




Some Upcoming Occultations

Things to look forward to for the rest of 2022 and into 2023

TTSO16

Active Ad-hoc Observation Campaigns:

Campaign	Description	Link	Events
SlowRotators	 Astronomical Observatory Institute of Poznan, Poland is coordinating a world-wide observing campaign of somewhat neglected asteroids with slow rotation and small lightcurve amplitudes. The aim is to improve biased statistics of spin and pinpointing the correct lightcurve inversion shape model with the help of multi-chord occultation data. The project is led by dr. Anna Marciniak - https://www.iota-es.de/neglected_asteroids.html	External Web Site	OWC Events
AreciboMoon	A campaign to confirm the suspected moon of Arecibo. The campaign is run by Dave Gault and Peter Nosworthy who first detected the suspected moon on 19 May 2021.	External Web Site	OWC Events
NOC21	 LuckyStar's Neptune Occultation Campaign 2021	External Web Site	OWC Events
ACROSS	 The ACROSS projects targets challenging events by Near Earth Asteroids. In particular our projects support the DART (NASA) and Hera (ESA) missions, with special efforts to reach the accuracy required to observe occultations by the asteroid Didymos.	External Web Site	OWC Events

LuckyStar and RioGroup Campaigns:

Campaign	Description	Events
TNOExtras	RIO-TNO is a list of Trans Neptunian Object occultation predictions, produced by the RIO de Janeiro Group; Camargo, Julio. I. B.; Vieira-Martins, Roberto; Assafin, Marcelo; Sicardy, Bruno; Braga-Ribas, Felipe; Desmars, Josselin; Observatório Nacional/MCTI, Rio de Janeiro, Brazil; Observatório do Valongo/UFRJ, Rio de Janeiro, Brazil; Observatoire de Paris-Meudon/LESIA, Meudon, France. The predictions are calculated by Felipe Braga Ribas and then converted into OW format by Dave Gault, Australia, www.kuriwaobservatory.com	OWC Events
LuckyStar	Lucky Star is a list of events produced by the 'Lucky Star' project - an ERC Advanced Grant led by Bruno Sicardy at Paris Observatory /	OWC Events

← → ↻ https://lagrange.oca.eu/fr/home-across

Handbook of the Bi... "NBN" - Whirlpool... HORIZONS Web-In... 2017 TNO Occultati... SkyMapper Souther... IAU Minor Planet C... SpaceWeather.com... Home • Lucky Star RECON: Global TN... cycle4life rockhamp... COBS - Comet OBS... Other bookmarks

LAGRANGE

Intranet Connexion Connexion

Accueil Actualités Recherche Projets Enseignement Tout Public Recherche...

ACROSS

Asteroid Collaborative Research via Occultation Systematic Survey

The sudden disappearance of a star brings a wealth of information on small Solar System objects. ACROSS targets challenging stellar occultations. By exploiting the the immense accuracy of Gaia stellar data we can now predict and observe events by Near Earth Asteroids. Our projects support the DART and Hera missions, by targeting in particular occultations by the asteroid Didymos. The support of the amateur community and the organisation of specific campaign are at the core of our project.

Stellar occultations provide extremely accurate

How to obtain useful measurements? Which

Main events and tools to know where and

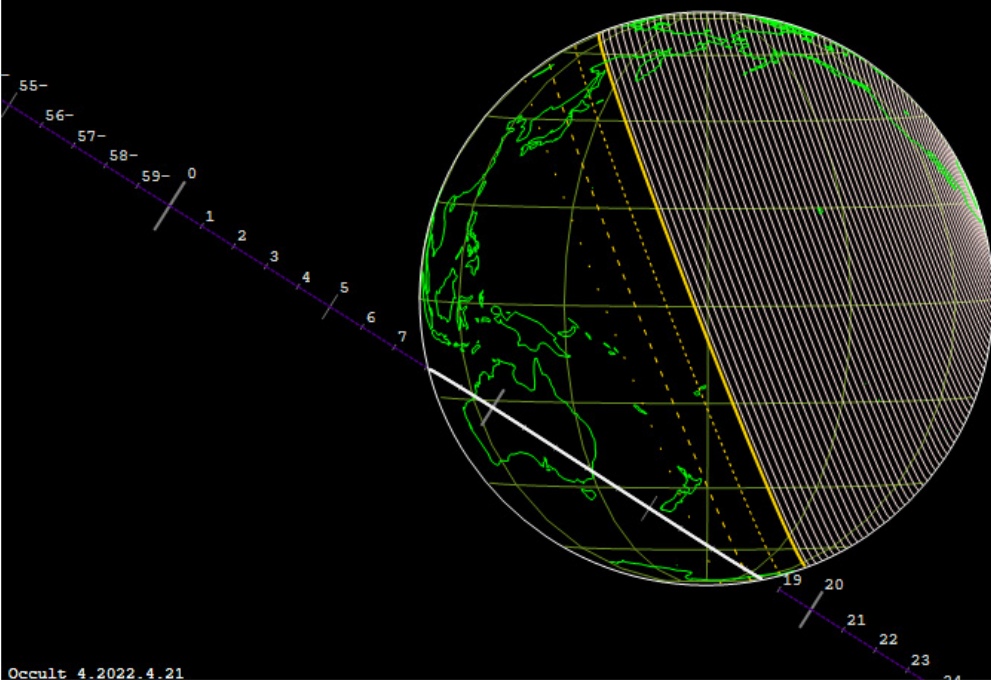
<https://lagrange.oca.eu/fr/home-across>

11405 1999CV3 occults UCAC4 459-002398 on 2022 Jul 17 from 18h 8m to 18h 19m UT

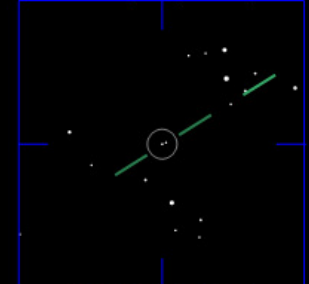
Star: (Dia < 0.1 mas)
Mv 12.4; Mb 13.0; Mr 11.7
RA = 1 53 14.6479 (astrometric)
Dec = 1 36 22.636
[of Date: 1 54 24, 1 43 1]
Prediction of 2022 Apr 24.6
Reliable 1.2 (good),

Durations: Max = 0.11 secs
1km = 0.073 secs, 1mas = 0.047 secs
Mag Drop: 5.0 [99%]v, 5.3 [99%]r
Sun : Dist = 88°, illum = 79%
Moon: Dist = 37°, illum = 79%
Error 6.1 x 6.1 mas in PA 90°

Asteroid:
Mag = 17.4
Dia = 1.50 ± 0.20km, 2.3 mas
Parallax = 9.959"
Hourly dRA = 4.456s
dDec = -42.07"
AstDyS2022Jul01, Star+PeakEphemUncert



