

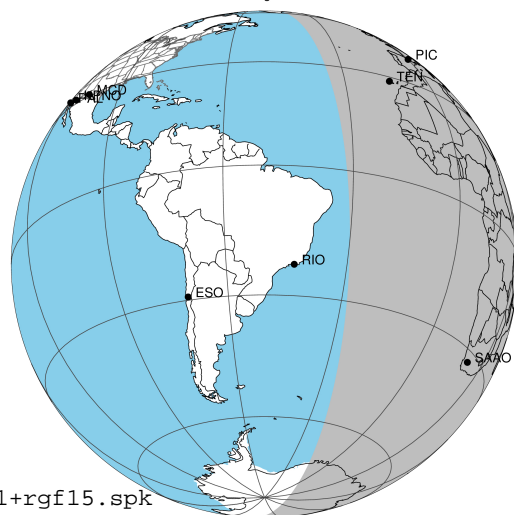
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-10-05T19:53:48.690  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4111655553523919360  
 2Mass ID (if available) : 17270410-2303262

Jupiter 2031-10-05T19:53:48 K9.16 G13.11 Pgt

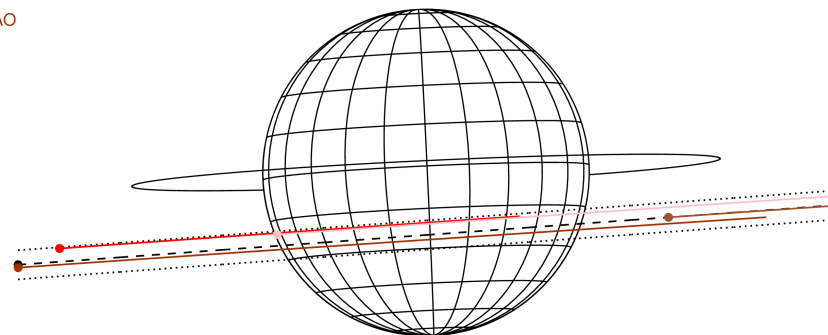
ICRS Star Coord at Epoch: 17h 27m 04.09550s -23:03:26.30550s

RUWE (>1.4 is poor) : 0.99  
 K magnitude : 9.163  
 G magnitude : 13.114  
 RP magnitude : 12.047  
 BP magnitude : 14.288  
 DUPflag : 0  
 Distance (au) : 5.490  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 23.03  
 Sun-Target sep (deg) : 70.49  
 Sun-Moon sep (deg) : 170.36  
 B (ring opening deg) : -2.31  
 PA of pole (deg) : 2.71  
 Pole direction: RA (deg): 268.05683  
 Dec (deg): 64.49652  
 C/A sky separation (") : 6.859  
 C/A sky separation (km) : 27309.4  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-10-05T19:53:48 K9.16 G13.11  
 Pgt



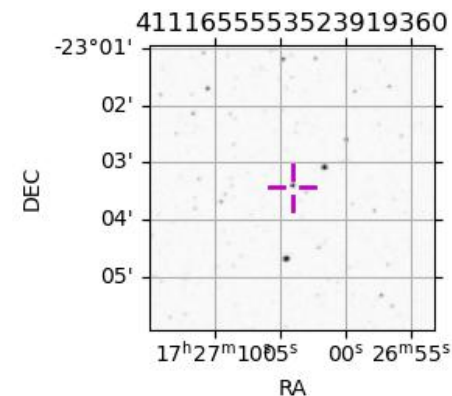
Earth  
 PIC  
 TEN  
 RIO  
 SAAO



URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp  
 2031-10-05T19:53:48.6900 @: 17 27 04.0955 @: -23 03 26.306 C/A 6.868" PA 4.17 deg v\_sky +23.03 km/s D 05.49 AU  
 Credit: Styled after SORA/Lucky Star

