

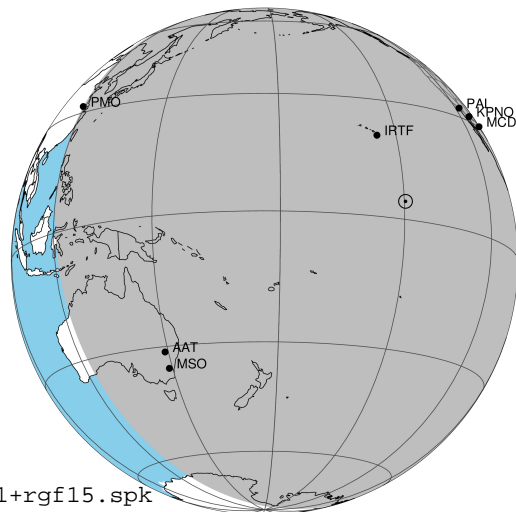
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2045-10-03T09:47:36.870
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 2602362710901995904
 2Mass ID (if available) : 22210097-1143581

Jupiter 2045-10-03T09:47:36 K9.21 G10.47 Pgt

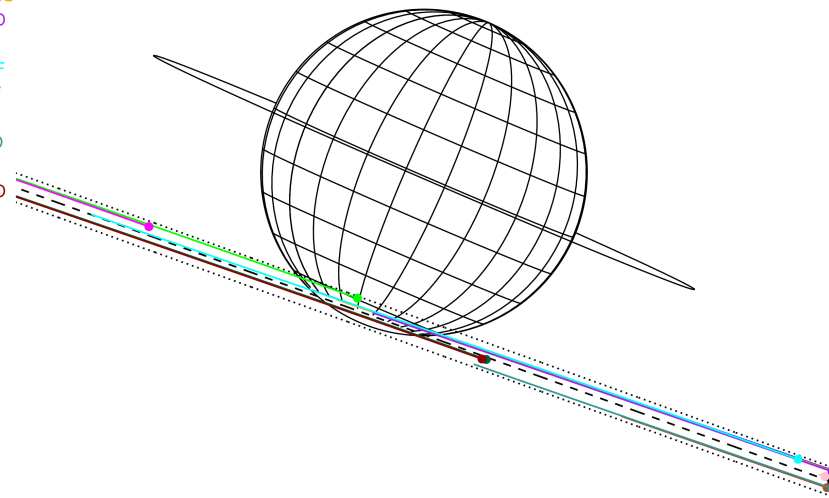
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s

RUWE (>1.4 is poor) : 0.87
 K magnitude : 9.209
 G magnitude : 10.467
 RP magnitude : 10.014
 BP magnitude : 10.755
 DUPflag : 0
 Distance (au) : 4.163
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -9.99
 Sun-Target sep (deg) : 142.82
 Sun-Moon sep (deg) : 122.51
 B (ring opening deg) : 1.16
 PA of pole (deg) : -23.39
 Pole direction: RA (deg): 268.05705
 Dec (deg): 64.49723
 C/A sky separation (") : 22.136
 C/A sky separation (km) : 66831.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2045-10-03T09:47:36 K9.21 G10.47
 Pgt



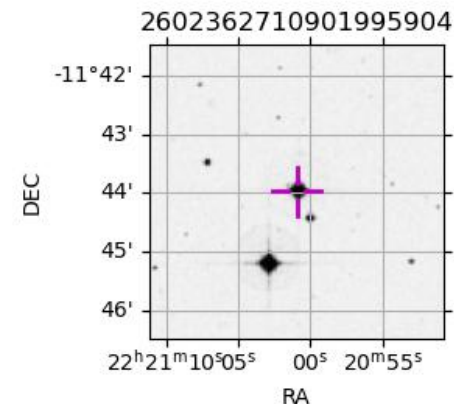
Earth
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 MSO



