



(156) Xanthippe campaign. UK  
observations of  
2018 October 29

Tim Haymes (BAA and IOTA/ES)

Assistant Director, BAA Asteroids and Remote Planets Section (Occultations)

ESOP XXXVIII Paris 2019 Aug 30-Sep 1<sup>st</sup>.

Chords credit: Eric Frappa EAON/EURASTER

# BAA Asteroids and Remote Planets Section

Director:  
Dr Richard Miles  
J77



Astrometry  
Peter Birtwhistle  
J95



Occultations  
Tim Haymes



Exoplanets  
Roger Dymock



[stargazer.me.uk](http://stargazer.me.uk)

I encourage occultation observing in the UK, receive/check reports. I am also a member of the Lunar Section, coordinating total and graze events.

[https://www.britastro.org/section\\_front/8](https://www.britastro.org/section_front/8)

On 2018 Oct 29<sup>th</sup> , the UK had a successful campaign

Target magnitude: 11.8

Magnitude drop: 2.2

22 Reports received and checked

19 observations were +ve

14 chords used by Eric Frappa

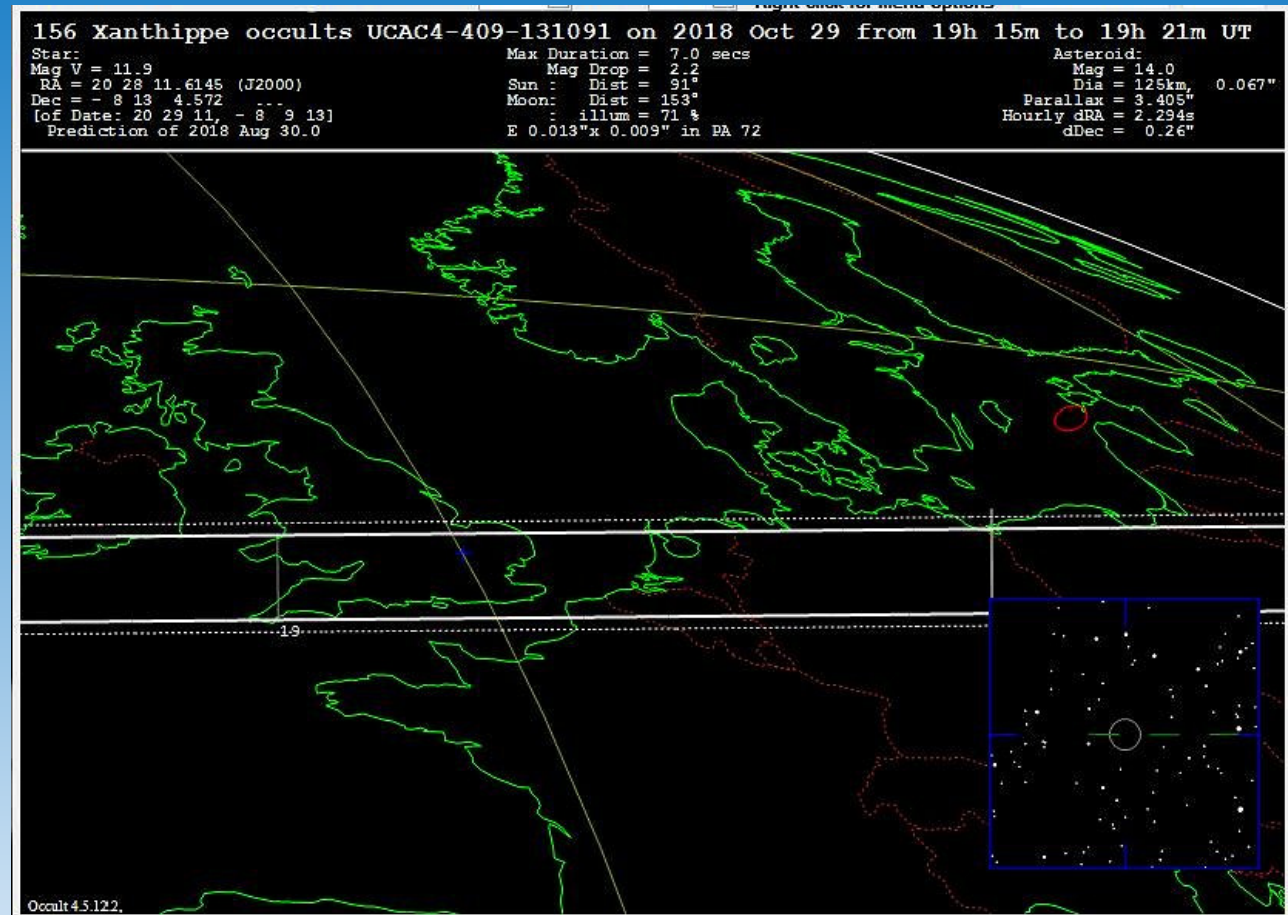
Diam. 143 x 110 Km

Magnitude 14

Discoverer: Johann Palisa

on Nov 22, 1875

(Wikipedia)



