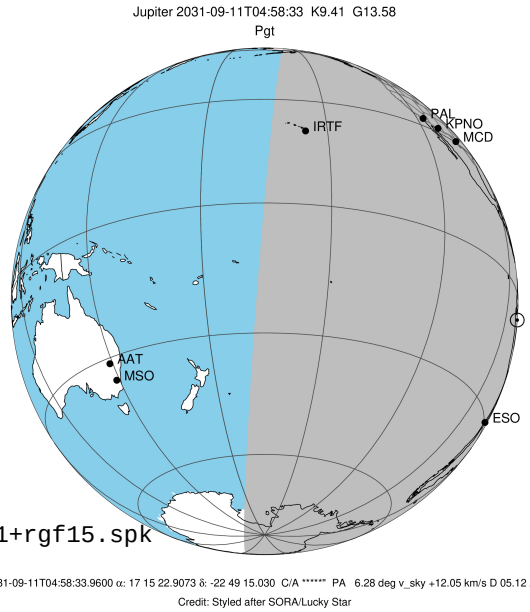
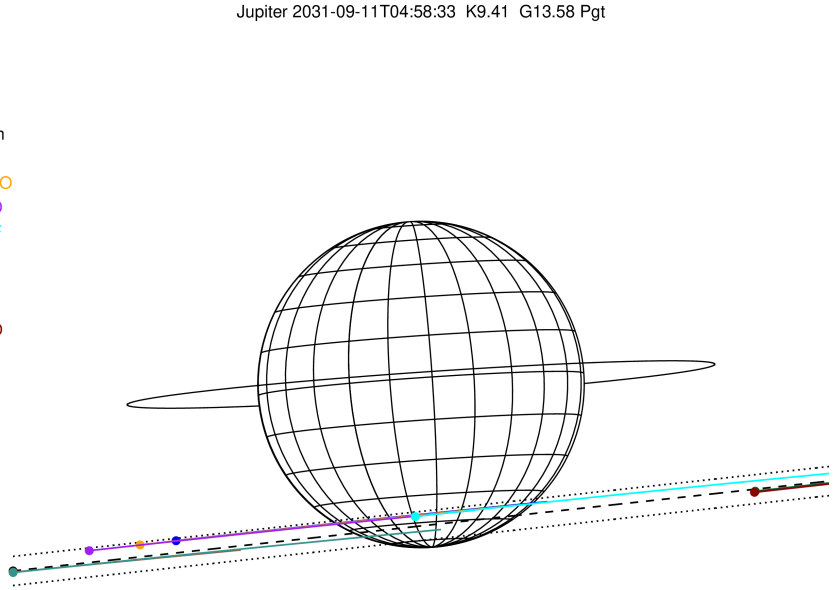
Stellar occultation prediction by rfrench@wellesley.edu Sun Jun 25 09:47:41 2023

target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T04:58:33.960
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Gaia source ID : 4114490712974433792
2Mass ID (if available) : 17152291-2249149

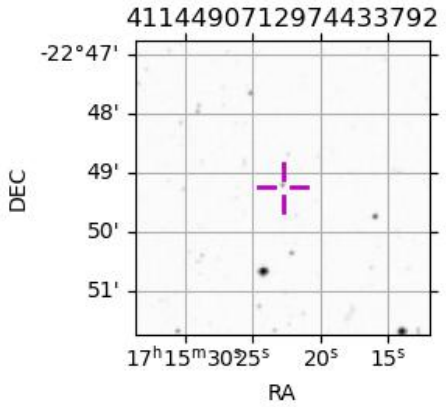
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.119
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 153.97
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 16.588
C/A sky separation (km) : 61591.4
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp



