

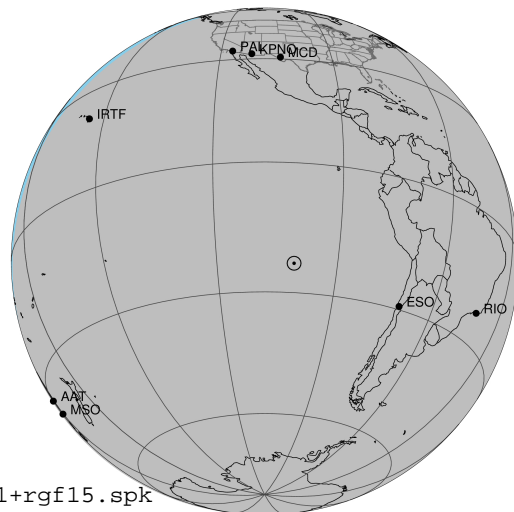
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-26T06:46:25.140
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068879843936684544
 2Mass ID (if available) : 17481956-2304340

Jupiter 2043-06-26T06:46:25 K9.00 G13.90 Pgt

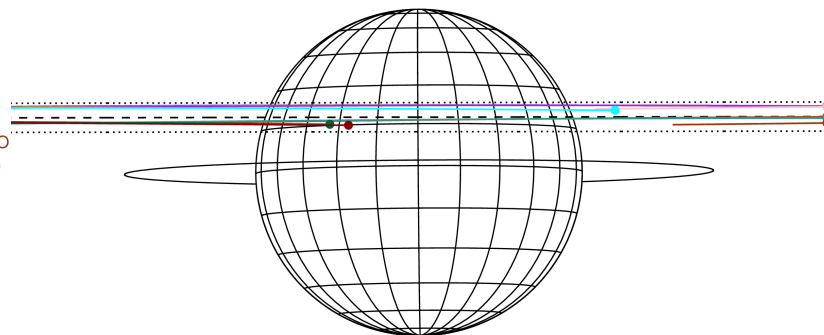
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s

RUWE (>1.4 is poor) : 0.95
 K magnitude : 8.999
 G magnitude : 13.904
 RP magnitude : 12.659
 BP magnitude : 15.618
 DUPflag : 0
 Distance (au) : 4.254
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.23
 Sun-Target sep (deg) : 173.31
 Sun-Moon sep (deg) : 49.44
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.42
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 7.855
 C/A sky separation (km) : 24233.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-26T06:46:25 K9.00 G13.90
 Pgt



Earth
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO

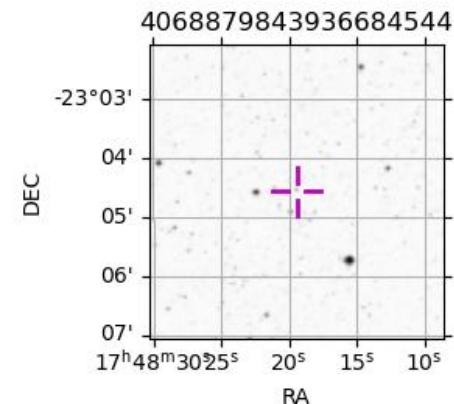


2043-06-26T06:46:25.1400 at: 17 48 19.5513 s: -23 04 34.289 C/A 7.844" PA 180.09 deg v_sky -16.23 km/s D 04.25 AU

