TRUE VS. FALSE SIGNATURES

I. INTRODUCTION

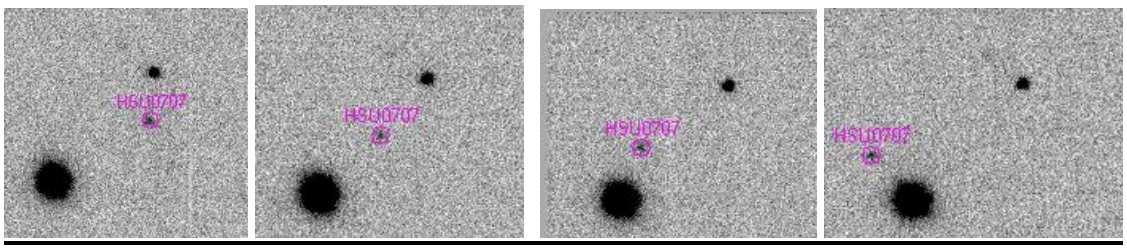
An important key to a successful asteroid search campaign is being able to identify true and false signatures for moving objects. Not all objects that appear to move in the image sets are asteroids. Citizen scientists must know the difference and only measure the asteroids (the true signatures), and not the false signatures.

For an object to be accepted as a true signature the object must have three characteristics:

- Moves along a straight line
- Moves at constant speed
- Magnitude is fairly constant

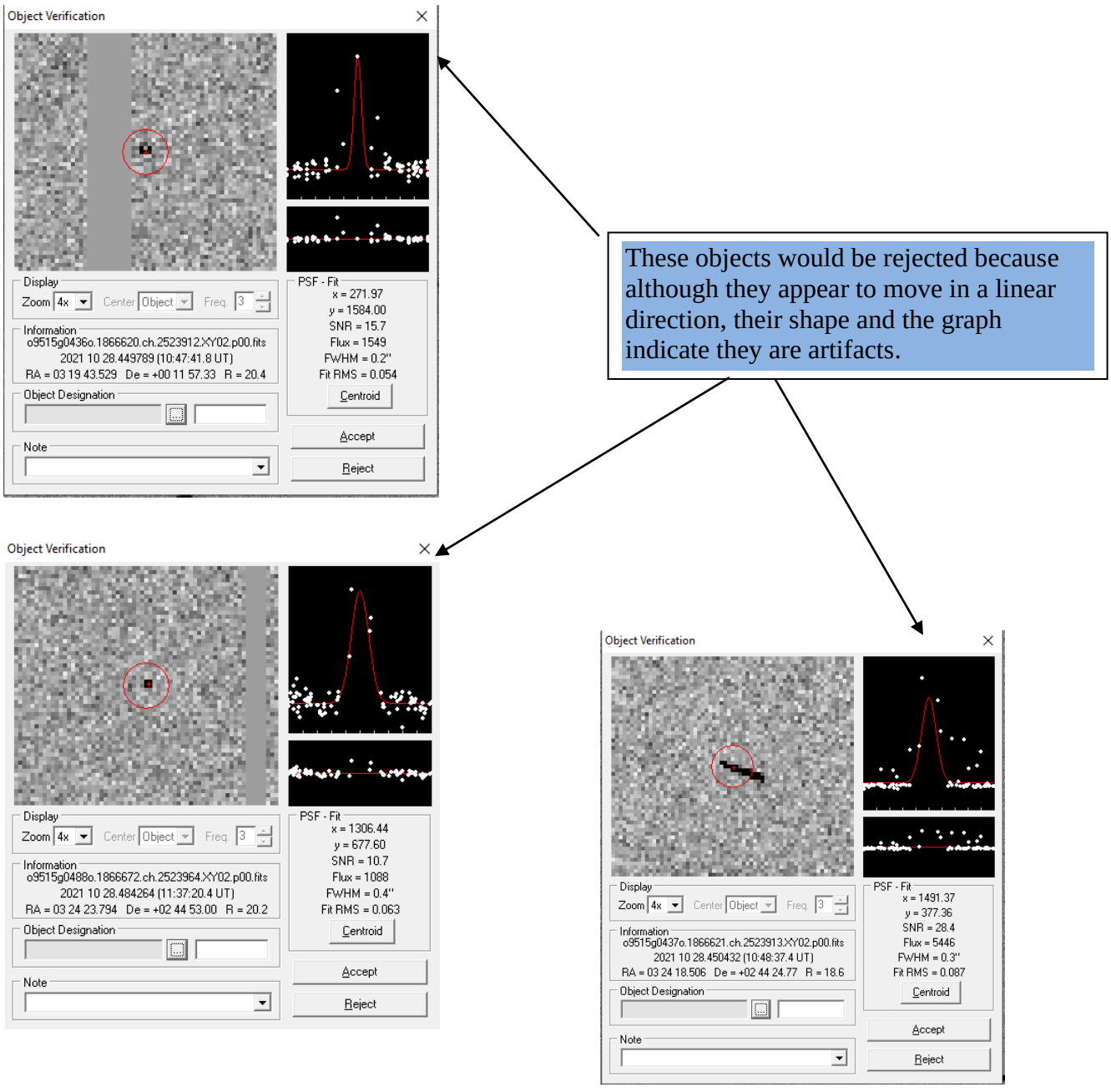
A simple test for your citizen science group to use is to place the edge of a ruler along the path of the moving object to check if the motion is along a straight line. If not, then the object is a false signature and should not be measured or included in the MPC report.