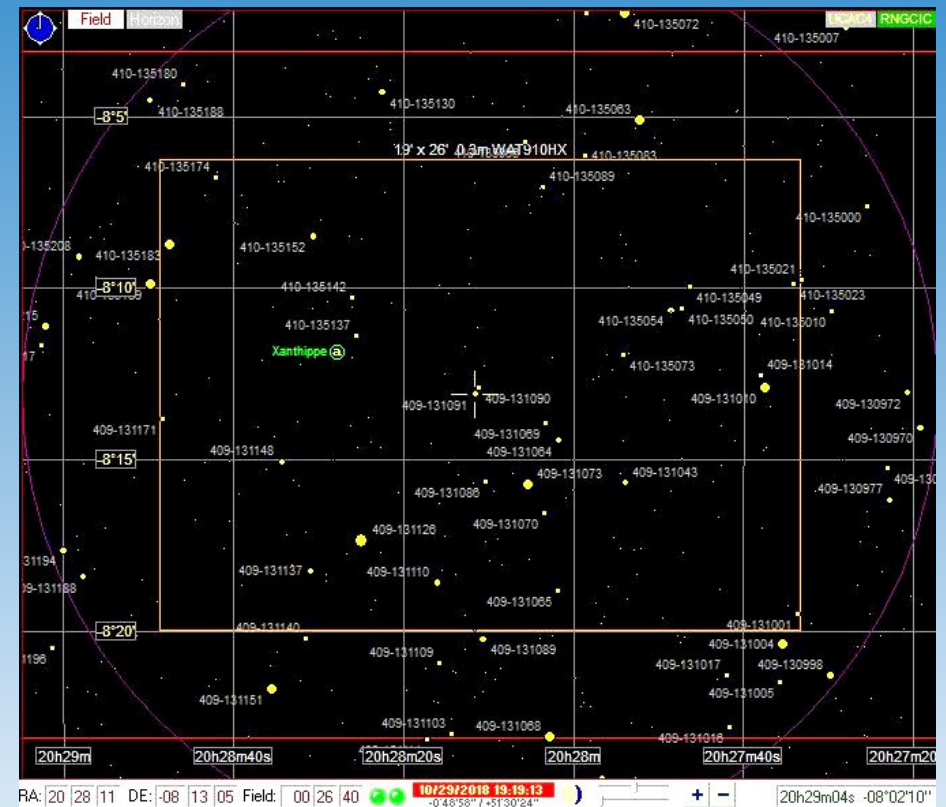
Credit: Occult 4.5.1 D.Herald

# Request for observations made via:

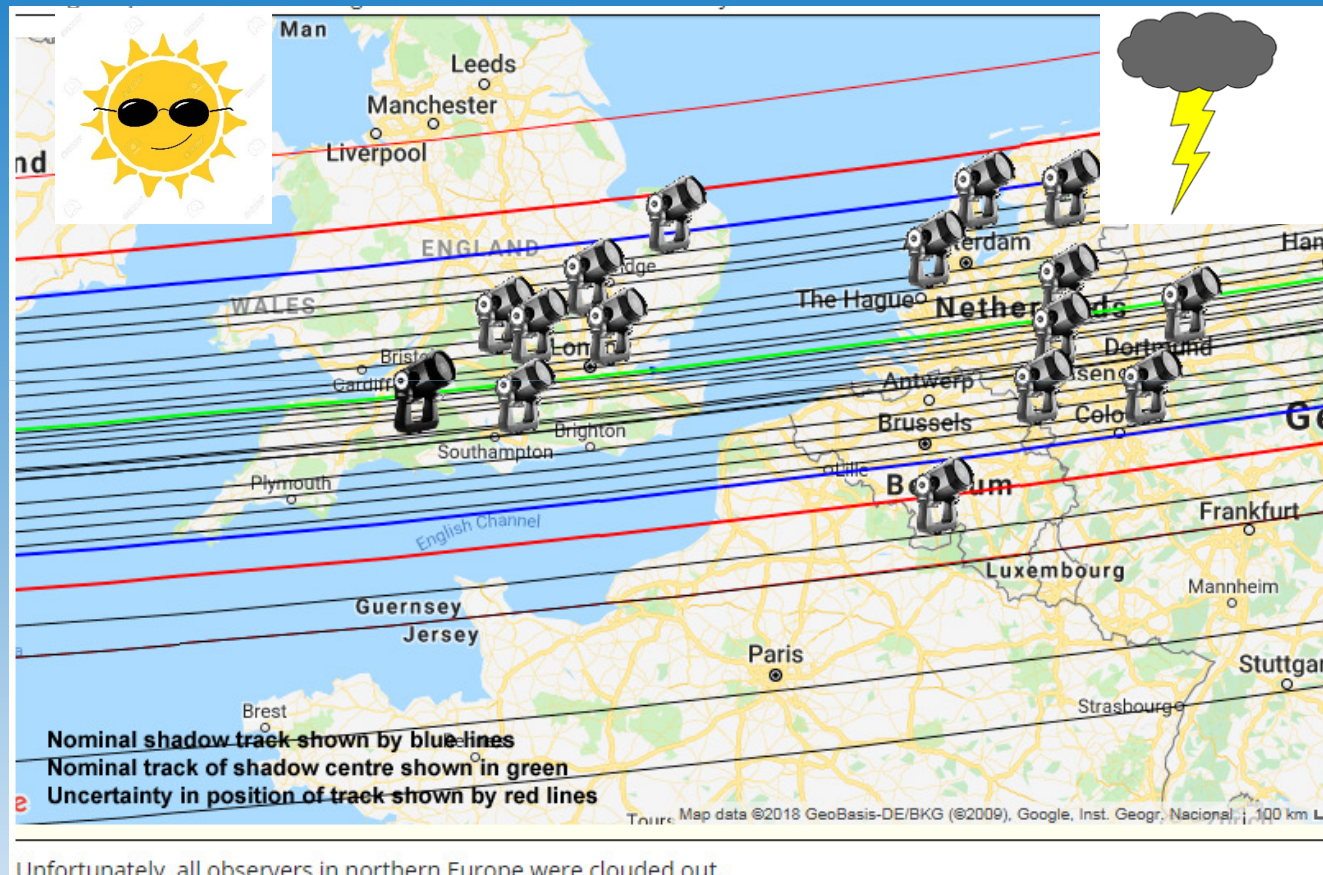
- An alert to BAA members, and *The Astronomer Magazine (TA)*  
(and circulated in social media)
- the UKoccultations Yahoo! group
- Occultwatcher subscribers were already informed and ready!
- We just needed a clear English sky !

