



# Hellenic Amateur Astronomy Association's Activities: Preliminary results on Perseids 2010

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## About the Meteor Section

The Meteor Section of Hellenic Amateur Astronomy Association (HAAA) is active since the establishment of the association back to 2003 - Athens, Greece. Unfortunately, meteor observers are not common among Greek amateurs. But this may change, since the last years we had some video recordings and visual observations from a handful (to the best of our knowledge) of individuals outside HAAA. But still, there is a lot of work to be done in order to have real systematic meteor observations and the section is working hard towards this direction, providing all the necessary knowledge and experience to fellow amateurs, through internet, printed material and dedicated workshops.

Moreover, the section is active in:

- > visual recording (counting method)
- > photography
- > video recording (very recently!)
- > analysis of the collected data

## Video Observations of Perseids 2010

The Perseids have served as a great opportunity to experiment with video recording of meteors. A DMK camera (DMK 21AF04.AS, Imaging Source) equipped with a CCTV 2.8mm lens and UFO Capture v2 were used. In total, the camera worked for 17 nights recording at least 28 meteors (mainly Perseids).

Initially the frame rate was set to 1/30s but only the brightest stars could be seen making the orientation of the camera and the identification of the field a very demanding task. So, finally a frame rate with 1/5s exposure time was selected so as to be able to recognize stars up to 2-2.5 in the field (see the examples below). But this mean that some part of the meteor is lost and sometimes the meteor can be seen in parts (like the image shown bottom right).

On the other hand this image by itself can give some information about the meteor. With some crude calculations the estimated path of the meteor is at least 21.4 degrees in the sky with a minimum velocity of 34 degrees / s (as seen from Earth).