Credit: Styled after SORA/Lucky Star

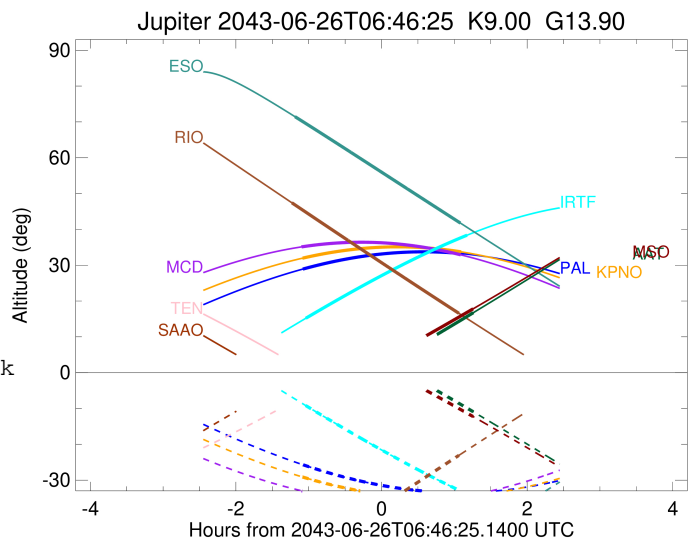
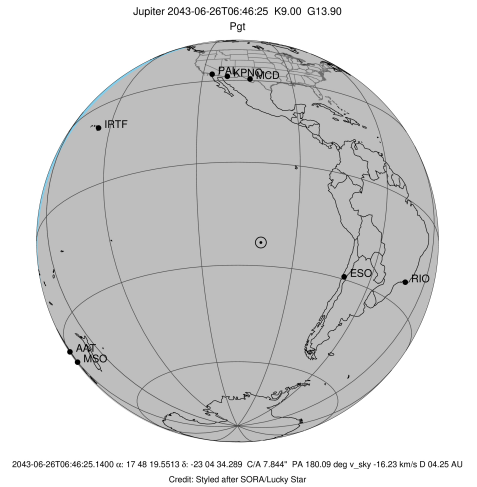
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUN 26 05:41 - JUN 26 07:52	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 26 05:41 - JUN 26 07:52	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 26 05:40 - JUN 26 07:51	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 26 05:44 - JUN 26 07:56	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUN 26 05:32 - JUN 26 07:50	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 26 05:35 - JUN 26 07:51	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 26 08:02 - JUN 26 08:02	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 26 08:01 - JUN 26 08:01	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T06:47:10.370
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       : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg) : 173.31
Sun-Moon sep (deg)   : 49.97
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 9.567
C/A sky separation (km): 29513.9
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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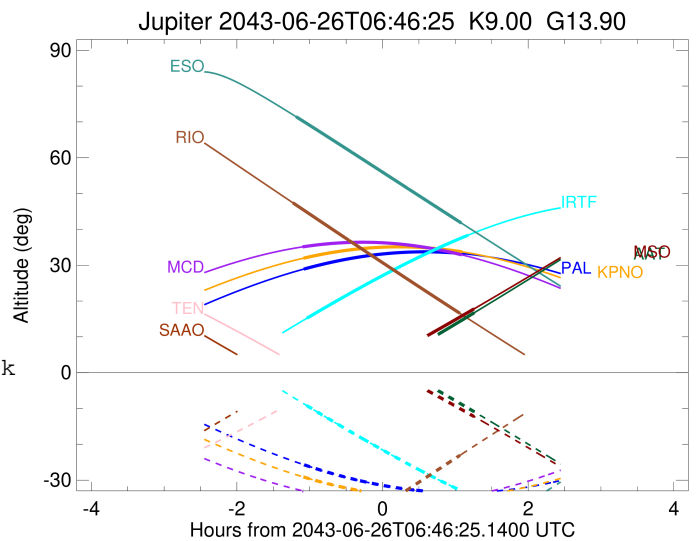
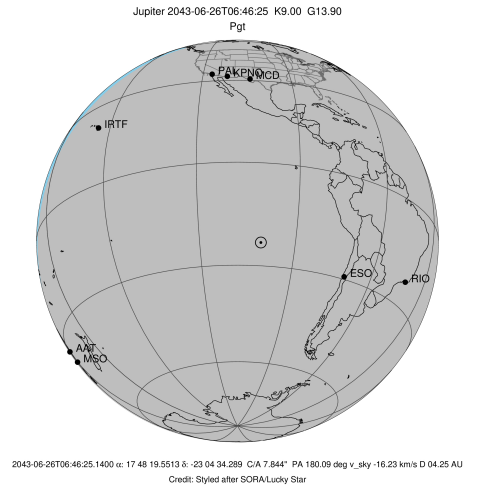


