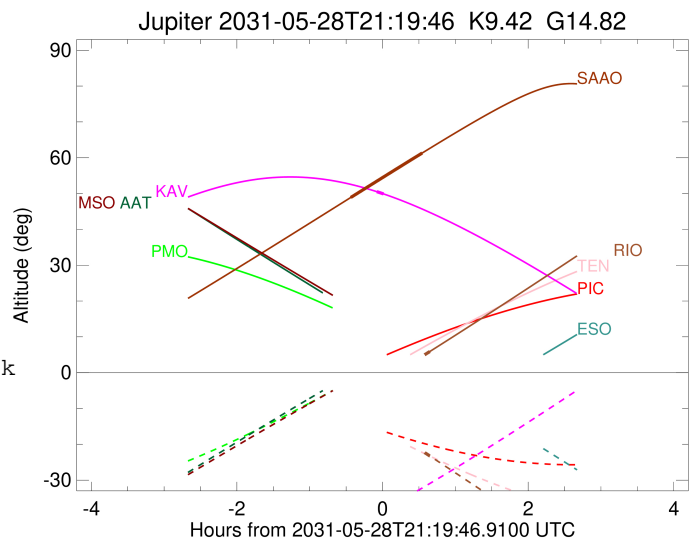
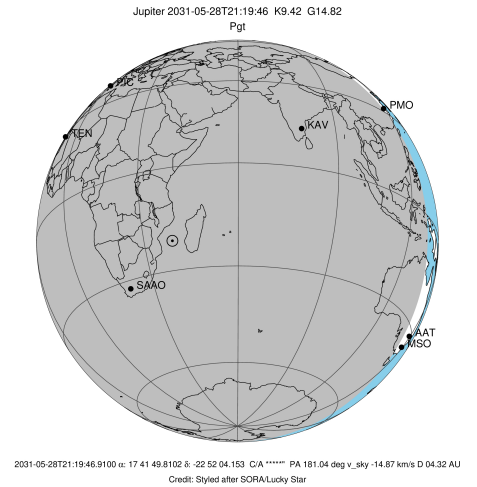
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	MAY 28 21:15 - MAY 28 21:20	Pie
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAY 28 21:58 - MAY 28 21:58	Pne
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	+ +	MAY 28 20:53 - MAY 28 21:52	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-28T21:17:52.640
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      : 4116925199210105088
2Mass ID (if available) : 17414981-2252039
ICRS Star Coord at Epoch: 17h 41m 49.81018s -22:52:04.15272s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.421
G magnitude          : 14.819
RP magnitude         : 13.428
BP magnitude         : 17.032
DUPflag             : 0
Distance (au)       : 4.317
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.86
Sun-Target sep (deg) : 161.11
Sun-Moon sep (deg)  : 115.95
B (ring opening deg) : -2.61
PA of pole (deg)    : 1.12
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 22.814
C/A sky separation (km): 71436.7
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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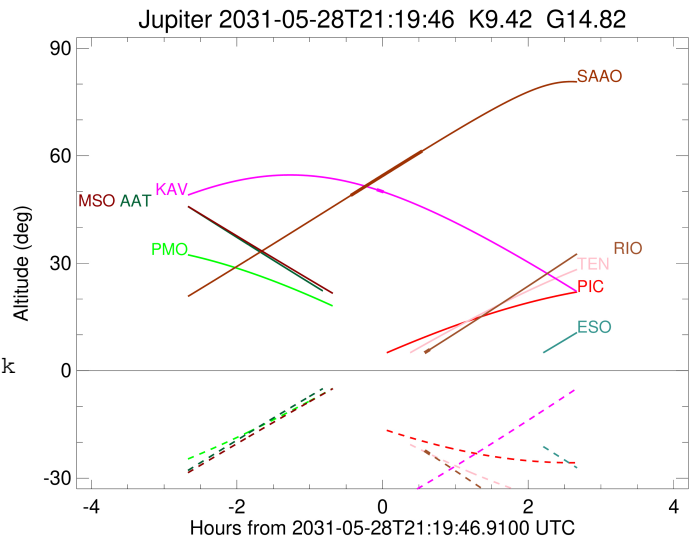
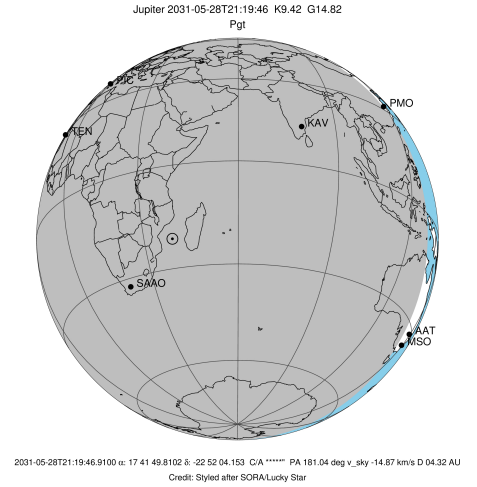


