

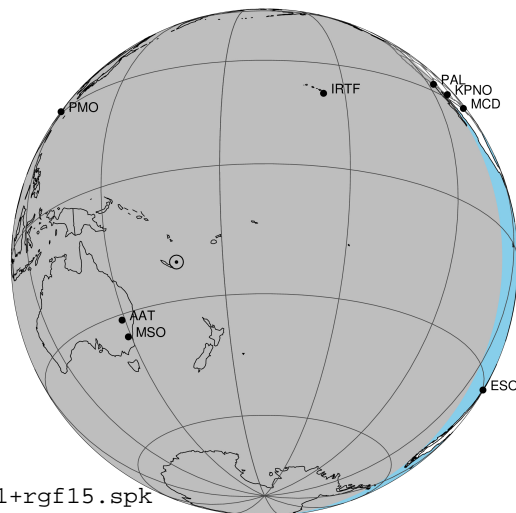
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-05-27T12:43:56.880
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116878989723282560
 2Mass ID (if available) : 17422970-2252423

Jupiter 2031-05-27T12:43:56 K7.79 G14.69 Pgt

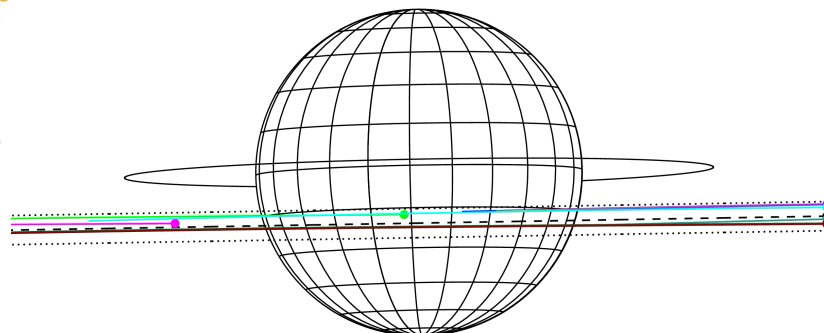
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 7.790
 G magnitude : 14.691
 RP magnitude : 13.095
 BP magnitude : 18.500
 DUPflag : 0
 Distance (au) : 4.325
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.61
 Sun-Target sep (deg) : 159.65
 Sun-Moon sep (deg) : 131.99
 B (ring opening deg) : -2.60
 PA of pole (deg) : 1.05
 Pole direction: RA (deg): 268.05693
 Dec (deg): 64.49651
 C/A sky separation (") : 7.067
 C/A sky separation (km) : 22170.0
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-05-27T12:43:56 K7.79 G14.69
 Pgt



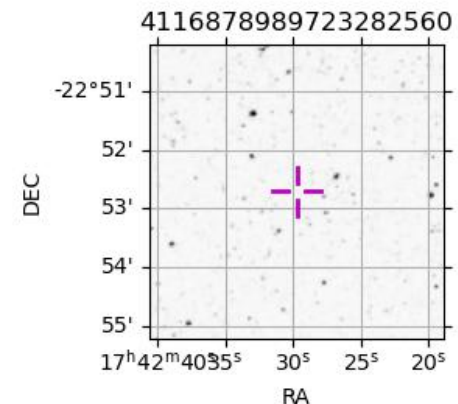
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 MSO



2031-05-27T12:43:56.8800 a: 17 42 29.7031 & -22 52 42.621 C/A 7.080° PA 0.98 deg v_sky -14.61 km/s D 04.33 AU
 Credit: Styled after SORA/Lucky Star