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:41:45.077	28.93	-25.71	71490.7	23.88	26.82
Jupiter	E	2043-06-26T07:52:32.506	33.23	-33.47	71490.6	24.69	27.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:46:42.790
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       : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude         : 12.659
BP magnitude         : 15.618
DUPflag              : 0
Distance (au)        : 4.254
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg) : 173.31
Sun-Moon sep (deg)   : 49.94
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 9.545
C/A sky separation (km) : 29445.1
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
    
```

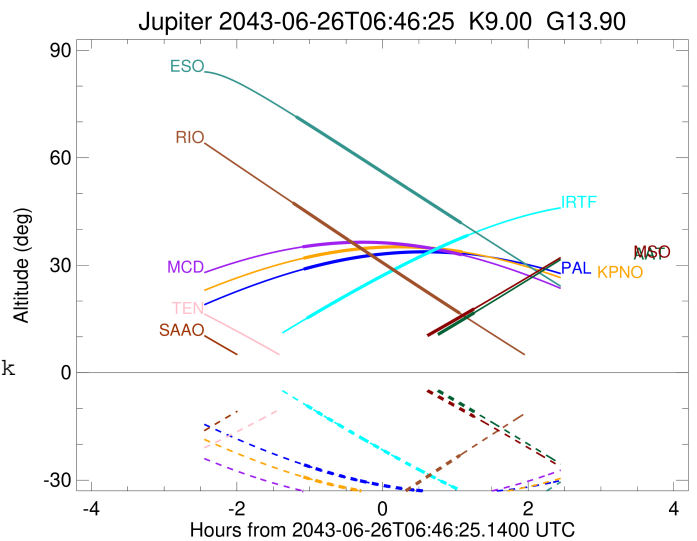
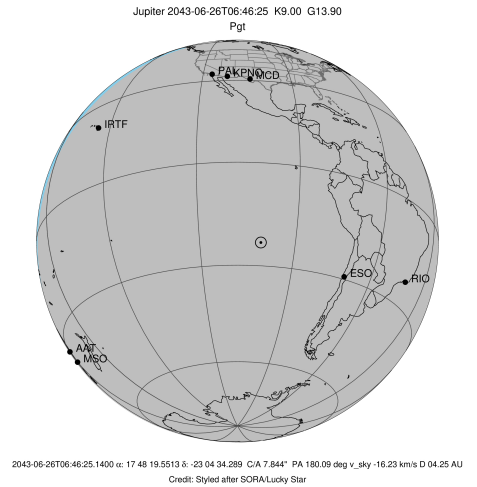


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:41:18.964	31.96	-29.12	71490.7	23.87	26.80
Jupiter	E	2043-06-26T07:52:05.730	33.71	-34.59	71490.6	24.58	27.57

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:46:01.550
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        : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg)  : 173.31
Sun-Moon sep (deg)    : 49.89
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 9.516
C/A sky separation (km) : 29357.8
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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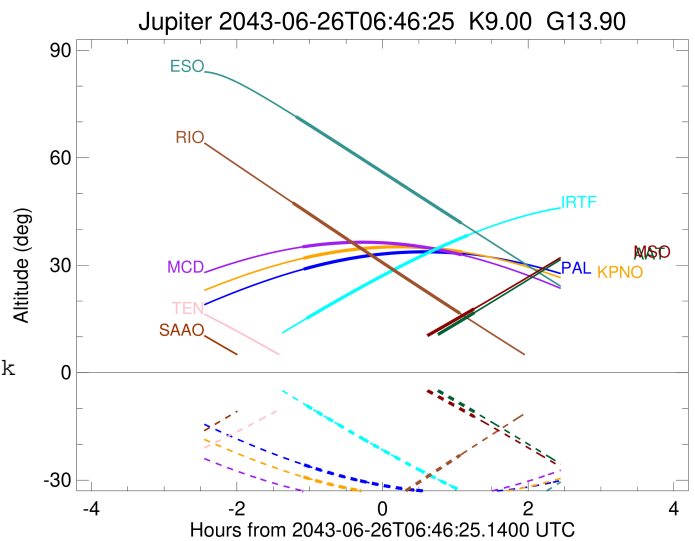
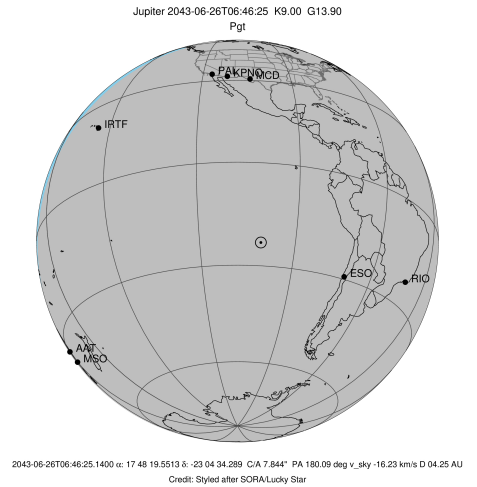


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:40:38.202	35.11	-32.97	71490.7	23.86	26.79
Jupiter	E	2043-06-26T07:51:27.397	32.92	-34.69	71490.6	24.43	27.41

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:50:38.990