30 arcmin square, to mag 13.4



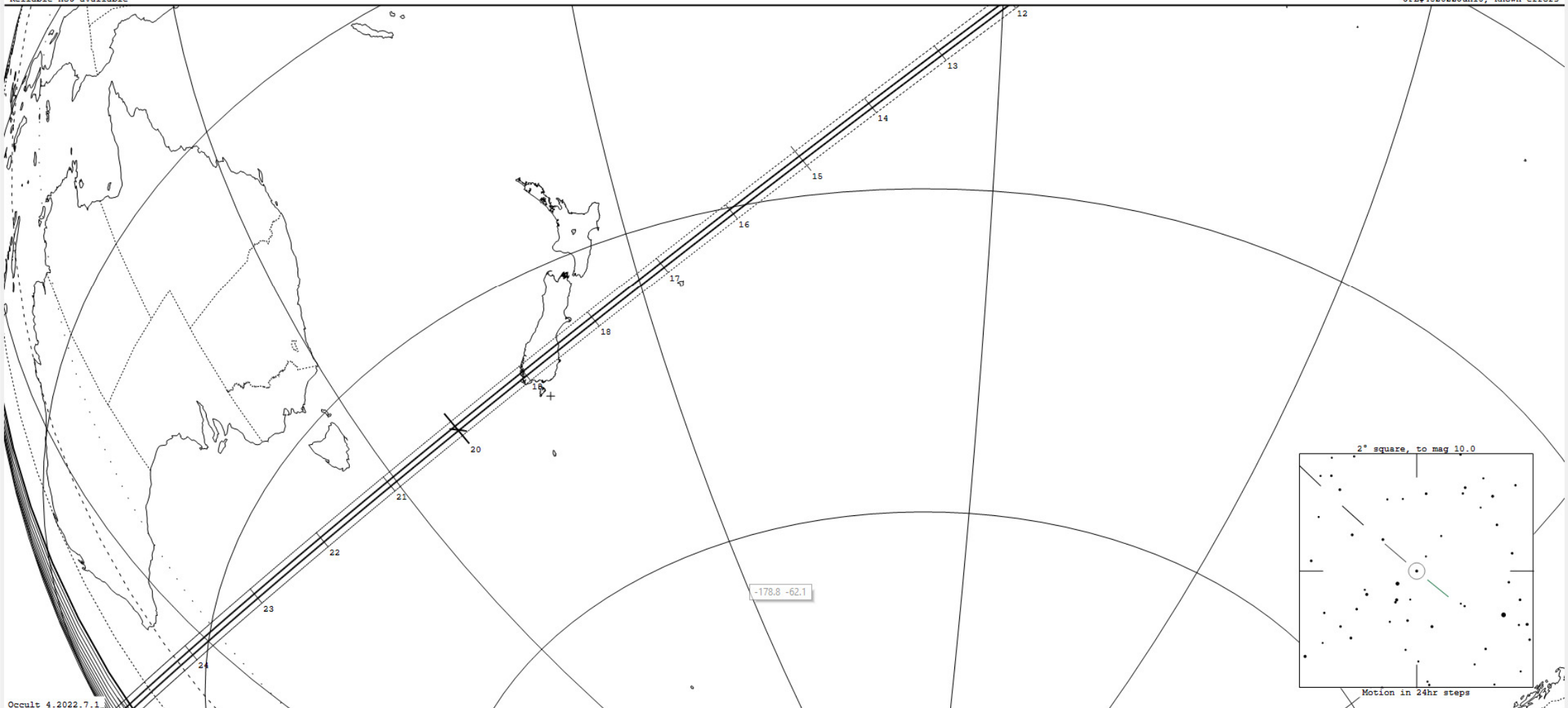
<https://lagrange.oca.eu/fr/prediction>

1320 Impala occults TYC 7944-01400-1 on 2022 Jul 16 from 10h 3m to 10h 25m UT

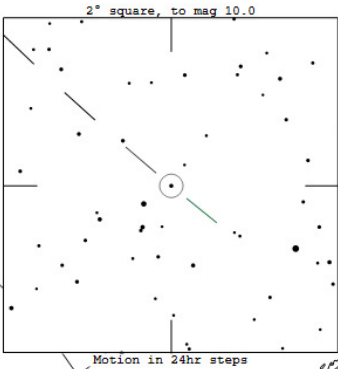
Star: (Dia < 0.1 mas)
Mv 8.7
RA = 19 36 23.4308 (astrometric)
Dec = -44 10 37.636
[of Date: 19 38 0, -44 7 36]
Prediction of 2022 Jun 13.9
Reliable not available

Durations: Max = 4.0 secs
1km = 0.10 secs, 1mas = 0.10 secs
Mag Drop = 5.4 (99%)
Sun : Dist = 157°
Moon: Dist = 44°, illum = 90%
Error 59.3 x 3.0 mas in PA 97°

Asteroid: (in DAMIT, ISAM)
Mag = 14.1
Dia = 38 ±2km, 39 mas
Parallax = 6.518"
Hourly dRA = -2.515s
dDec = -22.64"
JPL#482022Jun10, Known errors



-178.8 -62.1



Motion in 24hr steps

with this Event... Options... Redraw... Move to...
Plot scale: .1 1 2 4 8 16 32
Double-Click on map to set site location
Site longitude: 170.3 Latitude: -36.5

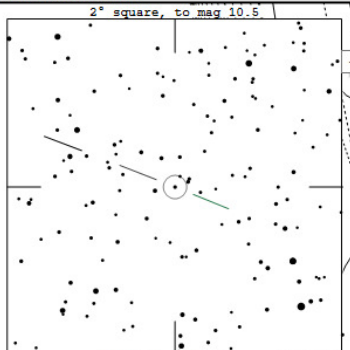
Right-click for menu options

New Zealand.sit never

442 Eichsfeldia occults TYC 6287-01487-1 on 2022 Jul 22 from 8h 28m to 8h 51m UT
Star: (Dia < 0.1 mas)
Mv 9.5
RA = 19 11 54.9290 (astrometric)
Dec = -18 14 35.114
[of Date: 19 13 14, -18 12 19]
Prediction of 2022 Jun 13.9
Reliable not available

Durations: Max = 7.1 secs
1km = 0.11 secs, 1mas = 0.10 secs
Mag Drop = 3.3 (95%)
Sun : Dist = 167°
Moon: Dist = 122°, illum = 33%
Error 16.7 x 1.8 mas in PA 89°

Asteroid: (in DAMIT)
Mag = 12.8
Dia = 65 ±3km, 70 mas
Parallax = 6.847"
Hourly dRA = -2.284s
dDec = -13.08"
JPL#592022Jun06, Known errors