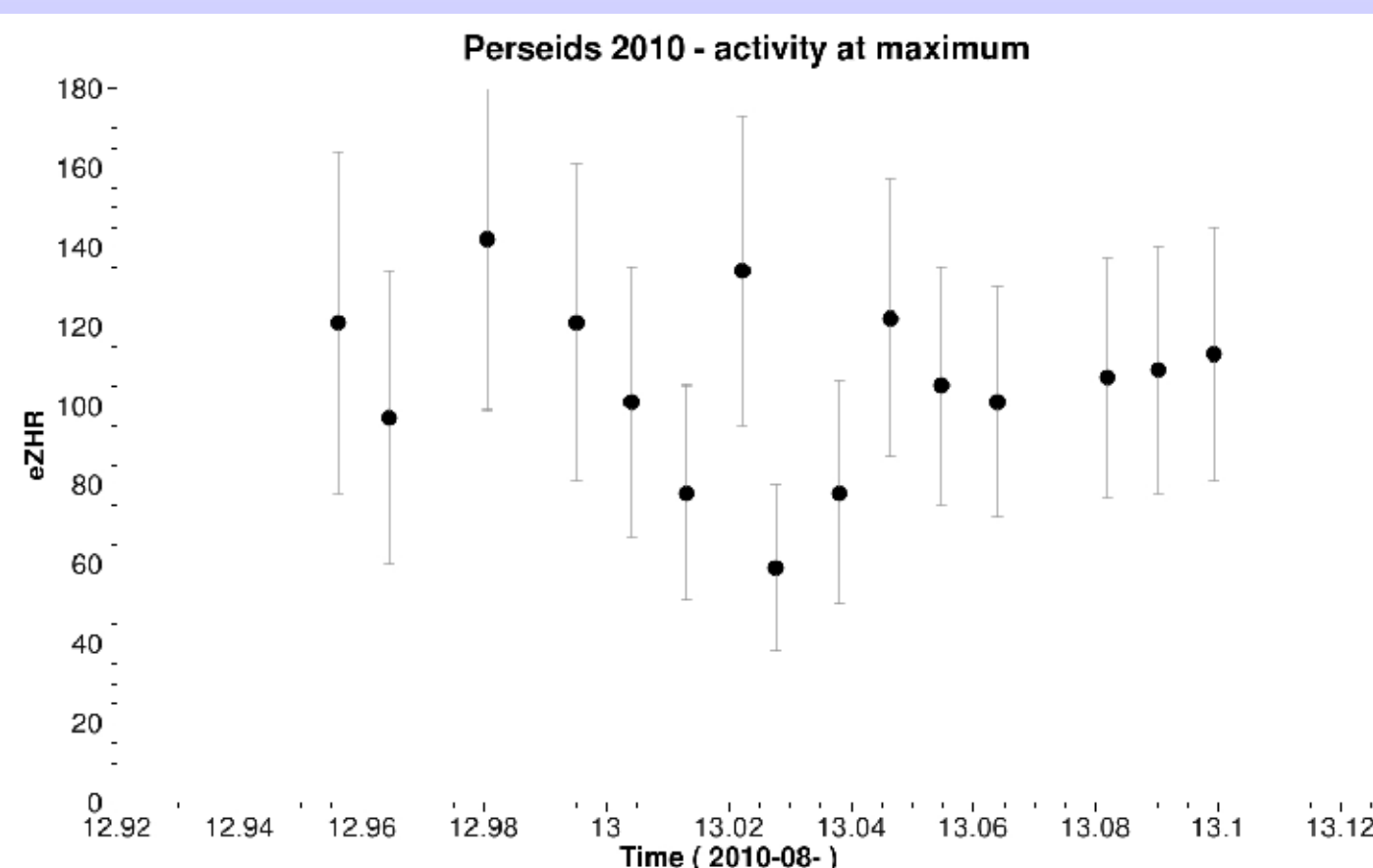
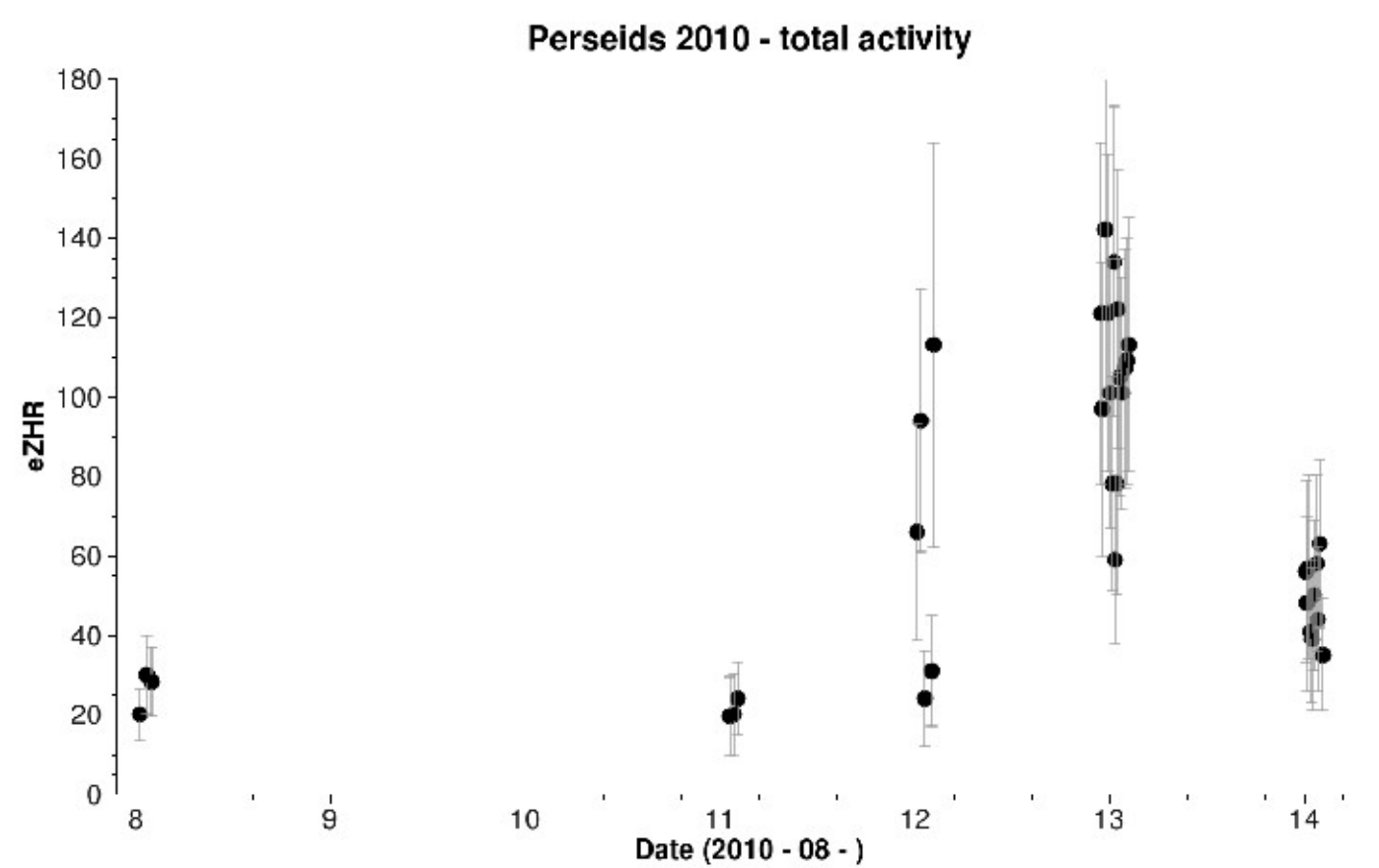
