

target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-05-28T08:12:28.290  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4069259136733506048  
 2Mass ID (if available) : 18033707-2302380

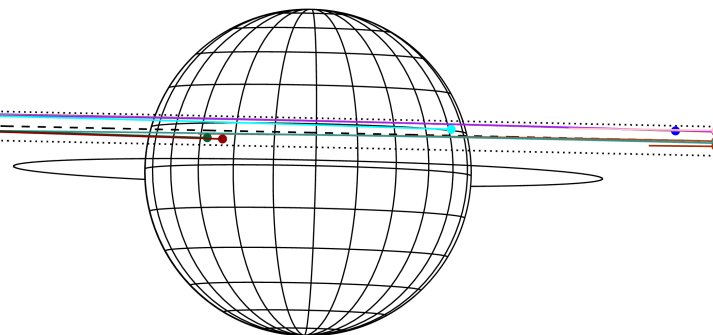
Jupiter 2043-05-28T08:12:28 K8.30 G12.44 Pgt

ICRS Star Coord at Epoch: 18h 03m 37.07012s -23°02'38.25717s  
 RUWE (>1.4 is poor) : 0.81  
 K magnitude : 8.299  
 G magnitude : 12.444  
 RP magnitude : 11.361  
 BP magnitude : 13.671  
 DUPflag : 0  
 Distance (au) : 4.336  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.73  
 Sun-Target sep (deg) : 155.49  
 Sun-Moon sep (deg) : 24.69  
 B (ring opening deg) : -2.43  
 PA of pole (deg) : -1.23  
 Pole direction: RA (deg): 268.05667  
 Dec (deg): 64.49732  
 C/A sky separation (") : 5.564  
 C/A sky separation (km) : 17496.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



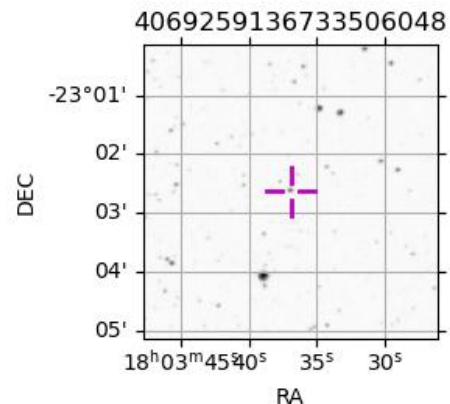
2043-05-28T08:12:28.2900 at: 18 03 37.07012 s: -23 02 38.257 C/A 5.563° PA 178.78 deg v\_sky -13.73 km/s D 04.34 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PAL  
 KPNO  
 MCD  
 TEN  
 IRTF  
 RIO  
 ESO  
 AAT  
 SAAO  
 MSO



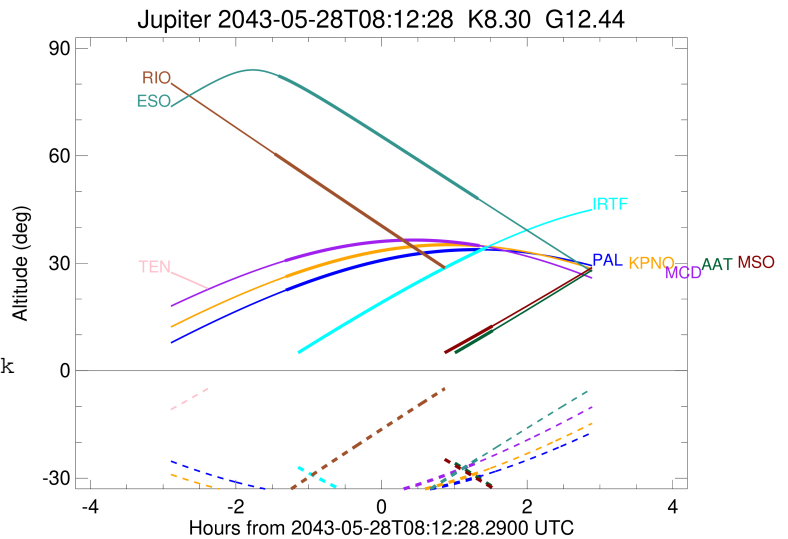
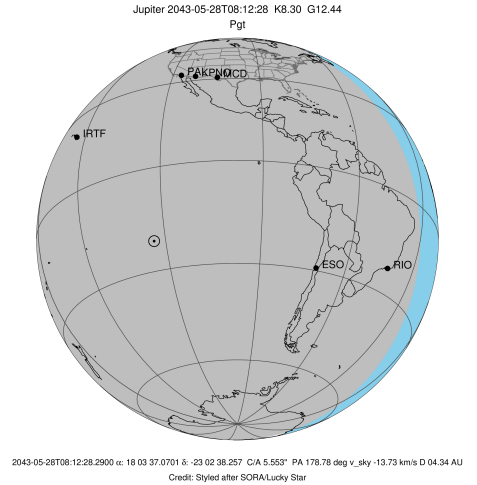
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	MAY 28 06:54 - MAY 28 09:34	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAY 28 06:53 - MAY 28 09:33	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAY 28 06:52 - MAY 28 09:33	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	MAY 28 06:44 - MAY 28 06:44	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAY 28 06:47 - MAY 28 09:32	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-28T08:14:20.530
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        : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude           : 8.299
G magnitude           : 12.444
RP magnitude          : 11.361
BP magnitude          : 13.671
DUPflag              : 0
Distance (au)         : 4.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.27
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 7.226
C/A sky separation (km): 22723.5
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
    