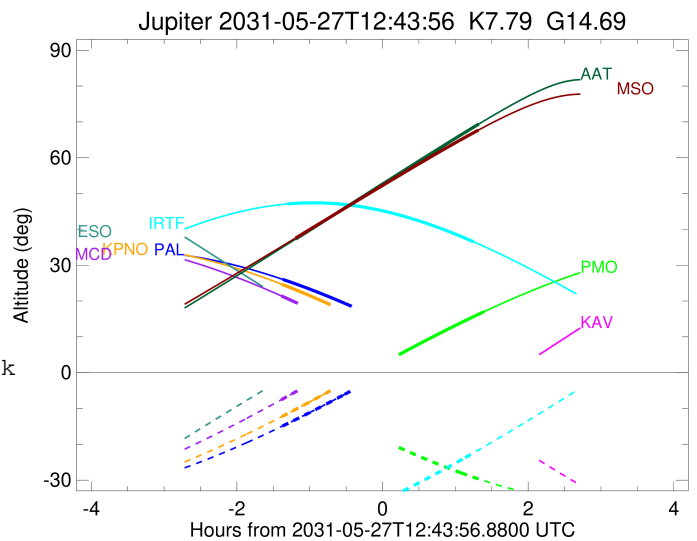
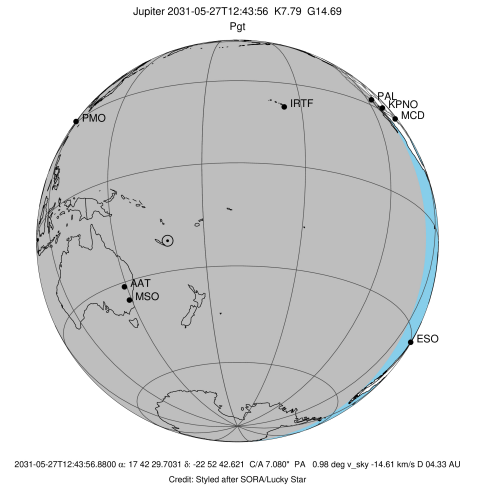
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAY 27 11:21 - MAY 27 11:21	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	MAY 27 14:07 - MAY 27 14:07	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 27 11:21 - MAY 27 11:21	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 27 11:20 - MAY 27 11:20	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAY 27 11:25 - MAY 27 13:59	Pie
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	+	MAY 27 11:32 - MAY 27 14:03	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAY 27 11:32 - MAY 27 14:02	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-27T12:39:05.390
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PAL
Location            : Palomar Mt (200")
Latitude (deg)      : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 7.790
G magnitude          : 14.691
RP magnitude         : 13.095
BP magnitude         : 18.500
DUPflag             : 0
Distance (au)       : 4.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg) : 159.65
Sun-Moon sep (deg)  : 131.72
B (ring opening deg) : -2.60
PA of pole (deg)    : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 5.615
C/A sky separation (km): 17613.7
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
    
