

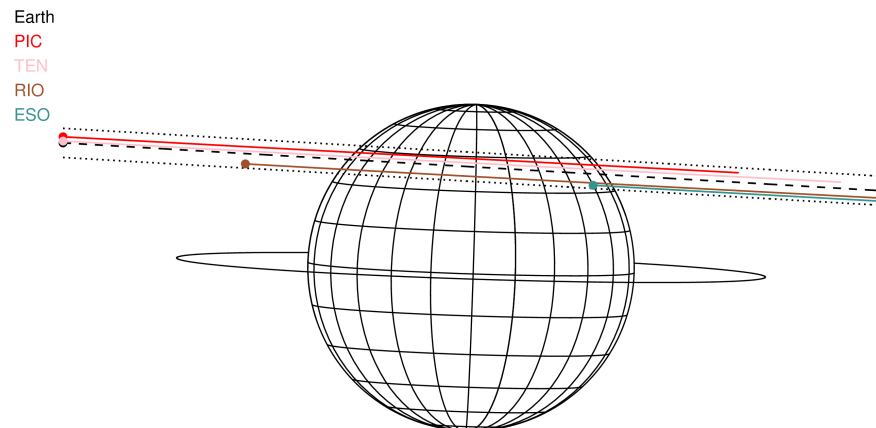
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2049-04-05T22:16:08.530  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 3404470049823129984  
 2Mass ID (if available) : 05345149+2311166

Jupiter 2049-04-05T22:16:08 K9.60 G12.89 Pgt

ICRS Star Coord at Epoch: 05h 34m 51.50987s +23:11:16.57487s  
 RUWE (>1.4 is poor) : 1.01  
 K magnitude : 9.596  
 G magnitude : 12.895  
 RP magnitude : 11.959  
 BP magnitude : 13.794  
 DUPflag : 0  
 Distance (au) : 5.428  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 23.62  
 Sun-Target sep (deg) : 68.35  
 Sun-Moon sep (deg) : 26.81  
 B (ring opening deg) : 2.25  
 PA of pole (deg) : -1.87  
 Pole direction: RA (deg): 268.05742  
 Dec (deg): 64.49720  
 C/A sky separation (") : 11.189  
 C/A sky separation (km) : 44052.0  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

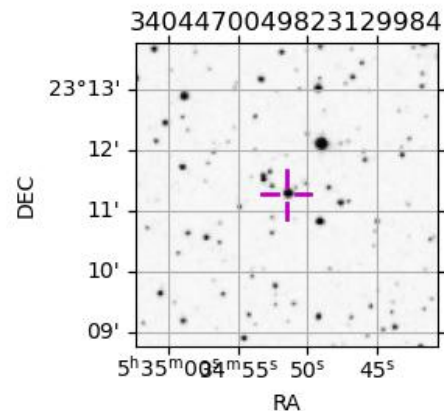


2049-04-05T22:16:08.5300 α: 05 34 51.5099 δ: +23 11 16.575 C/A \*\*\*\*\* PA 176.65 deg v\_sky +23.62 km/s D 05.43 AU  
 Credit: Styled after SORA/Lucky Star



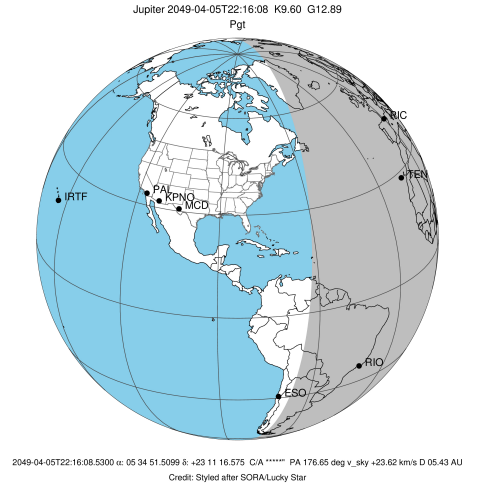
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+ +	APR 05 21:41 - APR 05 22:57	Pie
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	APR 05 21:40 - APR 05 22:58	Pie
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	+ +	APR 05 21:36 - APR 05 23:01	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	APR 05 22:59 - APR 05 22:59	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