C2A Map area is 19x26 min-arc  
( WAT 910HX + 30cm F/4 )

Map credit:  
C2A v 2.1 plugin for  
Occultwatcher

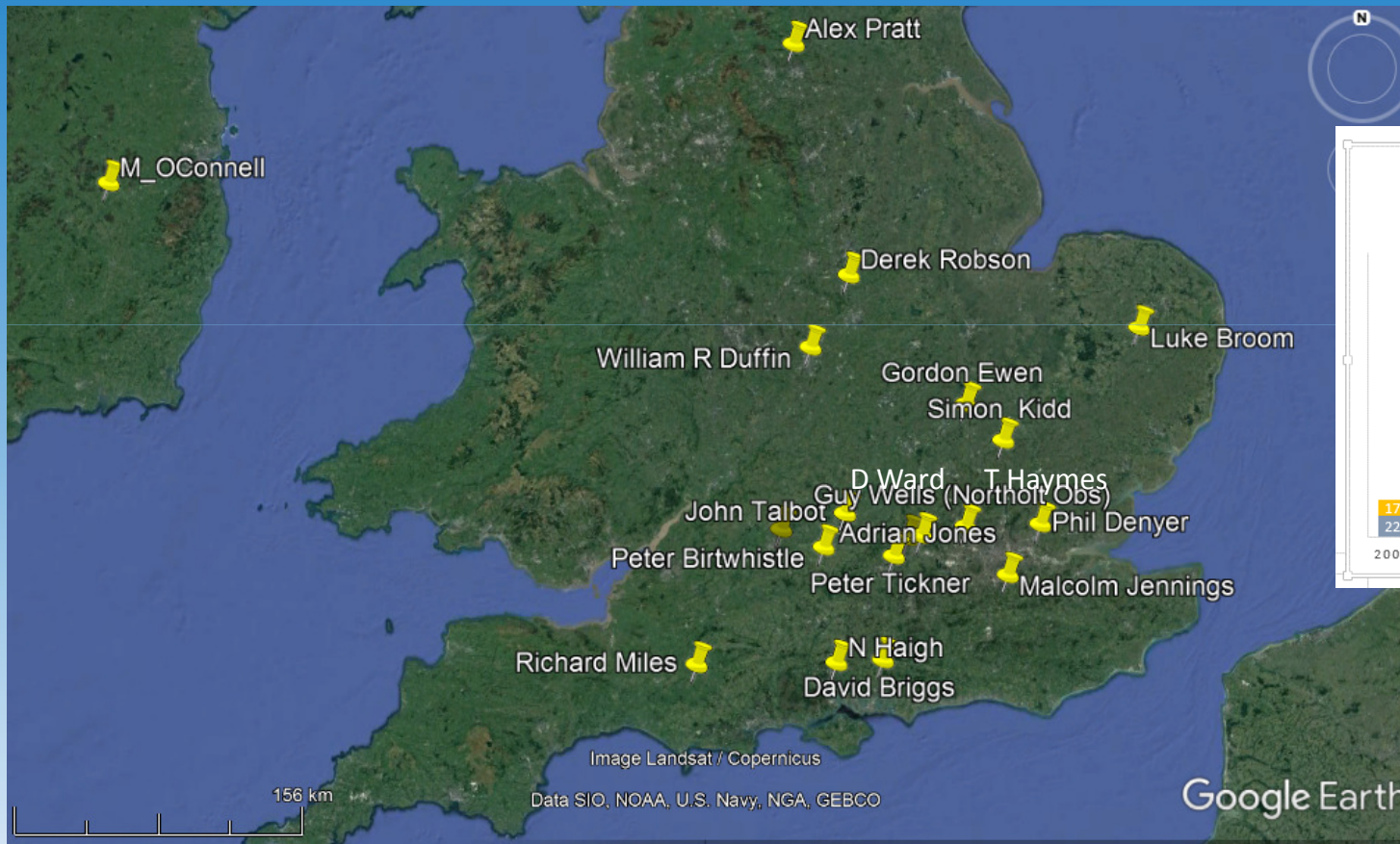


What about the weather? It was good for England, but unfortunately bad for parts of Northern Europe, which was clouded out.

