New Horizons on Two Fronts

Suzanne Leaves...

After working for NOAO for almost 22 years, Suzanne H. Jacoby, the founder of the Educational Outreach group at the National Optical Astronomy Observatory (NOAO), has recently decided to make a career change. She began her time at NOAO with the IRAF group as a data reduction specialist. Throughout the years, Suzanne’s hard work and dedication has definitely paid off. Because of her creative ideas, and endless contributions, NOAO not only has an Educational Outreach department, but within this department it houses many successful programs. Most noted are Project ASTRO-Tucson, The Use of Astronomy in Research Based Science Education (RBSE), and Teacher Leaders in Research Based Science Education (TLRBSE), an enhanced program in which teachers integrate the best practices of Research Based Science Education within the process of mentoring.

As the NOAO Education Officer from 1995 until 2000, Suzanne Jacoby managed all aspects of NOAO Outreach (excluding the Kitt Peak Visitor Center) with responsibilities including: writing and disseminating scientific press releases, streamlining access to the NOAO Image Collection, handling requests for information from the general public by phone, e-mail and mail, coordinating Educational Outreach programs RBSE, Project ASTRO-Tucson, Research Experiences for Undergraduates (REU), Research Experiences for Teachers (RET), and developing NOAO World Wide Web pages for the public and educators. In addition to her many duties, Suzanne found time to be an advisor to NASA/University of Arizona Space Grant Consortium Undergraduate Interns from 1996 - 2000, supervising their work on a variety of projects articulating astronomy and education through the NOAO EO office. In 2000 Suzanne changed to part-time status, and oversaw only TLRBSE, Project ASTRO-Tucson, and other initiatives involving K-12 formal education settings.

In the fall of 1996, Suzanne (as Project ASTRO site director) worked with the Astronomical Society of the Pacific to bring the project expansion to Tucson with NOAO as the lead institution. As our readers know, Project ASTRO links professional and amateur astronomers with teachers in local schools and community organizations. Over 245 astronomers and teachers have attended two-day training workshops in Tucson and learned hands-on activities for teaching astronomy in the classroom. In the past three years, project emphasis has shifted to the integration of writing, art, and inquiry through focused nature study of the Moon. Suzanne also served as an astronomer partner to a fourth grade teacher during the 1997-1998 and 1998-1999 academic years.

As Principal Investigator, Suzanne submitted a proposal to NSF on The Use of Astronomy in Research Based Science Education (RBSE) in 1997. NOAO facilities in Tucson and Kitt Peak were used in support of the RBSE Teacher Enhancement Project, funded through the NSF EHR Directorate. RBSE offered a research experience to middle and high school teachers from around the country during a 180-hour summer workshop and helped extend the experience to their classrooms during the academic year.

The RBSE program blossomed into TLRBSE in 2001. Built around the same successful teacher enhancement model, TLRBSE added a leadership component, participation in a 16-week online course, and a two-week summer institute, which provides observing experience with research-class telescopes at Kitt Peak National Observatory and the National Solar Observatory.

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After all of her successes, Suzanne has decided to go back to school. Through a program called “Teach for Tucson” offered at the University of Arizona, she will earn a Masters in Science Education and obtained her teaching certification at the secondary level in a year’s time. Our enormous amount of gratitude and countless number of thanks go with her. We wish her good luck and farewell.

Steve Arrives . . .

Dr. Stephen Pompea began working at NOAO as the new Manager of Science Education mid-February. Until her departure, Steve worked closely with Suzanne to understand the details of our educational outreach programs.

Steve has a Ph.D. in astronomy from the University of Arizona, a Master’s in physics teaching from Colorado State, and a Bachelor’s degree in physics, space physics, and astronomy from Rice University. He was certified as a science teacher and taught earth science, physics, and astronomy in Colorado. He is also an Adjunct Associate Astronomer at Steward Observatory.

He will have the dual title of Manager of Science Education/Astronomer to reflect the full range of his duties and experience. For the last eight years he has been a consultant in science education to a wide variety of national and international science education projects that are developing new multimedia and inquiry-based curriculum materials, exhibits for hands-on science centers, teacher’s guides, and professional development materials for teachers. His instrumentation background includes nine years with Martin Marietta in Denver developing space instruments and new optical materials, work on the HST NICMOS instrument, where he served for several years as instrument scientist, and consulting work for ground and space-based instruments and telescopes in the area of stray light control.

Welcome, Steve!