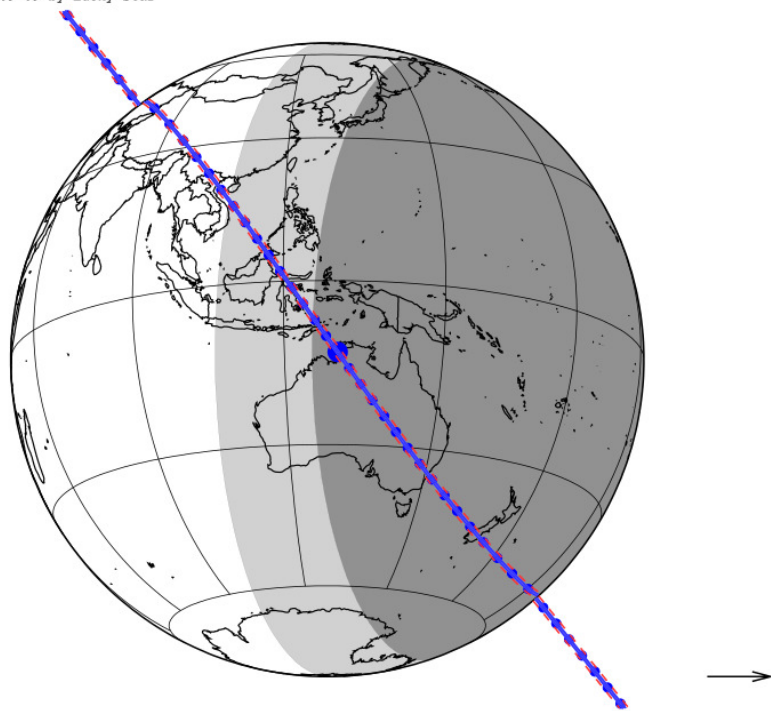
July 2022

SUN	MON	TUE	WED	THU	FRI	SAT
26	27	28	29	30	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
<ul style="list-style-type: none"> 2835 Ryoma - 00:31 1670 Minnaert - 21:22 442 Eichsfeldia - 18:46 						
24	25	26	27	28	29	30

Link [®]	Name	Type	Date ^{UTC}	Time ^{UTC}	Local [⊕]	Ra	Dec	Exp.	Gain	Dur.
<input type="checkbox"/>	442 Eichsfeldia	Main-Belt	22 Jul	08:46	22 Jul 18:46	19h 11m 54s	-18° 14' 35"	300	30	07m00s

Deikoon, GaiaER3+pmGaiaER3, NIMAv5
updated: 2021-09-09 by Lucky Star

Offset: 0.0mas 0.0mas



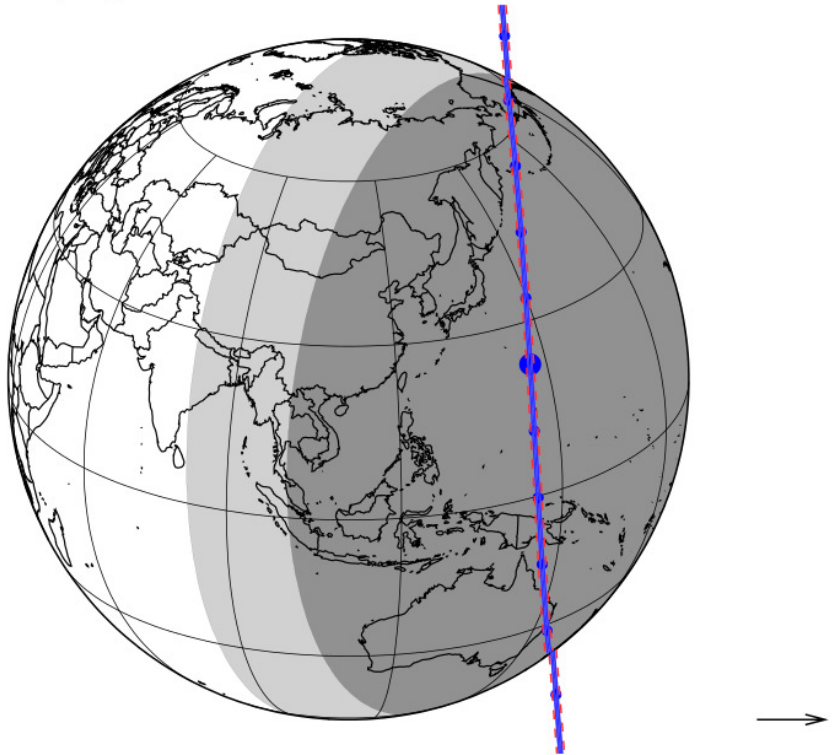
yyyy mm dd hh:mm:ss.s	RA_star_J2000	DE_star_J2000	C/A	P/A	vel	Delta	G*	RP*	H*
2022-09-11 10:44:32.5	18 36 59.9628	-14 30 17.656	0.084	51.29	6.89	4.3468	12.6	11.6	9.2

Date	Sun. 11 Sep. 2022 10:44:32
Star position (ICRF)	18 36 59.9628 -14 30 17.656
C/A	0.084 arcsec
P/A	51.29 °
velocity	6.89 km/s
Geocentric distance Δ	4.3468 au
G mag*	12.6
J mag*	11.6
H mag*	9.2
Magnitude drop	4.1
Uncertainty in time	6.3 sec
Uncertainty in C/A	16.0 mas
Uncertainty in projected distance	50.3 km
Probability of occultation on centrality	36.1%
Maximum duration	6.8 sec
Moon distance to the object	83.6°
Fraction of illuminated Moon	98.5 %
Solar elongation	110.5°

<https://lesia.obspm.fr/lucky-star/occ.php?p=98154>

1999TZ1, GaiaER3+pmGaiaER3, NIMAv3
 updated: 2021-09-09 by Lucky Star

Offset: 0.0mas 0.0mas



yyyy mm dd hh:mm:ss.s	RA_star_J2000	DE_star_J2000	C/A	P/A	vel	Delta	G*	RP*	H*
2022-10-02 12:17:00.5	20 24 57.0620	+24 20 11.096	1.047	85.55	20.64	4.5017	12.5	11.9	11.0

Date	Sun. 2 Oct. 2022 12:17:00
Star position (ICRF)	20 24 57.0620 +24 20 11.096
C/A	1.047 arcsec
P/A	85.55 °
velocity	20.64 km/s
Geocentric distance Δ	4.5017 au
G mag*	12.5
J mag*	11.9
H mag*	11.0
Magnitude drop	5.0
Uncertainty in time	0.8 sec
Uncertainty in C/A	11.7 mas
Uncertainty in projected distance	38.2 km
Probability of occultation on centrality	58.3%
Maximum duration	3.0 sec
Moon distance to the object	60.9°
Fraction of illuminated Moon	44.4 %
Solar elongation	116.8°