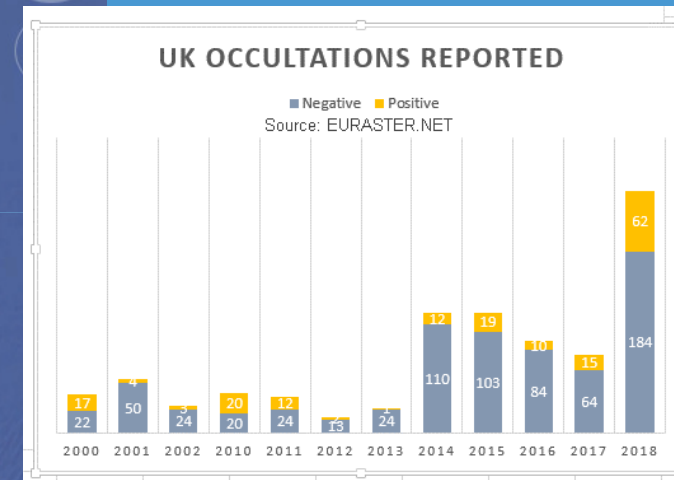


Credit: OccultWatcher 4.6  
( Hristo Pavlov)

# UK observer distribution, and reports in 2018



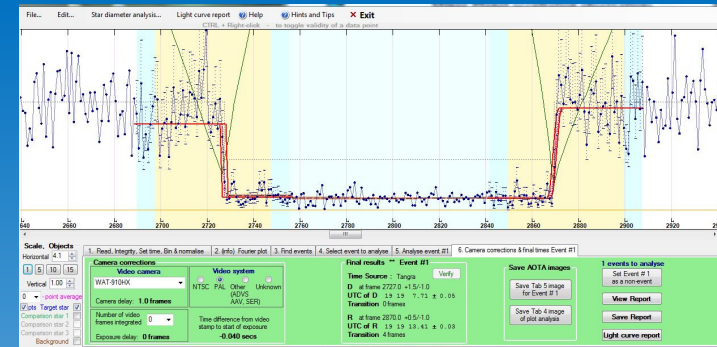
Data from Eurster.net



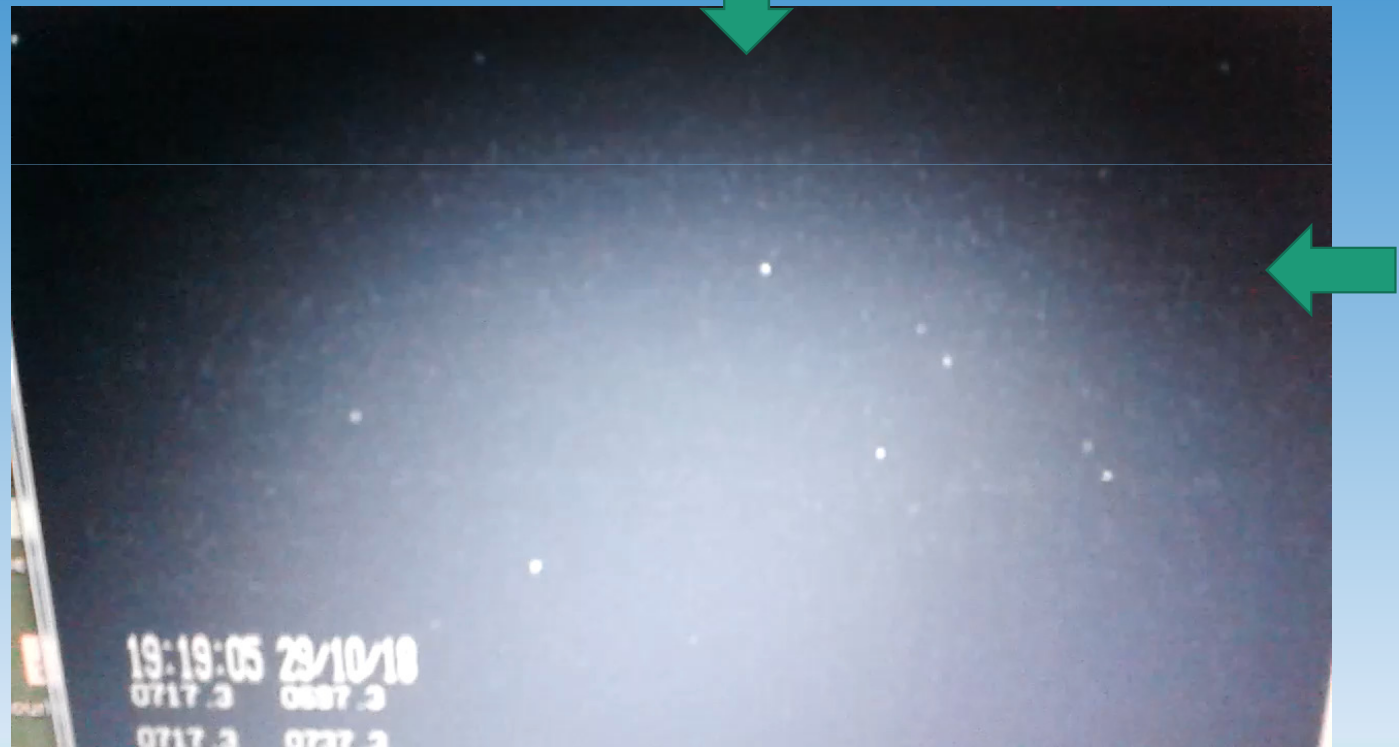
# Xanthippe video clip

Good S/N and short cadence

- Observer: T Haymes
- 30cm F/4 WAT-910HX at 25fp
- OccuRec (Hristo Pavlov)
- GPSBOXSPRITE2-U
- Analysis with Tangra and AOTA
- Time correction by E Frappa
- Combined: 11.8
- Drop: 2.2 mag
- Max Durn: 7 sec
- Observed Chord 5.7s



Computer screen



# Xanthippe: 14 positive chords on Eurater.net

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2018/10/29 | 156 | Xanthippe | 4UC409-131091
chords
asteroid measurement: 107.0 km +/- 4.0 x 94.9 km +/- 2.9, PA 41.9 deg +/- 14.2

P+ | prediction | 19:19:09 | 19:19:09 | | | W 02 00 00 | N 51 17 42 | 0 | WS |;
O+ | Richard Miles | 19:17:38 | 19:20:38 | L105 | VID | UK | W 02 24 23.5 | N 50 55 54.4 | 75 | WS |
4.62 | 19:19:03.72 | 0.16 | 19:19:08.34 | 0.10 | GPS++ | | | |;
O+ | Peter Birtwhistle | 19:19:02 | 19:19:22 | M405 | CCD | UK | W 01 26 49.2 | N 51 28 29.9 | 105 | WS |
5.60 | 19:19:05.53 | 0.06 | 19:19:11.13 | 0.06 | NTP | | | |;
O+ | Chris Hooker | 19:16:01 | 19:22:00 | M254 | CCD | UK | W 01 14 11.7 | N 51 36 18.8 | 63 | WS |
5.66 | 19:19:05.76 | 0.10 | 19:19:11.42 | 0.10 | NTP | | | |;
O+ | David Briggs | 19:17:42 | 19:20:42 | M406 | VID | UK | W 01 01 10.7 | N 50 56 20.5 | 160 | WS |
4.20 | 19:19:09.30 | | 19:19:13.50 | | GPS | | | |;
O+ | Sean Clarke | 19:17:00 | 19:21:00 | M495 | VID | UK | W 00 55 41.9 | N 51 47 36.5 | 92 | WS |
5.60 | 19:19:07.10 | 0.48 | 19:19:12.70 | 0.32 | GPS++ | | | |;
