

The National Schools' Observatory and Institute of Physics present:

Hunting Asteroids

To help find asteroids, you will be using images from the Liverpool Telescope, a multi-million pound, fully-robotic telescope based on La Palma in the Canary Islands. If you take 2 images a short time apart you can spot an asteroid. This is because an asteroid is one of the objects that move position in a fixed background of stars.

Follow the instructions below:

Downloading the Observations and opening LTIimage

1) Downloading the observations

- a) Log on to www.schoolsobservatory.org/discover/activities/hunting_for_asteroids
- b) Head to the 'Data Files' section at the bottom of the page
- c) Click on the observations to download

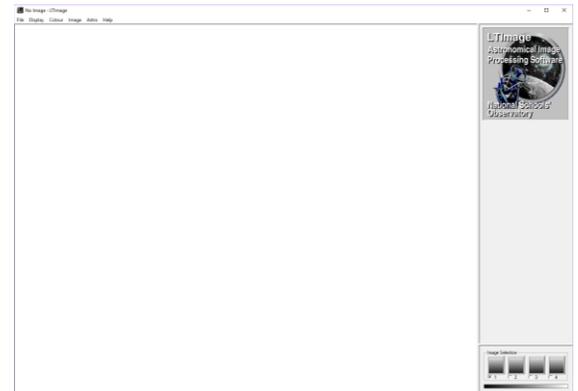
2) Open LTIimage

- a) Downloaded LTIimage for free from:
<https://www.schoolsobservatory.org/obs/software/ltimege>
- b) Extract the files
- c) Double click on LTIimage.exe to launch the software

Putting the images in the image selectors

1) Put image 'ah-demo-1.fits' in image selection 1

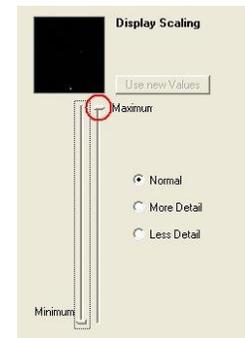
- a) Click on 'File'.
- b) Click on 'Open Data Image'
- a) Find the observations you've downloaded and click on 'ah-demo-1.fits' and 'open'.



Your image looks dark because the scaling is set so only very bright objects appear on the screen. You are now going to change the scaling so you can see more objects.

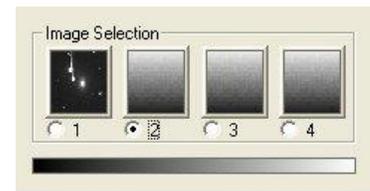
2) Improve the quality of your image

- Click on *'Display'* and then *'Scaling'*.
- Move the slider on the far right hand side until you can see a clear picture in the small preview window. You do this by holding the left mouse button down as you move the slider up and down.
- Now click on the *'Use new values'* button and the new image will be displayed on the main screen.



3) Put image 'ah-demo-2.fits' in image selection 2

- Click on image selection 2 in the bottom right corner.
- Click on *'File'* and *'Open data image'*.
- Click on *'ah-demo-2.fits'* and *'Open'*
- Improve the image you get by using the scaling again (see point 2 – Improving the quality of your image).



4) Put image 'ah-demo-3.fits' in image selection 3

- Click on image selection 3
- Click on *'File'* and *'Open data image'*.
- Click on *'ah-demo-3.fits'* and *'Open'*
- Improve the image you get by using the scaling again (see point 2 – Improving the quality of your image).

5) Put image 'ah-demo-4.fits' in image selection 4

- Click on image selection 4
- Click on *'File'* and *'Open data image'*.
- Click on *'ah-demo-4.fits'* and *'Open'*
- Improve the image you get by using the scaling again (see point 2 – Improving the quality of your image).

Finding the Asteroids from your images

- You should now have 4 images loaded in your image selections.
- You now have to 'blink' between them – you have to look carefully at one image, then switch to another and another.
- To do this select one of the image windows in the bottom right pane and then use the arrow keys to move between them.
- Repeat the process while looking at the screen and try and find the object that is moving.
- Once you have found an asteroid try and find the other much fainter one.



www.schoolsobservatory.org



Finding other Asteroids

When you are happy that you can find a moving object in the demonstration image set, look at the "*Download Asteroid Observations*" page on the website for new image sets to see if you can discover an unknown asteroid!

(https://www.schoolsobservatory.org/discover/projects/asteroidwatch/ast_download)

Then to see if anyone else has discovered it, e-mail us at asteroids@schoolsobservatory.org.uk.

Happy hunting!