ASTEROIDAL OCCULTATION - REPORT FORM (update with E. Frappa processing)

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|         EAON                | |         IOTA/ES             |
|                       | |  INTERNATIONAL OCULTATION   |
|    EUROPEAN  ASTEROIDAL     | |     TIMING  ASSOCIATION     |
|    OCCULTATION NETWORK      | |      EUROPEAN SECTION       |
+-----------------------------+  +-----------------------------+
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1 DATE: 2020 july 21 STAR: UCAC4 559-2594
ASTEROID: Pulcova N°: 762

2 OBSERVER: Salvia Observatory
Name:Thierry Midavaine Abbr: MID
E-mail: thierrymidavaine@sfr.fr
Address: 102 rue de Vaugirard, 75006 Paris, France

3 OBSERVING STATION:
Nearest city: Saulges 53 FR (West from Le Man, 45km far)
Station: UAI I73 Salvia
Latitude: 47°58'57.4"N (GPS)
Longitude: 00°24'26.4"West (GPS)
Altitude: 97m
Fixed/mobile: Mobile
Datum (WGS84 preferred): WGS84 (GPS)

Single, OR Double or Multiple station (Specify observer's name): Single Thierry Midavaine

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4 TIMING OF EVENTS:     |                          |
                | OCCULTATION RECORDED: POSITIVE   |
                |                          |
                +----------------------------------+
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Type of event Occultation
Start observation Interrupt-start Disappearance Blink Flash
End observation Jnterrupt-end Reappearance Other (specify)

Comments

Event Code	Time (UTC) HH MM SS.ss	P.E. S.ss	Acc. S.ss
S	- 00 55 03.310	0.45	
D	- 00 56 36.67	0.45	
R	- 00 56 45.54	0.45	
E	- 00 58 00.710	0.45	

Duration : 8.87 s +/- 0.64 sec
Mid-event : 00 56 41.11

Was your reaction time applied to the above timings?
No reaction time applied, due to purely electronic time stamping and recording process.
The time stamp is for beginning of the frame. therefore 0.150 s is add on the above mid event data (to be checked for the up date).

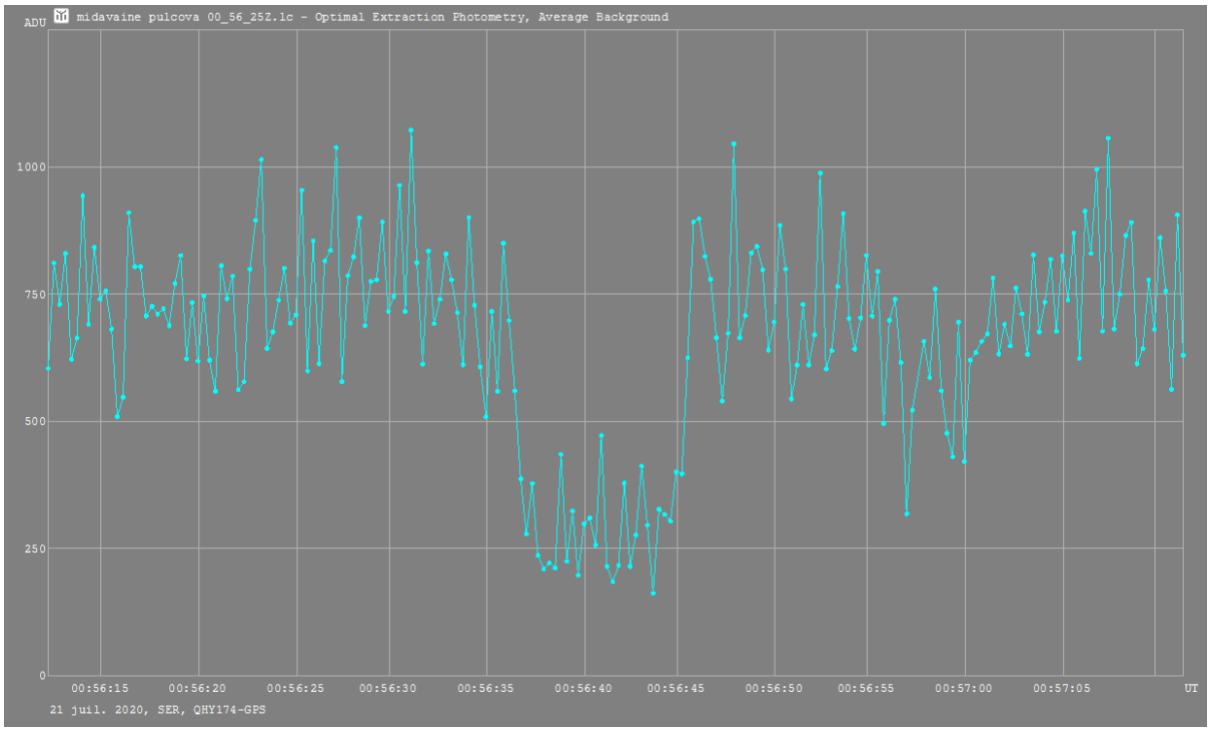
5 TELESCOPE: Type: Schmidt Cassegrain Aperture: 0.2635m Focal length: 1.6m
Mount: Equatorial fork Motor drive: yes
Detector: SONY CMOS IMX174 1920x1200 5.86µm square pixel pitch