```

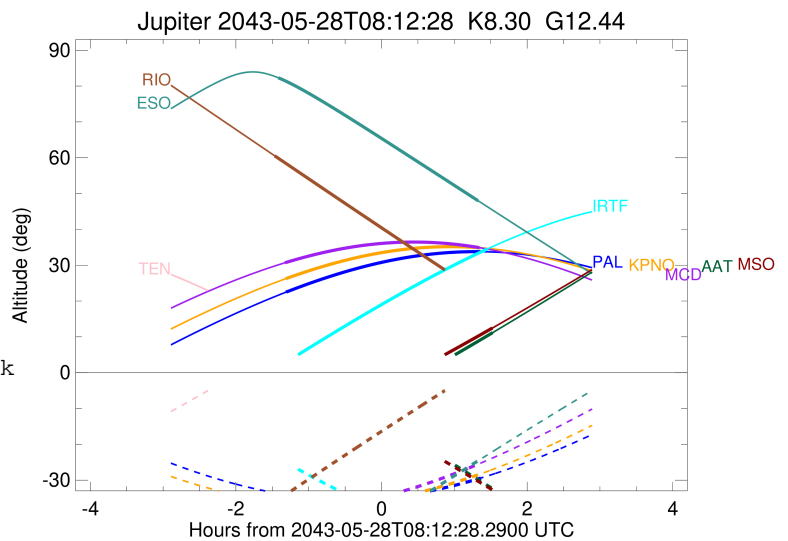
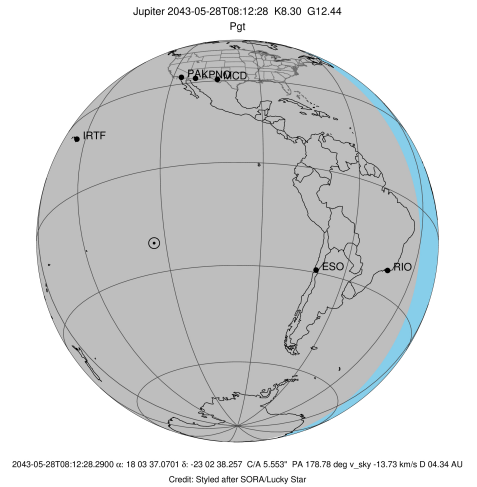


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:53:59.757	22.50	-34.04	71491.2	18.26	20.65
Jupiter	E	2043-05-28T09:34:22.984	33.77	-29.41	71491.2	18.56	20.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-28T08:13:50.220
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 8.299
G magnitude          : 12.444
RP magnitude         : 11.361
BP magnitude         : 13.671
DUPflag             : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.23
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 7.212
C/A sky separation (km): 22677.5
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
    
```

