

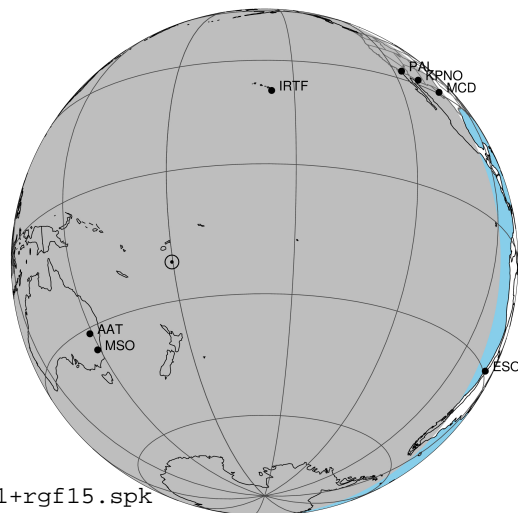
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-05-26T11:58:02.290  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4116881390516388992  
 2Mass ID (if available) : 17425954-2252414

Jupiter 2031-05-26T11:58:02 K9.38 G14.61 Pgt

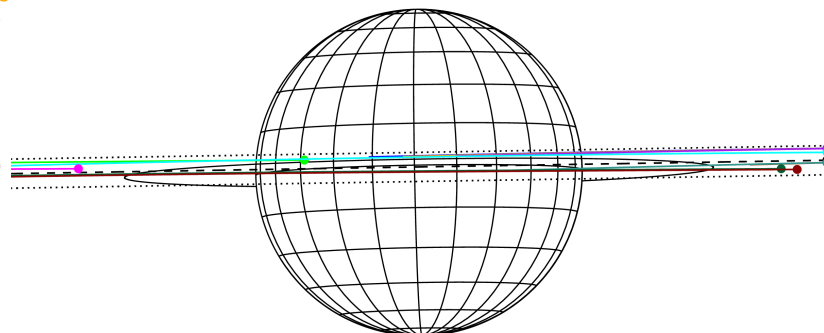
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s

RUWE (>1.4 is poor) : 0.94  
 K magnitude : 9.385  
 G magnitude : 14.613  
 RP magnitude : 13.277  
 BP magnitude : 16.619  
 DUPflag : 0  
 Distance (au) : 4.331  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.41  
 Sun-Target sep (deg) : 158.54  
 Sun-Moon sep (deg) : 144.35  
 B (ring opening deg) : -2.61  
 PA of pole (deg) : 0.99  
 Pole direction: RA (deg): 268.05694  
 Dec (deg): 64.49651  
 C/A sky separation (") : 0.776  
 C/A sky separation (km) : 2438.5  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-05-26T11:58:02 K9.38 G14.61  
 Pgt



Earth  
 PAL  
 PMO  
 KPNO  
 MCD  
 IRTF  
 KAV  
 RIO  
 ESO  
 AAT  
 MSO

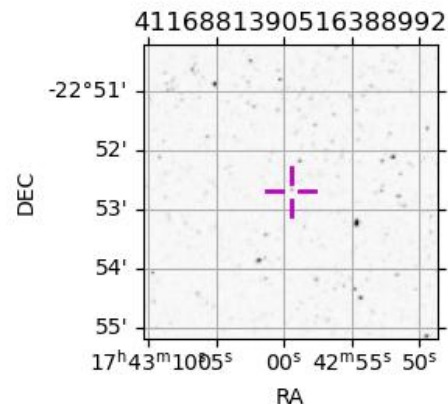


2031-05-26T11:58:02.2900 at: 17 42 59.5356 s: -22 52 41.700 C/A 0.764" PA 180.94 deg v\_sky -14.41 km/s D 04.33 AU