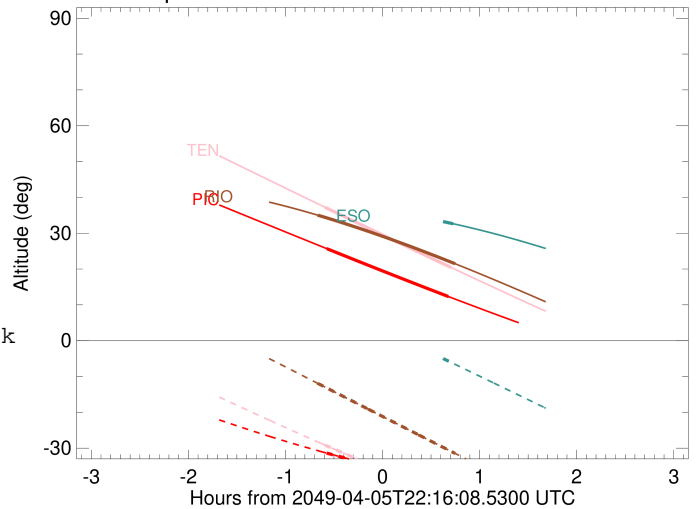


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2049-04-05T22:19:22.930
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : PIC
Location            : Pic du Midi
Latitude (deg)      : 42.93656
E. Longitude (deg)  : 0.14231
Altitude (km)       : 2.890
Gaia source ID      : 3404470049823129984
2Mass ID (if available) : 05345149+2311166
ICRS Star Coord at Epoch: 05h 34m 51.50987s +23:11:16.57487s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.596
G magnitude          : 12.895
RP magnitude         : 11.959
BP magnitude         : 13.794
DUPflag             : 0
Distance (au)        : 5.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.62
Sun-Target sep (deg) : 68.35
Sun-Moon sep (deg)  : 27.55
B (ring opening deg) : 2.25
PA of pole (deg)    : -1.87
Pole direction: RA (deg): 268.05742
Dec (deg): 64.49720
C/A sky separation (") : 12.095
C/A sky separation (km) : 47619.8
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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Jupiter 2049-04-05T22:16:08 K9.60 G12.89

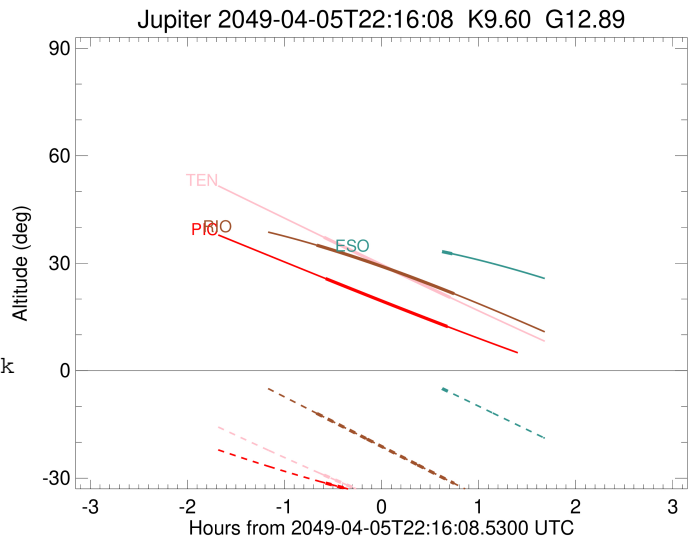
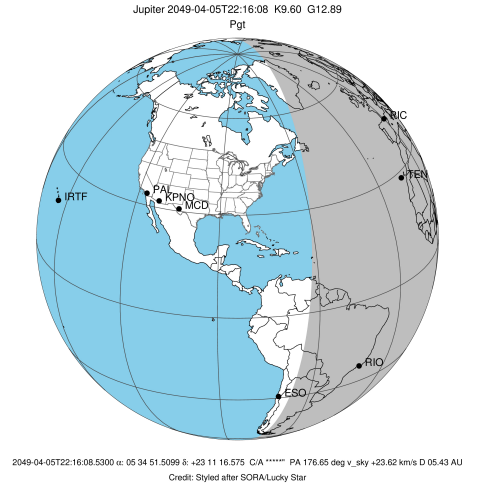