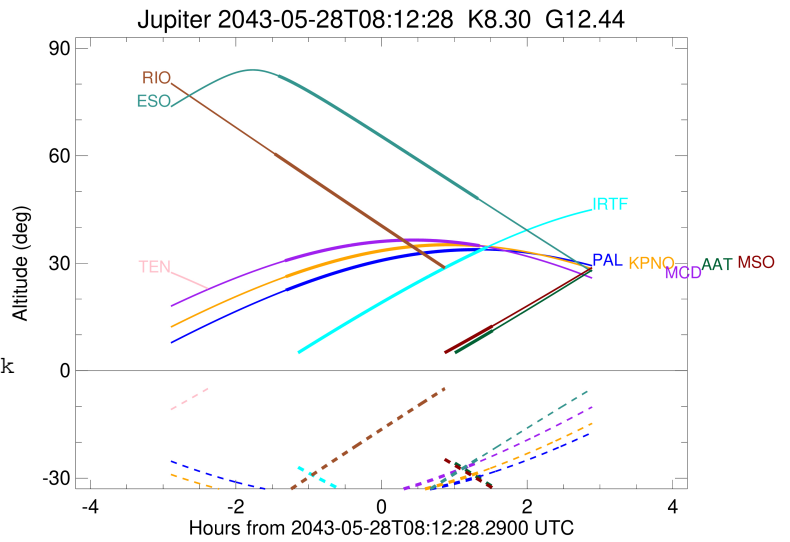
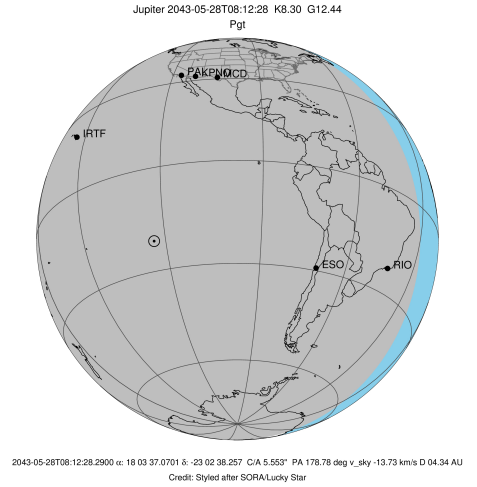


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:53:35.306	26.23	-36.27	71491.2	18.27	20.67
Jupiter	E	2043-05-28T09:33:50.584	34.85	-28.29	71491.2	18.47	20.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-28T08:13:03.240
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude           : 8.299
G magnitude           : 12.444
RP magnitude          : 11.361
BP magnitude          : 13.671
DUPflag              : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.15
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 7.195
C/A sky separation (km): 22624.7
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
    
```

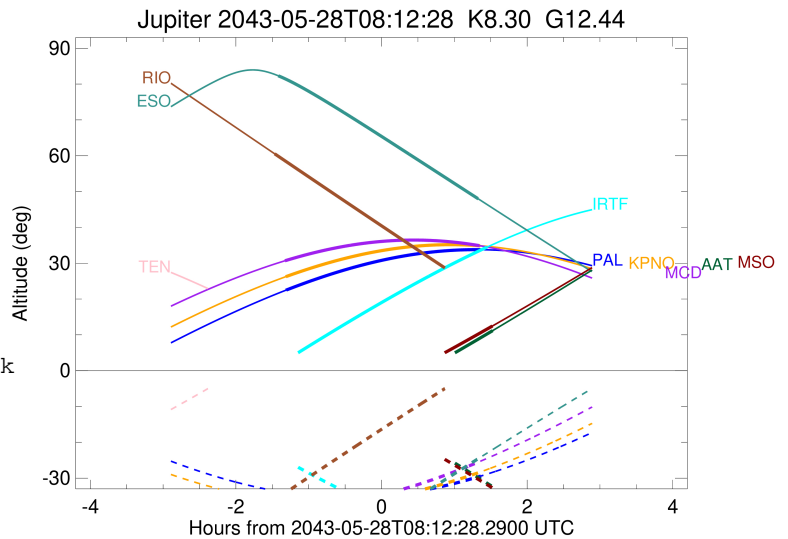
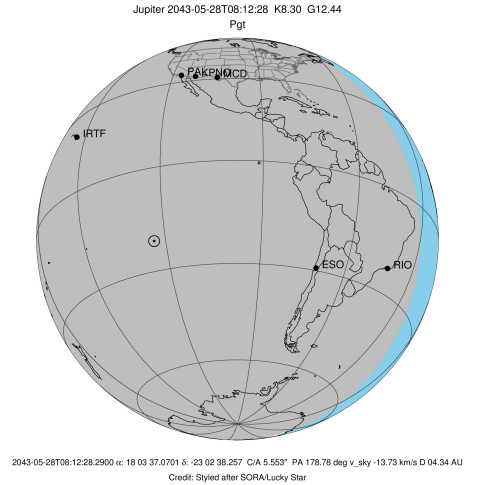


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:52:54.511	30.67	-38.04	71491.2	18.30	20.70
Jupiter	E	2043-05-28T09:33:03.206	34.90	-25.41	71491.2	18.34	20.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-28T08:18:12.550
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude           : 8.299
G magnitude           : 12.444
RP magnitude         : 11.361
BP magnitude         : 13.671
DUPflag              : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.56
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 6.646
C/A sky separation (km): 20897.0
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
    
```