Credit: Styled after SORA/Lucky Star

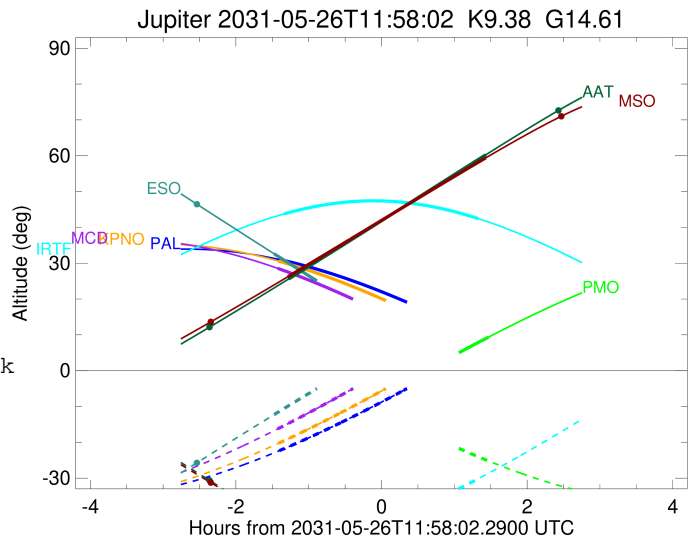
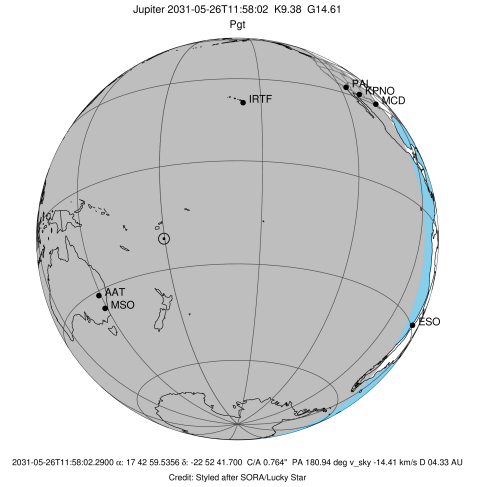
Observable events with sun below -5 deg and altitude above 5 deg

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 26 10:33 - MAY 26 10:33		Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	MAY 26 13:25 - MAY 26 13:25		Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 26 10:33 - MAY 26 10:33		Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 26 10:32 - MAY 26 10:32		Pin
TEN	Teide Obs./Tenerife	28.3	343.5				Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAY 26 10:37 - MAY 26 13:17		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	+	MAY 26 10:29 - MAY 26 10:29		Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	MAY 26 10:41 - MAY 26 13:24		Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8				Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 26 10:41 - MAY 26 13:23		Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T11:54:15.210
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       : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude         : 13.277
BP magnitude         : 16.619
DUPflag              : 0
Distance (au)        : 4.331
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)  : 144.10
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 2.324
C/A sky separation (km) : 7300.5
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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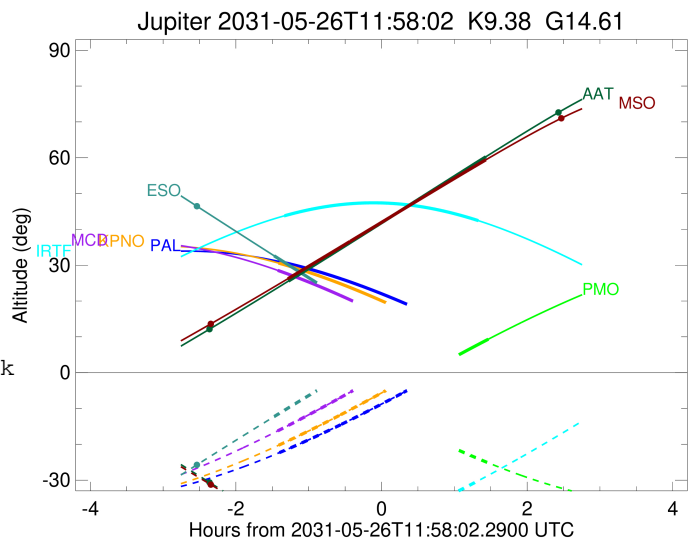
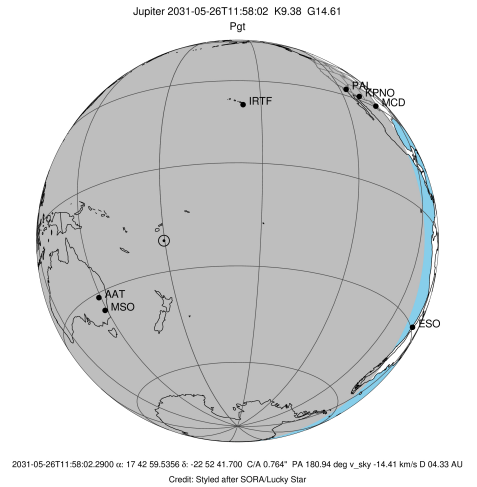