Example of moving object

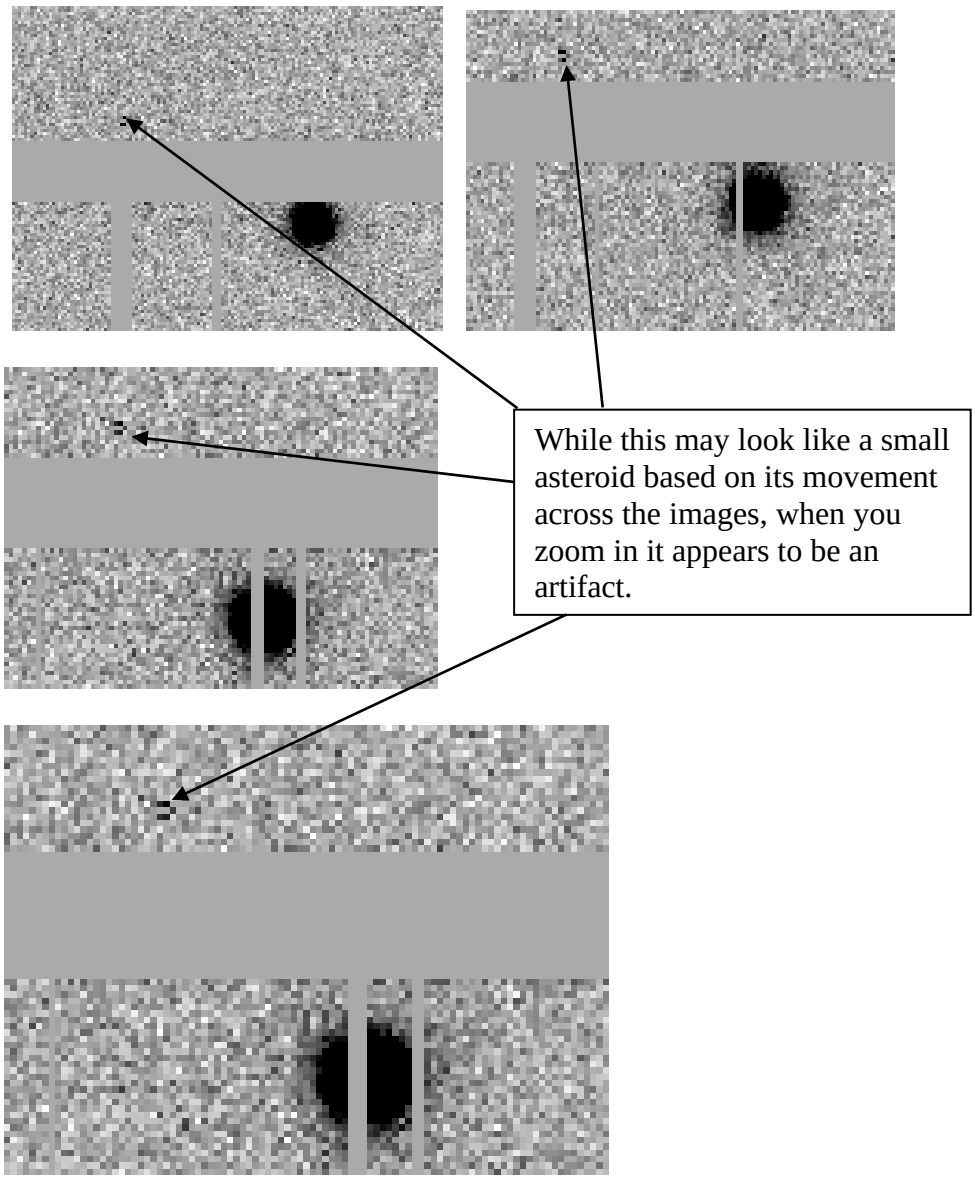


II. EXAMPLES OF FALSE SIGNATURES

