

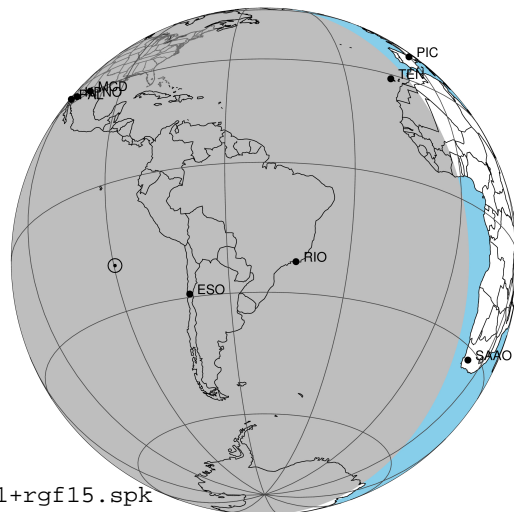
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-17T05:55:03.860
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066594783890149376
 2Mass ID (if available) : 18080606-2301003

Jupiter 2043-05-17T05:55:03 K9.15 G13.89 Pgt

ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s

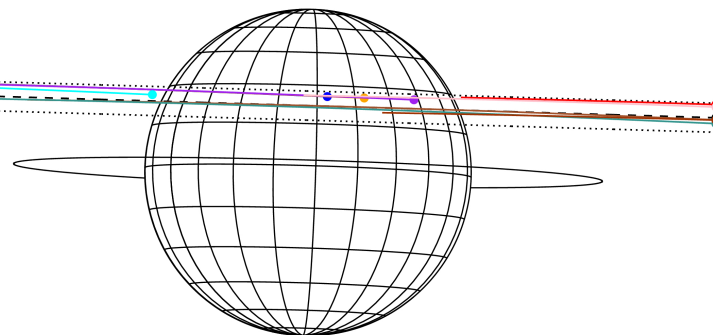
RUWE (>1.4 is poor) : 0.91
 K magnitude : 9.150
 G magnitude : 13.885
 RP magnitude : 12.692
 BP magnitude : 15.435
 DUPflag : 0
 Distance (au) : 4.428
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -10.71
 Sun-Target sep (deg) : 143.79
 Sun-Moon sep (deg) : 110.20
 B (ring opening deg) : -2.43
 PA of pole (deg) : -1.71
 Pole direction: RA (deg): 268.05667
 Dec (deg): 64.49732
 C/A sky separation (") : 9.121
 C/A sky separation (km) : 29293.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-05-17T05:55:03 K9.15 G13.89
 Pgt



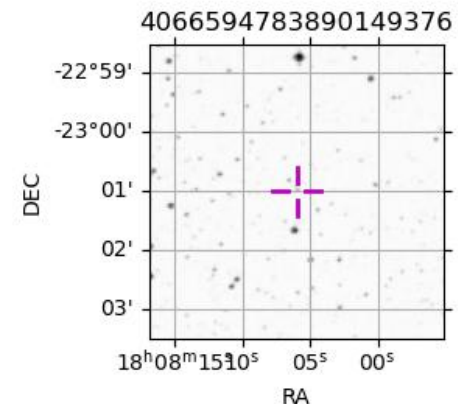
2043-05-17T05:55:03.8600 at: 18 08 06.0657 s: -23 01 00.367 C/A 9.109° PA 178.29 deg v_sky -10.71 km/s D 04.43 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