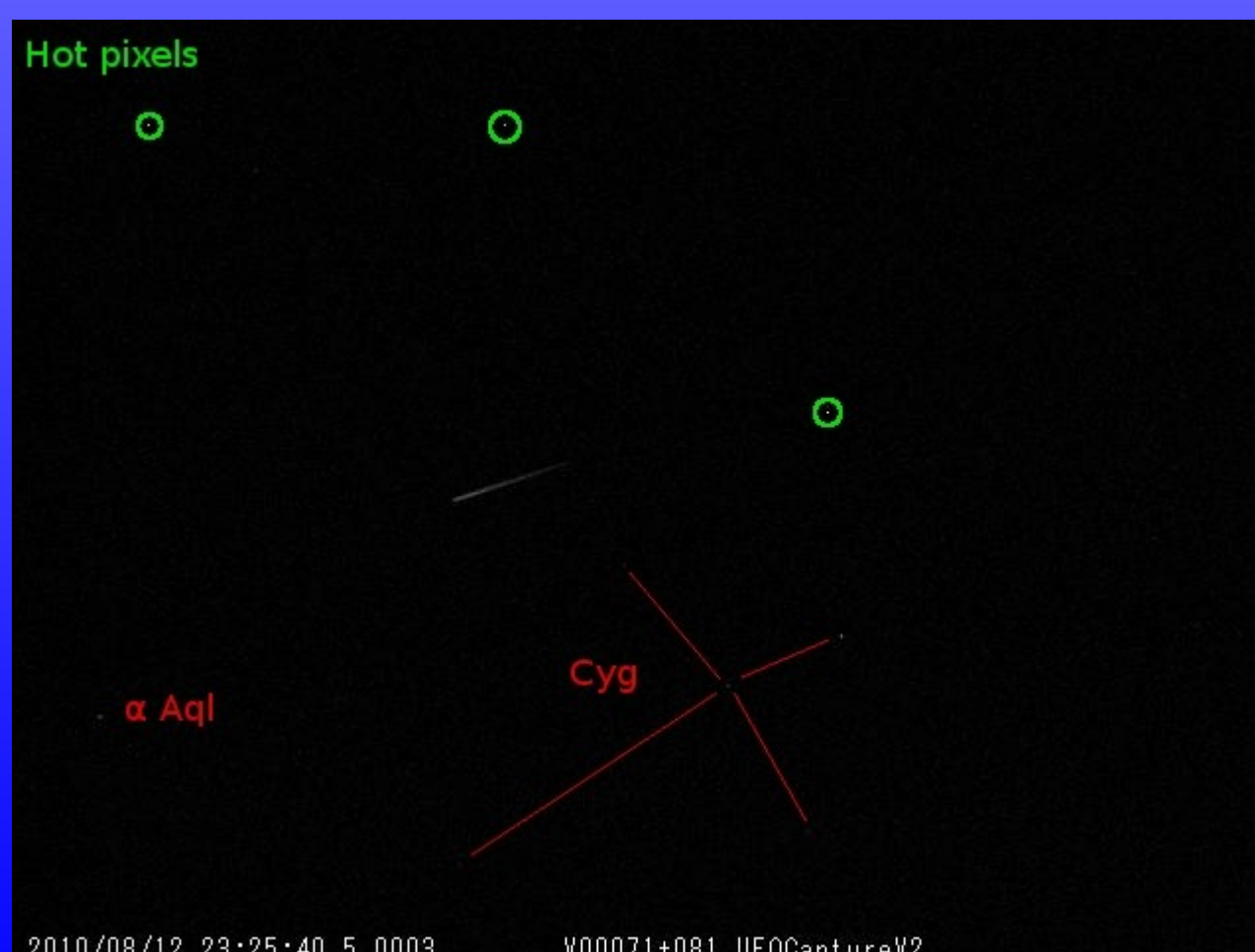
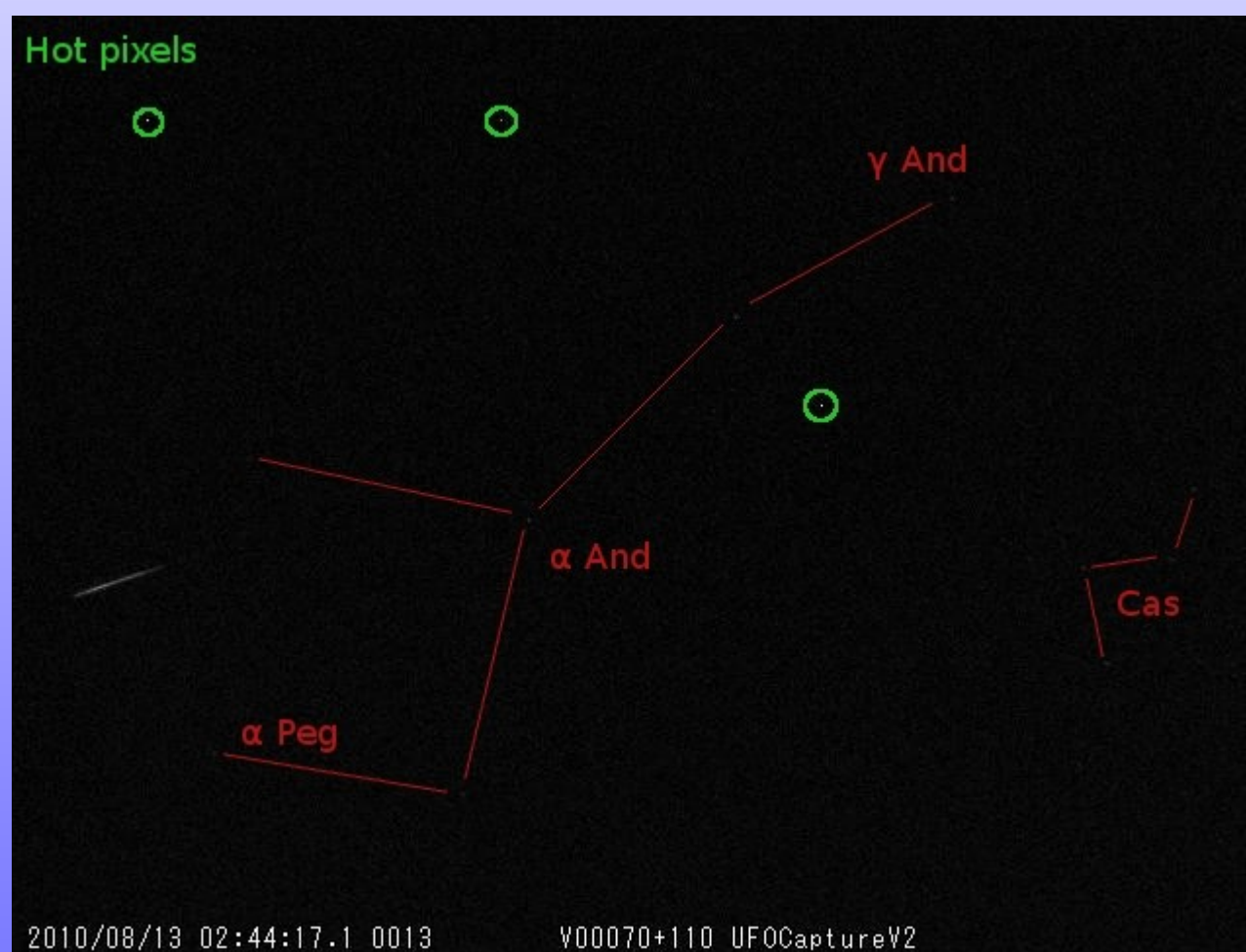
