



Research Experiences for Undergraduates & Práctica de Investigación Programs 2007

Styliani Kafka

From January to March, Cerro Tololo Inter-American Observatory (CTIO) hosted six US and two Chilean students who participated in the 2007 Research Experiences for Undergraduates (REU) and Práctica de Investigación en Astronomía (PIA) programs. The students worked with CTIO and Gemini scientific staff on topics ranging from individual stars to galaxies and galactic clusters. The students attended lunch talks and colloquia, participated in our journal club, mingled with guest observers, and had a first-hand taste of the frustrations and delights of scientific research. They also had a hands-on observing experience, using the CTIO Small and Moderate Aperture Research Telescope System (SMARTS) 1-meter telescope for a total of eight nights and obtained photometric data for a variety of projects. They became an indispensable part of our life in the La Serena compound, participating in our social and athletic activities, and had the chance to experience the rich Chilean culture and taste the local cuisine.



2007 CTIO REU and PIA students "supporting" the Phoenix instrument at Gemini. From left to right: Claudia Araya (Pontificia U. Católica de Chile), Aisha Mahmoud (University of Puerto Rico), Stephanie Golmon (Principia College), Rodrigo Hinojosa (Universidad Católica del Norte, Antofagasta), Rachel Anderson (University of Wisconsin - Eau Claire), Cassi Davison (Norfolk State University), Daniel Harsono (University of California Los Angeles), and Scott Henderson (Lewis & Clark College).

As a result of their scientific work, each student produced a paper which, in most cases, is a precursor to a scientific publication. The students presented their work with a great enthusiasm to the CTIO, Gemini, and Las Campanas scientific staff and visitors in a two-day mini-symposium held in La Serena in March. The outcome of their projects will also be presented in the poster session of the upcoming winter meeting of the American Astronomical Society, which will be



From left to right: Rodrigo Hinojosa, Rachel Anderson, Stephanie Golmon and Aisha Mahmoud in Las Campanas

held in Austin, Texas. Everyone is encouraged to visit the posters and discuss the students' experience in La Serena.

Although we will all miss them, we wish them the best of luck in their endeavors in astronomy. We are confident that they will have brilliant careers and we are looking forward to their future accomplishments

More information about the 2007 REU program can be found at www.ctio.noao.edu/REU/ctioreu_2007/REU2007.html.



Stephanie Golmon and Daniel Harsono in the CTIO 1-meter control room

Outreach Activities With the Tohono O'odham

NOAO public affairs staff members Katy Garmany, Rob Sparks and Doug Isbell presented a star party on April 11 to the local children at the new recreation center at Meneger's Dam (Al Jek), located in the far southwest corner of the Tohono O'odham reservation. NOAO was invited by the director of the new center, Roger Antone. Before dark, the kids learned how to use a star wheel, and they made a model of the solar system. The group then visited Kitt Peak National Observatory for an evening of tours and further telescope viewing on May 25.

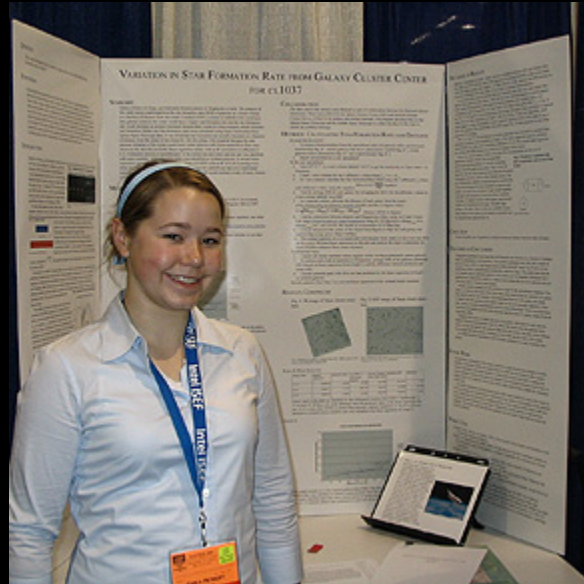
On April 5, the entire Ha:san Middle School (serving Native American students in Tucson, primarily those from the Tohono O'odham Nation) attended the Nightly Observing Program at Kitt Peak. They were particularly excited by the sight of Saturn in a telescope. Student Deidre Hendricks was proud to tell everyone that her grandfather, Herman Ramon, works at Kitt Peak.



INTEL Science Fair Prize Winner

Emily Petroff won the second place Bok award at the INTEL International Science & Engineering Fair for her project "Variation in Star Formation Rate from Galaxy Cluster Center for c11037." The INTEL fair was held in Albuquerque, New Mexico, from May 13-19.