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2049-04-05T21:41:39.227	25.69	-31.38	71488.8	42.89	46.61
Jupiter	E	2049-04-05T22:57:00.220	12.30	-38.58	71489.1	40.58	44.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2049-04-05T22:19:42.570
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        : 3404470049823129984
2Mass ID (if available) : 05345149+2311166
ICRS Star Coord at Epoch: 05h 34m 51.50987s +23:11:16.57487s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.596
G magnitude           : 12.895
RP magnitude          : 11.959
BP magnitude          : 13.794
DUPflag              : 0
Distance (au)         : 5.428
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 23.62
Sun-Target sep (deg) : 68.35
Sun-Moon sep (deg)   : 27.69
B (ring opening deg) : 2.25
PA of pole (deg)     : -1.87
Pole direction: RA (deg): 268.05742
Dec (deg): 64.49720
C/A sky separation (") : 11.615
C/A sky separation (km) : 45727.8
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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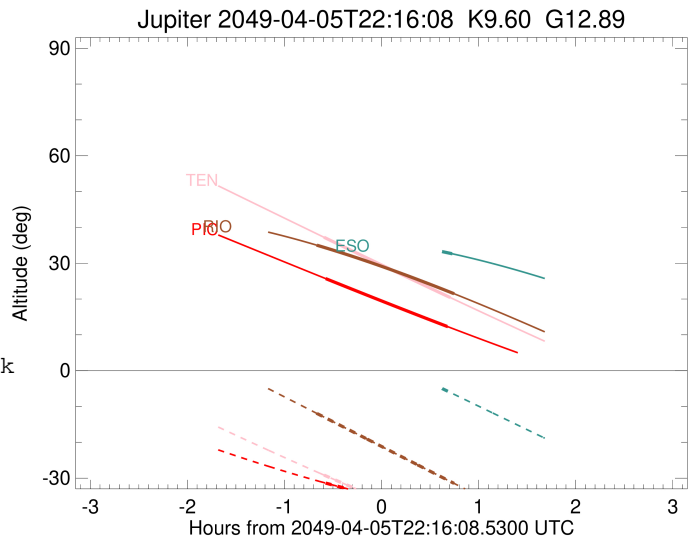
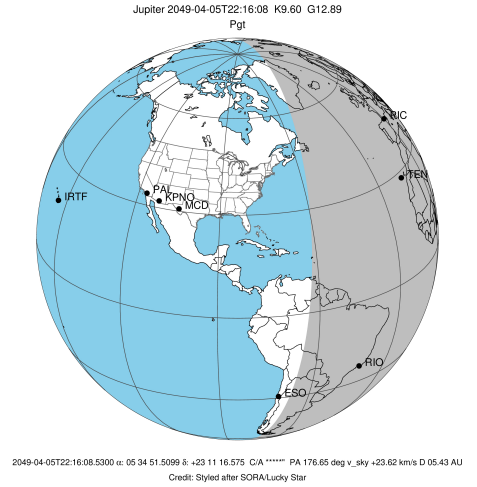


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2049-04-05T21:40:37.476	37.23	-29.15	71489.0	40.87	44.59
Jupiter	E	2049-04-05T22:58:40.095	20.40	-43.33	71489.3	38.62	42.31