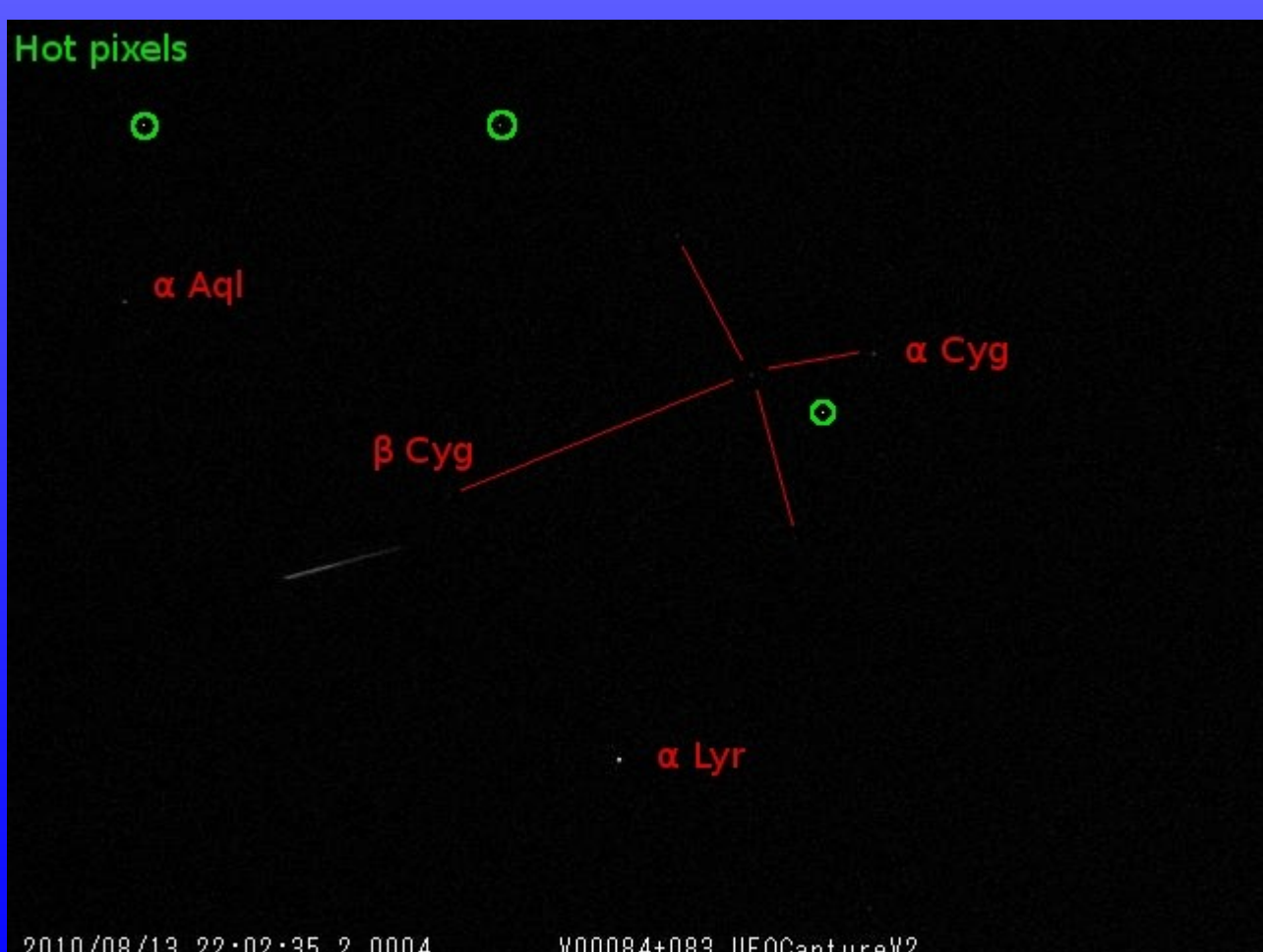
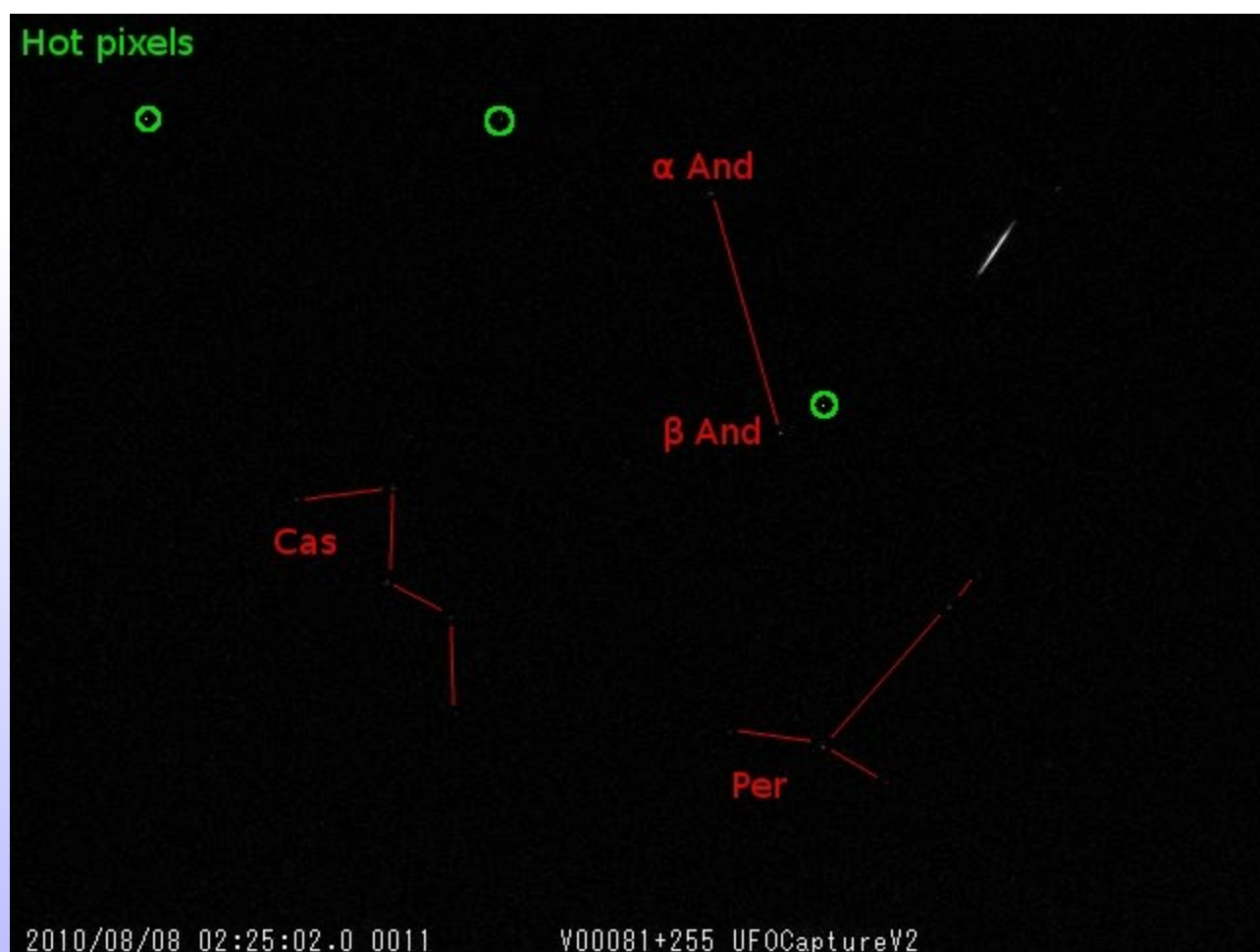
Further work would include to take full advantage of the available videos in order to extract more information.