0.64s integration. Waiting for full report.;
O+ | Peter Tickner | 19:17:03 | 19:21:15 | M300 | CCD | UK | W 00 55 14.5 | N 51 25 33.8 | 44 | WS |
5.62 | 19:19:07.51 | 0.05 | 19:19:13.13 | 0.07 | GPS | | | |;
O+ | Geoffrey Thurston | 19:19:00 | 19:20:00 | M355 | VID | UK | W 00 54 44.9 | N 51 18 23.2 | 69 | WS |
5.66 | 19:19:07.98 | 0.32 | 19:19:13.64 | 0.32 | GPS++ | | | |;
0.64s integration.;
O+ | Tim Haymes | 19:17:13 | 19:21:13 | M300 | VID | UK | W 00 48 58.2 | N 51 30 23.8 | 75 | WS |
5.70 | 19:19:07.71 | 0.05 | 19:19:13.41 | 0.03 | GPS++ | | | |;
O+ | Adrian Jones | 19:17:20 | 19:21:08 | M303 | VID | UK | W 00 42 22.0 | N 51 31 09.9 | 27 | WS |
5.76 | 19:19:08.04 | 0.32 | 19:19:13.80 | 0.16 | GPS++ | | | |;
O+ | D. Bamberger et al | 19:15:41 | 19:21:43 | M253 | CCD | UK | W 00 22 18.9 | N 51 33 16.8 | 55 | WS |
5.70 | 19:19:09.11 | 0.25 | 19:19:14.81 | 0.25 | NTP | | | |;
Observation with G. Wells.;
O+ | Malcolm Jennings | 19:14:00 | 19:22:00 | M276 | VID | UK | W 00 04 01.4 | N 51 19 09.4 | 170 | WS |
5.40 | 19:19:11.06 | 0.04 | 19:19:16.46 | 0.04 | RAD++ | | | |;
Cloud interruption 19:16:00/17:37.;
O+ | Simon Kidd | 19:18:00 | 19:21:00 | M350 | CCD | UK | W 00 03 51.7 | N 51 57 04.4 | 120 | WS |
5.02 | 19:19:10.20 | 0.01 | 19:19:15.22 | 0.01 | GPS | | | |;
O+ | Philip Denyer | 19:17:01 | 19:21:20 | M235 | VID | UK | E 00 11 38.8 | N 51 33 06.3 | 13 | WS |
5.68 | 19:19:11.46 | 0.04 | 19:19:17.14 | 0.04 | GPS++ | | | |;
O+ | Luke Broom-Lynne | 19:18:59 | 19:19:47 | M200 | VID | UK | E 01 01 23.3 | N 52 27 15.4 | 41 | WS |
3.28 | 19:19:14.25 | 0.02 | 19:19:17.53 | 0.02 | GPS++ | | | |;