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:33:51.044	31.02	-22.32	71491.9	6.07	6.93
Jupiter	E	2031-05-26T13:15:03.983	10.21	5.59x	71491.9	5.47	6.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-26T12:04:13.300
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       : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude          : 13.277
BP magnitude          : 16.619
DUPflag              : 0
Distance (au)        : 4.331
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)   : 144.87
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 1.829
C/A sky separation (km) : 5745.8
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
    
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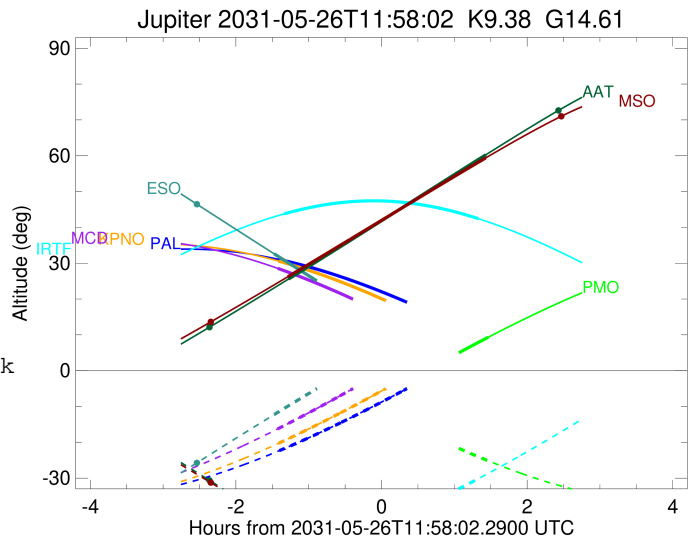
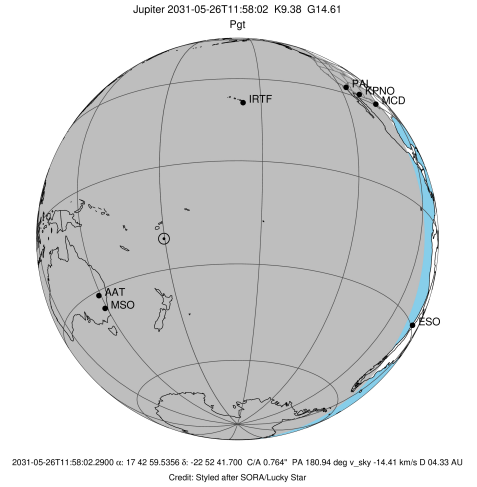


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:41:39.935	-22.57x	3.05x	71492.0	3.94	4.51
Jupiter	E	2031-05-26T13:25:55.924	9.32	-25.16	71491.9	5.24	5.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T11:53:46.530
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      : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.385
G magnitude          : 14.613
RP magnitude         : 13.277
BP magnitude         : 16.619
DUPflag             : 0
Distance (au)       : 4.331
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)  : 144.04
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 2.255
C/A sky separation (km) : 7085.2
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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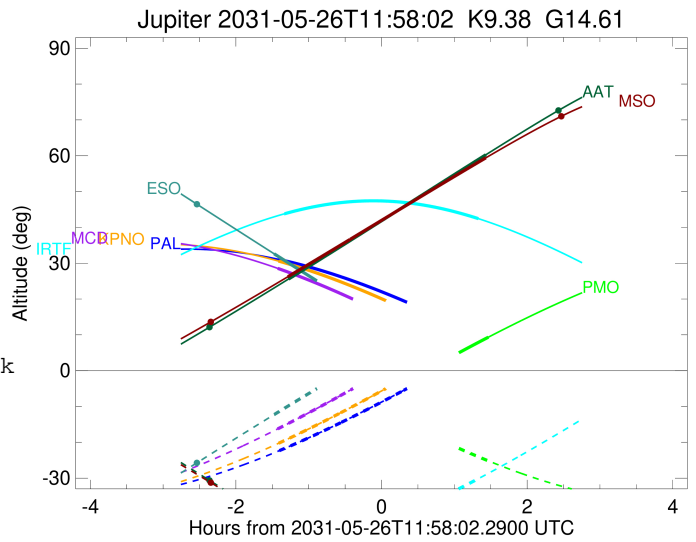
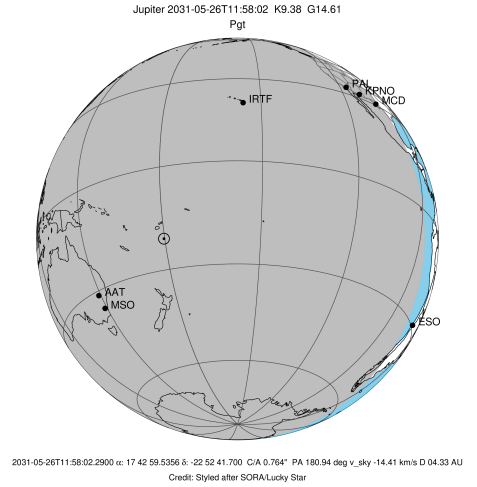