```

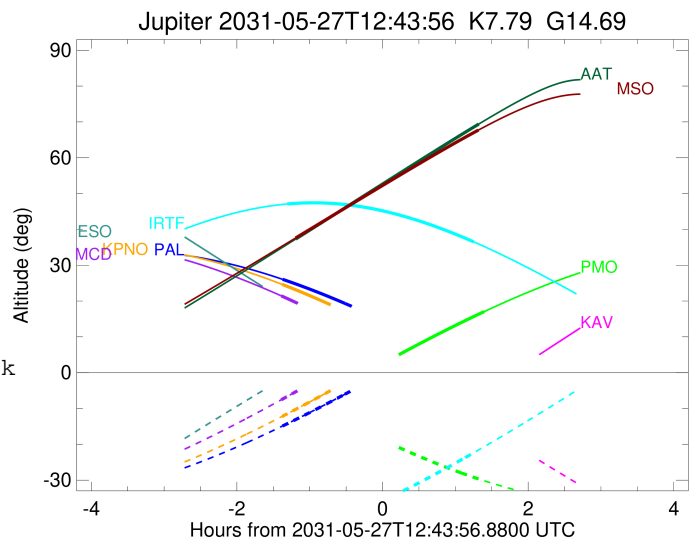
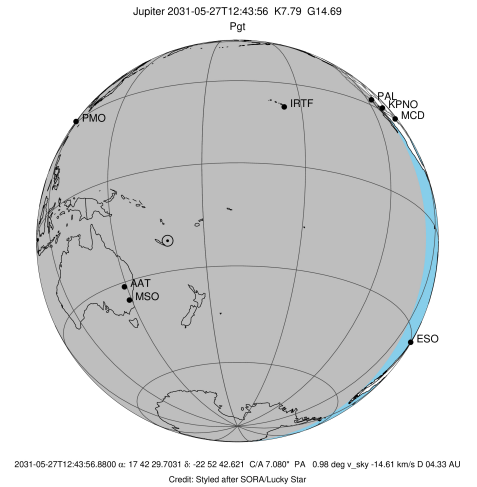


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:21:36.402	26.05	-14.88	71491.5	-13.94	-15.84
Jupiter	E	2031-05-27T13:57:03.913	2.01x	13.96x	71491.4	-14.68	-16.67

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-27T12:50:00.550
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      : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 7.790
G magnitude          : 14.691
RP magnitude         : 13.095
BP magnitude         : 18.500
DUPflag             : 0
Distance (au)       : 4.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg) : 159.65
Sun-Moon sep (deg)  : 132.48
B (ring opening deg) : -2.60
PA of pole (deg)    : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 5.871
C/A sky separation (km): 18416.0
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
    
```

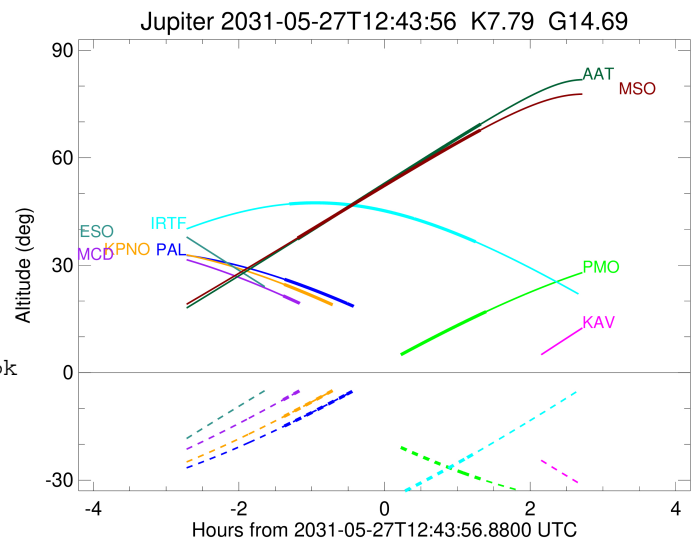
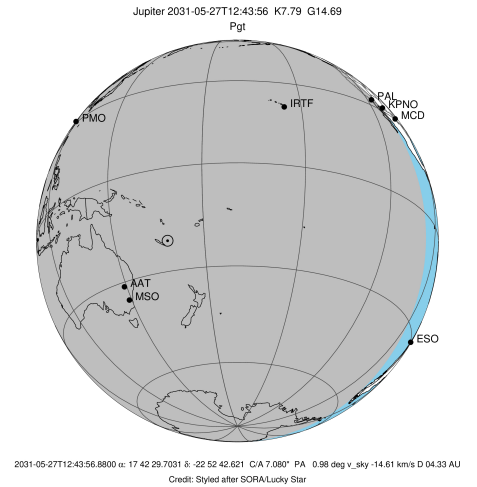


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:31:35.281	-11.50x	-6.30	71491.3	-15.57	-17.66
Jupiter	E	2031-05-27T14:07:42.624	17.04	-30.18	71491.4	-14.32	-16.27