Suzanne H. Jacoby Award for Excellence

Within the Project ASTRO-Tucson community of active teacher and astronomer partners, there are those outstanding individuals who through their dedicated service and innovative inquiry-based activities have raised the level of astronomy/science awareness for students. To honor the “best of the best”, the Suzanne H. Jacoby award will be given at the Fall Workshop October 11-12.

Your help is needed to determine who the first honoree will be. Please take time to think about a teacher or astronomer who exemplifies the spirit of Project ASTRO - who has enriched the lives of students through either hands-on or mind-on activities, star parties, and who has inspired students to ask questions and reach for the stars. Please complete the brief form below, detailing why your choice should be the first recipient honored with this esteemed award, then mail or fax to Connie Walker (520 318-8360).

Suzanne H. Jacoby Award

Candidate Nomination

You’re invited to submit whom you think would be the best candidate to receive this award based on their demonstrated commitment, performance, and enthusiasm to the Project ASTRO-Tucson program.

Candidate Name _____________________________________________________________

___________________________________________________________________________

Please write a description of why you feel this candidate should receive the award - be specific!

___________________________________________________________________________

___________________________________________________________________________

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___________________________________________________________________________

Your Name __________________________ Phone Number _______________________

E-mail Address ___________________________

Due June 15, 2002

Return completed form to: Connie Walker NOAO 950 N. Cherry Ave. Tucson, AZ  85719
Annual Site Leaders Meeting

Stephen Pompea, Connie Walker, and Robert Wilson attended the 2002 National Network of Project ASTRO Site Leaders Meeting on April 25-27, 2002 held at the National Solar Observatory on Sacramento Peak. As representatives of Project ASTRO-Tucson, they reported on the year’s activities, highlighting issues on project strengths, staff changes, coalition changes, site statistics, new initiatives, fundraising, and publicity. In terms of project strengths, NOAO’s 6th annual training workshop, held in September of 2001, hosted 32 teachers and 28 astronomers. Six months later, NOAO hosted the follow-up workshop for three-dozen Project ASTRO teachers, astronomers, and guests at David Levy’s home-based observatory. To date, over 245 astronomer and teacher partners have been trained at these workshops. Out of 144 partnerships created over the last 6 years, 82 remain active. Today 13,000 students have benefited from the presence of these partnerships in the classroom.

New initiatives included an effort to branch out with Project ASTRO in a variety of directions including to:

- a bilingual school in a border town,
- the handicapped community,
- the Girl Scouts of America,
- the regional science and engineering fair,
- an astronomy club & branch of the University of Arizona,
- the involvement of teachers from Indian Nations,
- a preliminary effort to jump start a Project ASTRO-like program in Chile.

Publicity efforts included an article about Project ASTRO-Tucson in every Quarterly NOAO Newsletter (circulation over 2000), a poster presence at semi-annual AAS meetings, an Arizona Daily Star article featuring the Fall 2001 Workshop, two guest speaker opportunities on David Levy’s “Let’s Talk Stars radio talk show”, and the ASTROGRAM newsletter three times a year (circulation over 200). A second oral presentation was given on the Math and Science Partnership Initiative, a new education program through NSF and EHR, to discuss the appropriateness of Project ASTRO National Network’s involvement in such a proposal. In addition to the oral presentations, a poster presentation was given, highlighting the partnerships, the training workshop, follow-up workshop, the hands-on activities, the effective educational materials, the continued staff support, the connection to community resources like local amateur astronomy associations, and the special outreach to underrepresented communities. Samples of workshop agendas, giveaway materials, poster presentations and CDs were supplied to participants of the Site Leaders Meeting as well.

Are You Up For the CHALLENGE . . .?

The Project ASTRO-Tucson staff would like to make our 7th year one of our best. We would like to challenge all of you to be recruiters for the Project ASTRO 2002/2003 program. Everyone of you knows the positive aspects of Project ASTRO and how it provides enrichment, enthusiasm, and excitement in students and partners alike toward the field of astronomy. We offer:

- Expanded partnerships between more astronomers and educators that focus on bringing an understanding of science to students
- Training and follow-up workshops for the partners that show them effective, age appropriate ways of conveying astronomy concepts to students
- Hands-on, minds-on activities that allow students to act like scientists
- Interdisciplinary investigations of the Moon by students integrating art and writing within recordings of their scientific observations
- Observations at Kitt Peak Observatory that excite the mind with the wonders of the night time sky
- Educational materials proven to be effective through established educational research
- Connections between partners and community resources like local amateur astronomy clubs for star parties

Here is the challenge: for those who are able to recruit 3 or more acceptable (viable) (authentic) applicants to the Project ASTRO Tucson program by September 16, 2002, you will receive a More Universe at Your Fingertips book at the Fall 2002 workshop. When the applicant fills out the Project ASTRO-Tucson application form, there will be a line requesting the name of the person who referred them to the program. This is the location where your name should be entered to enable us to keep a record.