2045-10-03T09:47:36.8700 α: 22 21 01.0502 & -11 43 58.770 C/A ***** PA 340.17 deg v_sky - 9.99 km/s D 04.16 AU
 Credit: Styled after SORA/Lucky Star

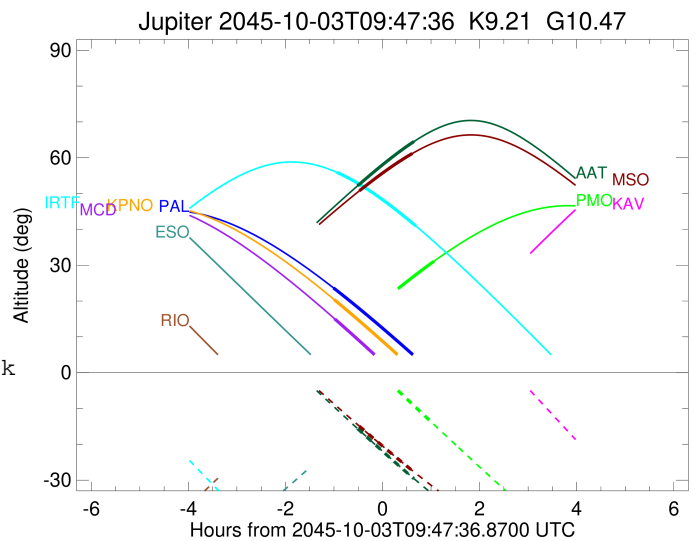
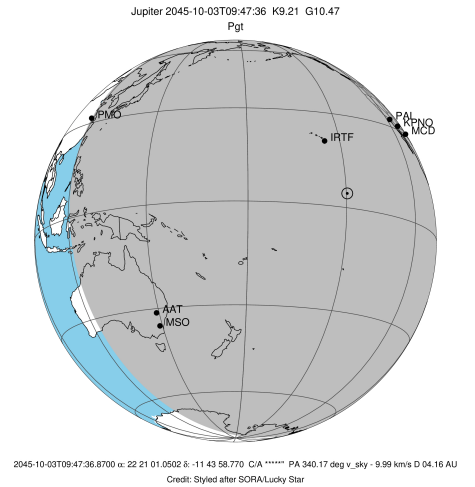
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+	OCT 03 08:47 - OCT 03 08:47	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	OCT 03 10:51 - OCT 03 10:51	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	OCT 03 08:47 - OCT 03 08:47	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	OCT 03 08:48 - OCT 03 08:48	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	OCT 03 08:51 - OCT 03 10:28	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	+	OCT 03 09:16 - OCT 03 10:26	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	OCT 03 09:19 - OCT 03 10:24	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2045-10-03T09:36:34.000
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      : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.209
G magnitude          : 10.467
RP magnitude         : 10.014
BP magnitude         : 10.755
DUPflag             : 0
Distance (au)       : 4.163
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)  : 123.19
B (ring opening deg) : 1.16
PA of pole (deg)    : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation (" ) : 21.470
C/A sky separation (km) : 64818.4
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
    