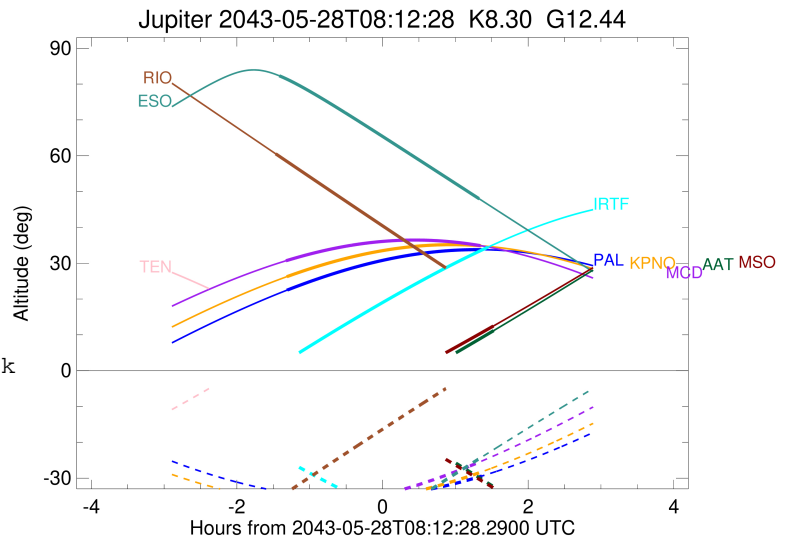
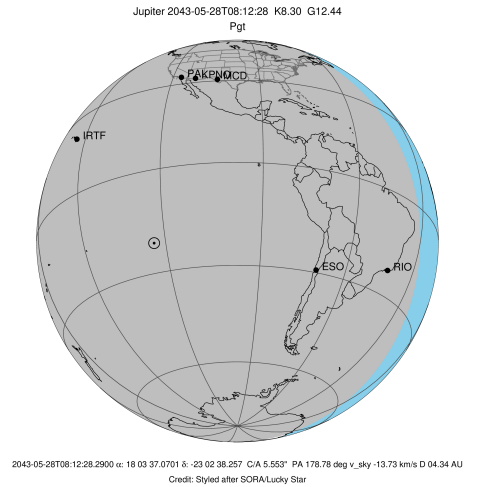


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:56:13.869	3.40x	-25.56	71491.4	16.36	18.55
Jupiter	E	2043-05-28T09:39:22.837	34.47	-47.69	71491.3	17.44	19.74

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-28T08:07:01.340
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 8.299
G magnitude          : 12.444
RP magnitude         : 11.361
BP magnitude         : 13.671
DUPflag             : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 24.30
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 5.247
C/A sky separation (km): 16500.4
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
    