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        : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg)  : 173.31
Sun-Moon sep (deg)    : 50.22
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 9.030
C/A sky separation (km) : 27855.9
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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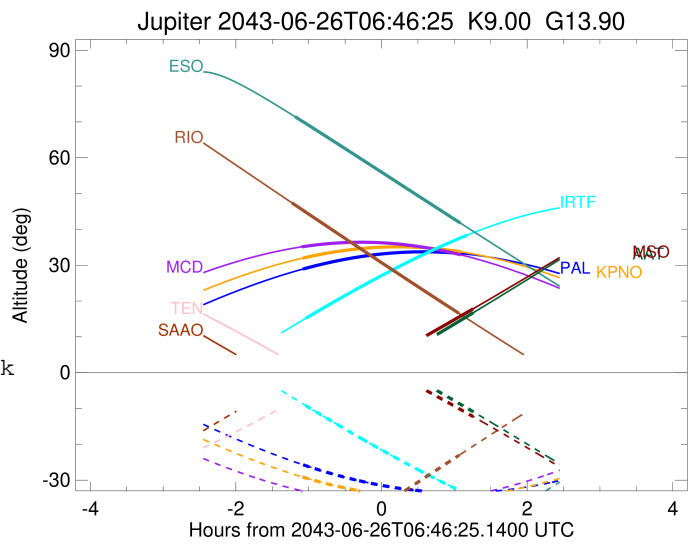
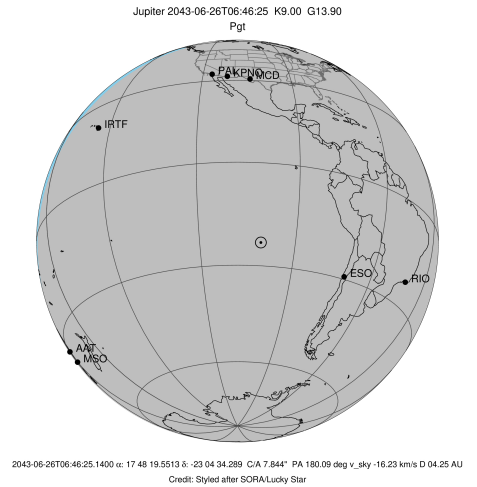


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:44:02.242	15.18	-9.19	71490.9	22.10	24.88
Jupiter	E	2043-06-26T07:56:54.741	38.37	-33.86	71490.7	23.60	26.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:41:13.730
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        : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor)  : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg)  : 173.31
Sun-Moon sep (deg)    : 49.29
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 7.447
C/A sky separation (km) : 22973.6
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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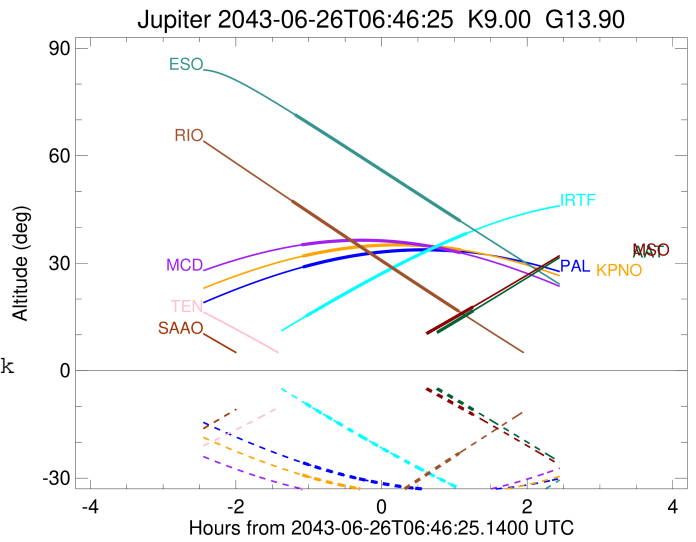
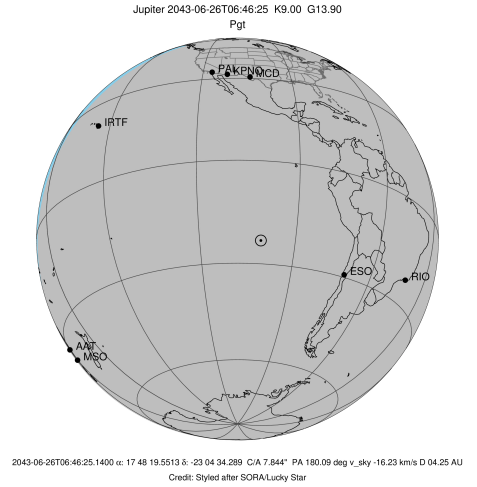


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:32:42.466	47.38	-53.99	71491.2	18.88	21.34
Jupiter	E	2043-06-26T07:50:14.102	16.55	-23.07	71491.2	18.50	20.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:43:08.760
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        : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg)  : 173.31
Sun-Moon sep (deg)    : 49.71
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 7.496
C/A sky separation (km) : 23125.6
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
    
```