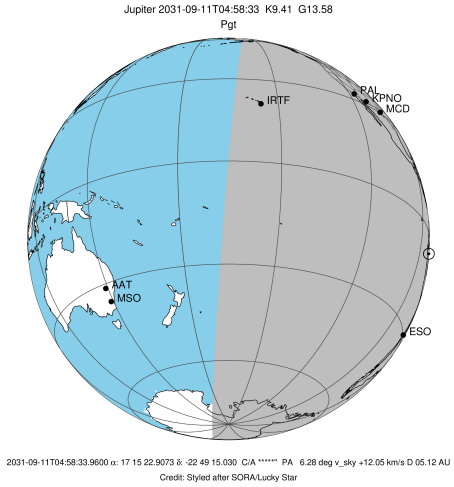


Observable events with sun below -5 deg and altitude above 5 deg

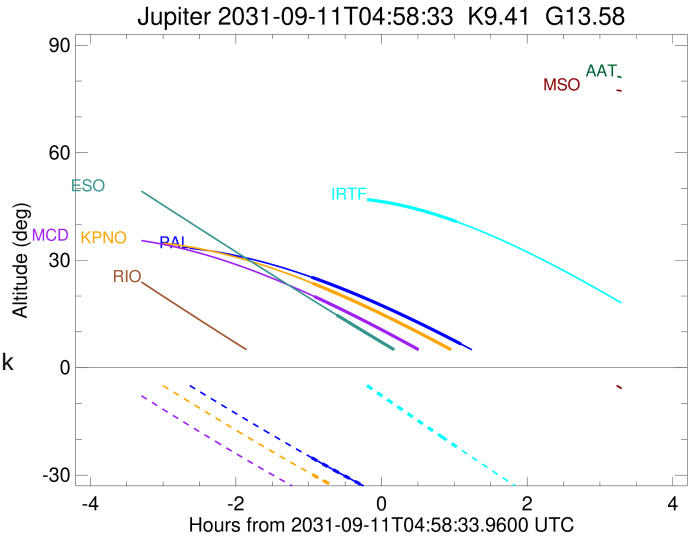
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	SEP 11 04:01 - SEP 11 06:04	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	SEP 11 04:02 - SEP 11 04:02	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	SEP 11 04:03 - SEP 11 04:03	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	SEP 11 06:00 - SEP 11 06:00	Pne
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	+	SEP 11 04:21 - SEP 11 04:21	Pin
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



Jupiter_2031-09-11T04_58_33.9600_PAL.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:16:05 2023



target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T05:02:54.010
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 : 4114490712974433792
2Mass ID (if available) : 17152291-2249149
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.120
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 153.54
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 15.252
C/A sky separation (km) : 56629.9
NAIF SPICE kernels : RAJobs_U111+rgf15.spk

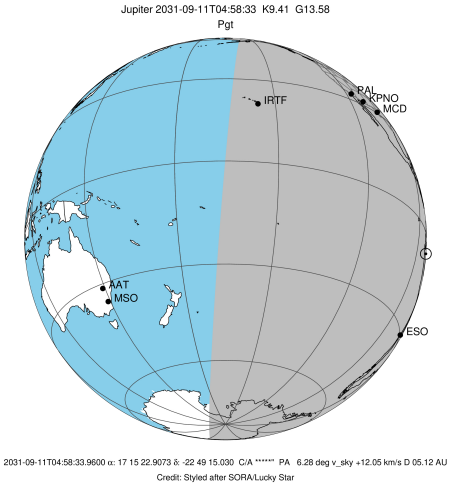


URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

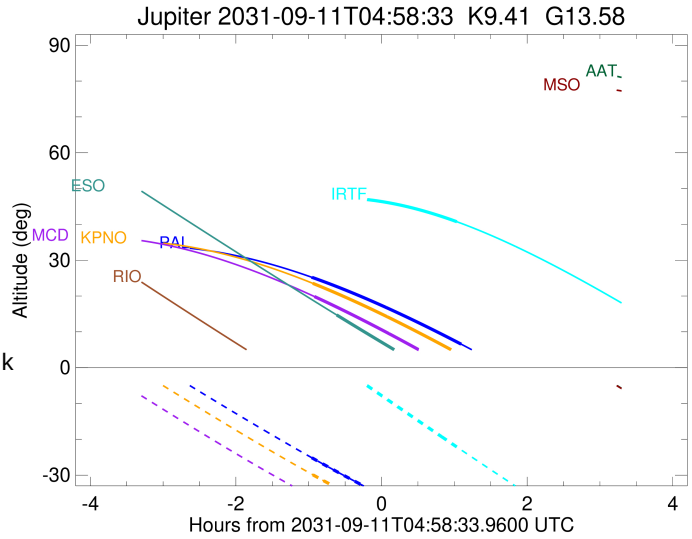
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T04:01:04.894	25.24	-25.13	71486.8	-54.31	-57.72
Jupiter	E	2031-09-11T06:04:13.563	6.56	-45.41	71487.3	-50.50	-54.07

Jupiter_2031-09-11T04_58_33.9600_KPNO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:20:08 2023



target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T05:03:21.860
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 : 4114490712974433792
2Mass ID (if available) : 17152291-2249149
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.120
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 153.48
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 15.309
C/A sky separation (km) : 56844.0
NAIF SPICE kernels : RAJobs_U111+rgf15.spk