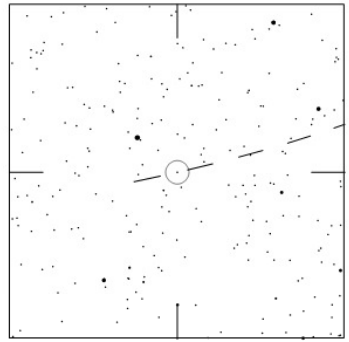
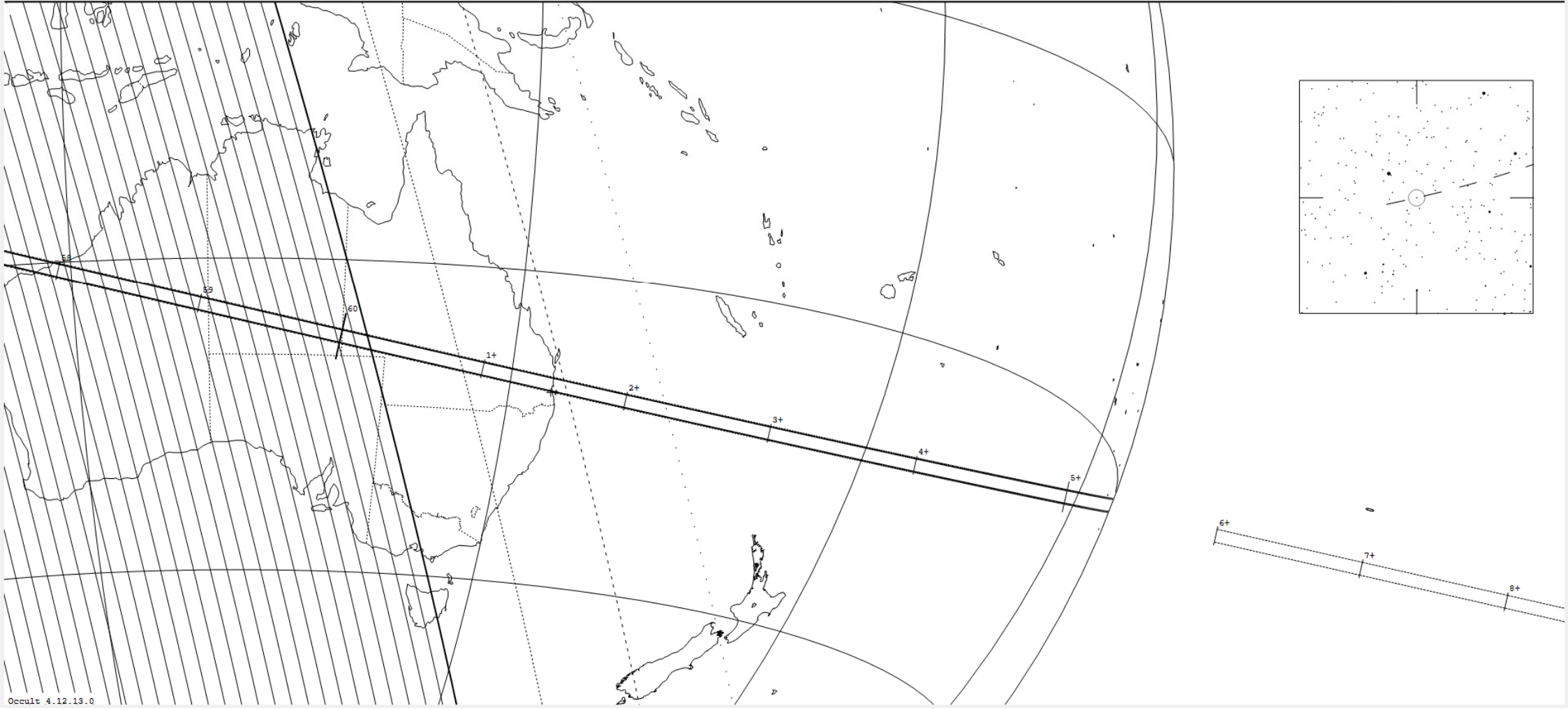
<https://lesia.obspm.fr/lucky-star/occ.php?p=90453>

667 Denise occults TYC 5768-01712-1 on 2022 Nov 6 from 8h 53m to 9h 5m UT

Star: (Dia < 0.1 mas)
Mv 9.6
RA = 20 43 34.3887 (astrometric)
Dec = -14 23 32.578
[of Date: 20 44 50, -14 18 40]
Prediction of 2021 Jun 12.8
Reliable not available

Max Duration = 5.3 secs
Mag Drop = 6.1 (0.0r)
Sun : Dist = 66°
Moon: Dist = 69°
: illum = 95 %
Error 10.3x2.6 mas in PA 104°

Asteroid:
Mag = 15.7
Dia = 89.49km, 35 mas
Parallax = 2.540"
Hourly dRA = 1.624s
dDec = -5.36"
JPL#452021May03, Known errors

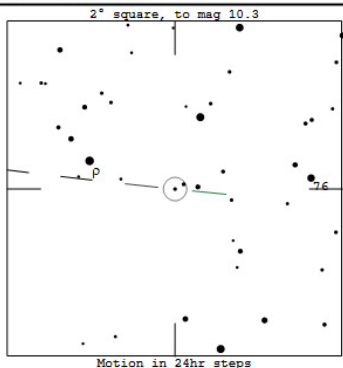


638 Moira occults TYC 0681-00166-1 on 2022 Nov 13 from 11h 23m to 11h 36m UT

Star: (Dia < 0.1 mas)
 Mv 9.3
 RA = 4 31 44.6625 (astrometric)
 Dec = 14 40 37.335
 [of Date: 4 33 3, 14 43 36]
 Prediction of 2021 Jun 12.8
 Reliable not available

Durations: Max = 4.7 secs
 1km = 0.074 secs, 1mas = 0.12 secs
 Mag Drop = 5.5 (99%)
 Sun : Dist = 161°
 Moon: Dist = 40°, illum = 78%
 Error 22.3 x 13.7 mas in PA 75°

Asteroid: (in DAMIT)
 Mag = 14.8
 Dia = 64 ±3km, 40 mas
 Parallax = 3.976"
 Hourly dRA = -2.083s
 dDec = -3.08"
 JPL#962021Apr12, Known errors