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-27T12:38:40.170
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 7.790
G magnitude           : 14.691
RP magnitude          : 13.095
BP magnitude          : 18.500
DUPflag              : 0
Distance (au)        : 4.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg) : 159.65
Sun-Moon sep (deg)   : 131.66
B (ring opening deg) : -2.60
PA of pole (deg)     : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 5.694
C/A sky separation (km) : 17862.4
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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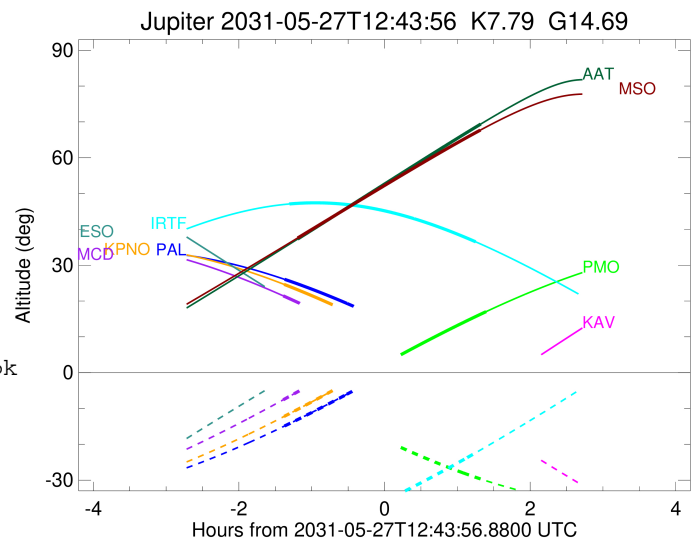
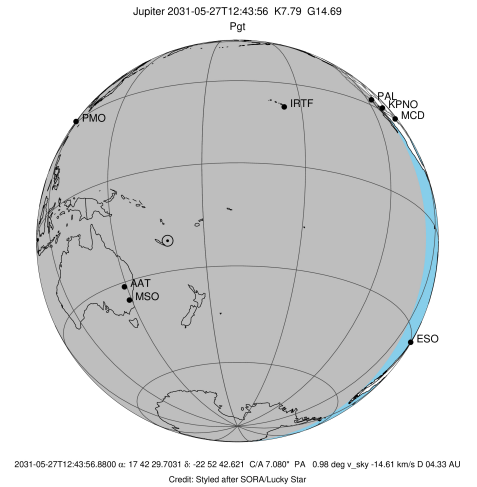


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:21:09.105	24.65	-12.23	71491.4	-14.10	-16.02
Jupiter	E	2031-05-27T13:56:43.635	-1.21x	17.80x	71491.4	-14.92	-16.94

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-27T12:38:10.330
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 7.790
G magnitude           : 14.691
RP magnitude          : 13.095
BP magnitude          : 18.500
DUPflag              : 0
Distance (au)         : 4.325
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg)  : 159.65
Sun-Moon sep (deg)    : 131.57
B (ring opening deg) : -2.60
PA of pole (deg)     : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 5.800
C/A sky separation (km) : 18195.7
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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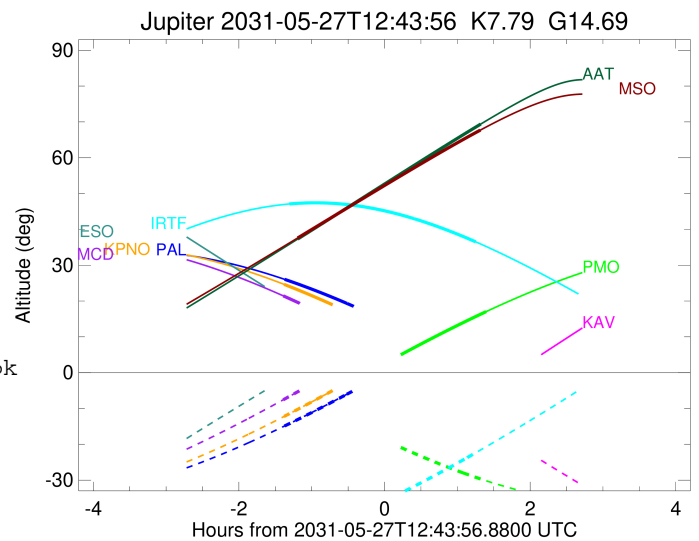
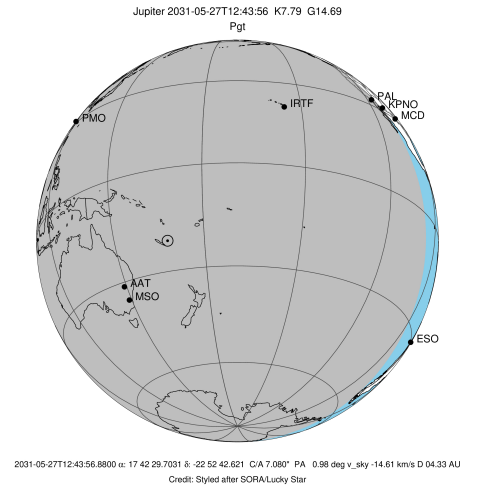