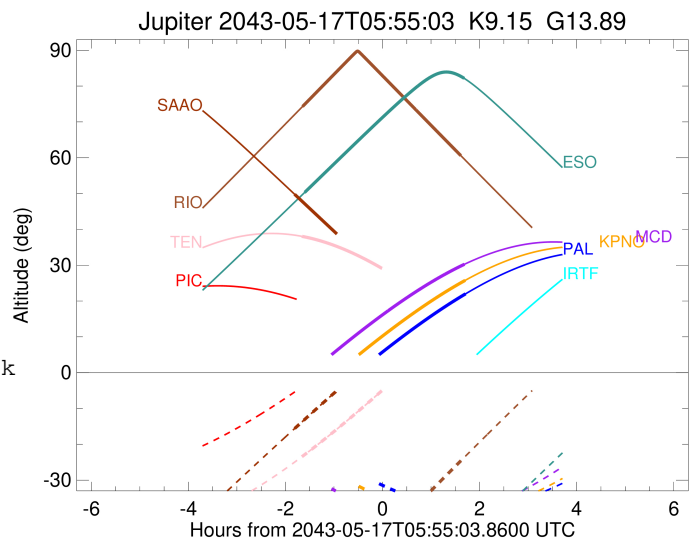
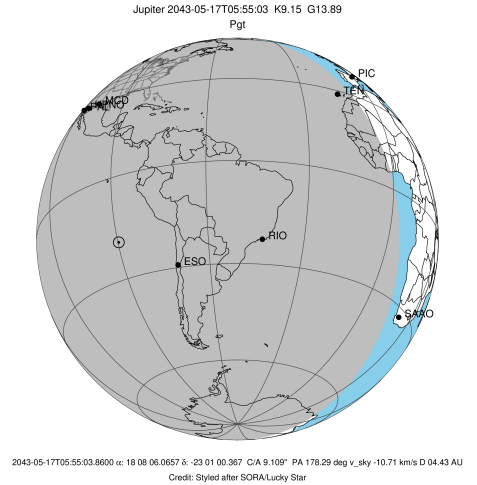
Observable events with sun below -5 deg and altitude above 5 deg

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 17 07:37 - MAY 17 07:37	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 17 07:37 - MAY 17 07:37	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 17 07:36 - MAY 17 07:36	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAY 17 04:15 - MAY 17 04:15	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	MAY 17 04:16 - MAY 17 07:31	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAY 17 04:18 - MAY 17 07:36	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAY 17 04:06 - MAY 17 04:06	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-05-17T06:01:41.250
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        : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor)  : 0.91
K magnitude            : 9.150
G magnitude            : 13.885
RP magnitude           : 12.692
BP magnitude           : 15.435
DUPflag               : 0
Distance (au)         : 4.428
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -10.71
Sun-Target sep (deg)  : 143.79
Sun-Moon sep (deg)    : 110.54
B (ring opening deg)  : -2.43
PA of pole (deg)      : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 10.454
C/A sky separation (km) : 33574.4
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
    