Help us overtake this 7-year itch to keep the momentum going!

Questions??
Contact the Staff of Project ASTRO-Tucson

Connie Walker
Site Coordinator
520 318-8535

Steve Pompea
Site Director
520 318-8285

Kathie Coil
Administrative Coordinator
520 318-8230

www.noao.edu/outreach
520 318-8360 fax
Spring Follow-up Workshop

For those who missed our spring follow-up workshop, it was very successful. Our spring workshop, open always to Project ASTRO members from all years, was held at the Levy's Jarnac Observatory on February 12, 2002. Our gracious hosts, David and Wendee Levy, made their home and observatory available to three dozen teachers, astronomers and guests. The theme-based workshop was to concentrate on observing celestial wonders, highlighting characteristics about sunspots, where the Sun set on the horizon, and the phase of the Moon as projects that could be done through the classroom.

Many Tucson Amateur Astronomy Association members and Project ASTRO-Tucson astronomer partners volunteered their time and telescopes in this venture. Though the sky was not fit for observing, we nevertheless enjoyed the evening. Teachers from various grade levels along with astronomers enjoyed the two additional hands-on activities. Third through fifth grade teachers made “Constellations in (Film) Canisters” and sixth through ninth grade teachers kene-tically discovered “The Reasons for Seasons”, an activity from the book, The Universe at Your Fingertips.

One of David's claim to fame was the crash of his co-discovered Comet Shoemaker-Levy 9 into Jupiter in 1994. David was kind enough to share an educational video on this event, which he accompanied with a wonderful narration. Being at the Levy's home was very exciting to the participants. Both teachers and astronomers benefited from the evening. The Project ASTRO-Tucson staff would like to offer many thanks to the Levy's for contributing substantially to another successful workshop!

Are You Ready for the Next Solar Eclipse?

On June 10, 2002, there will be an annular solar eclipse that will be visible in Eastern Asia, Australia and western North America. Here are a couple of articles, related to safe observing of solar eclipses, adapted from from Chapter 11 of “Totality: Eclipses of the Sun” (2nd Ed.) by Mark Littmann, Ken Willecox and Fred Espenak. The first article is on Pinhole Cameras you might be able to make with your classes, should your school still be in session and the second article is on solar filters and where to buy them. Also the websites http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2002Jun10A.gif and http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002.html give an idea of how much of the Sun will be covered by the Moon as viewed in Tucson (about 70%), as well as giving you further details on the eclipse.

The Pinhole Projection Method

One safe way of enjoying the Sun during a partial eclipse--or anytime--is a “pinhole camera,” which allows you to view a projected image of the Sun. There are fancy pinhole cameras you can make out of cardboard boxes, but a perfectly adequate (and portable) version can be made out of two thin but stiff pieces of white cardboard. Punch a small clean pinhole in one piece of cardboard and let the sunlight fall through that hole onto the second piece of cardboard, which serves as a screen, held below it. An inverted image of the Sun is formed. To make the image larger, move the screen farther from the pinhole. To make the image brighter, move the screen closer to the pinhole. Do not make the pinhole wide or you will only have a shaft of sunlight rather than an image of the crescent Sun. Remember, this instrument is used with your back to the Sun. The sunlight passes over your shoulder, through the pinhole, and forms an image on the cardboard screen beneath it. Do not look through the pinhole at the Sun.

Solar Filters

A second technique for viewing the Sun safely is by looking at it directly through a specially designed solar filter. Such filters permit only a miniscule fraction of the Sun's light to pass through them. Advertisements for solar filters may be found in popular astronomy magazines. (Product information can be found on the following web site http://store.yahoo.com/rainbowsymphony/eclipseshades.html)

Although there are several different types of solar filters, the best choice to reduce damage to your eyes from the intense sunlight is made from a black polymer, which gives a yellow/orange tint to the Sun that is more pleasing than the bluish color seen with aluminized polyester filters. To ensure complete safety, first check for small holes in the polymer that could potentially allow unfiltered light to reach your eyes. Good filters should have an optical density of 5.0 or more. This means that only 0.01% of the Sun's light can pass through the filter. When using any kind of filter, however, do not stare for long periods at the Sun. Look through the filter briefly and then look away. In this way, a tiny hole that you miss is not likely to cause your eyes any harm. You know from your naive childhood days that it is possible to glance at the Sun and immediately look away without damaging your eyes. Just remember that your eyes can be damaged without you feeling any pain.