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-28T21:15:04.647	50.52	-39.32	71482.7	86.75	87.13
Jupiter	E	2031-05-28T21:20:40.643	49.89	-38.30	71482.7	86.61	87.01

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-28T21:25:23.590
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       : 4116925199210105088
2Mass ID (if available) : 17414981-2252039
ICRS Star Coord at Epoch: 17h 41m 49.81018s -22:52:04.15272s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 9.421
G magnitude           : 14.819
RP magnitude         : 13.428
BP magnitude         : 17.032
DUPflag              : 0
Distance (au)        : 4.317
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.86
Sun-Target sep (deg) : 161.11
Sun-Moon sep (deg)   : 115.80
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.12
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 20.768
C/A sky separation (km): 65029.1
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
    
```

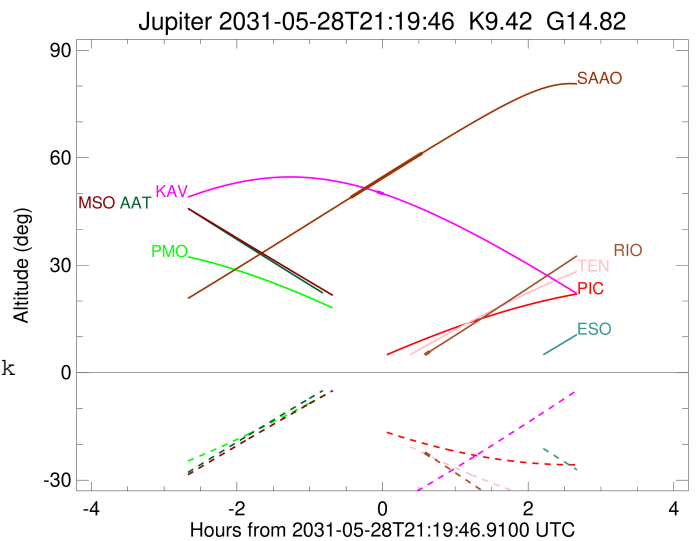
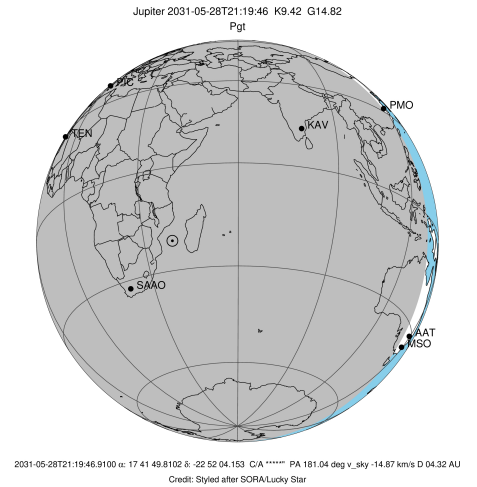


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-28T20:51:51.334	-8.05x	-8.52	71484.4	64.64	67.35
Jupiter	E	2031-05-28T21:58:47.334	5.91	-23.25	71484.2	66.04	68.63

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-28T21:23:00.390
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      : 4116925199210105088
2Mass ID (if available) : 17414981-2252039
ICRS Star Coord at Epoch: 17h 41m 49.81018s -22:52:04.15272s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 9.421
G magnitude          : 14.819
RP magnitude         : 13.428
BP magnitude         : 17.032
DUPflag             : 0
Distance (au)       : 4.317
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.86
Sun-Target sep (deg) : 161.11
Sun-Moon sep (deg)  : 116.36
B (ring opening deg) : -2.61
PA of pole (deg)    : 1.12
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 21.177
C/A sky separation (km): 66312.7
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	2031-05-28T20:53:36.854	48.89	-65.27	71484.1	67.45	69.91
Jupiter	E	2031-05-28T21:52:20.033	61.27	-75.86	71484.0	68.34	70.72