```

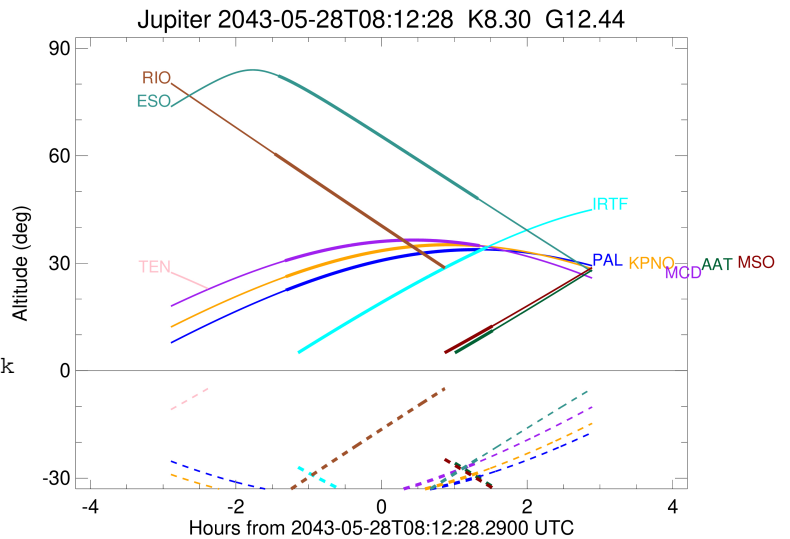
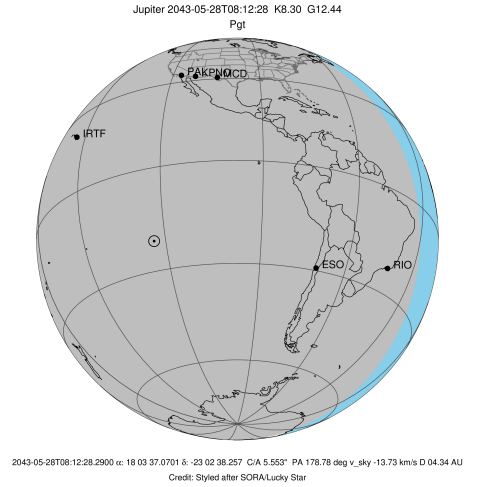


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:44:25.214	60.54	-36.08	71491.5	13.83	15.72
Jupiter	E	2043-05-28T09:30:16.563	22.98	0.45x	71491.6	12.69	14.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-28T08:09:39.520
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        : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude           : 8.299
G magnitude           : 12.444
RP magnitude          : 11.361
BP magnitude          : 13.671
DUPflag              : 0
Distance (au)         : 4.336
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 24.70
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 5.261
C/A sky separation (km): 16542.9
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
    
```



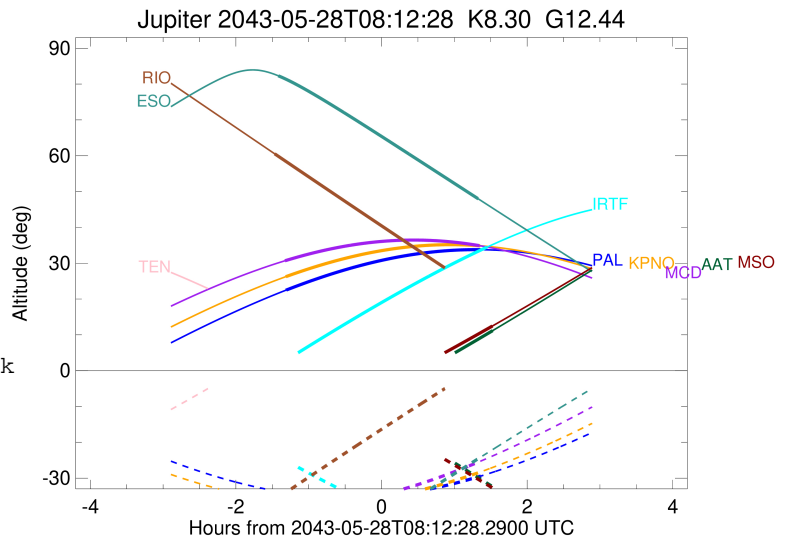
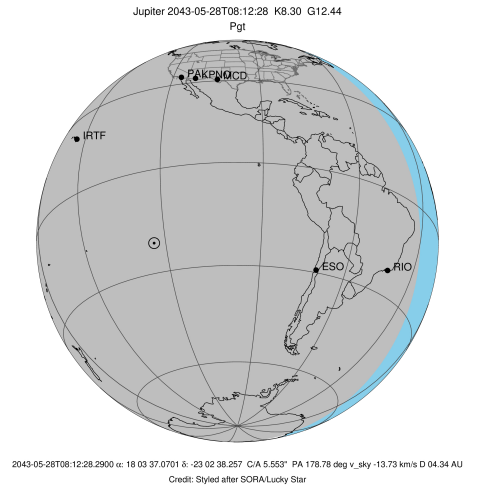
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:47:30.310	82.29	-60.31	71491.6	13.59	15.44
Jupiter	E	2043-05-28T09:32:06.882	47.98	-24.58	71491.6	12.94	14.71