```

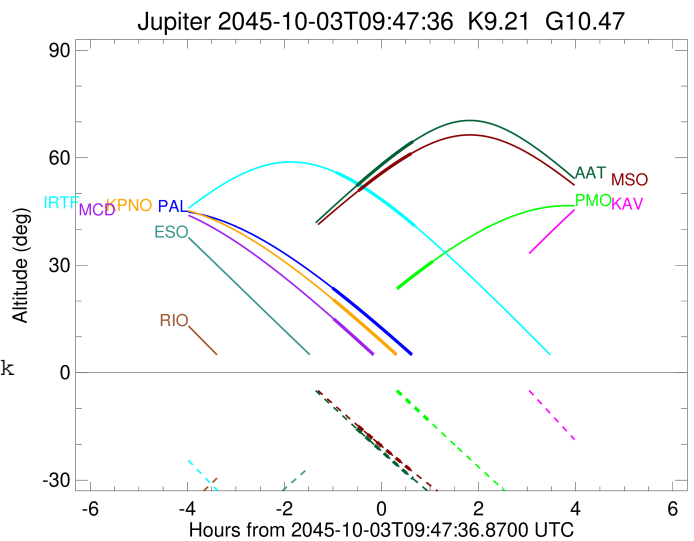
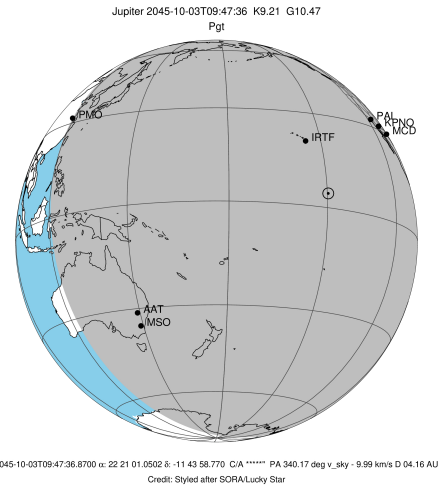


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T08:47:03.301	23.65	-56.63	71490.6	-60.73	-63.74
Jupiter	E	2045-10-03T10:26:30.845	4.75x	-40.92	71490.4	-69.22	-71.52

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2045-10-03T09:52:20.350
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       : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.209
G magnitude           : 10.467
RP magnitude          : 10.014
BP magnitude          : 10.755
DUPflag              : 0
Distance (au)        : 4.163
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)   : 122.58
B (ring opening deg) : 1.16
PA of pole (deg)     : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation ("): 20.414
C/A sky separation (km): 61632.0
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
    
```

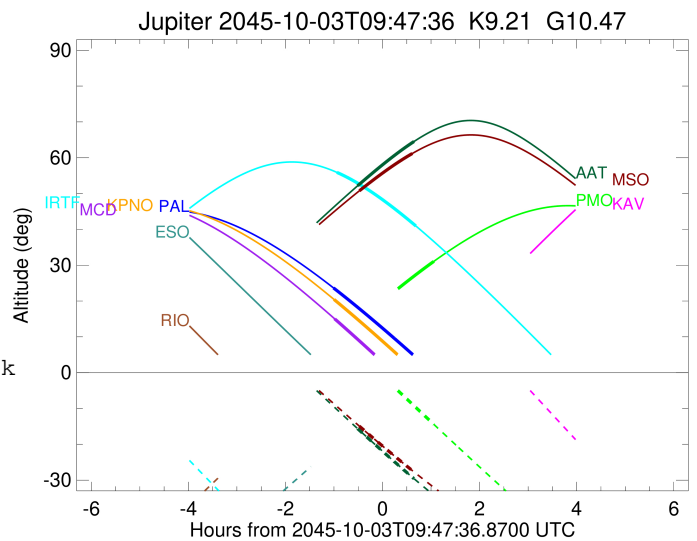
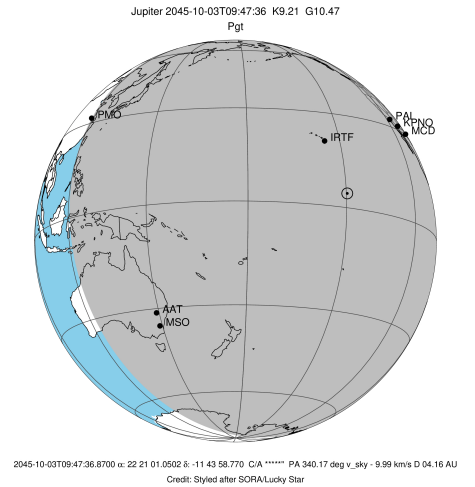


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T08:53:13.483	9.34	10.47x	71490.8	-56.02	-59.33
Jupiter	E	2045-10-03T10:51:05.660	31.07	-14.44	71490.6	-63.27	-66.09