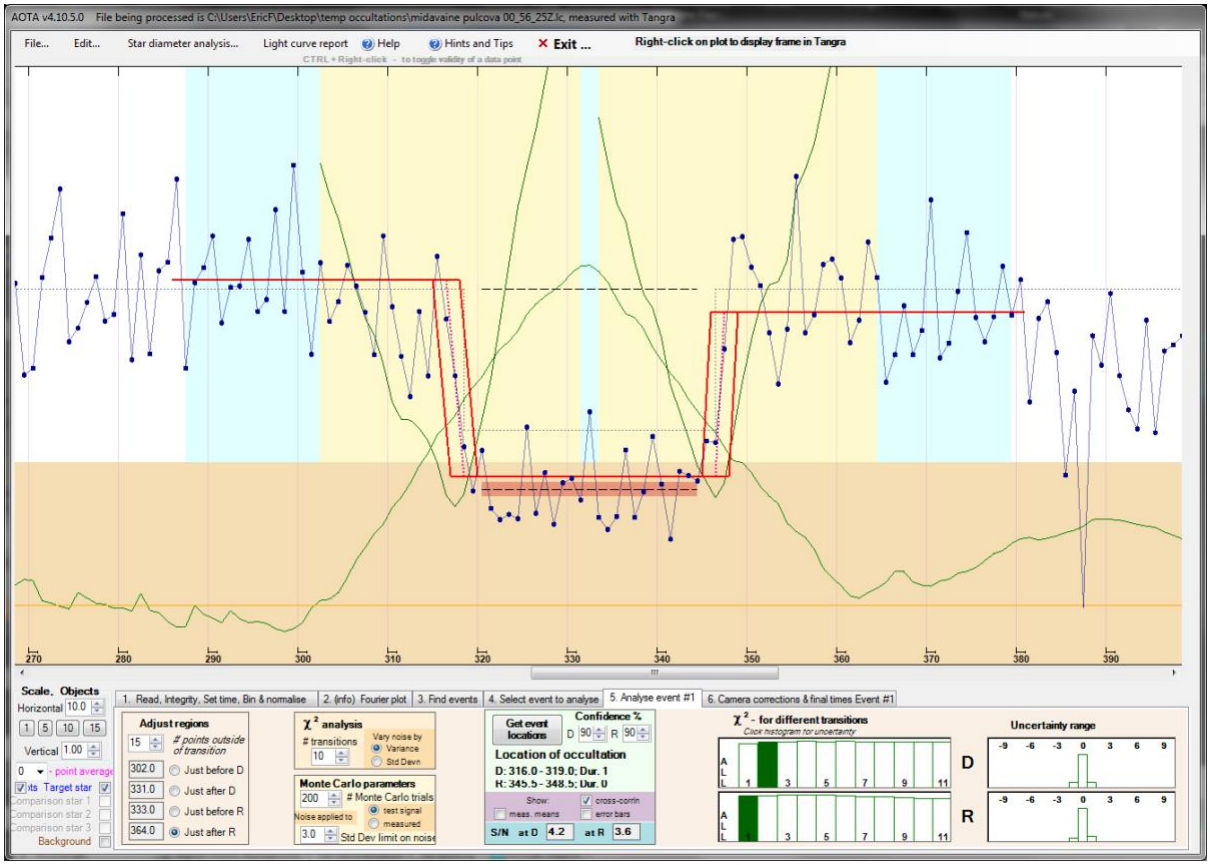
6 TIMING & RECORDING:
Time source: PPS from GPS embedded in the camera
Sensor/Camera: QHY 174M GPS cooled camera
Recording: Bin1x1 300ms exp, gain 430, 3.3Hz frame rate, 8bit SER file
Recording device : Core i7 PC Win10, USB3 Sharpcap 3.1