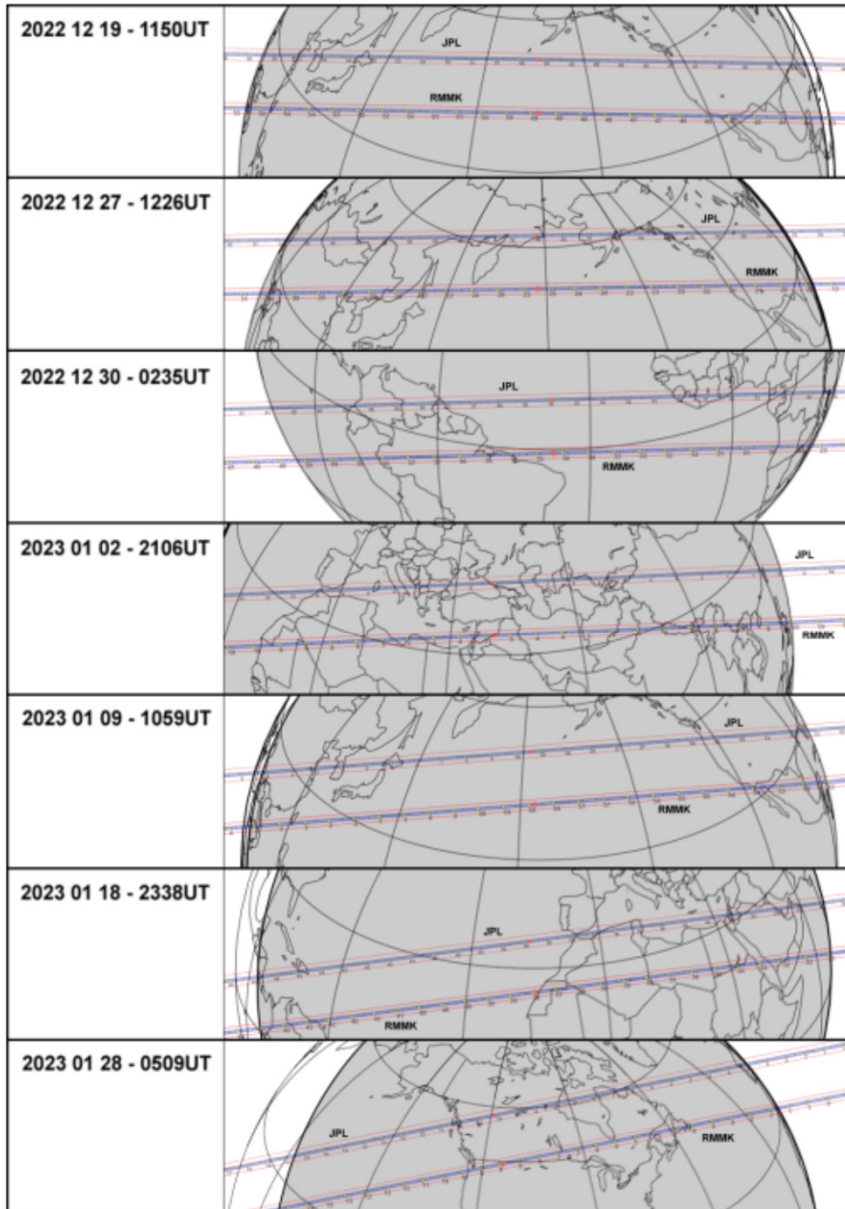


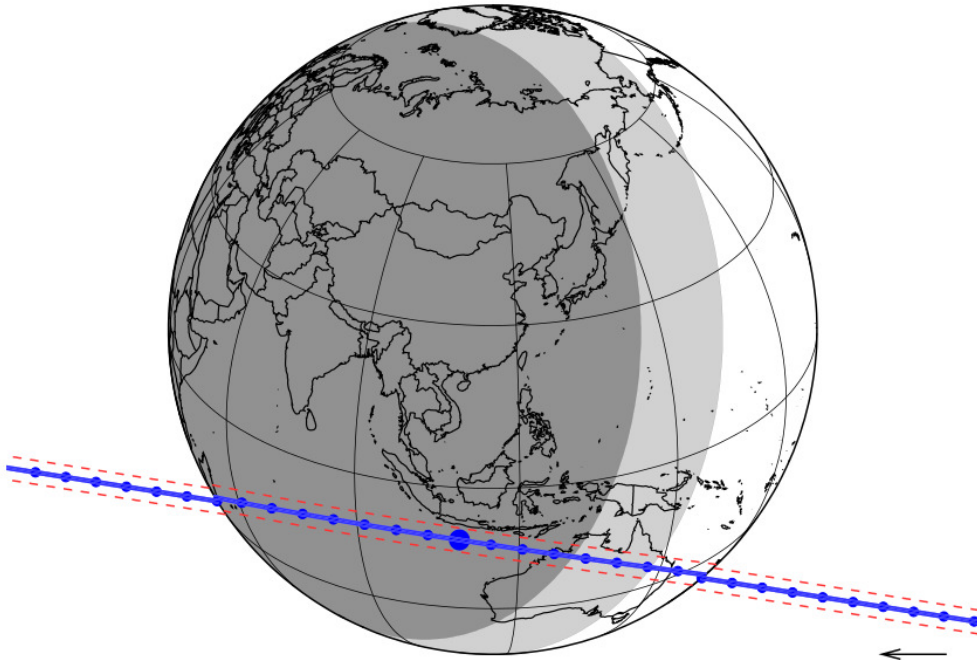
Figure 7. Predicted shadow tracks during 2022 December to 2023 January.

Occultations by 29P/Schwassman-Wachmann 1

December and January 2022/23

https://www.iota-es.de/JOA/JOA2021_3.pdf page 8

Schwassmann-Wachmann, GaiaER3+pmGaiaER3, NIMAv1 Offset: 0.0mas 0.0mas
 updated: 2021-09-01 by Lucky Star



yyyy mm dd hh:mm:ss.s	RA_star_J2000	DE_star_J2000	C/A	P/A	vel	Delta	G*	RP*	H*
2022-11-20 19:17:29.0	06 56 00.8933	+29 16 03.426	1.086	189.02	-10.05	5.3004	11.3	10.6	9.2

Date	Sun. 20 Nov. 2022 19:17:29
Star position (ICRF)	06 56 00.8933 +29 16 03.426
C/A	1.086 arcsec
P/A	189.02 °
velocity	-10.05 km/s
Geocentric distance Δ	5.3004 au
G mag*	11.3
J mag*	10.6
H mag*	9.2
Magnitude drop	2.0
Uncertainty in time	87.3 sec
Uncertainty in C/A	52.2 mas
Uncertainty in projected distance	200.6 km
Probability of occultation on centrality	11.9%
Maximum duration	6.0 sec
Moon distance to the object	94.7°
Fraction of illuminated Moon	12.3 %
Solar elongation	136.0°