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2045-10-03T09:36:19.320
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        : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.209
G magnitude           : 10.467
RP magnitude          : 10.014
BP magnitude          : 10.755
DUPflag              : 0
Distance (au)         : 4.163
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg)  : 142.82
Sun-Moon sep (deg)    : 123.15
B (ring opening deg)  : 1.16
PA of pole (deg)      : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation (") : 21.565
C/A sky separation (km) : 65107.6
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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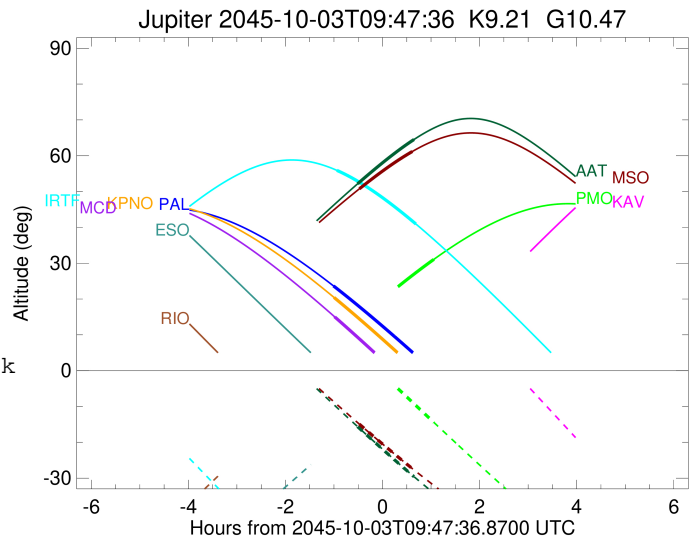
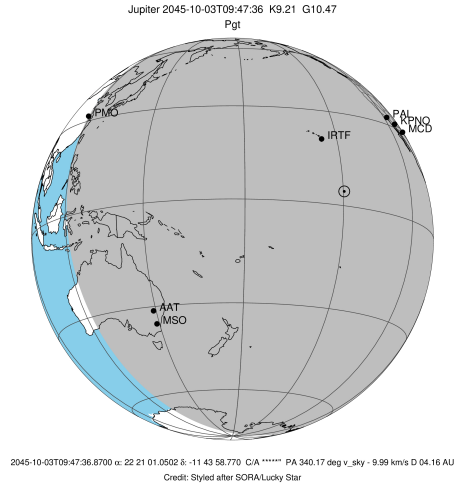


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T08:47:41.567	20.44	-54.89	71490.6	-61.31	-64.28
Jupiter	E	2045-10-03T10:25:23.409	1.08x	-37.65	71490.4	-69.74	-71.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2045-10-03T09:36:08.950
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        : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.209
G magnitude           : 10.467
RP magnitude          : 10.014
BP magnitude          : 10.755
DUPflag              : 0
Distance (au)         : 4.163
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)   : 123.08
B (ring opening deg) : 1.16
PA of pole (deg)     : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation (") : 21.675
C/A sky separation (km) : 65439.9
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
    