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:33:16.648	30.58	-20.26	71491.9	5.95	6.79
Jupiter	E	2031-05-26T13:14:44.608	7.39	9.20x	71491.9	5.26	6.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T11:53:10.100
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       : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude         : 13.277
BP magnitude         : 16.619
DUPflag              : 0
Distance (au)        : 4.331
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)  : 143.95
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 2.163
C/A sky separation (km) : 6793.8
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
    
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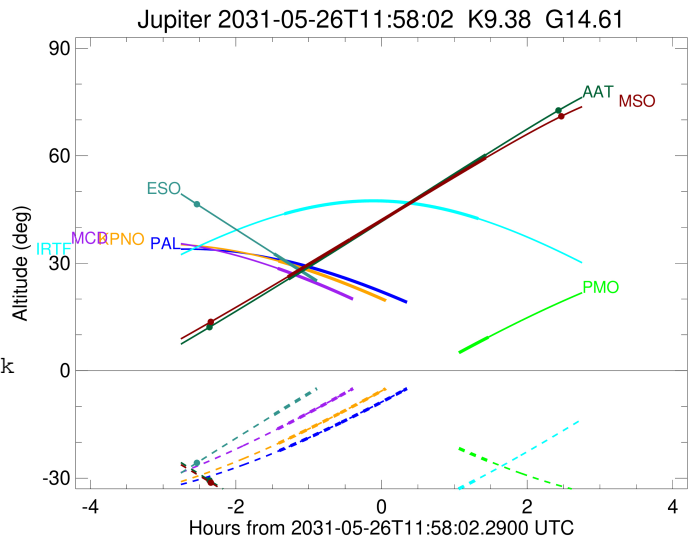
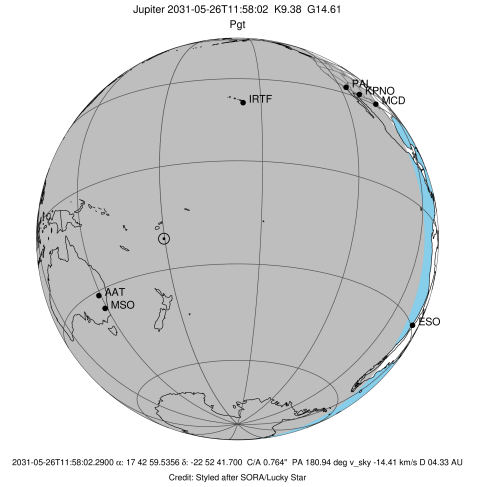