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5.62s

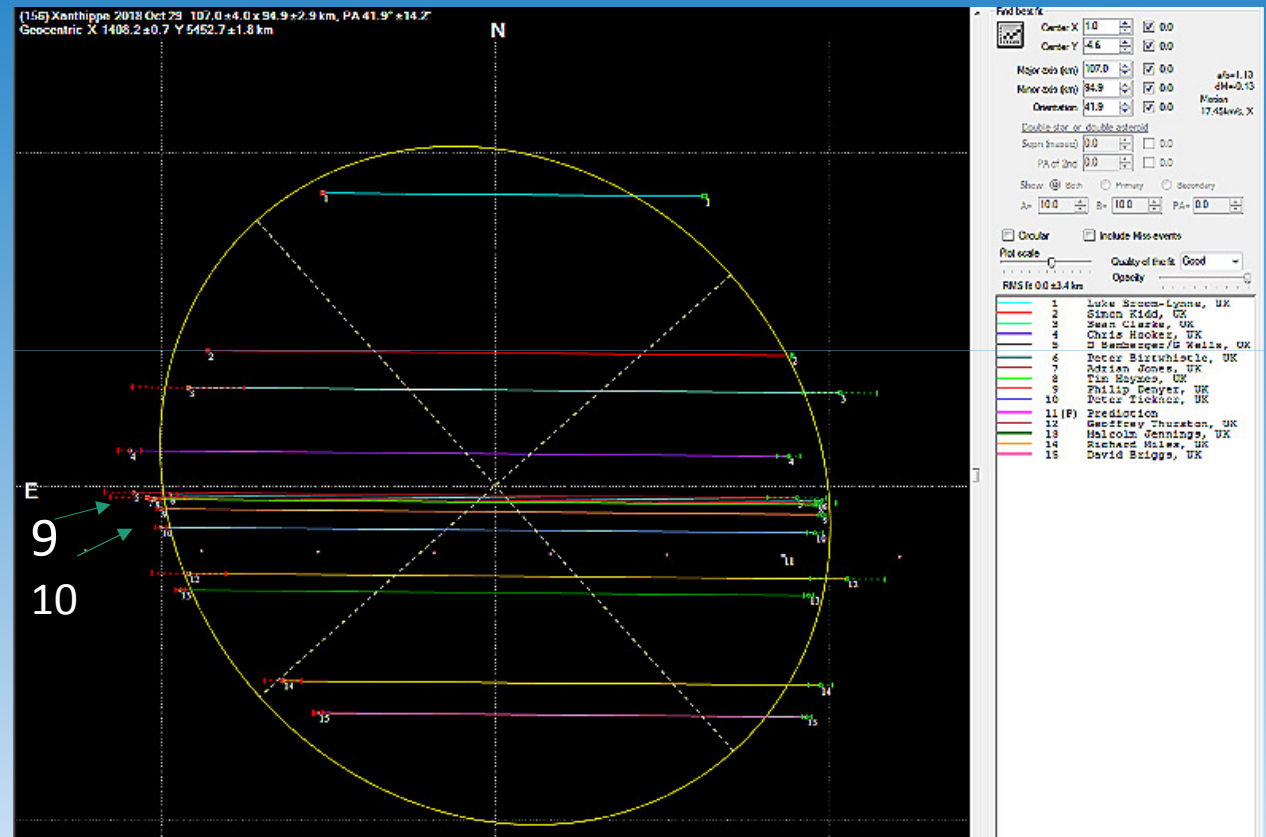
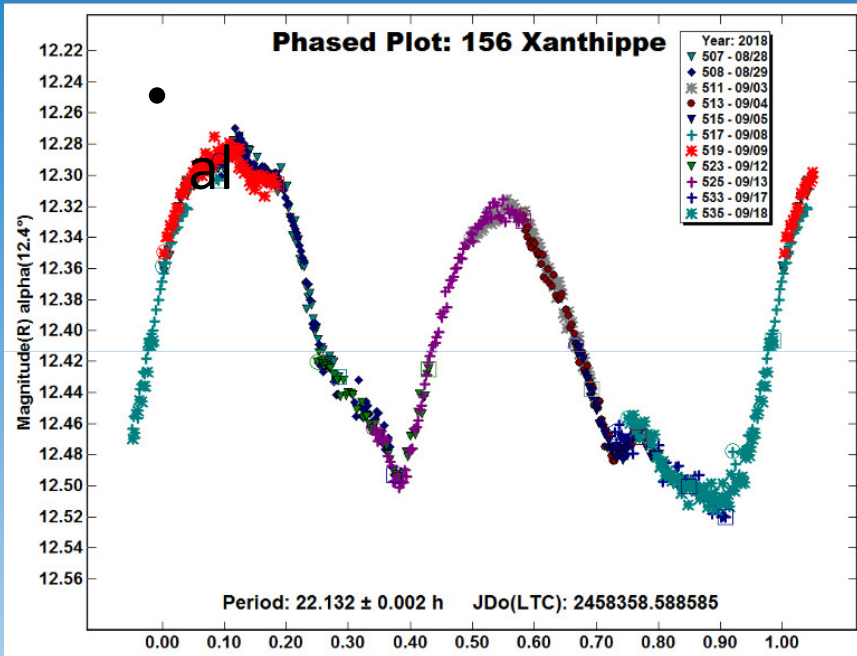


5.68s





(156) has a complex light curve (= shape)  
 Is there some detail resolved in the profile?



