

Astronomy Assignment: Imaging the Night Sky

In this assignment you will need to take an image of an object in the night sky using a telescope in New Mexico USA or Moorook SA accessed via the internet. Follow the steps below and the on screen instructions carefully.

With this telescope you can take images like these very easily in a couple of minutes.



1. Go to <http://portal.tzecmaun.org/student/signup.php> and signup by selecting Sydney Girls High School as your team from the list. You will also need the password from your teacher.
2. Create your login, choose your password and register your school email address.
3. Now to login go to the site <http://portal.tzecmaun.org/login.php>
4. To learn how to use the telescope a great way to start is to watch the videos found at <http://www.jeffstanger.net/Science%20Teaching/usingtzecmaunobservatory.html> or the more detailed one at <http://fits.tzecmaun2.org/video/SnapShotHalfSize.mov>. These have been created to run you through the process of using the beginner telescopes.
5. Once you are comfortable with how you would use the telescope go to the telescope portal (**Figure 1**) and use a full colour telescope that is available or make a booking to use one.

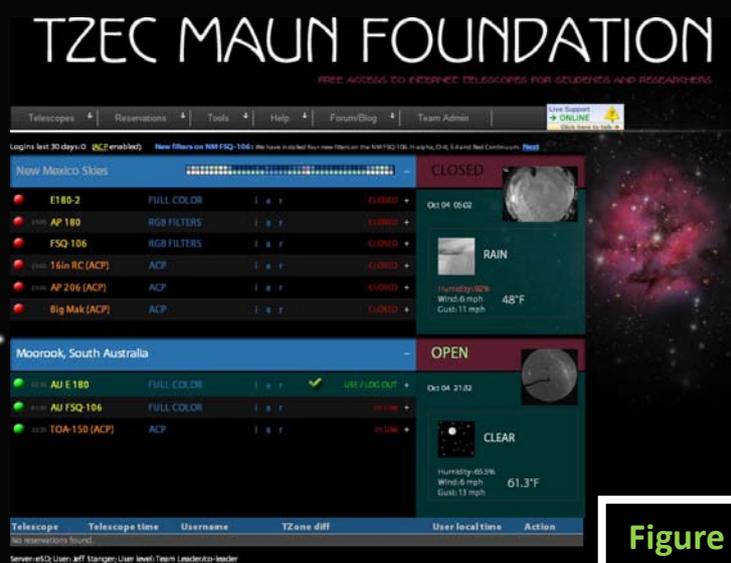


Figure 1

6. You need to take an image or two of objects you think would be interesting. They should be objects that are big enough to be easily visible in your images. Use telescopes called E180 or the AU FSQ 106 (beg) telescopes as the images will be in colour.

- Select an available telescope and go to the Sky Chart by clicking the red link in **Figure 2**.
- Using the Sky Chart (**Figure 3**), move around the sky and find an object or type in the common name of a well known object you would like image. The slew button will move the telescope to the object once you have clicked it or typed in its name. Note: for some telescopes this screen looks a little different.

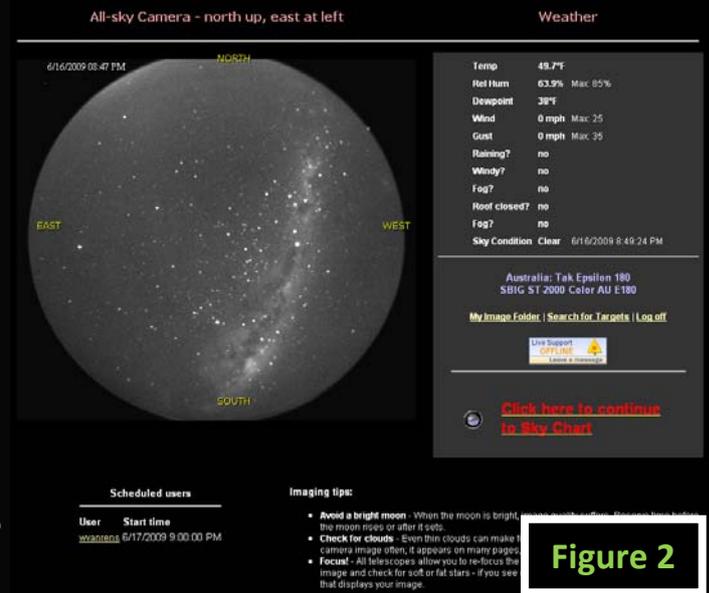
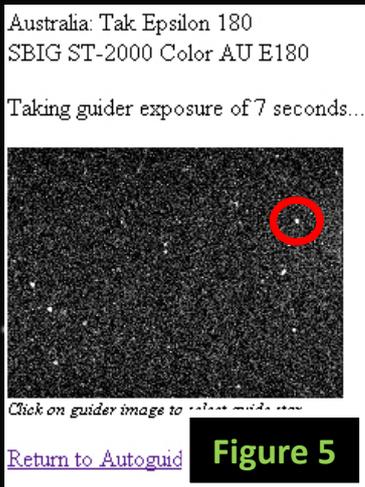