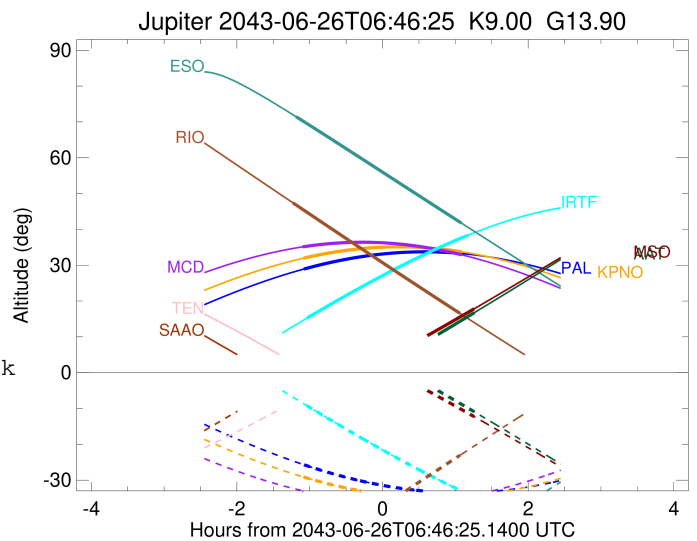
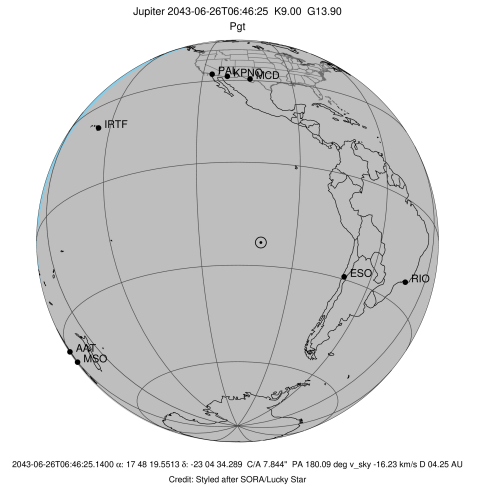


