



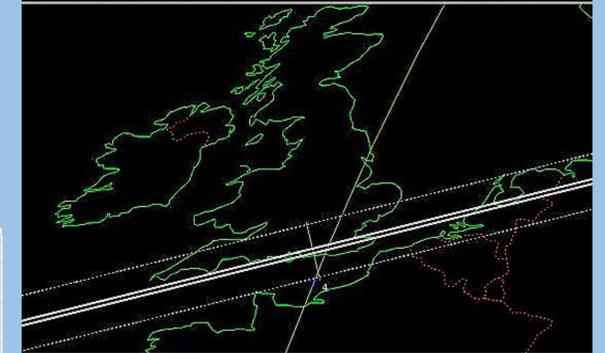
# (2875) Lagerkvist – Two Unexplained Observations

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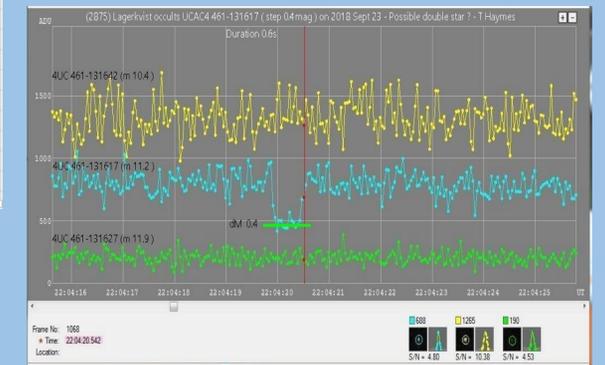
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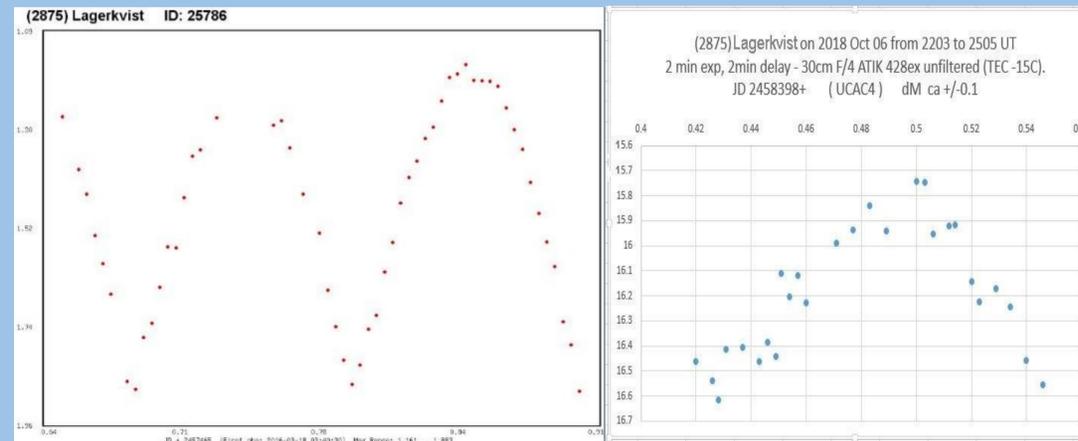
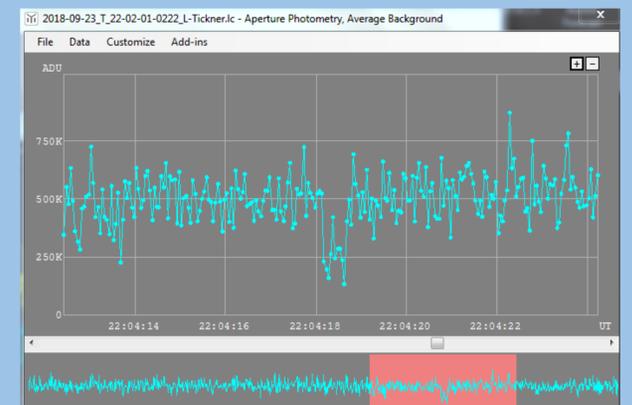
2875 Lagerkvist occults UCAC4 461-131617 on 2018 Sep 23  
 Star: Max Duration = 0.7 secs  
 Mag V = 11.2; B = 12.1; R = 10.7 Mag Drop = 5.2 (5.2r)  
 RA = 23 39 19.6440 (J2000) Sun : Dist = 174°  
 Dec = 2 8 59.876 Moon : Dist = 13°  
 [of Date: 23 00 11, 2 15 16] Illum = 98 %  
 Prediction of 2018 Aug 30.0 E 0.096"x 0.096" in PA 90