```

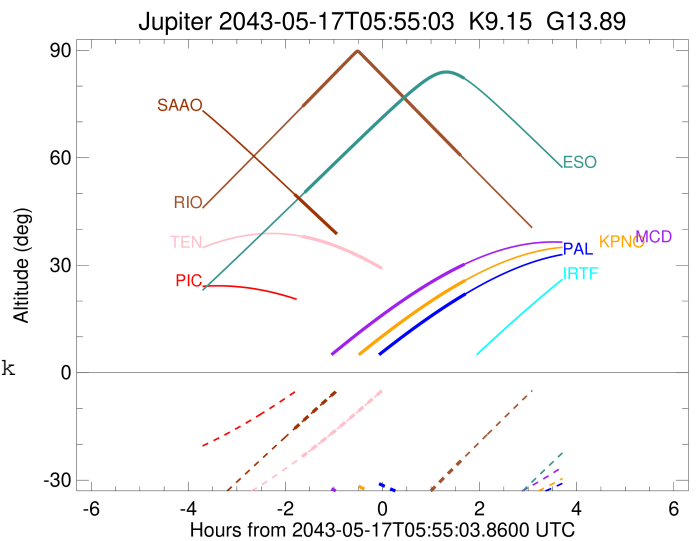
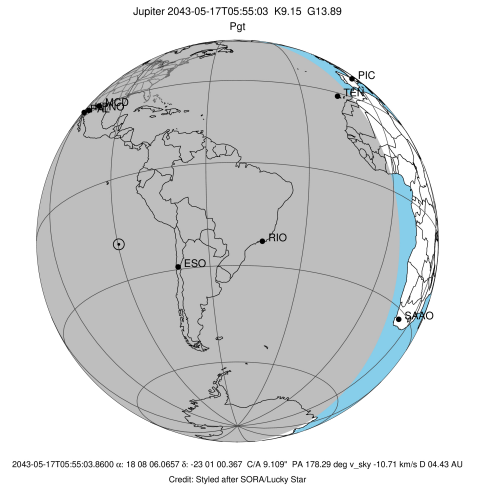


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:24:12.342	-11.33x	-19.14	71490.3	27.23	30.42
Jupiter	E	2043-05-17T07:37:44.311	22.00	-37.47	71490.2	28.56	31.84

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2043-05-17T06:01:27.960
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        : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor)  : 0.91
K magnitude            : 9.150
G magnitude            : 13.885
RP magnitude           : 12.692
BP magnitude           : 15.435
DUPflag               : 0
Distance (au)         : 4.428
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -10.71
Sun-Target sep (deg)  : 143.79
Sun-Moon sep (deg)    : 110.60
B (ring opening deg)  : -2.43
PA of pole (deg)      : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 10.472
C/A sky separation (km) : 33632.8
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
    
```

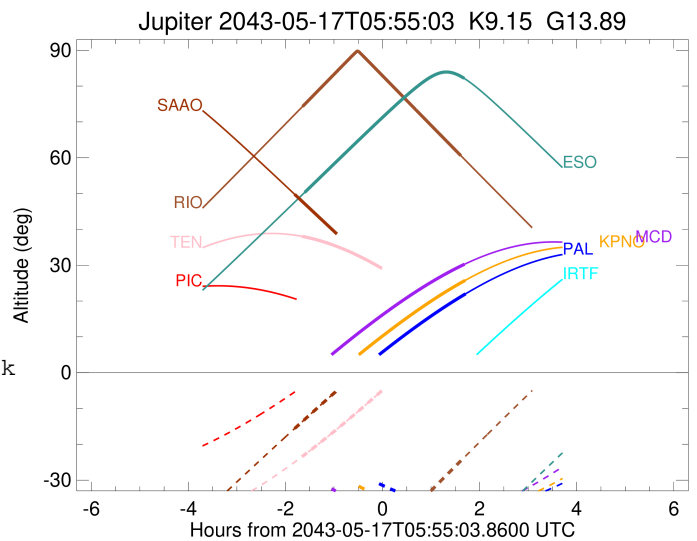
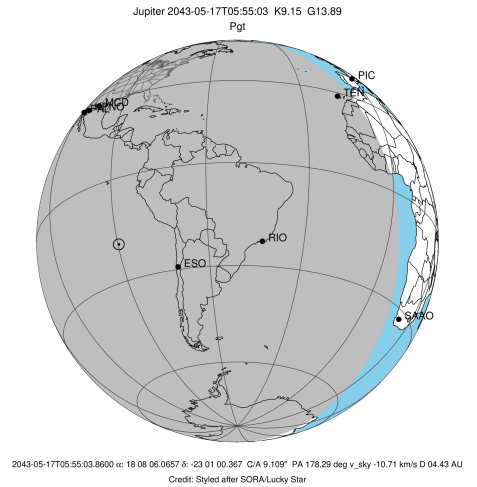


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:24:20.468	-6.67x	-23.39	71490.3	27.30	30.49
Jupiter	E	2043-05-17T07:37:12.979	25.76	-38.76	71490.2	28.57	31.85