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:35:07.872	71.45	-77.53	71491.2	18.79	21.24
Jupiter	E	2043-06-26T07:51:27.808	41.75	-48.22	71491.2	18.79	21.24


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-26T06:51:43.290
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       : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude         : 12.659
BP magnitude         : 15.618
DUPflag              : 0
Distance (au)        : 4.254
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg) : 173.31
Sun-Moon sep (deg)   : 49.93
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 6.742
C/A sky separation (km) : 20798.1
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
    
```

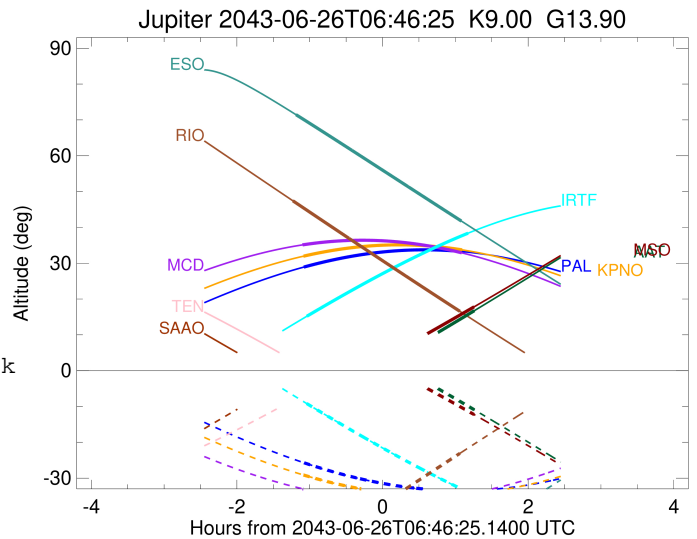
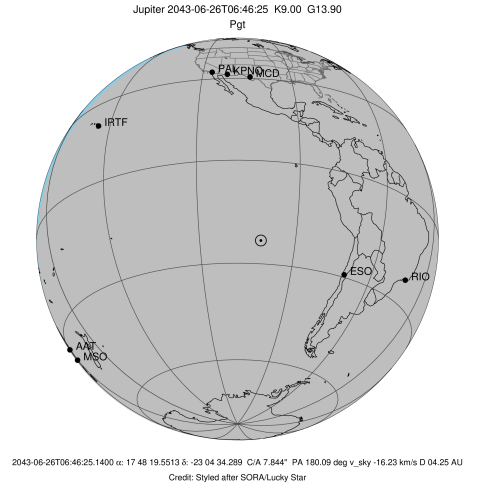


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-26T05:40:52.765	-10.45x	15.17x	71491.4	16.05	18.19
Jupiter	E	2043-06-26T08:02:03.547	16.73	-10.92	71491.3	17.77	20.11


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-26T06:51:29.070
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        : 4068879843936684544
2Mass ID (if available) : 17481956-2304340
ICRS Star Coord at Epoch: 17h 48m 19.55126s -23:04:34.28940s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.999
G magnitude           : 13.904
RP magnitude          : 12.659
BP magnitude          : 15.618
DUPflag              : 0
Distance (au)         : 4.254
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.23
Sun-Target sep (deg) : 173.31
Sun-Moon sep (deg)   : 49.93
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.42
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 6.635
C/A sky separation (km) : 20467.8
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	2043-06-26T05:40:33.747	-8.20x	12.64x	71491.4	15.80	17.91
Jupiter	E	2043-06-26T08:01:55.462	17.82	-12.26	71491.3	17.47	19.78