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-28T08:18:32.630
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 8.299
G magnitude           : 12.444
RP magnitude         : 11.361
BP magnitude         : 13.671
DUPflag             : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.20
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 4.388
C/A sky separation (km): 13797.2
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
    
```



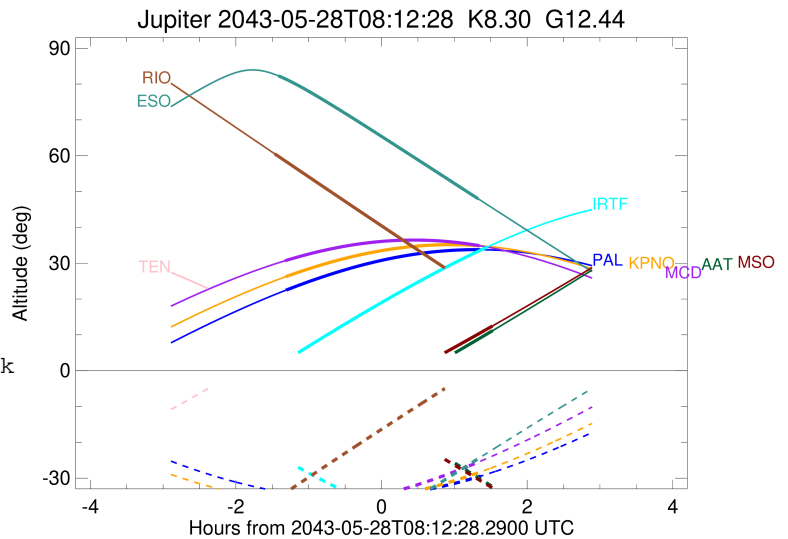
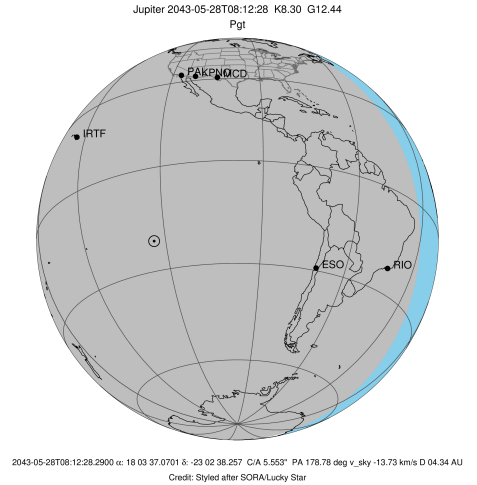
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-28T06:52:04.515	-20.03x	2.69x	71491.7	10.55	12.02
Jupiter	E	2043-05-28T09:44:04.322	11.17	-32.39	71491.7	11.75	13.37



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-28T08:18:17.040
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       : 4069259136733506048
2Mass ID (if available) : 18033707-2302380
ICRS Star Coord at Epoch: 18h 03m 37.07012s -23:02:38.25717s
RUWE (>1.4 is poor) : 0.81
K magnitude          : 8.299
G magnitude           : 12.444
RP magnitude         : 11.361
BP magnitude         : 13.671
DUPflag             : 0
Distance (au)        : 4.336
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.73
Sun-Target sep (deg) : 155.49
Sun-Moon sep (deg)   : 25.17
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.23
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 4.286
C/A sky separation (km): 13478.7
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	2043-05-28T06:51:47.644	-17.23x	0.94x	71491.7	10.32	11.76
Jupiter	E	2043-05-28T09:43:52.339	12.46	-32.71	71491.7	11.46	13.05