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-17T06:00:58.860
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      : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.150
G magnitude          : 13.885
RP magnitude         : 12.692
BP magnitude         : 15.435
DUPflag             : 0
Distance (au)       : 4.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.71
Sun-Target sep (deg) : 143.79
Sun-Moon sep (deg)  : 110.67
B (ring opening deg) : -2.43
PA of pole (deg)    : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (" ) : 10.509
C/A sky separation (km) : 33752.5
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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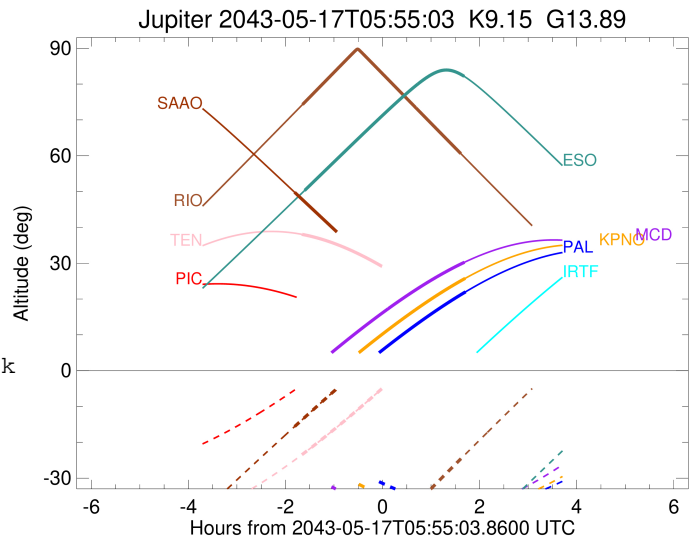
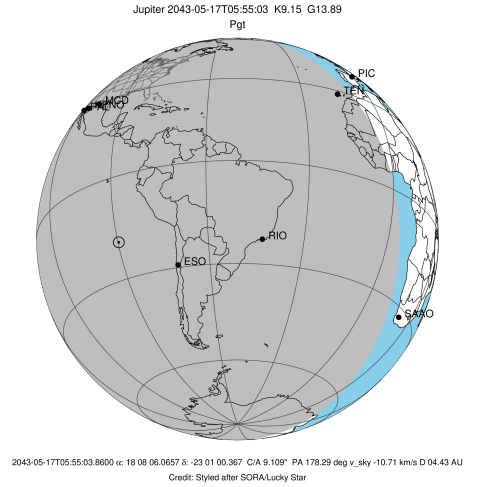


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:24:22.725	-0.24x	-28.79	71490.3	27.45	30.66
Jupiter	E	2043-05-17T07:36:18.987	30.25	-39.06	71490.2	28.60	31.88

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-17T05:50:29.530
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : TEN
Location              : Teide Obs./Tenerife
Latitude (deg)        : 28.30050
E. Longitude (deg)    : 343.48909
Altitude (km)         : 2.395
Gaia source ID        : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.150
G magnitude           : 13.885
RP magnitude          : 12.692
BP magnitude          : 15.435
DUPflag              : 0
Distance (au)         : 4.428
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.71
Sun-Target sep (deg)  : 143.79
Sun-Moon sep (deg)    : 110.46
B (ring opening deg) : -2.43
PA of pole (deg)      : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (" ) : 10.521
C/A sky separation (km) : 33790.1
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
    