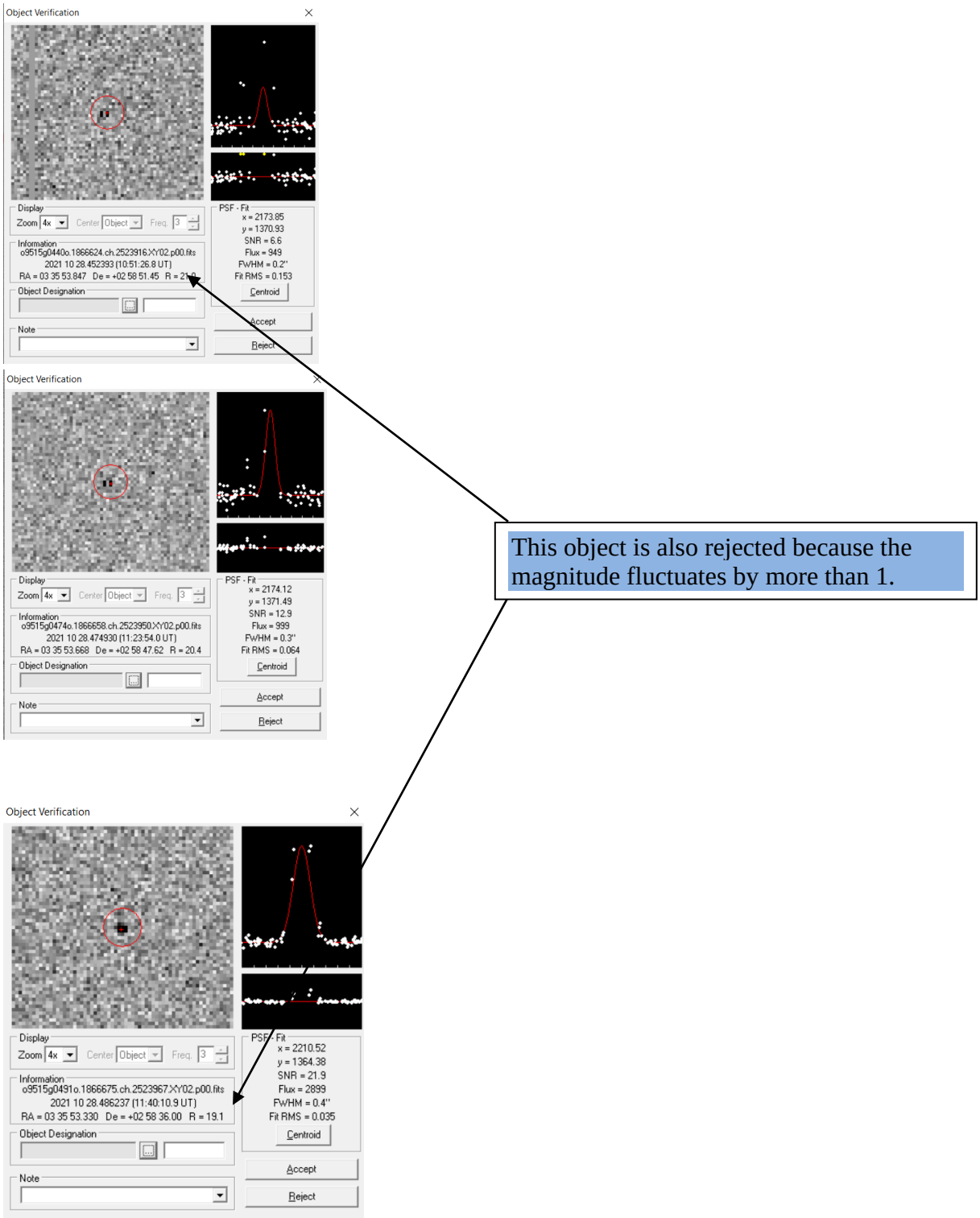
1. False Signature – Must not be included in the MPC report.