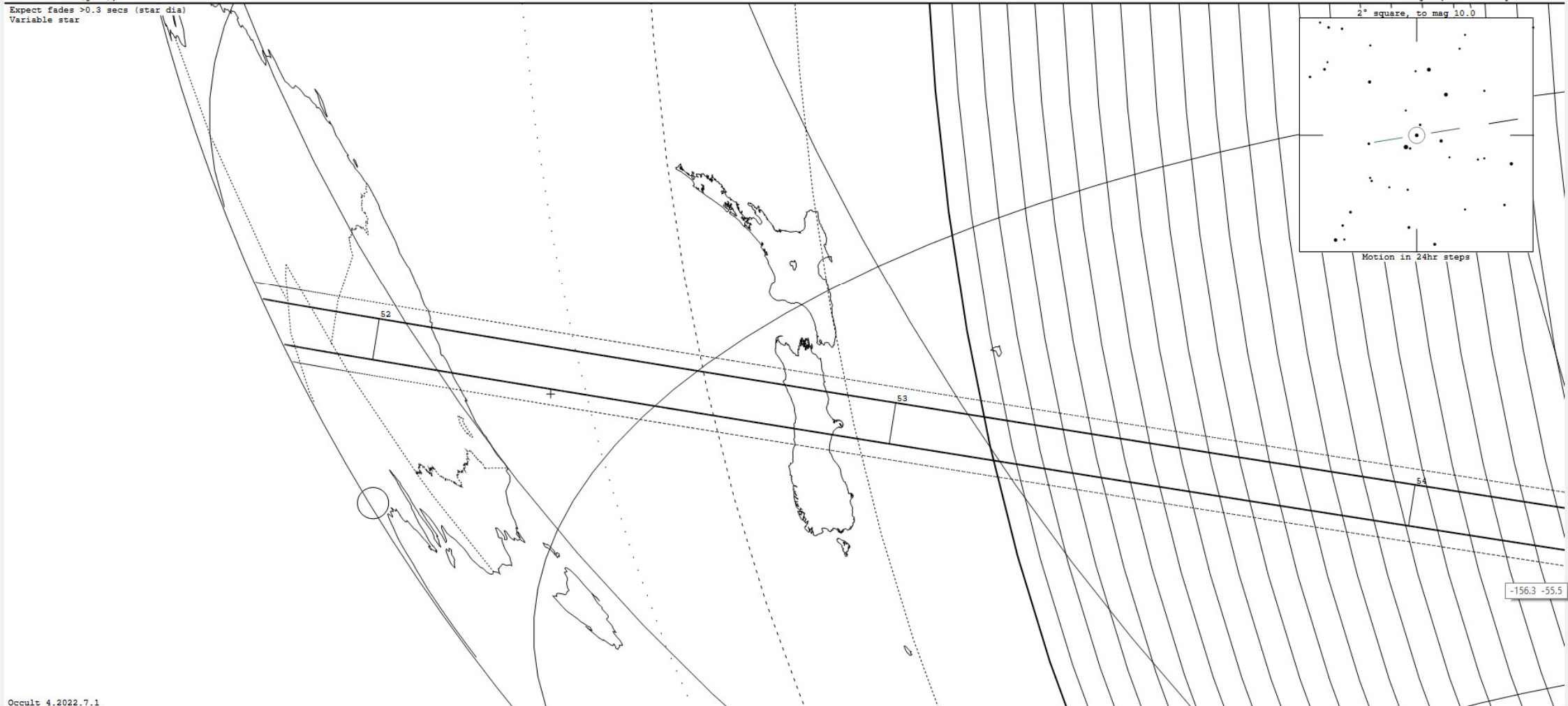
<https://lesia.obspm.fr/lucky-star/occ.php?p=80806>

104 Klymene occults TYC 6809-00765-1 on 2023 Jan 30 from 16h 52m to 16h 58m UT

Star: (Dia = 2.6 mas)
Mv 7.6; Mp 9.6; Mr 6.3
RA = 16 44 44.5447 (astrometric)
Dec = -23 5 0.717
[of Date: 16 46 6, -23 7 32]
Prediction of 2022 Jul 1.4
Reliable 0.9 (good),
Expect fades >0.3 secs (star dia)
Variable star

Durations: Max = 4.7 secs
1km = 0.035 secs, 1mas = 0.10 secs
Mag Drop: 7.5 [100%]v, 8.4 [100%]r
Sun : Dist = 38°
Moon: Dist = 171°, illum = 70%
Error 18.0 x 18.0 mas in PA 90°

Asteroid: (in DAMIT, ISAM)
Mag = 15.1
Dia = 134 ±7km, 45 mas
Parallax = 2.162"
Hourly dRA = 2.643s
dDec = -5.81"
MPCorb2022 May 21, Star+PeakEphemUncert



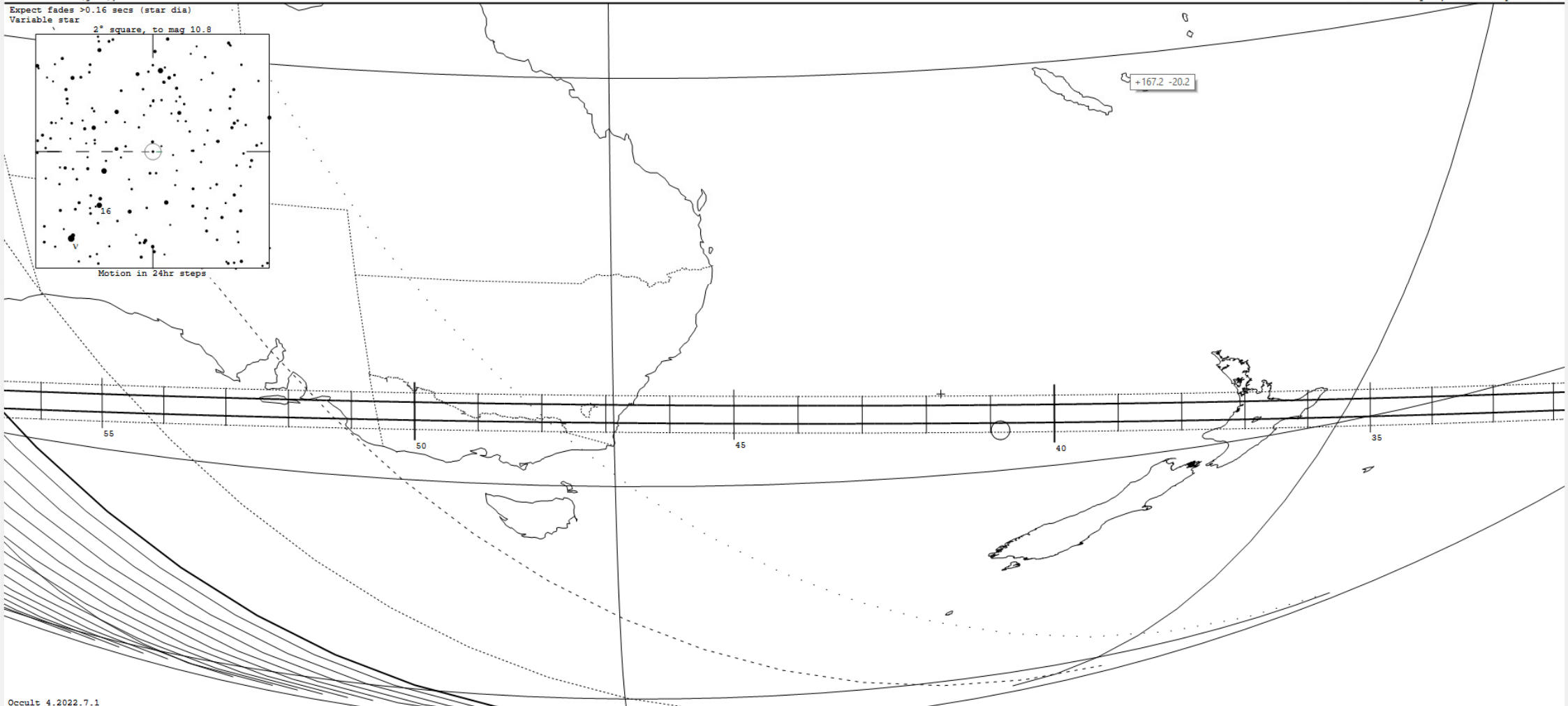
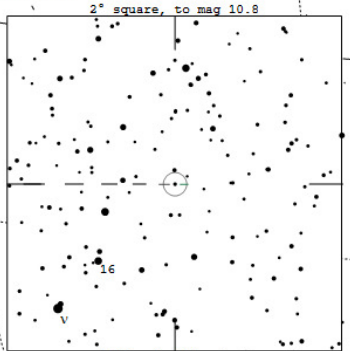
43 Ariadne occults UCAC4 555-027524 on 2023 Feb 16 from 10h 29m to 11h 6m UT