```

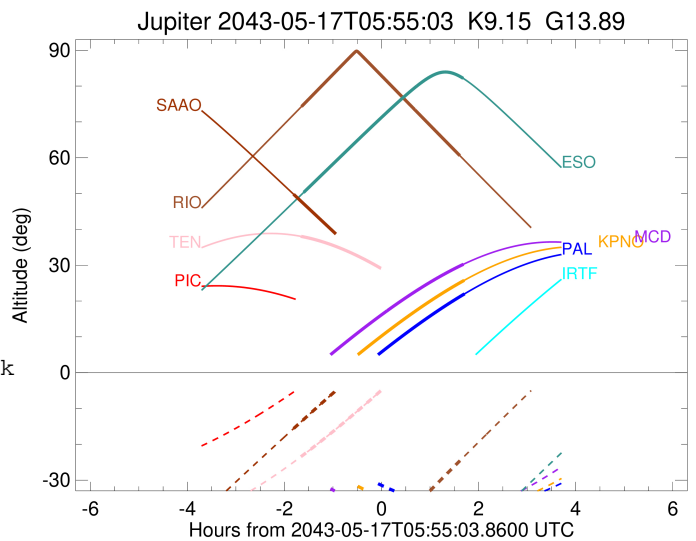
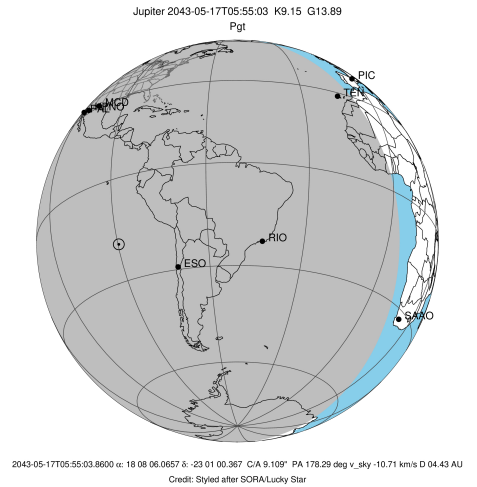


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:15:34.077	38.04	-23.44	71490.2	28.55	31.83
Jupiter	E	2043-05-17T07:26:02.095	14.76	14.00x	71490.3	27.53	30.75

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-17T05:54:01.560
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       : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.150
G magnitude           : 13.885
RP magnitude          : 12.692
BP magnitude          : 15.435
DUPflag              : 0
Distance (au)        : 4.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.71
Sun-Target sep (deg) : 143.79
Sun-Moon sep (deg)   : 111.02
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 9.115
C/A sky separation (km): 29276.1
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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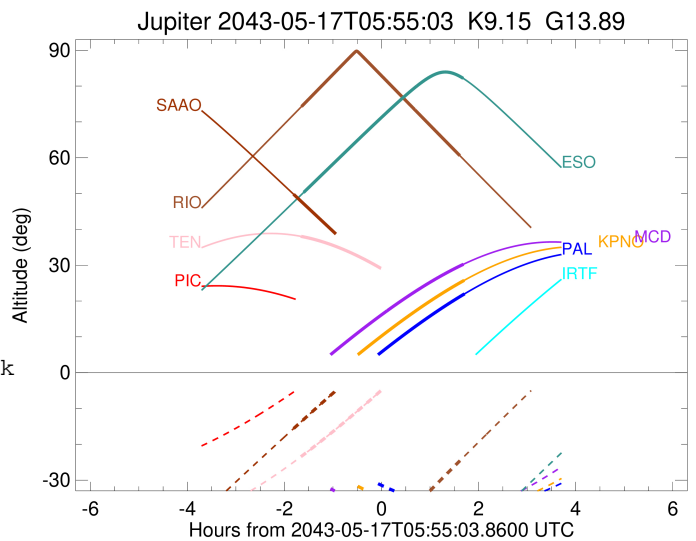
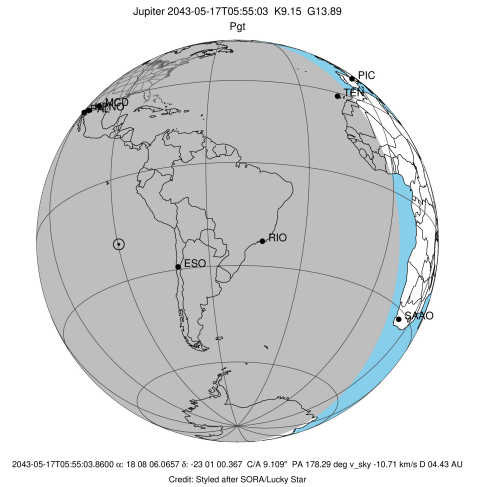


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:16:10.323	74.27	-69.45	71490.7	24.16	27.11
Jupiter	E	2043-05-17T07:31:55.280	60.57	-24.59	71490.7	23.79	26.71

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-17T05:57:47.260
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       : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.150
G magnitude           : 13.885
RP magnitude          : 12.692
BP magnitude          : 15.435
DUPflag              : 0
