



FAULKES TELESCOPE

Life Cycle of Stars - Supernovae

Project Instructions

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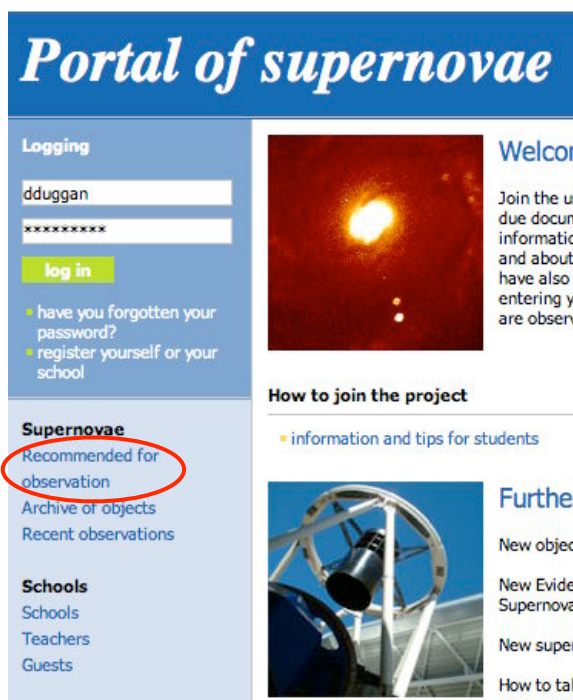
Requirements

In order to carry out this project, you will need to do the following:

- Download Iris from <http://www.astrosurf.com/buil/us/iris/iris.htm>
- Make sure you have the latest version of Java
- Download the Photometry Spreadsheet from the Faulkes Telescope website.
- Register on the “Supernovae Portal” at <http://www.eu-hou.net/spbdadm>

Data

For this project, you will need to plan and observe a supernova. You can get a list of recommended supernovae to observe on the Supernovae Portal. Just click on **Recommended for observation** under the **Supernovae** heading on the left hand side of the main page.



You will then be taken to a list of supernovae and their parent galaxies. Click on any entry to go to a separate page.

You now need to book an observing session at a time when you know the galaxy with the supernova is visible.

There are various methods available for doing this; more information can be found on the Faulkes Telescope website.

When you observe the galaxy, observe it in colour (red, green and blue).

When your observations are complete, download the FITS files so you can make the photometric measurements.

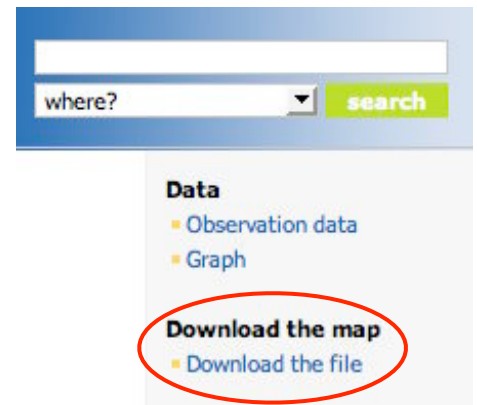
Measurements

For this part, you will need the photometry spreadsheet open. If you wish you can fill in the Observer, Date, Telescope and Supernova details at the top.

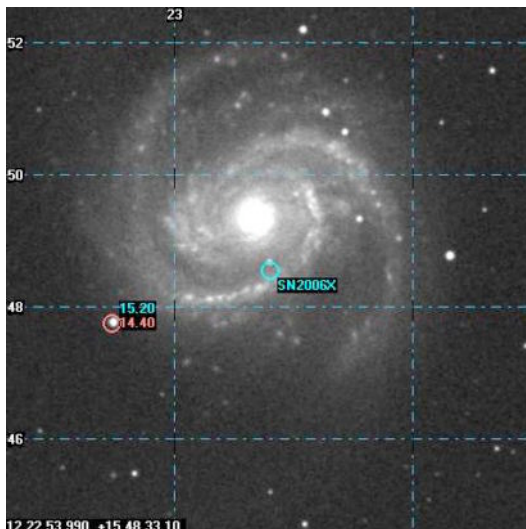
The first thing to do in photometry is to identify your **Comparison** or **Standard Star**; this is a star which has already had its magnitude accurately calculated.

To do this go back to the Supernovae Portal and go back to the page with your supernova details on. Click on the link called "Download the file" under the "Download the map" heading on the right-hand side of the page.

When you click on this link it will open another window with a "map" of the galaxy with supernova.



On this image you will see two circles - one labelling the standard star and the other labelling the supernova.



The step here is to locate the same star and supernova in your image(s) so that you know which objects you need to make measurements of.

Now go back to the page with your supernova on - there is some information here you need to take note of as well.

In the main body of this page there is a heading **Comparison star**. Underneath that are the **Brightness** magnitudes for the standard star in each of the coloured filters.

You must copy the magnitude into the Photometry Spreadsheet for the filter you are observing with.

The next step is to measure the pixel counts in your images for this comparison star. To do this see the document **Photometry with SalsaJ** that can be downloaded from the Faulkes Telescope website.

When you have the pixel counts (or intensity values) put them in the Spreadsheet below the magnitudes for the comparison stars.

Supernovae

Now you can start measuring the intensity values for the supernova in your image. First take measurements in the red image (keep a radius of 15) and record the intensity value in the **R Counts** column in the spreadsheet. When you do this, the spreadsheet will automatically calculate the magnitude of the supernova.

Repeat this procedure for the green and blue image and put the intensity values in the spreadsheet as well.