NOAO Goldberg Fellow Greg Rudnick was Emily's mentor on this project, which used data from the Spitzer Space Telescope. Emily's teacher is Rosa Hemphill from Oregon Episcopal School in Portland, who participated in the NOAO Teacher Leaders in Research Based Science Education (TLRBSE) program a few years ago. Last year, Hemphill was chosen as a participant in the Spitzer-RBSE Research Program for Teachers conducted by the NOAO educational outreach group and the Spitzer Science Center.



NOAO Takes On Leadership Roles for the International Year of Astronomy 2009

Staff members from the NOAO Office of Public Affairs and Educational Outreach (PAEO) have taken on several leadership roles in planning programs and activities connected to the upcoming International Year of Astronomy 2009. This worldwide public celebration of 400 years of observing through telescopes since the age of Galileo has been endorsed by the International Astronomical Union (IAU) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO).

In mid-February 2007, NOAO Associate Director for PAEO Douglas Isbell was asked by Kevin Marvel of the American Astronomical Society to take over as co-chair of the US International Year of Astronomy (IYA) 2009 Program Committee, along with co-chair Susana Deustua, the AAS director of education. (A parallel development committee chaired by Peter Stockman of Space Telescope Science Institute has been constituted by the AAS to help raise funds to support the best IYA 2009 program ideas.) Isbell and Deustua also serve on the top-level IYA 2009 working group at the IAU.

Within just a few weeks, a new US program outline was prepared and then presented by Isbell, Deustua and Rick Fienberg (editor-in-chief of *Sky & Telescope* magazine and a member of the program committee) at a major IYA 2009 planning meeting in Garching, Germany, at the headquarters of the European Southern Observatory. This presentation was well received, and helped generate several international task groups.

The newly stated goal for the US program for IYA 2009 is simple but ambitious: "To offer an engaging astronomy experience to every person in the country, and build new partnerships to sustain public interest."

US programs will be aligned around six major themes:

- Looking Through a Telescope – star parties, observatory open houses, binocular experiences...
- Dark Skies Are a Universal Resource – GLOBE at Night 2009, public health and economic issues....

- Astronomy in Arts, Entertainment & Storytelling – documentaries, TV specials, public events, lectures, Native American traditions...
- Research Experience for Students, Teachers, and Citizen-Scientists
- Telescope Building & Optics Challenges – a new cheap telescope kit, Hands On Optics activities, contests, internships...
- Sharing the Universe Through New Technology – programs at science centers and planetaria, blogging, podcasting, social networking...



Each US theme will be supported by 2-3 working groups of 6-8 people each (professional and amateur). These working groups are being formed now, toward the next US IYA 2009 organizational meeting in late May.

Stephen Pompea, director of science education and an astronomer at NOAO, is chairing the US IYA 2009 working group on telescope building and optics challenges. Connie Walker, a senior science education specialist and astronomer at NOAO, is chairing the dark skies group, which will focus largely on expansion of the highly successful GLOBE at Night 2006 and 2007 campaigns that she organized.

More details about the US IYA 2009 program will be discussed at the annual meeting of the Astronomical Society of the Pacific in Chicago in early September, followed by a second US IYA 2009 planning meeting tentatively scheduled from September 7-8.

Another key meeting will be the Communicating Astronomy to the Public 2007 meeting in Athens, Greece, from October 8-11. This meeting is the third in a series under IAU sponsorship that began in 2003 in Washington, DC. For more on this meeting, see www.communicatingastronomy.org/cap2007/.

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The main Web site for IYA 2009 is www.astronomy2009.org. One venue for organizing and publicizing US events will be a MySpace page – check it out at www.myspace.com/2009yearofastronomy.

Contact Doug Isbell (disbell@noao.edu) to express an interest in getting involved or adding program ideas!

Galaxy Image Shows Value of Dark Skies



This beautiful image of spiral galaxy IC 342 that takes advantage of the dark night sky at Kitt Peak National Observatory was released in Washington, DC, on February 21 during the opening day of "The Night: Why Dark Hours Are So Important," a two-day symposium hosted at the Carnegie Institution.

IC 342 is located 11 million light-years from Earth in the constellation Camelopardalis, "the giraffe." From our perspective on Earth, this galaxy is viewed through much of the stars and interstellar dust and gas within our own galaxy, the Milky Way. This means that much of the star light from IC 342 is diminished before it reaches us.

"Without all of the interstellar gas and dust between us and IC 342, it would be one of the brightest galaxies in our night skies and a favorite target for backyard astronomers," said astronomer Travis Rector of the University of Alaska Anchorage. "Being able to produce an image like this, through all that obscuring gas and dust, demands dark night skies like those still found in Arizona at Kitt Peak, which are crucial for making observations of this depth and sensitivity."

The image, obtained in late 2006, was taken using the 64-megapixel Mosaic-1 digital imager on the Mayall 4-meter telescope.

Credit: T.A. Rector/University of Alaska Anchorage, H. Schweiker and NOAO/AURA/NSF