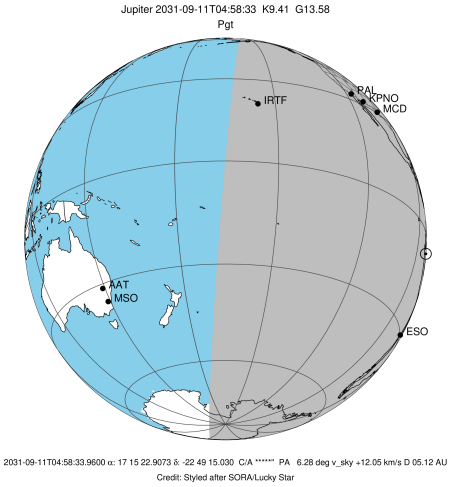


URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

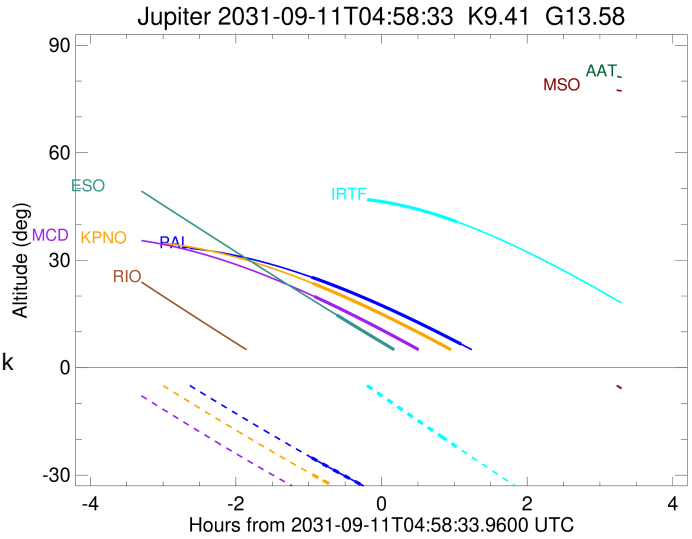
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T04:02:02.601	23.52	-29.91	71486.8	-54.53	-57.92
Jupiter	E	2031-09-11T06:04:09.884	3.49x	-49.03	71487.3	-50.84	-54.40

Jupiter_2031-09-11T04_58_33.9600_MCD.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:22:14 2023



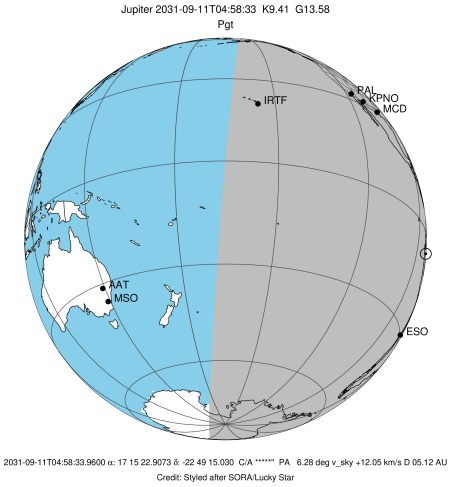
target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T05:03:54.590
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code : MCD
Location : McDonald Obs. 2.7m
Latitude (deg) : 30.67158
E. Longitude (deg) : 255.97844
Altitude (km) : 2.075
Gaia source ID : 4114490712974433792
2Mass ID (if available) : 17152291-2249149
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.120
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 153.39
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 15.388
C/A sky separation (km) : 57137.4
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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



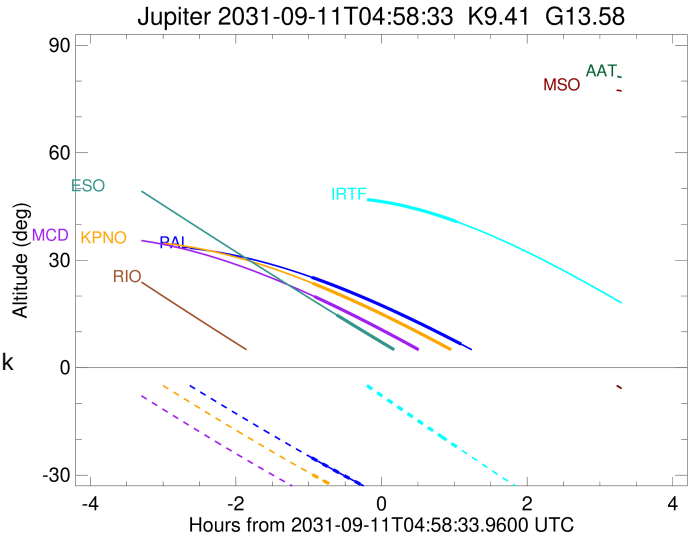
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T04:03:19.089	19.85	-36.38	71486.8	-54.82	-58.20
Jupiter	E	2031-09-11T06:03:57.163	-1.61x	-52.99	71487.2	-51.30	-54.84

