Name(s)	Project Number
Stephanie Avila	**22155**

Project Title

Stellar Nursery: A Study of the Wild Duck Cluster

Abstract

Objectives/Goals

To determine the age and distance of M11 and compare my findings with the results of a summer projecx which were obtained by a group I worked with during the summer 2001 COSMOS Math and Science program at UCSC.

Methods/Materials

I used digital images of M11 in the blue and visual filters. I would need a standard star to find the relative magnitudes of the other stars. I searched the internet using google and failing to find anything emailed Stuart, who sent me a standard star map of M11.

Equipped with a map of the standard stars. I began a search which involved manipulating the image x match the view of the standard star map. I choose standard star #899. Due to a pixel error I manualx documented the counts of each pixel in the vicinity of the star. Using averages I determined a goodx estimate of the brightness. Stuart suggested I find three other standards to determine if the outcome was consistent.

I created graphs of the color index of the stars(blue magnitude-visual magnitude), versus their visual magnitudes. By comparing the graph with a Yale Isochrone model I was able to determine its age at distance.

Results

The standard star #899 was throwing the results off; whereas, the other standards were within 2%t agreement. I discounted standard star #899#s data and considered the other three standard stars. Thex results suggest that M11 is 200 million years old and 1,649 parsecs or 5,375 light years away.

Conclusions/Discussion

The summer results suggested M11 was 275 million years old and 1,900 parsecs or 6,200 light yeart away. These new results were off by 75 million years and 251 parsecs or 825 light years. The summerx data had more stars than the current study, along with more sophisticated software. This may account for the difference.

Summary Statement

This project is focused on discovering the age of the open star cluster M11, through analysis of images using blue and green filters in which standard stars allowed me o create B-V Absolute Magnitude graphs.using

Help Received

Stuart, a graduate student at UCSC, gave me valuable advice as to the purpose of my project. Mr. Sweet edited my work and gave me valuable insights on what could have gone wrong when the numbers did not turn out right.

Ap2/02