Star: (Dia = 0.4 mas)
Mv 9.8; Mp 11.3; Mr 8.6
RA = 6 25 59.3526 (astrometric)
Dec = 20 57 16.113
[of Date: 6 27 23, 20 56 29]
Prediction of 2022 Jul 1.4
Reliable 1.1 (good),

Durations: Max = 18.9 secs
1km = 0.31 secs, 1mas = 0.41 secs
Mag Drop: 2.7 [91%]v, 3.4 [95%]r
Sun : Dist = 129°
Moon: Dist = 173°, illum = 21%
Error 24.0 x 24.0 mas in PA 90°

Asteroid: (in DAMIT, ISAM)
Mag = 12.3
Dia = 61.44km, 46 mas
Parallax = 4.822"
Hourly dRA = -0.630"
dDec = -0.04"
MPCorb2022 May 21, Star+PeakEphemUncert

Expect fades >0.16 secs (star dia)
Variable star



with this Event... Options... Redraw... Move to... Help Exit

Plot scale:

Double-Click on map to set site location
 Site longitude: Latitude:

Right-click for menu options

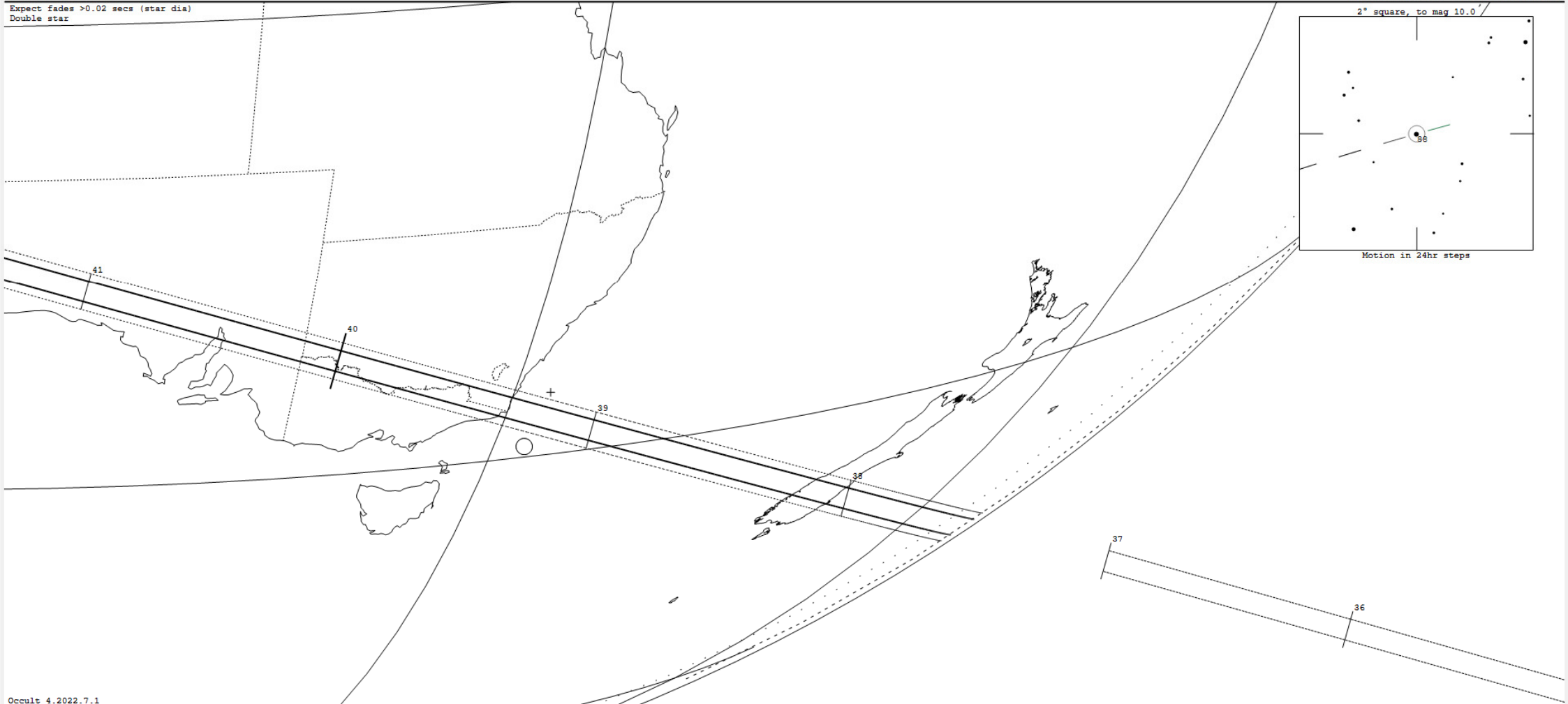
1424 Sundmania occults UCAC4 522-051325 on 2023 Mar 15 from 15h 37m to 15h 49m UT

Star: (Dia = 0.2 mas)
 Mv 8.7; Mp 9.4; Mr 8.0
 RA = 11 31 43.9139 (astrometric)
 Dec = 14 22 1.472
 [of Date: 11 32 57, 14 14 17]
 Prediction of 2022 Jul 1.4
 Reliable 1.1 (good),

Expect fades >0.02 secs (star dia)
 Double star

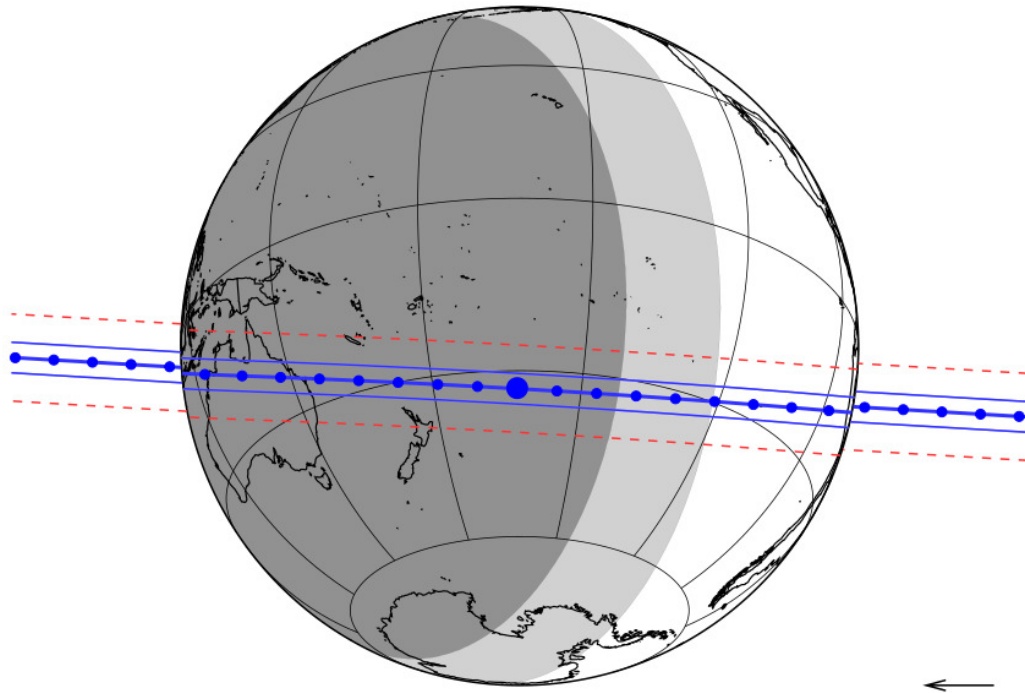
Durations: Max = 5.1 secs
 1km = 0.070 secs, 1mas = 0.12 secs
 Mag Drop: 6.1 [100%]v, 6.4 [100%]r
 Sun : Dist = 167°
 Moon: Dist = 105°, illum = 44%
 Error 16.0 x 16.0 mas in PA 90°