This article was adapted from Chapter 11 of “Totality: Eclipses of the Sun” (2nd Ed.) by Mark Littmann, Ken Willecox and Fred Espenak.
Project ASTRO-Tucson

Fall Workshop

October 11 - 12, 2002

♦ Teachers & Community Educators partnered with Professional & Amateur Astronomers
♦ Free instructional materials & support provided for teaching astronomy through hands-on classroom activities throughout the year
♦ Sessions conducted on Moon Journals, Kinesthetic Astronomy, & other Solar System activities
♦ Trip to Kitt Peak

Applications available at
http://www.noao.edu/education/astrotucson.html
or call - (520) 318-8535
Return by –
September 23, 2002
Send to -
Connie Walker
NOAO Educational Outreach
950 N. Cherry Ave.
Tucson, AZ  85719
- (520) 318-8360  fax -

Hosted by the National Optical Astronomy Observatory
PERSONAL INFORMATION

Name __________________________
Home Address __________________________
  City ___________ State _______ Zip _________
  Home Phone ( ) ___________________
School or Organization __________________________
District __________________________
Work Address __________________________
  City ___________ State _______ Zip _________
  Work County __________________________
  Work Phone ( ) ___________________
  Work County __________________________
  Work Phone ( ) ___________________
E-mail __________________________
Grade __________________________
Subject __________________________
Number of years teaching experience __________________________

ADMINISTRATIVE SUPPORT

Administrator support leads to more successful partnerships. Please have the appropriate administrator certify support for your participation in Project ASTRO by completing and signing.

I support the participation of __________________________ in Project ASTRO. __________________________ (print teacher name)

This support includes a day off for the workshop, planning time and allowing visits to the school by the volunteer astronomer.

Principal or Administrator’s Signature: __________________________

Name __________________________
Title __________________________
Date ______________ Phone ( ) ___________________
Address __________________________
  City __________________________ Zip ___________

TEACHER BACKGROUND

1. Describe your formal education.

2. Rate your knowledge of astronomy (1=low, 5 = high)
   1 2 3 4 5

3. Describe professional activities, curriculum development, in-service activities, collaborative projects, experience with volunteers, etc.

4. Why do you want to participate in Project ASTRO?

5. How will you include astronomy in your program in this year?

6. How many classes and students would the astronomer visit? (we encourage focusing on no more than 2)

7. Do you have time to plan with your astronomer by phone, and before or after class?

8. Describe how you will incorporate the visiting astronomer into your program.

9. How did you hear about Project ASTRO?

10. If through a Project ASTRO partner, please give name.

Your Signature __________________________

Date __________________________
### PERSONAL INFORMATION

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### ASTRONOMER BACKGROUND

1. Briefly describe your background and experiences in astronomy.

2. Describe any experiences you have working with schools or explaining astronomy to students or the public.

3. Describe any other experience working with children.

4. List astronomy organizations you are affiliated with.

5. In what ways do you see yourself contributing to student learning and enjoyment of astronomy at a local school?

6. What grade levels do you prefer (circle all that apply)
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   (it doesn’t matter)

7. We will make every effort to place you in a school that is convenient to you. List possible areas where you would prefer to volunteer.

8. How fare are you willing to travel to your partner school?

9. How did you hear about Project ASTRO?

10. If through a Project ASTRO partner, please give name.

Your signature  
Date  

Teams of two astronomers from the same group or institution are encouraged to apply. List the name of your partner.
Dean Ketelsen Receives Award

One of our own Project ASTRO astronomer, Dean Ketelsen, was awarded the 2002 ASP Las Cumbres Amateur Outreach Award.

“This award honors outstanding outreach by an amateur astronomer to children and the public. Since 1991, Ketelsen has organized the Grand Canyon Star Party, which has allowed tens of thousands of Canyon visitors to better appreciate the night sky. Every year he organizes the “Star Party for 55,000” at a University of Arizona home football game. During this event, Ketelsen and Tucson area amateur astronomers set up telescopes outside the football stadium and give incoming fans views of astronomical objects. Among his many other astronomy activities, he has worked as a volunteer for the Astronomical Society of the Pacific’s Project ASTRO, bringing the wonders of astronomy into Tucson classrooms. He is currently a Senior Research Specialist in the Steward Observatory’s Mirror Lab in Tucson.”

The press release can be seen at - http://www.astrosoociety.org/membership/awards/02winnerspr.html “The Las Cumbres Amateur Outreach Award: Dean Ketelsen, Tucson, Arizona.”

Seasons Greetings