Research Based Astronomy in the Secondary Classroom

Lessons Developed For Investigating YSO's Using APT, Excel, and MOPEX

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ABSTRACT

We present several learning approaches that were employed to explore YSO's within LDN 425 and 981. Classical instruction on the characteristics of YSO's was supplemented with hands-on learning of software needed to search Spitzer mosaics for YSO candidates. Structured activities were used to teach the intricacies of MOPEX, APT and Excel. Excel worksheets were developed to help students convert flux densities into magnitudes. These magnitudes were then used to create Spectral Energy Distributions (SED), plotting the energy against the wavelength of each candidate YSO. This research was made possible through the Spitzer Space Telescope Research Program for Teachers and Students and was funded by the Spitzer Science Center (SSC) and the National Optical Astronomy Observatory (NOAO). Please see our companion education poster by McDonald et. al. titled "Spitzer - Hot and Colorful Student Activities" and our research poster by Johnson et. al. entitled "Star Formation in Lynd's Dark Nebulae."

Learning By Doing

As students practiced with software like APT, they then used to create Spectral Energy Distributions (SED), plotting the energy against the wavelength of each candidate YSO. This research was made possible through the Spitzer Space Telescope Research Program for Teachers and Students and was funded by the Spitzer Science Center (SSC) and the National Optical Astronomy Observatory (NOAO). Please see our companion education poster by McDonald et. al. titled "Spitzer - Hot and Colorful Student Activities."

Student-generated color overlay of LDN 425

Many images were created by students and teachers during the four day conference in June 2008. These images were then used to create Spectral Energy Distributions (SED), plotting the energy against the wavelength of each candidate YSO. Find your name in the list of candidates presented below.

Student-generated color overlay of LDN 981 using STARDUST

Student-generated color overlay of LDN 981 using STARDUST

Student-generated color overlay of LDN 425

Student-generated color overlay of LDN 981 using STARDUST

Spitzer Teachers

4 day conference - Spitzer Science Center, June 2008

YO image for each participant

Students worked on two types of images: YO images and LDN images.

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