Figure 2

- Once you are at the object you want to image (**Figure 4**) setup autoguide by clicking the link [Autoguide](#). This uses a small digital camera to lock-on to a star and help the telescope track the stars accurately.
- Click the **take autoguider image** button (the default settings are usually OK).
- When the small image comes up



(**Figure 5**) click on one of the stars in the image (shown in the red circle).

- Then back at the Sky Chart (**Figure 4**) try a 1 min exposure time and if the object looks faint in the image you get try a longer exposure time. If the image looks over exposed then use a shorter exposure time.

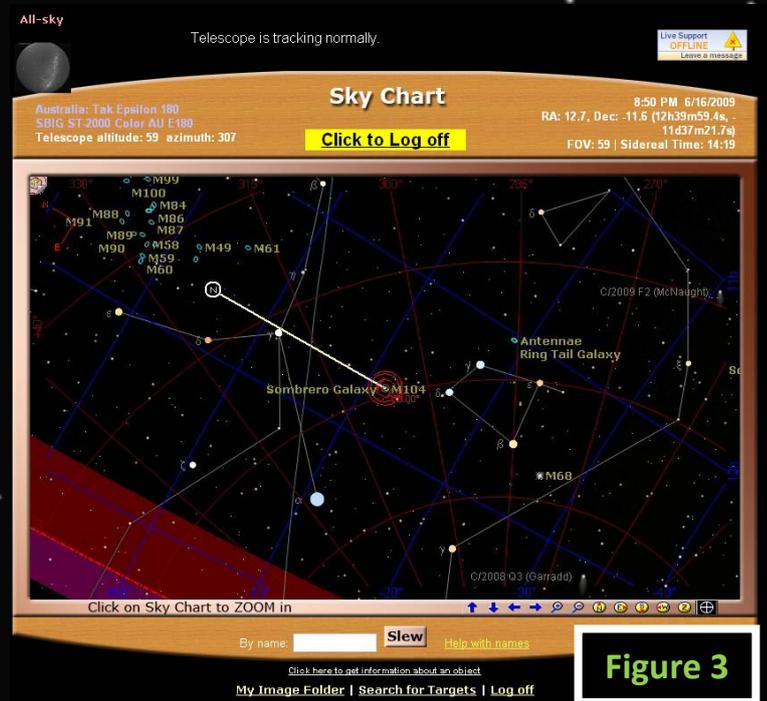


Figure 3

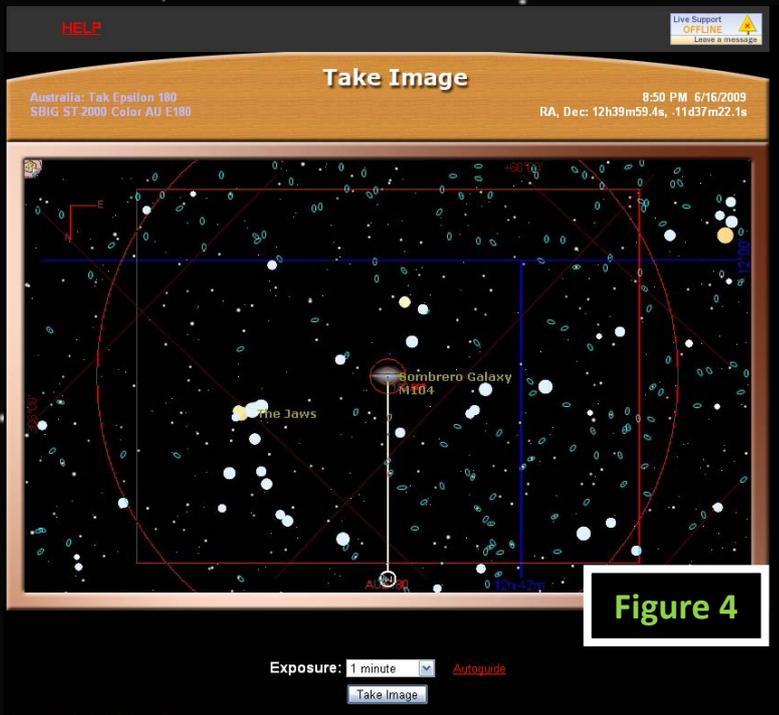
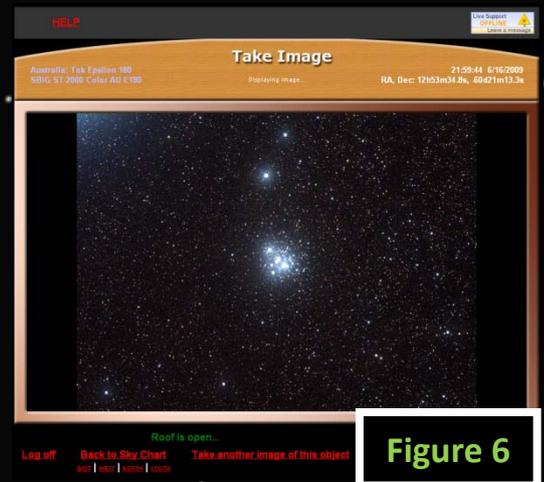


Figure 4

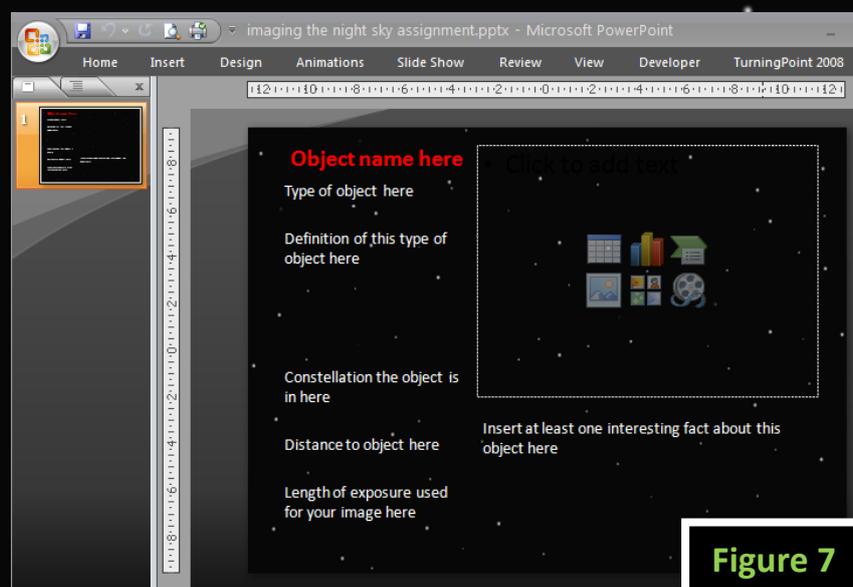
Note: Below are examples of images that are a guide to show you if images are exposed correctly. Basically if it looks nice it is good.



13. You get a small preview of your image in the Sky Chart window (**Figure 6**) when it is complete. To get a large version of your images you can retrieve them from <http://nm-images.tzecmaun.org> (for New Mexico telescopes) or <http://au-images.tzecmaun.org> (for Australian telescopes). At the end of the night all images are collected, zipped, and uploaded to <http://ftp.tzecmaun.org> where you can download them from using your login and password.



14. Once you have your image you can crop it or enhance it in Photoshop if you wish. Then you need to make a single slide in PowerPoint (**Figure 7**) with your image using the template at I:/science/mrstanger/yr9/astronomy/imaging the night sky assignment.pptx and available at <http://www.jeffstanger.net/Science%20Teaching/usingtzecmaunobservatory.html>



Feedback: Any suggested changes to these instructions? Email jstanger@sghs.nsw.edu.au