Although the sensitivity is not great (this system's limiting magnitude is 2 - 2.5 mag) the recording of bright meteors may be of some use (especially for fireballs). Combined with the fact that there is no permanent fireball station in Greece this system, even under these limitations, could provide valuable results.

## Visual Observations of Perseids 2010

This year's Perseids resulted to 22.27h (Teff) and 458 Perseids from 4 visual observers in Greece, but only author's data are included in this first analysis. A total of Teff=10.87h and 264 meteors were observed from the author himself, during 5 nights.

The following diagrams is a first attempt of analysing these data, by using the methodology presented in IMO handbook (2008) and Arlt (2003). The activity peaks at the night of 12-13 (ZHR ~ 120), but no further analysis has been made to estimate the time of maximum. Time intervals (~10min each) with at least 6 meteors has been used for the maximum date, while longer time intervals, including more than 3 meteors, have been also used for the total activity diagram. Of course, the sample is not efficient to produce valuable results but it can show at least a trend. Combined with the rest available data the results may improve.



> IMO Handbook of meteor observers, ed J Rendtel & R Arlt, IMO, Potsdam 2008  
 > R. Arlt, Bulletin 19 of the International Leonid Watch: Population index study of the 2002 Leonid meteors, WGN (Journal of IMO) 31:3, p. 77 (2003)

From these images we can roughly estimate the path and the speed of the meteor. The distance from β Cyg to γ Cyg is ~16.5 degrees, so the analysis of the images is ~0.1 degrees / pixel. So the total path of the meteor is at least 21.4 degrees in the sky and the speed (measured by the central part created by the 2 gaps which are 1/5s apart in time) is at least  $v=34$  degrees/s (as seen from Earth).