2. False Signature: Artifact – Must not be included in MPC report.

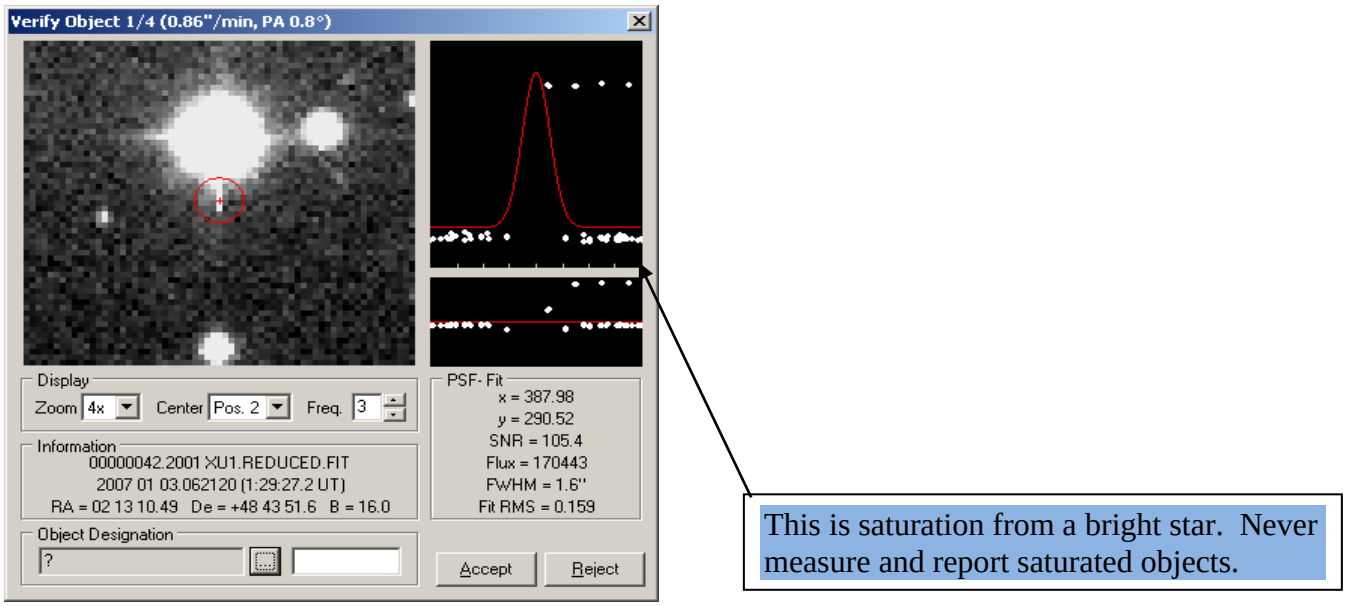


3. False Signature: Magnitude fluctuations must not be reported in MPC reports.

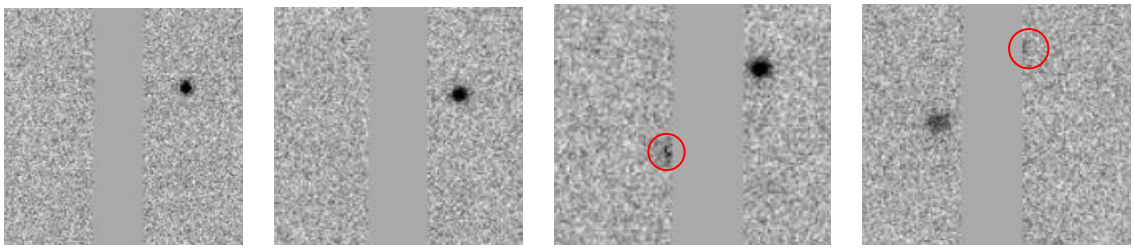


Revised December 2021, IASC.

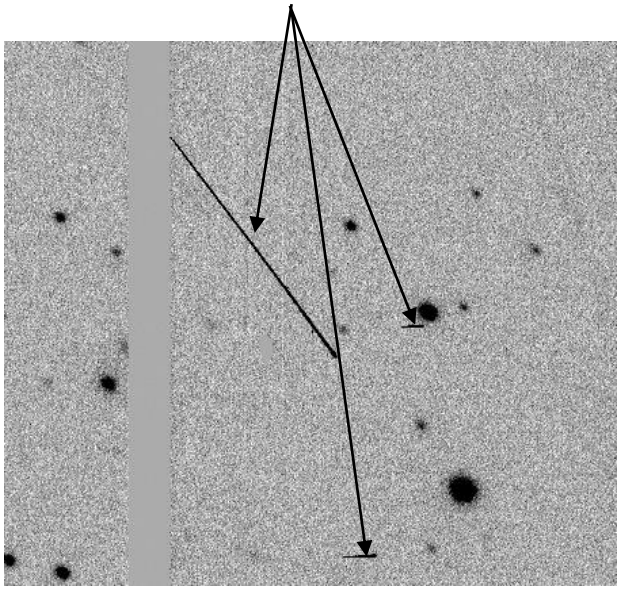
4. False Signature: Saturation – Must not be included in the MPC report.