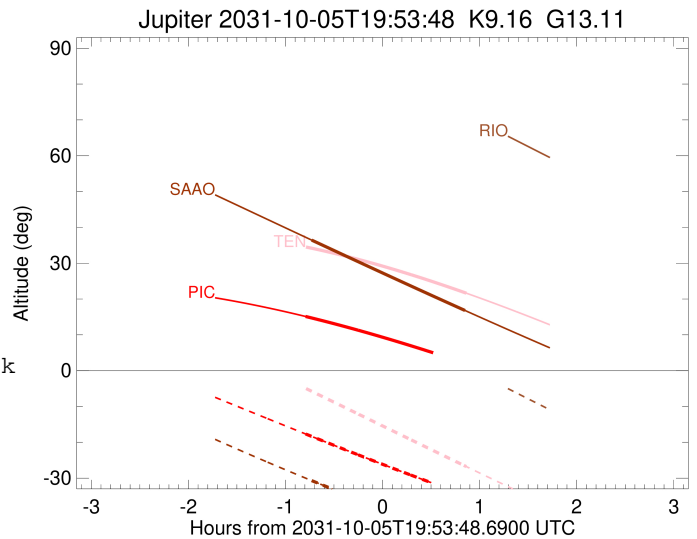
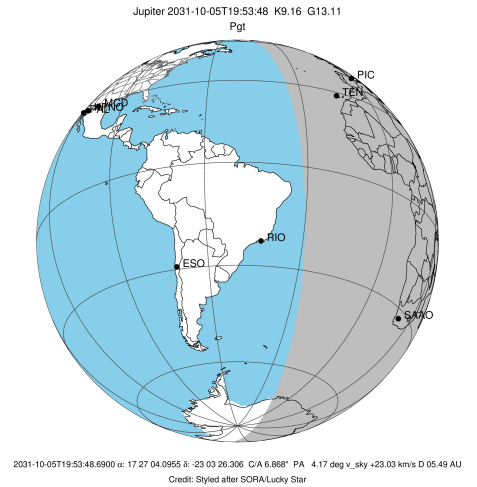
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	OCT 05 19:06 - OCT 05 19:06	Pin
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	+	OCT 05 20:45 - OCT 05 20:45	Pne
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	OCT 05 19:10 - OCT 05 20:44	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-05T19:56:07.490
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      : 4111655553523919360
2Mass ID (if available) : 17270410-2303262
ICRS Star Coord at Epoch: 17h 27m 04.09550s -23:03:26.30550s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.163
G magnitude          : 13.114
RP magnitude         : 12.047
BP magnitude         : 14.288
DUPflag             : 0
Distance (au)       : 5.490
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.03
Sun-Target sep (deg) : 70.49
Sun-Moon sep (deg)  : 170.66
B (ring opening deg) : -2.31
PA of pole (deg)    : 2.71
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (" ) : 5.511
C/A sky separation (km) : 21941.9
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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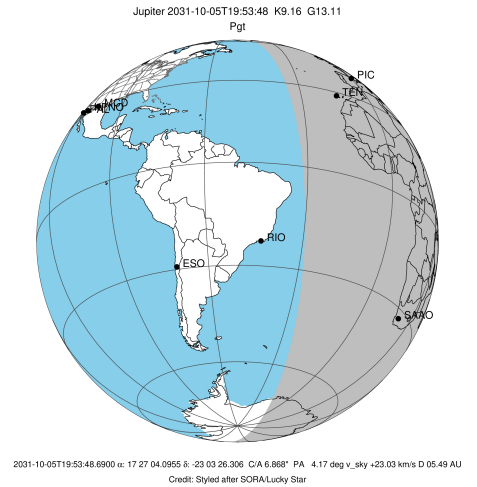


x: target alt < 5.0 deg or sun > -5.0 deg

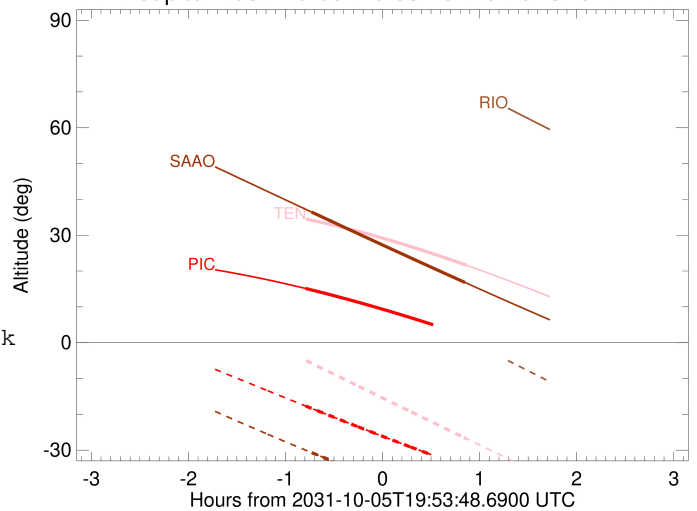
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-05T19:06:21.241	15.12	-17.68	71491.2	-19.13	-21.62
Jupiter	E	2031-10-05T20:45:44.280	1.93x	-34.81	71491.4	-16.64	-18.86