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:32:29.481	28.56	-16.25	71491.9	5.78	6.60
Jupiter	E	2031-05-26T13:14:23.587	2.53x	14.92x	71491.9	4.97	5.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-26T11:57:54.220
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       : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude         : 13.277
BP magnitude         : 16.619
DUPflag              : 0
Distance (au)        : 4.331
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)  : 144.66
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 2.151
C/A sky separation (km) : 6757.3
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
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neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
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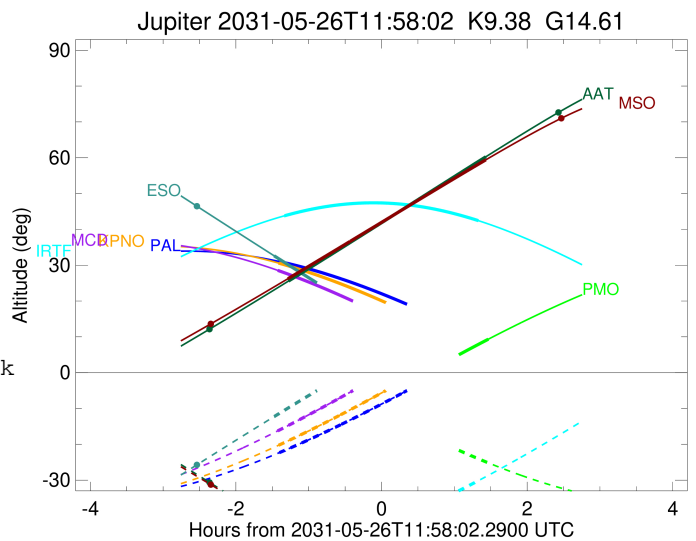
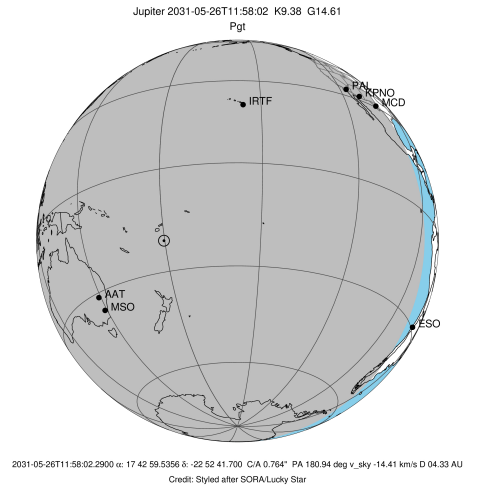


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:37:56.391	43.77	-48.90	71491.9	5.25	5.99
Jupiter	E	2031-05-26T13:17:49.943	42.44	-30.15	71491.9	5.36	6.12

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T11:51:34.820
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      : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 9.385
G magnitude          : 14.613
RP magnitude         : 13.277
BP magnitude         : 16.619
DUPflag             : 0
Distance (au)       : 4.331
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg) : 158.54
Sun-Moon sep (deg)  : 143.88
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 0.048
C/A sky separation (km) : 151.4
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
    
```

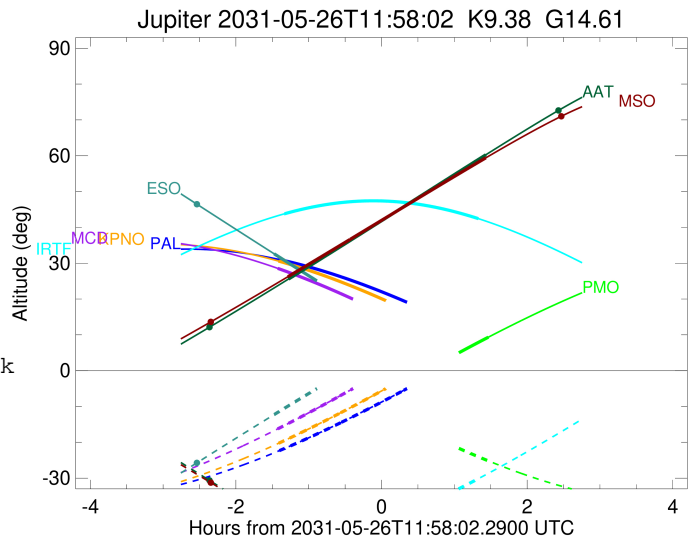
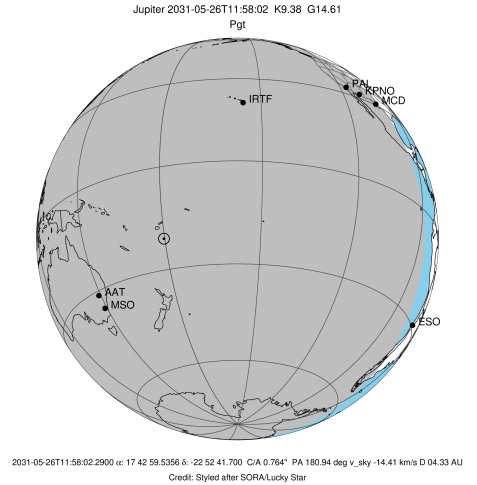


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:29:29.771	32.63	-12.28	71492.0	0.42	0.48
Jupiter	E	2031-05-26T13:14:25.708	-1.55x	19.45x	71492.0	-0.69	-0.79

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-26T12:03:00.860
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        : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude          : 13.277
BP magnitude          : 16.619
DUPflag              : 0
Distance (au)         : 4.331
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg)  : 158.54
Sun-Moon sep (deg)    : 145.23
B (ring opening deg) : -2.61
PA of pole (deg)      : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 0.204
C/A sky separation (km) : 639.8
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
    
```