Distance (au)        : 4.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.71
Sun-Target sep (deg) : 143.79
Sun-Moon sep (deg)   : 111.12
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation (") : 8.893
C/A sky separation (km) : 28560.7
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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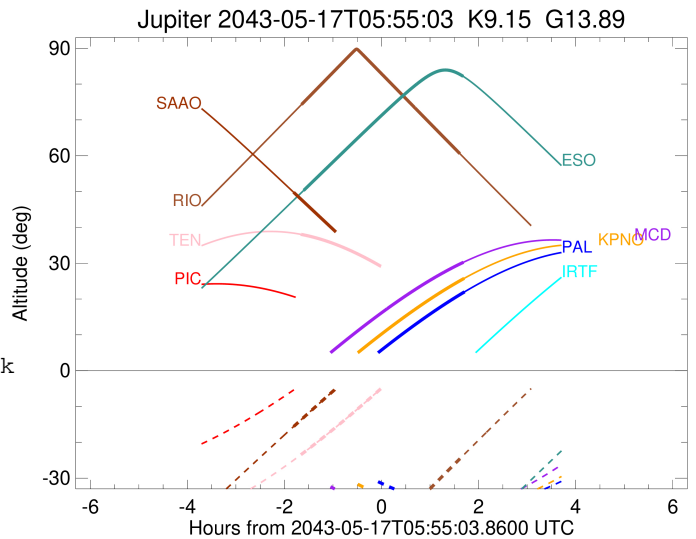
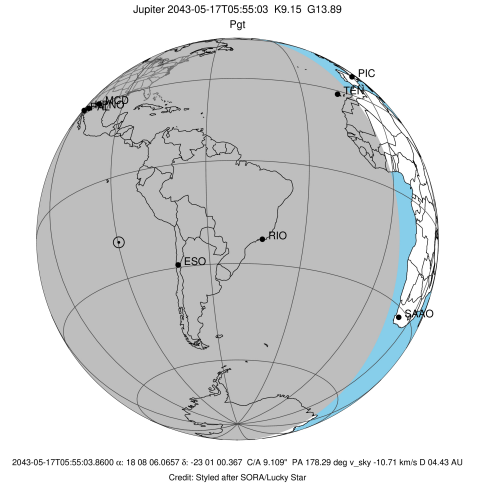


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-17T04:18:47.460	50.29	-79.15	71490.7	23.16	26.03
Jupiter	E	2043-05-17T07:36:07.748	82.13	-48.77	71490.7	23.54	26.45

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-17T05:47:53.080
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 4066594783890149376
2Mass ID (if available) : 18080606-2301003
ICRS Star Coord at Epoch: 18h 08m 06.06574s -23:01:00.36705s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.150
G magnitude          : 13.885
RP magnitude         : 12.692
BP magnitude         : 15.435
DUPflag             : 0
Distance (au)        : 4.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.71
Sun-Target sep (deg) : 143.79
Sun-Moon sep (deg)   : 110.33
B (ring opening deg) : -2.43
PA of pole (deg)     : -1.71
Pole direction: RA (deg): 268.05667
Dec (deg): 64.49732
C/A sky separation ("): 8.319
C/A sky separation (km): 26719.5
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	2043-05-17T04:06:29.827	49.78	-15.59	71490.8	22.64	25.47
Jupiter	E	2043-05-17T07:30:34.385	7.53	22.45x	71491.0	21.11	23.79