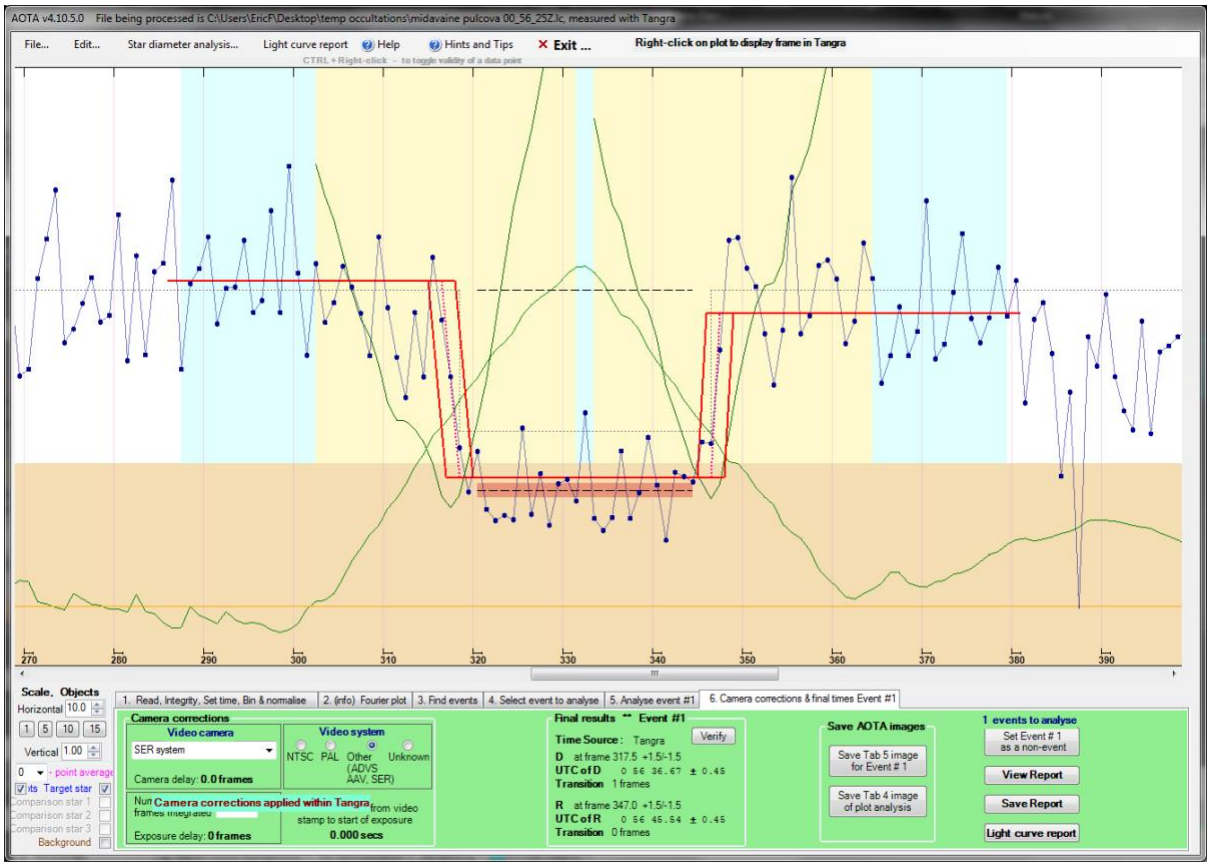
Time insertion (specify): GPS embedded in QHY Camera, time stamping in each frame
SER file processed with Tangra 3.6