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:20:33.608	21.43	-7.56	71491.4	-14.32	-16.27
Jupiter	E	2031-05-27T13:56:22.931	-6.50x	23.75x	71491.4	-15.24	-17.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-27T12:42:19.380
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : IRTF
Location            : Mauna Kea/IRTF
Latitude (deg)      : 19.82622
E. Longitude (deg)  : 204.52800
Altitude (km)       : 4.168
Gaia source ID      : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 7.790
G magnitude          : 14.691
RP magnitude         : 13.095
BP magnitude         : 18.500
DUPflag             : 0
Distance (au)       : 4.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg) : 159.65
Sun-Moon sep (deg)  : 132.29
B (ring opening deg) : -2.60
PA of pole (deg)    : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 5.707
C/A sky separation (km): 17901.1
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
    
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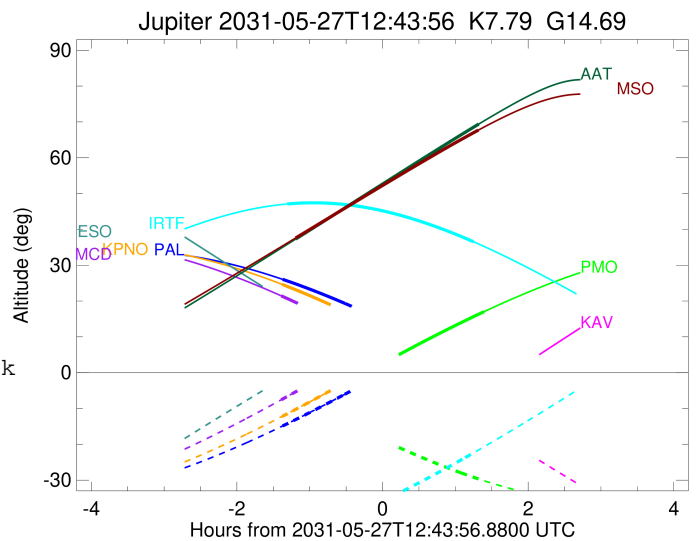
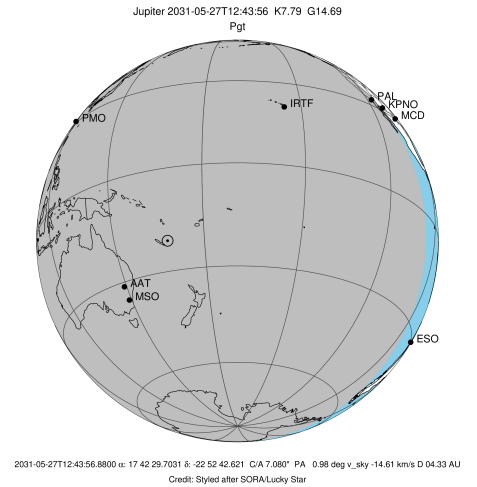