Rotational Light Curve Credit: Fred Pilcher  
 aslc-nm.org

# We were able to compare times by Video and USB-CCD



Close chords from two observers – two techniques

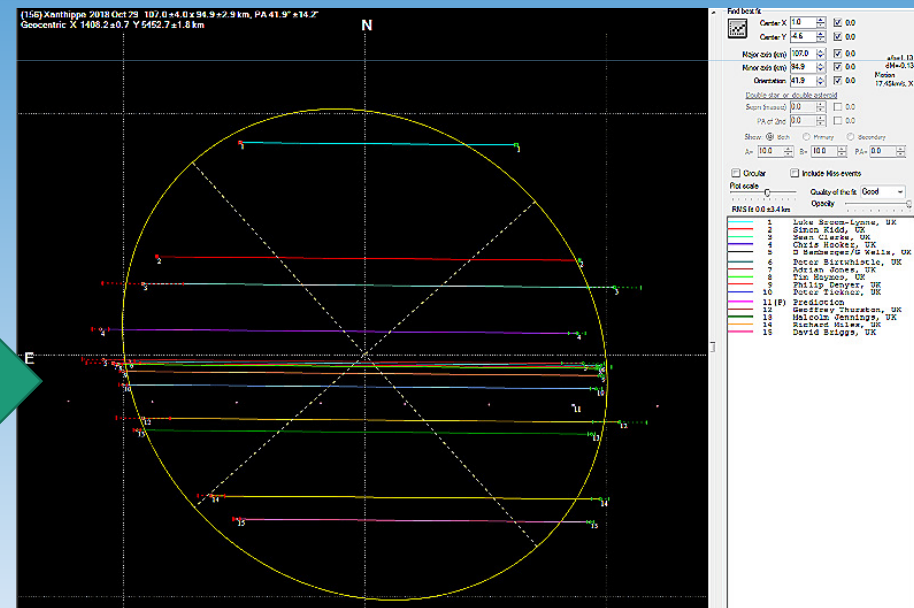
Separation 3 km in latitude  
Separation in mid time 4.0s

Observer 9 = P Denyer in London 5.68s +/- 0.04 VIDEO / GPSVTI

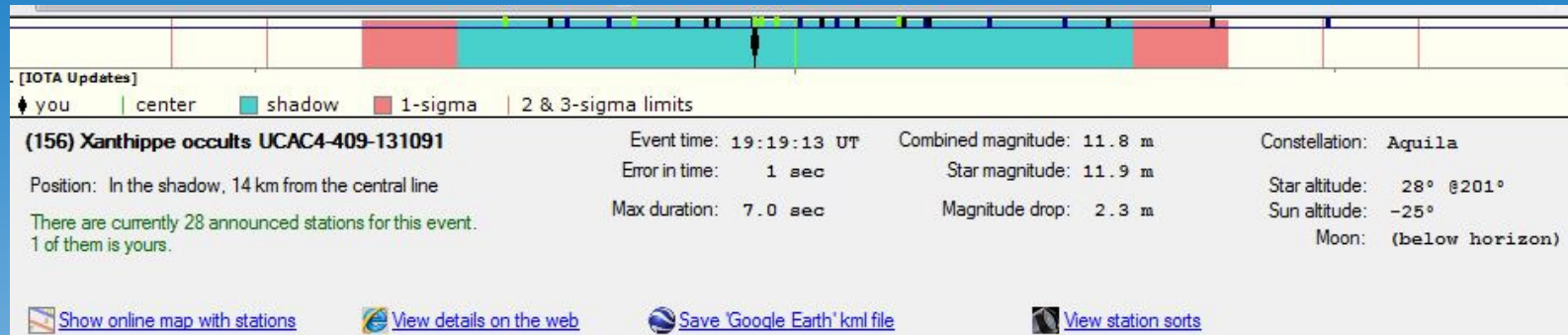
Observer 10 = P Tickner in Reading 5.62s +/- 0.05 CCD / USB-TimeBox

GPSBOXSPRITE3 by Blackboxcamera (London)  
TimeBox by Cesar Valencia Gallardo

**Conclusion:** The two recording systems correspond in time.



# Summary of Xanthippe recording methods:



Method	#Observers	Set up
Night Eagle Astro	1	GPS-VTI
CCD Drift scan	1	NTP
Video + GPS/or Radio	9	WAT910HX WAT120N+ /GPS VTI
USB CMOS	5	ZWO ASI174 / USB TimeBOX or NTP ZWO ASI224 , ZWO ASI120MM

# FUTURE:

(2060) Chiron occults UCAC4 474+000226 (Mag 16.3 +/-)

Sept 8<sup>th</sup> 2304 UT (ERC Lucky-Star)

Observatories with larger apertures have been contacted:

A challenging observation !!