7 OBSERVING CONDITIONS:
Atmospheric transparency: good during the event (some clouds 30mn before the event, 31° elevation,
Wind: yes
Temperature: around +10°C
Star image stability : about 3 arcsec seeing
Minor planet visible: yes before and after the event

8 ADDITIONAL COMMENTS:
This is an Andrey Plekhanov event forecast with LinOccult 2.3.1 (Gaia).
The probability of the event is 30.4% max and 30.0% for my location
This is a 13.02 Mag UCAC4 star
The forecasted occultation was around 00:56:43 (Gaia) and expected max duration 8.8s
The occultation drop and rise is around 3 to 5 frames long or less than 1.5s
No evident second occultation seen for the Pulcova satellite
Due to new camera and new firmware, this report may be up dated in near future with the effective measurement of the recording latency and the digital process of the video photometry.
Digital signal file and Signal curve on excel sheet available on request
Thanks to the process performed by Eric Frappa, he allows this up date of the report.
The photometric process was done in Tangra with the Optimal Extraction Photometry mode (with "Start Frame" as "Time Reference"). Then the reduction is done in AOTA.




AOTA v4.10.5.0 File being processed is C:\Users\EricF\Desktop\temp occultations\midavaine pulcova 00_56_25Z.lc, measured with Tangra
File... Edit... Star diameter analysis... Light curve report Help Hints and Tips Exit ...
Right-click on plot to display frame in Tangra
CTRL + Right-click - to toggle validity of a data point
270 280 290 300 310 320 330 340 350 360 370 380 390
Scale, Objects
Horizontal 10.0
Vertical 1.00
1. Read, Integrity, Set time, Bin & normalise
2. (info) Fourier plot
3. Find events
4. Select event to analyse
5. Analyse event #1
6. Camera corrections & final times Event #1
Adjust regions
points outside of transition
302.0 Just before D
331.0 Just after D
333.0 Just before R
364.0 Just after R
χ² analysis
transitions
Vary noise by Variance Std Devn
Monte Carlo parameters
Monte Carlo trials
Noise applied to test signal measured
Std Dev limit on noise
Get event locations
Confidence %
Location of occultation
D: 316.0 - 319.0; Dur. 1
R: 345.5 - 348.5; Dur. 0
Show: meas. means cross-corrln error bars
S/N at D 4.2 at R 3.6
χ² - for different transitions
Click histogram for uncertainty
Uncertainty range
D
R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5. Analyse event #1
6. Camera corrections & final times Event #1
Camera corrections
Video camera
SER system
Camera delay: 0.0 frames
Video system
NTSC PAL Other (ADVS, AAV, SER) Unknown
Camera corrections applied within Tangra
Exposure delay: 0 frames
from video stamp to start of exposure
0.000 secs
Final results ** Event #1
Verify
Time Source: Tangra
D at frame 317.5 +1.5/-1.5
UTC of D 0 56 36.67 ± 0.45
Transition 1 frames
R at frame 347.0 +1.5/-1.5
UTC of R 0 56 45.54 ± 0.45
Transition 0 frames
Save AOTA images
Save Tab 5 image for Event # 1
Save Tab 4 image of plot analysis
1 events to analyse
Set Event # 1 as a non-event
View Report
Save Report
Light curve report