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:25:41.102	47.09	-45.87	71491.4	-14.53	-16.50
Jupiter	E	2031-05-27T13:59:05.424	36.52	-22.36	71491.4	-14.66	-16.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-27T12:48:07.380
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 7.790
G magnitude          : 14.691
RP magnitude         : 13.095
BP magnitude         : 18.500
DUPflag             : 0
Distance (au)       : 4.325
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg) : 159.65
Sun-Moon sep (deg)  : 132.88
B (ring opening deg) : -2.60
PA of pole (deg)    : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation ("): 7.533
C/A sky separation (km): 23629.2
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
    
```

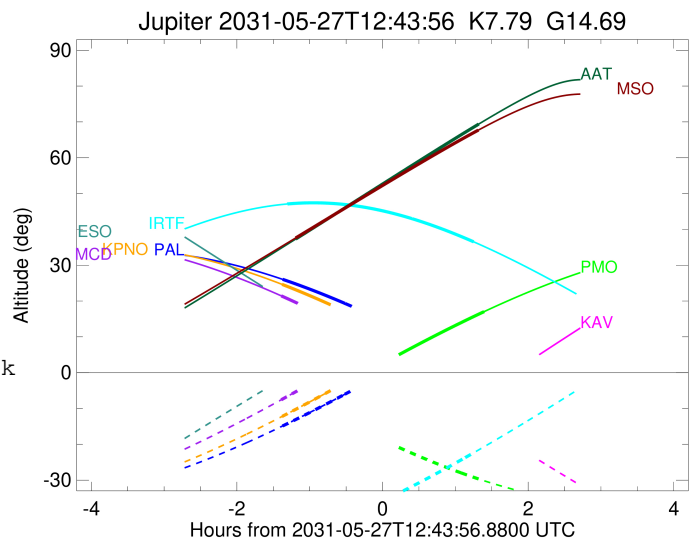
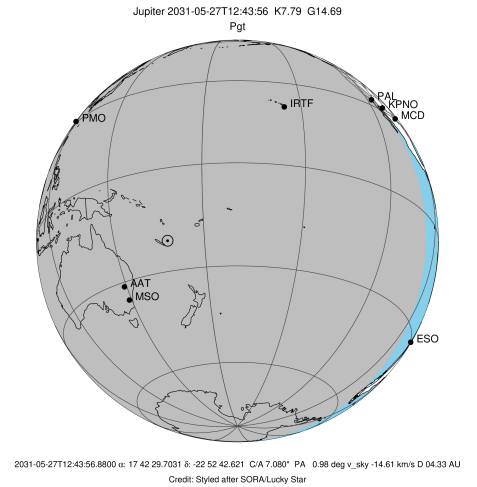


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-27T11:32:30.593	37.32	-55.48	71490.9	-19.81	-22.37
Jupiter	E	2031-05-27T14:03:15.625	69.39	-80.20	71491.0	-18.90	-21.36

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-27T12:47:56.330
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : MSO
Location              : Mt. Stromlo Observatory
Latitude (deg)        : -35.32000
E. Longitude (deg)    : 149.00833
Altitude (km)         : 0.770
Gaia source ID        : 4116878989723282560
2Mass ID (if available) : 17422970-2252423
ICRS Star Coord at Epoch: 17h 42m 29.70311s -22:52:42.62106s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 7.790
G magnitude           : 14.691
RP magnitude          : 13.095
BP magnitude          : 18.500
DUPflag              : 0
Distance (au)         : 4.325
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.61
Sun-Target sep (deg)  : 159.65
Sun-Moon sep (deg)    : 132.86
B (ring opening deg) : -2.60
PA of pole (deg)      : 1.05
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 7.666
C/A sky separation (km) : 24047.8
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	2031-05-27T11:32:25.773	37.60	-54.70	71490.9	-20.15	-22.74
Jupiter	E	2031-05-27T14:02:59.484	67.71	-76.18	71491.0	-19.26	-21.76