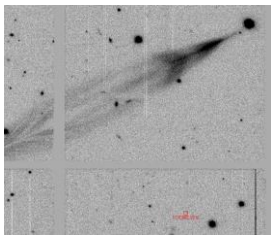
5. False Signature: Object appears to be moving; however, this may be attributed to the location of the image grid. You can see the outline of the flickering stars is the last two images.

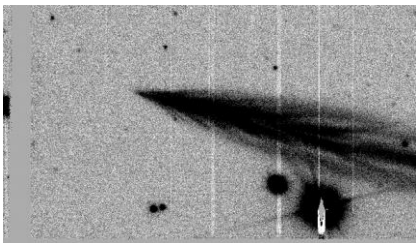


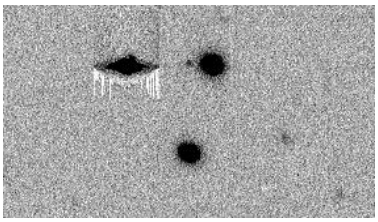
6. Artifacts – Must not be included in the MPC report.



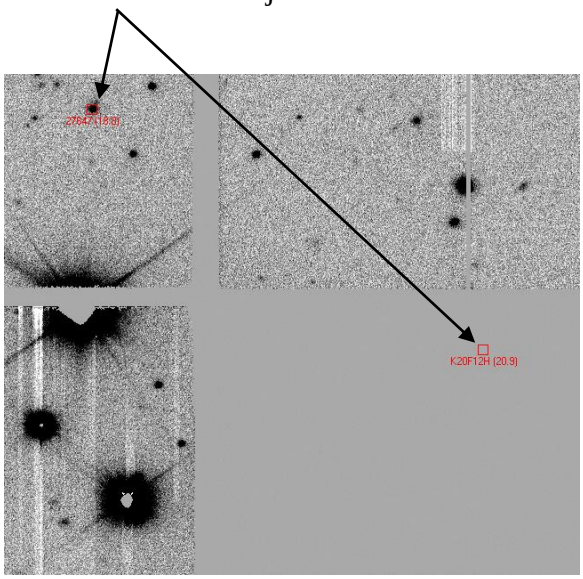
7. These are <u>not</u> comets or spaceships and should not be included in the MPC report.



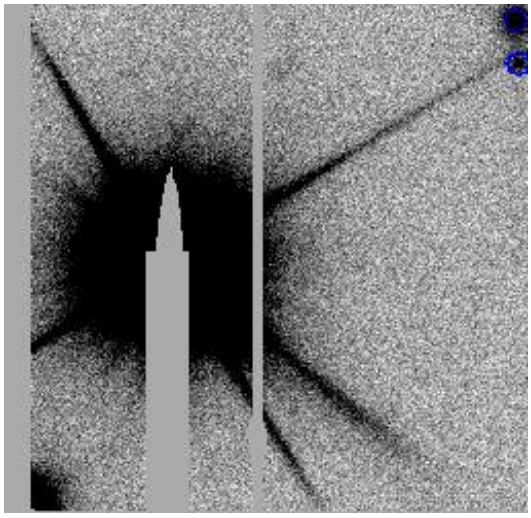




8. Known objects do not need to be included in MPC reports.



9**.** Bright Star with diffraction spikes**.**



III. MANUAL SEARCH

- Select Data Reduction on the tool bar and select OK in the *(coordinates)* box that appears. This function will find reference stars in your images.

- Select Known Object Overlay on the tool bar, then select the Blink Images button and zoom in twice to enlarge the image.

- Visually scan the blinking image for moving objects. *Tip: It may be helpful for you to establish a "grid search" pattern.*

- Please refer to the guide titled "Instructions for Using Astrometrica" for details on how to correctly measure an object.

VI. TRUE SIGNATURE EXAMPLES

The following images show examples of true signatures (asteroids). They can vary in shape, size and brightness. The asteroids will be moving in a straight line, with constant speed and its magnitude will not change greatly. The edges will be rounded, and the object will be darker at the center.