University of St Andrews

University of Central Lancaster 70cm RC

Astronomy Centre 40cm SCT /VID

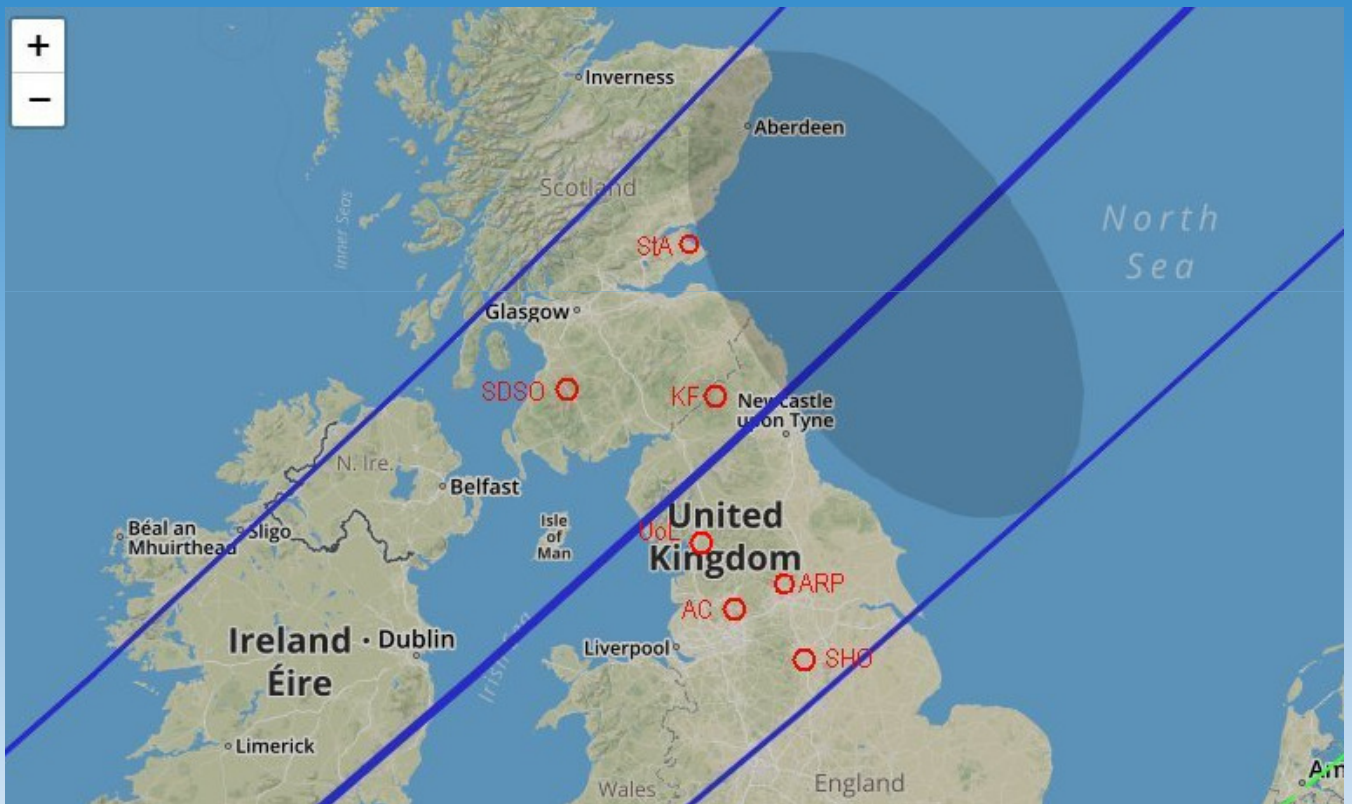
Sherwood-Observatory 61cm Newt. /CCD

Alex R. Pratt (Leeds) 30cm SCT / VID

M O'Connell (Dublin) 35cm SCT / VID

S Kidd 35cm SCT

P Birtwhistle 40cm SCT



# Thank you

I would be pleased to receive question now or later.

Thank you for your attention.

Individual reports:

Dr. Richard Miles <https://britastro.org/node/16174>

Chris Hooker <https://britastro.org/node/16231>

Phil Denyer <https://britastro.org/node/16252>

Luke Broom <https://stargazerslounge.com/topic/324789-asteroid-xanthippe-occultation-29th-october-2018/>

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UK Observations 2019 (all reports received) <http://www.stargazer.me.uk/asteroids/AstOccReports.htm>

**All European results by Eric Frappa:** <http://www.euraster.net/results/>

# Tim Haymes – some memorable events ;-)

- 1972 First observed lunar graze (Pleiades)
- 1978 Aldebaran graze on 8mm cine film
- 1989 Titan / 28 Sgr on video
- 2010 Elektra first +ve asteroid occultation
- 2017 Triton / 13m star, atmosphere event

Contact: [tvh.observatory@btinternet.com](mailto:tvh.observatory@btinternet.com)