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-05T19:55:49.940
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       : 411165553523919360
2Mass ID (if available) : 17270410-2303262
ICRS Star Coord at Epoch: 17h 27m 04.09550s -23:03:26.30550s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 9.163
G magnitude           : 13.114
RP magnitude         : 12.047
BP magnitude         : 14.288
DUPflag              : 0
Distance (au)        : 5.490
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.03
Sun-Target sep (deg) : 70.49
Sun-Moon sep (deg)   : 170.67
B (ring opening deg) : -2.31
PA of pole (deg)     : 2.71
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation ("): 5.656
C/A sky separation (km): 22517.7
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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Jupiter 2031-10-05T19:53:48 K9.16 G13.11

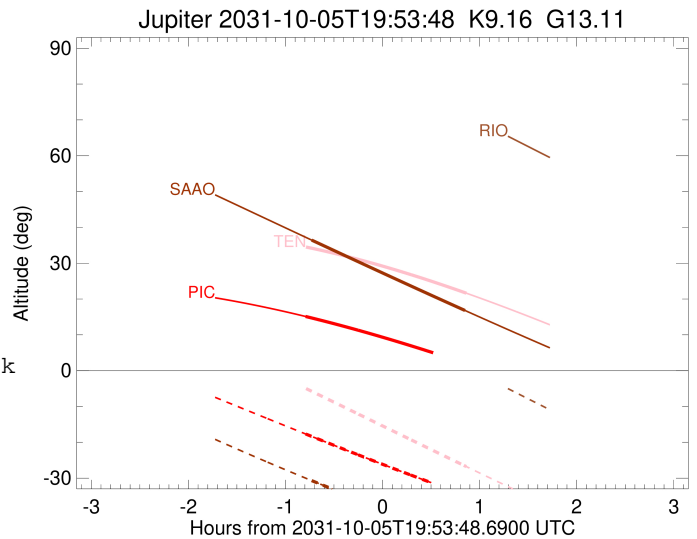
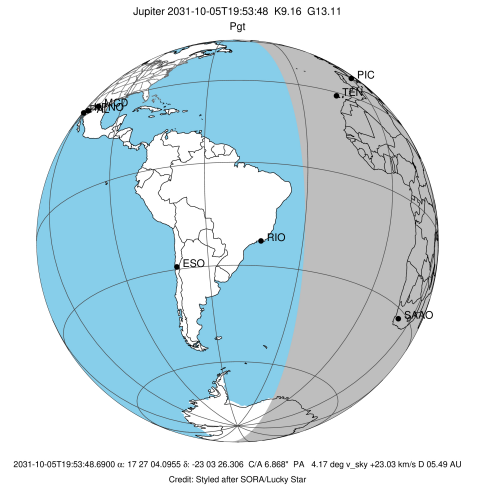


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-10-05T19:05:56.665	34.56	-4.85x	71491.2	-19.68	-22.23
Jupiter	E	2031-10-05T20:45:34.710	21.63	-26.77	71491.4	-17.09	-19.35

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-10-05T19:57:30.890
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      : 4111655553523919360
2Mass ID (if available) : 17270410-2303262
ICRS Star Coord at Epoch: 17h 27m 04.09550s -23:03:26.30550s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 9.163
G magnitude          : 13.114
RP magnitude         : 12.047
BP magnitude         : 14.288
DUPflag             : 0
Distance (au)        : 5.490
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.03
Sun-Target sep (deg) : 70.49
Sun-Moon sep (deg)   : 171.22
B (ring opening deg) : -2.31
PA of pole (deg)     : 2.71
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation ("): 7.391
C/A sky separation (km): 29427.7
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	2031-10-05T19:10:01.469	36.45	-30.69	71490.7	-25.43	-28.49
Jupiter	E	2031-10-05T20:44:48.957	16.80	-45.89	71490.9	-23.18	-26.06