Above: Occult 4 prediction

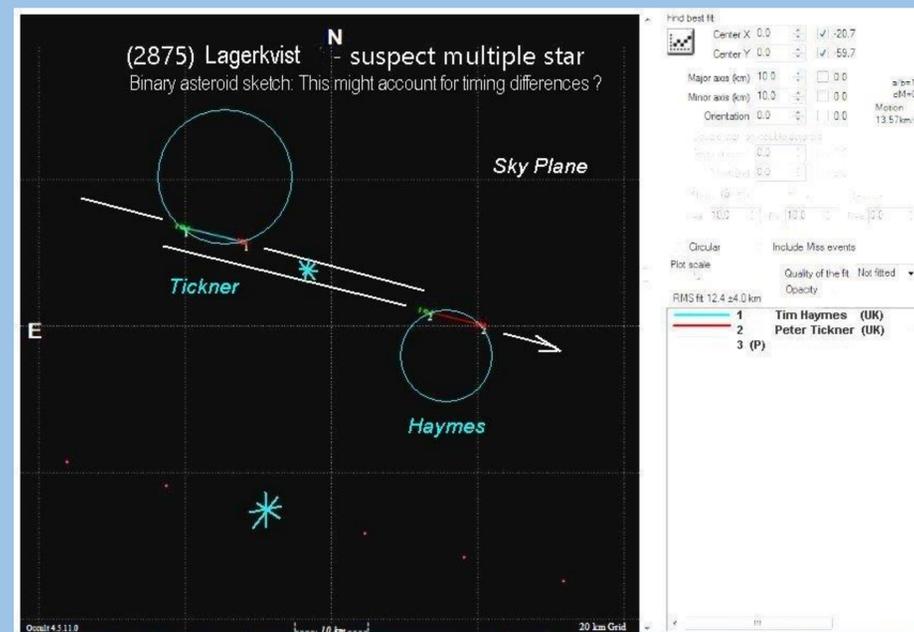


Occultation flux curves: above TH, below PT



ALCDEF database rotation Light Curve.

(2875) photometry by T. Haymes with Astrometrica + UCAC4



Chords by E Frappa with hypothesis added by TH

Below: graphic from OccultWatcher – with green marks from two observers.



## Background :

Two observers in England were observing a possible occultation of **4U 461-131617** (R 10.7) by **(2875) Lagerkvist** on 2018 Sep 23rd. This was a low probability prediction with an asteroid diameter of 10km and a maximum duration of 0.7sec. Mag Drop was R 5.2.

Both observers recorded a single chord with a small dip in flux and no discernible step. There was a time offset of 1.7 s. Can this be explained ?

Tim Haymes (TH) towards the EAST reported a flux drop of 0.4 mag at 25fps with duration 0.60s +/- 0.1 at mid time of 2204 19.9s UT

Peter Tickner (PT) towards the WEST reported a similar low flux drop at 20 fps with duration 0.55s +/-0.1 at mid time of 2204 18.2s UT

PT recorded the event 1.7sec before TH. BUT the ground motion was East -> West SO the shadow should have reached TH first ? This displacement from EURASTER.NET is shown on the right with a sketch by TH on the Sky Plane.

Does this illustrate a possible binary asteroid solution ?

## Equipment:

TH 30cm F/4 WAT-910HX + GPSBOXSPRITE2-u VTI  
 PT 30cm SCT F3.3, ZWO ASI174MM + GPS TimeBox

## Discussion:

What do the occultation flux curves represent?

A fainter companion of the primary was occulted – but the time shift remains unsolved. \* New Double\*

- a binary asteroid perhaps ?
- more than one companion perhaps?
- OR a timing error in one observation?

Does the rotation light curve suggest anything ? [ above right ]