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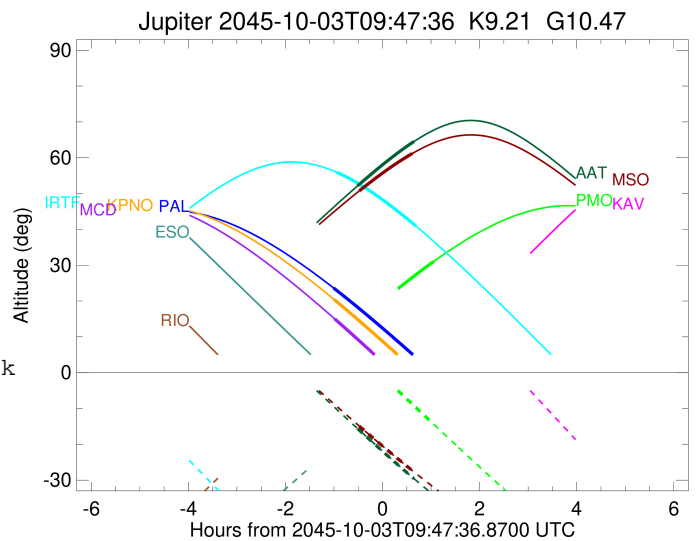
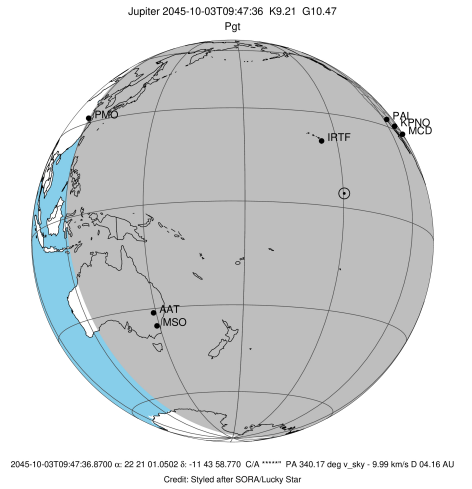


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T08:48:30.547	15.02	-50.75	71490.6	-62.02	-64.94
Jupiter	E	2045-10-03T10:24:13.593	-4.74x	-32.15	71490.4	-70.31	-72.50

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2045-10-03T09:39:52.340
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       : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.209
G magnitude          : 10.467
RP magnitude         : 10.014
BP magnitude         : 10.755
DUPflag             : 0
Distance (au)        : 4.163
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)   : 123.44
B (ring opening deg) : 1.16
PA of pole (deg)     : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation (") : 21.447
C/A sky separation (km) : 64751.6
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
    
```

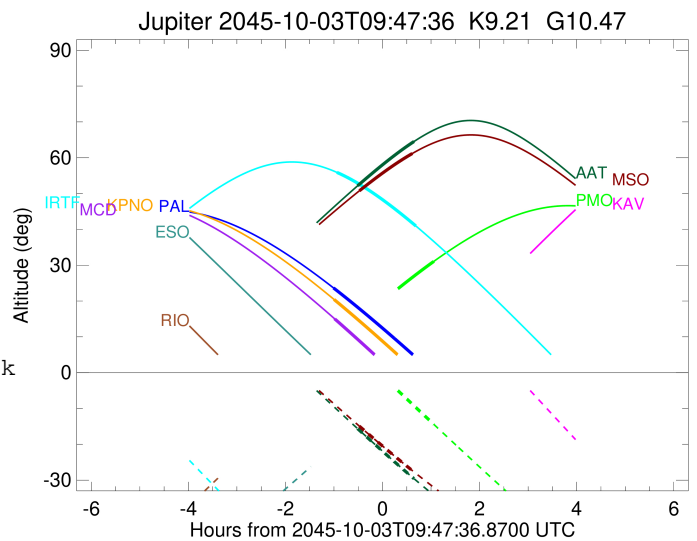
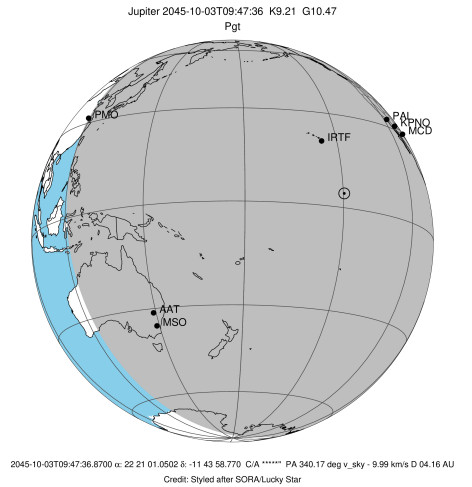


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T08:51:12.384	55.91	-65.17	71490.6	-60.41	-63.45
Jupiter	E	2045-10-03T10:28:49.199	40.95	-73.89	71490.4	-69.40	-71.68

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2045-10-03T09:51:43.110
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       : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude          : 9.209
G magnitude           : 10.467
RP magnitude         : 10.014
BP magnitude         : 10.755
DUPflag             : 0
Distance (au)        : 4.163
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)   : 122.93
B (ring opening deg) : 1.16
PA of pole (deg)     : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation ("): 22.564
C/A sky separation (km): 68125.2
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
    
```

