

A105 –Stars and Galaxies: NovaSearch II

Due in class on Oct. 26

Name _____

Return to the NovaSearch website at www.astro.indiana.edu/novasearch , and pull up the images of the same quadrant and year that you investigated for the first NovaSearch assignment. The data can be found with the "View Data" link and additional useful information can be found with the "" link.

1. Cycle rapidly through the "time lapse" movie of all of the images for that quadrant and year using the "" keys under the image, and search for novae. Novae appear suddenly where no star had been before, remain bright for a few days or weeks, and gradually fade away. Mark and label the position of each candidate nova you find on the "finding chart" prepared on the previous NovaSearch assignment.
2. Once you have found all the candidates, stop the time lapse movie, and examine the images one by one to find the date at which each nova first appears. Select ONE of your candidates that is visible in at least 5 images for further study.
3. Use the Magnitude Comparison button to show the magnitudes of known stars in the image, and estimate the magnitude of your nova on each of the dates on which it appears in an image.
4. Fill in the table below with your measurements, including the calendar date of the observation, the Julian date of the observation (use the Julian date calculator available on the NovaSearch website), and the estimated magnitude of the nova on each date. Astronomers use a running day number to count the number of days since January 1, 4713 BC. The current day number is approximately 2,451,000. Using the day number rather than a date makes the calculation of periods and the comparison of observations easier.

Date of Observation	Julian Day Number	Magnitude

NAME _____

5. Plot "light curves" that shows how your novae decline in brightness with time. You may use Excel or another spreadsheet program, or you may even just plot the graphs on plain paper with a pencil!).

- Plot the magnitude on the y-axis. **Magnitudes are usually plotted so the brightest (smallest number) are at the top and the faintest (largest numbers) are at the bottom.**
- Plot the Julian Day Number on the x-axis. Be sure that your graphs reflect the true length of time it takes your novae to decline. The observations are NOT EVENLY SPACED IN TIME!
- Staple your graphs to the back of the worksheet.

6. On what approximate date would you estimate your nova was brightest?

7. How long was your nova visible in these images of Andromeda?

8. Would you expect a nova in Andromeda ever to be visible to the naked eye? Why or why not?

HAND IN THIS WORKSHEET WITH YOUR FINDING CHART AND LIGHT CURVE.

KEEP A COPY OF YOUR FINDING CHART, DATA TABLE, AND LIGHT CURVE TO USE ON THE NOVASEARCH III ASSIGNMENT NEXT WEEK.