Jupiter_2031-09-11T04_58_33.9600_IRTF.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:26:23 2023



target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T04:59:29.850
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 : 4114490712974433792
2Mass ID (if available) : 17152291-2249149
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.119
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 154.08
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 15.412
C/A sky separation (km) : 57225.0
NAIF SPICE kernels : RAJobs_U111+rgf15.spk

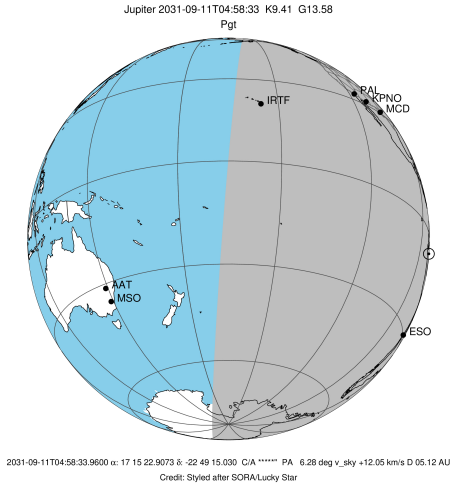


URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.bsp
IAU_SATURN_for_RINGFIT.tpc
pck00010.tpc
earth_200101_990628_predict.bpc
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk

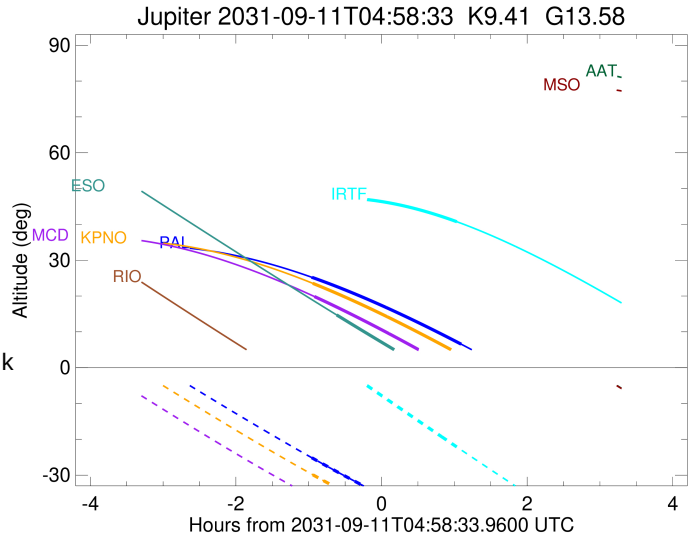
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T03:58:06.574	47.14	6.40x	71486.7	-55.63	-58.97
Jupiter	E	2031-09-11T06:00:41.424	40.73	-22.15	71487.3	-50.83	-54.38

Jupiter_2031-09-11T04_58_33.9600_ESO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:32:26 2023



target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-09-11T05:05:27.440
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 : 4114490712974433792
2Mass ID (if available) : 17152291-2249149
ICRS Star Coord at Epoch: 17h 15m 22.90727s -22:49:15.03014s
RUWE (>1.4 is poor) : 1.05
K magnitude : 9.408
G magnitude : 13.579
RP magnitude : 12.471
BP magnitude : 14.849
DUPflag : 0
Distance (au) : 5.120
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 12.05
Sun-Target sep (deg) : 91.89
Sun-Moon sep (deg) : 153.35
B (ring opening deg) : -2.39
PA of pole (deg) : 3.96
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 17.260
C/A sky separation (km) : 64087.8
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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	2031-09-11T04:21:36.418	14.72	-65.17	71485.5	-65.18	-67.84
Jupiter	E	2031-09-11T05:48:59.388	-2.87x	-60.53	71485.9	-62.05	-64.96