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2049-04-05T22:18:37.830
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      : 3404470049823129984
2Mass ID (if available) : 05345149+2311166
ICRS Star Coord at Epoch: 05h 34m 51.50987s +23:11:16.57487s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.596
G magnitude          : 12.895
RP magnitude         : 11.959
BP magnitude         : 13.794
DUPflag             : 0
Distance (au)       : 5.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.62
Sun-Target sep (deg) : 68.35
Sun-Moon sep (deg)  : 27.53
B (ring opening deg) : 2.25
PA of pole (deg)    : -1.87
Pole direction: RA (deg): 268.05742
Dec (deg): 64.49720
C/A sky separation (") : 10.122
C/A sky separation (km) : 39852.6
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
    
```

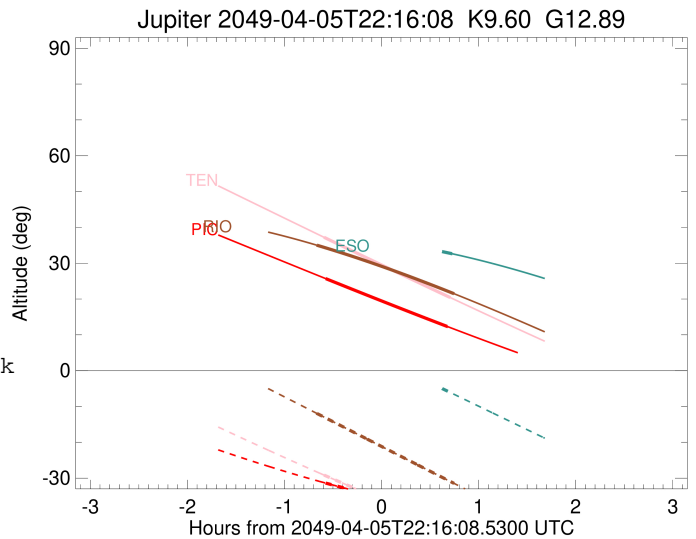
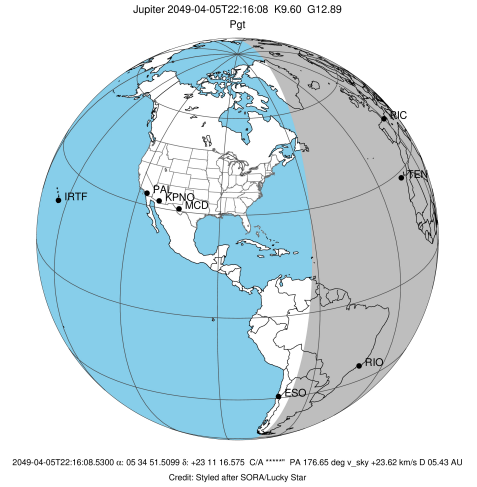


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2049-04-05T21:36:07.639	35.03	-11.92	71489.7	35.12	38.73
Jupiter	E	2049-04-05T23:01:00.969	21.47	-31.47	71490.0	32.64	36.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2049-04-05T22:16:51.910
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       : 3404470049823129984
2Mass ID (if available) : 05345149+2311166
ICRS Star Coord at Epoch: 05h 34m 51.50987s +23:11:16.57487s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.596
G magnitude           : 12.895
RP magnitude         : 11.959
BP magnitude         : 13.794
DUPflag              : 0
Distance (au)        : 5.428
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.62
Sun-Target sep (deg) : 68.35
Sun-Moon sep (deg)  : 27.24
B (ring opening deg) : 2.25
PA of pole (deg)    : -1.87
Pole direction: RA (deg): 268.05742
Dec (deg): 64.49720
C/A sky separation (") : 9.907
C/A sky separation (km) : 39006.2
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	2049-04-05T21:33:51.862	37.61	12.18x	71489.8	34.51	38.09
Jupiter	E	2049-04-05T22:59:48.602	32.63	-6.34	71490.1	31.64	35.10