Asteroid: (in DAMIT, ISAM)
 Mag = 14.9
 Dia = 73 ±3km, 42 mas
 Parallax = 3.676"
 Hourly dRA = -1.956s
 dDec = 8.06"
 MPCorb2022 May 21, Star+PeakEphemUncert



2007JJ43, GaiaER3+pmGaiaER3, NIMAv8
 updated: 2022-03-12 by Lucky Star

Offset: 0.0mas 0.0mas



Date	Mon. 17 Apr. 2023 14:28:19
Star position (ICRF)	17 20 11.1555 -25 50 47.335
C/A	0.026 arcsec
P/A	183.18 °
velocity	-12.13 km/s
Geocentric distance Δ	40.1004 au
G mag*	12.6
J mag*	11.6
H mag*	9.2
Magnitude drop	7.6
Uncertainty in time	72.6 sec
Uncertainty in C/A	18.2 mas
Uncertainty in projected distance	529.7 km
Probability of occultation on centrality	41.3%
Maximum duration	47.4 sec
Moon distance to the object	92.1°
Fraction of illuminated Moon	8.5 %
Solar elongation	125.9°

yyyy mm dd hh:mm:ss.s	RA_star_J2000	DE_star_J2000	C/A	P/A	vel	Delta	G*	RP*	H*
2023-04-17 14:28:19.9	17 20 11.1555	-25 50 47.335	0.026	183.18	-12.13	40.1004	12.6	11.6	9.2

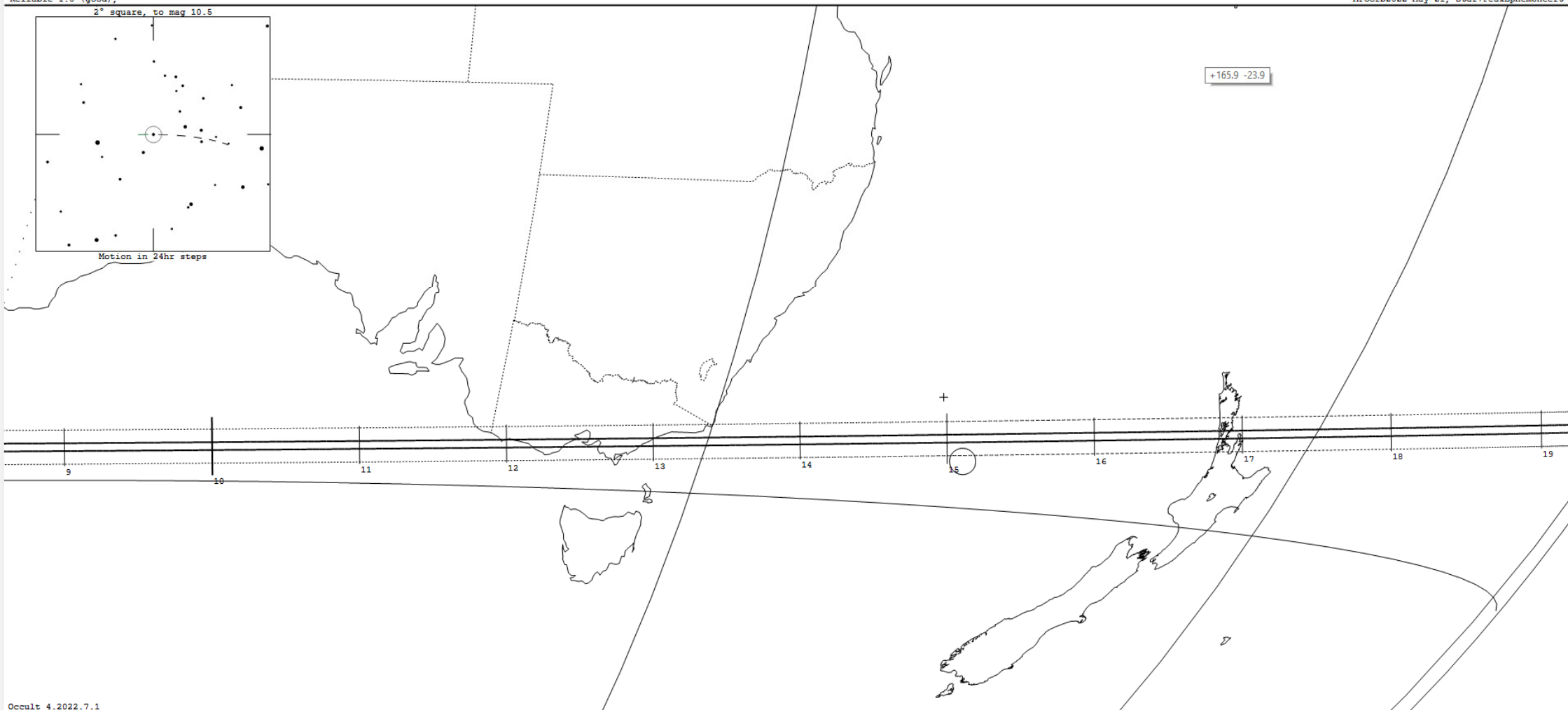
<https://lesia.obspm.fr/lucky-star/occ.php?p=105618>

5771 Somerville occults TYC 4925-01442-1 on 2023 Jun 2 from 9h 59m to 10h 20m UT

Star: (Dia < 0.1 mas)
Mv 9.5; Mp 9.8; Mr 9.1
RA = 11 16 28.3691 (astrometric)
Dec = -4 59 57.408
[of Date: 11 17 39, - 5 7 38]
Prediction of 2022 Jul 1.5
Reliable 1.0 (good),

Durations: Max = 3.1 secs
1km = 0.12 secs, 1mas = 0.29 secs
Mag Drop: 9.3 (100%)v, 9.3 (100%)r
Sun : Dist = 100°
Moon: Dist = 57°, illum = 96%
Error 18.0 x 18.0 mas in PA 90°

Asteroid: (in DAMIT)
Mag = 18.8
Dia = 27.42km, 11 mas
Parallax = 2.675"
Hourly dRA = 0.850s
dDec = 0.13"
MPCorb2022 May 21, Star+PeakEphemUncert



The End

Questions?