

SESSION 1: ASTEROID HUNT

Asteroids are large rocks orbiting the Sun that are too small to be called planets. Using images from the Liverpool Telescope (shown on the inside cover of this booklet) you can join the hunt for asteroids. By looking at two images taken by the telescope a short time apart, you might be able to spot an asteroid moving. This is because asteroids appear to move across the sky relative to the far away objects and stars that look fixed.



LOG ON TO OUR WEBSITE

1. Go to our website: www.schoolsobservatory.org and click 'Login' at the top of the page.



2. Next enter the username and password that your STEM Club Leader will give you, and click the 'Log in' button.

Write your username here:

Congratulations you are now logged in!

Username *

Enter your The Schools' Observatory username.

Password *

Enter the password that accompanies your username.



DOWNLOAD THE IMAGES

1. If your STEM Club Leader hasn't already given you the data files, go to our website: www.schoolsobservatory.org/discover/activities/hunting_for_asteroids
2. At the bottom of the page there is a section called 'Data Files', save the following zip files and extract their contents:

NEO-190409.zip
NEO-100808.zip
NEO-100421.zip

OPEN THE IMAGES IN LTIMAGE

1. Double click on 'LTImage' (it may be called 'LTImage.exe') to launch the software. Your STEM Club Leader will tell you where this is on your computer.
2. Click on 'File', then 'Open Data Image', find the location of the saved data files.

Each file is named with the following format: NEO-date-code-number. The single digit number at the end dictates the order these files should be opened, for example...

NEO-190409-3878162004FM17-1-1.fits and NEO-190409-3878162004FM17-1-2.fits

Open the file beginning with NEO-190409 and with '1' at the end of its name.

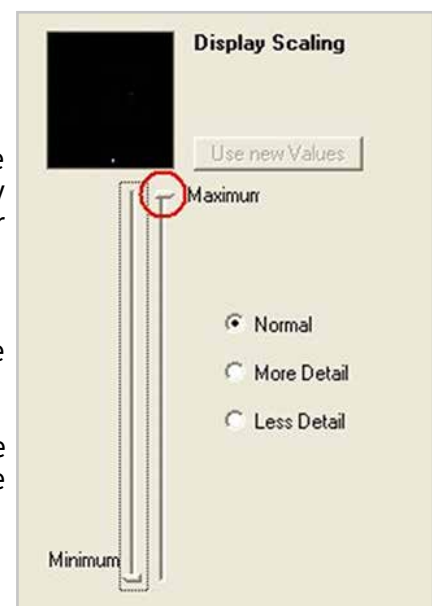
3. Your image looks dark because the scaling is set so only very bright objects appear on the screen. You are now going to change the scaling so you can see more objects.

4. Click on 'Display' and then 'Scaling'.

5. 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 mouse button down as you move the slider up and down.

6. Now click on the 'Use new values' button and the new image will be displayed on the main screen.

In the next steps you will open 3 more of the files into the Image Selection boxes in the bottom right of the LTImage window.



7. Click on Image Selection 2 radio button in the bottom right corner.

Click on 'File', then 'Open Data Image', and click on 'NEO-190409-3878162004FM17-1-2.fits', then click 'Open'.

Repeat steps 4, 5, and 6 to improve what you can see.



8. Click on Image Selection 3 radio button in the bottom right corner.

Click on 'File', then 'Open Data Image', and click on 'NEO-190409-3878162004FM17-1-3.fits', then click 'Open'.

Repeat steps 4, 5, and 6 to improve what you can see.

9. Click on Image Selection 4 radio button in the bottom right corner.

Click on 'File', then 'Open Data Image', and click on 'NEO-190409-3878162004FM17-1-4.fits', then click 'Open'.

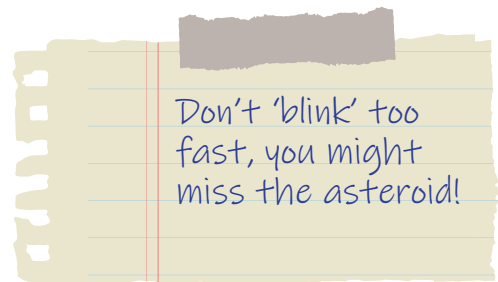
Repeat steps 4, 5, and 6 to improve what you can see.

HUNT THE ASTEROID

You should now have four images loaded in the Image Selection boxes.

You now have to 'blink' between them – you have to look carefully at one image, then switch to another and another.

1. Select one of the four image windows in the bottom right pane and then use the arrow keys on your keyboard to move between them.
2. Repeat the process while looking at the screen and try and find the object that is moving.



Find the asteroids in the files beginning with NEO-100808 and NEO-100421.

Happy hunting!

BONUS: FINDING OTHER ASTEROIDS

When you are happy that you can find a moving object, visit our 'Download Asteroid Observations' page. You can help us track asteroids coming close to planet Earth!

www.schoolsobservatory.org/discover/projects/asteroidwatch/ast_download