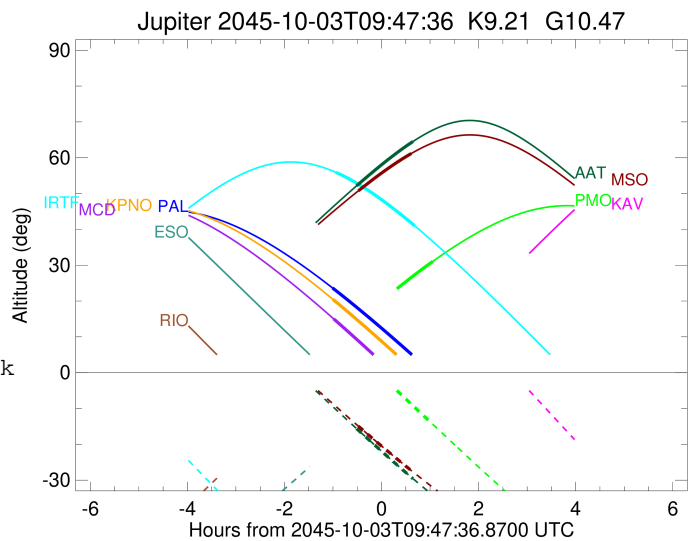
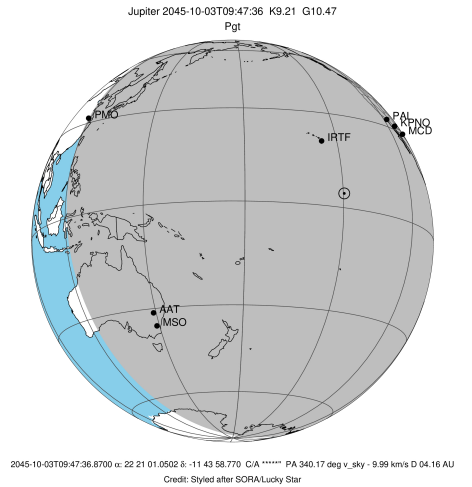


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2045-10-03T09:16:50.327	52.15	-15.62	71490.5	-68.33	-70.71
Jupiter	E	2045-10-03T10:26:33.379	64.52	-29.59	71490.3	-76.41	-77.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2045-10-03T09:51:49.350
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       : 2602362710901995904
2Mass ID (if available) : 22210097-1143581
ICRS Star Coord at Epoch: 22h 21m 01.05021s -11:43:58.76953s
RUWE (>1.4 is poor) : 0.87
K magnitude           : 9.209
G magnitude           : 10.467
RP magnitude         : 10.014
BP magnitude         : 10.755
DUPflag              : 0
Distance (au)        : 4.163
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.99
Sun-Target sep (deg) : 142.82
Sun-Moon sep (deg)   : 122.91
B (ring opening deg) : 1.16
PA of pole (deg)     : -23.39
Pole direction: RA (deg): 268.05705
Dec (deg): 64.49723
C/A sky separation ("): 22.704
C/A sky separation (km): 68548.0
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	2045-10-03T09:19:06.509	50.77	-14.95	71490.4	-69.49	-71.76
Jupiter	E	2045-10-03T10:24:30.145	61.18	-27.33	71490.3	-77.53	-78.97