Across the Cosmos August 2024:
Up PERYSCOPE

This month, I'd like to announce a project that I'll be discussing at the upcoming annual Planetary Science Institute[1] retreat, which will be held in Tucson from 13-17 August. This project may be of interest to any of you who are amateur astronomers, or are, or may know, astronomy educators at the college or high-school level. My colleagues and I developed *People Enabling Research: a Yellowball Survey of the Colors of Protostellar Environments* (aka PERYSCOPE) to enable introductory astronomy students, who may or may not be interested in pursuing STEM careers, to participate in our research while learning critical concepts in astronomy. PERYSCOPE[2] bridges research experiences of relatively low complexity that enlist huge numbers of volunteers (such as those available on the Zooniverse[3] platform) and experiences of high complexity that are available only to a few advanced participants (such as student research assistants).

Measuring the amount of light emitted by astronomical objects, known as "photometry", is a critical first step in uncovering their properties. In the case of young star-forming regions, most of this light is emitted in the infrared part of the spectrum. My research group has developed a web-based Python code that students use to conduct infrared photometry on young star-forming regions (known as "yellowballs" or "YBs") that were discovered by volunteers who participated in the Milky Way Project[4] on the Zooniverse platform. We provide a curriculum guide to connect the students' work to fundamental astronomy course topics such as blackbody radiation, Herzsprung-Russell diagrams, and star formation.

Students and teachers do NOT need to know Python to use the code. The code enables students to plot their photometry results using scatter diagrams and histograms, and our student guide helps them analyze their data. The activities take about 2-3 lecture class periods or about one lab session to complete. Students have the option (are not compelled!) to contribute their results to our ongoing study of star formation for acknowledgment and possible interviews or press releases.

To express interest in participating, or simply to learn more about our research project, please go to the PERYSCOPE site.[5] Although PERYSCOPE is primarily focused on formal education, my colleagues and I are also gathering expressions of interest from individuals such as amateur astronomers, who might want to participate in doing the photometry without the curriculum activities.

Until next month,

Grace

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[1] https://www.psi.edu/
[2] sites.google.com/view/peryscope/home
[3] https://www.zooniverse.org/
[4] https://www.zooniverse.org/projects/povich/milky-way-project
[5] sites.google.com/view/peryscope/home

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