

Adopt an Asteroid!

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Let's make an initial exploration into the wilderness of rocks, and get to know one asteroid up close and personal! What kind is it? Where is it? How big is it? Will it affect us or not?

1. Pick an Asteroid. Choose an asteroid, either from your own resources or from the list below. The asteroids on the list are placed for good viewing in the early evening during April and May, 2007. Find all the information you can about your asteroid from the Internet and books, including size, shape, class/type, orbit, how close to Earth they might come, images (for a few of them), etc. Some good information sources are:

-The Asteroid Database at the Lunar & Planetary Laboratory at the University of Arizona:

<http://epmac.lpl.arizona.edu/>

-NASA's Jet Propulsion Laboratory Solar System Dynamics pages:

<http://ssd.jpl.nasa.gov/>

-For more general information about asteroids try Wikipedia:

<http://en.wikipedia.org/wiki/Asteroids>

Then:

2. Take Your Asteroid's Portrait

A. Register for Remote Telescope Time. Your teacher should have already done this.

B. Set Observing Time. Follow the directions provided in the guidelines from NMSO, or whichever telescope you are using.

C. Get Tonight's Coordinates for Your Asteroid

1. On the date you plan to observe, go to International Astronomical Union (IAU) Minor Planet Center at:

<http://cfa-www.harvard.edu/cfa/ps/mpc.html>

2. Scroll down the page to "Minor Planet & Comet Ephemeris Service" and click.

3. Enter your asteroid name(s) in the box partway down the page.

4. Select "Return summary" and click on "Get Ephemerides/HTML Page." You will get a list with the asteroid's number, name, the location coordinates (R.A. or Right Ascension, and Decl. Or Declination), and the apparent magnitude for that night. Most of the magnitudes are between 9 and 12, which will appear fairly bright in 45 to 60 second exposures on the NMSO 14' telescope.

D. Take Your Asteroid's Portrait.

1. Follow the steps in the NM Skies Steps documents to sign onto the telescope a few minutes before your scheduled time. (You will need to sign up for time at least by 4 PM of the day you want to observe.) Enter the coordinates for your asteroid obtained from the Minor Planet Center Ephemerides generator. Take two images of your asteroid about 15 minutes apart. Use the clear filter. Set an appropriate exposure time – usually 45 to 90 seconds.

2. Retrieve your images for viewing the next day from the NMSO site. They will be available in both GIF and FITS format.

E. View Your Images!

Open both images in a browser (use GIF versions), GIF or JPEG viewer, or in an image processing program like IMAGEJ (freeware available for download at:

<http://rsb.info.nih.gov/ij/>). Either display the images side by side and look for the “star” that moved, or use the animation function in ImageJ to “blink” the images. Remember that “asteroid” literally means “star-like,” so the image of the asteroid will look like a star. The difference is that the asteroid moves relative to the real stars in your images, like this:



100 Brightest Asteroids Observing List

April 2007 Early-to-Mid Evening

Juno

Vesta

Parthenope

Psyche

Thetis

Melpomene

Fortuna

Massalia

Lutetia

Kalliope

Thalia

Bellona

Polyhymnia

Fides

Isis

Ariadne

Nysa