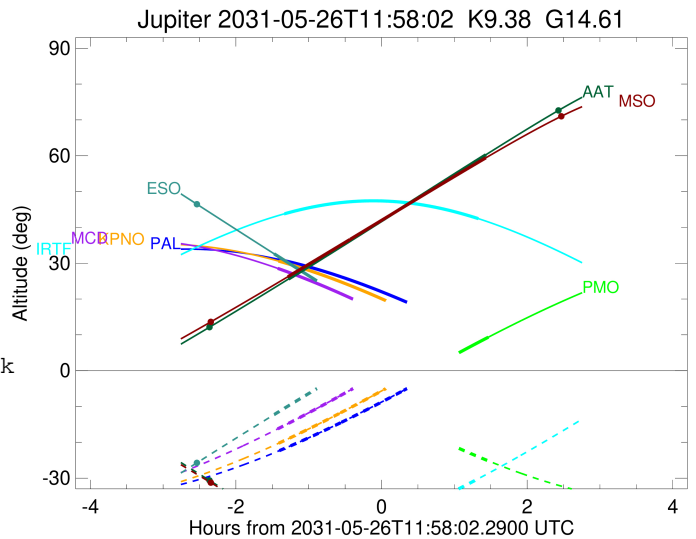
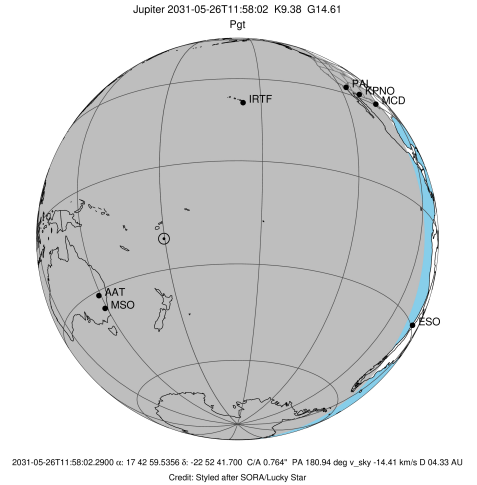
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T10:41:19.845	25.55	-44.51	71492.0	-0.09	-0.10
Jupiter	E	2031-05-26T13:24:01.329	60.26	-77.08	71492.0	0.98	1.12



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T12:02:47.590
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       : 4116881390516388992
2Mass ID (if available) : 17425954-2252414
ICRS Star Coord at Epoch: 17h 42m 59.53562s -22:52:41.70036s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.385
G magnitude           : 14.613
RP magnitude          : 13.277
BP magnitude          : 16.619
DUPflag              : 0
Distance (au)         : 4.331
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.41
Sun-Target sep (deg)  : 158.54
Sun-Moon sep (deg)   : 145.21
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.99
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 0.075
C/A sky separation (km) : 236.9
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	2031-05-26T10:41:03.451	26.25	-44.26	71492.0	-0.39	-0.44
Jupiter	E	2031-05-26T13:23:52.719	59.38	-73.81	71492.0	0.64	0.73