



Association of Universities for Research in Astronomy

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## WORKFORCE AND DIVERSITY PROGRESS REPORT

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### Calendar Year 2013

Dear Colleague,

This letter is intended to summarize for AURA employees and governance the actions we have taken in 2013 to broaden participation in AURA activities and to work towards the development of a diverse future workforce. This report marks the five-year mark since AURA undertook a focused commitment to achieve and strengthen the following.

- *A Diverse Cross-section of Individuals Employed as AURA Staff:* we will strive to achieve a diverse and inclusive collection of individuals and groups who bring varied human characteristics such as origins, backgrounds, interests, skill characteristics, and perspectives to enrich the workforce.
- *A Future Workforce:* we will orient our outreach programs and partnerships to create opportunities for underrepresented minorities, women, and persons with disabilities for the purpose of increasing the flow of undergraduates, graduates, and post-docs into the fields of astronomy and related technologies.
- *A More Diverse Institutional Participation:* we will reach out to institutions that have not had a history of involvement in AURA's activities, especially smaller institutions and institutions with high percentages of underrepresented groups.
- *A More Diverse Geographic Participation:* we will identify and establish a greater presence in geographic areas that have not had the opportunity to contribute to AURA's mission and the overall field of astronomy.

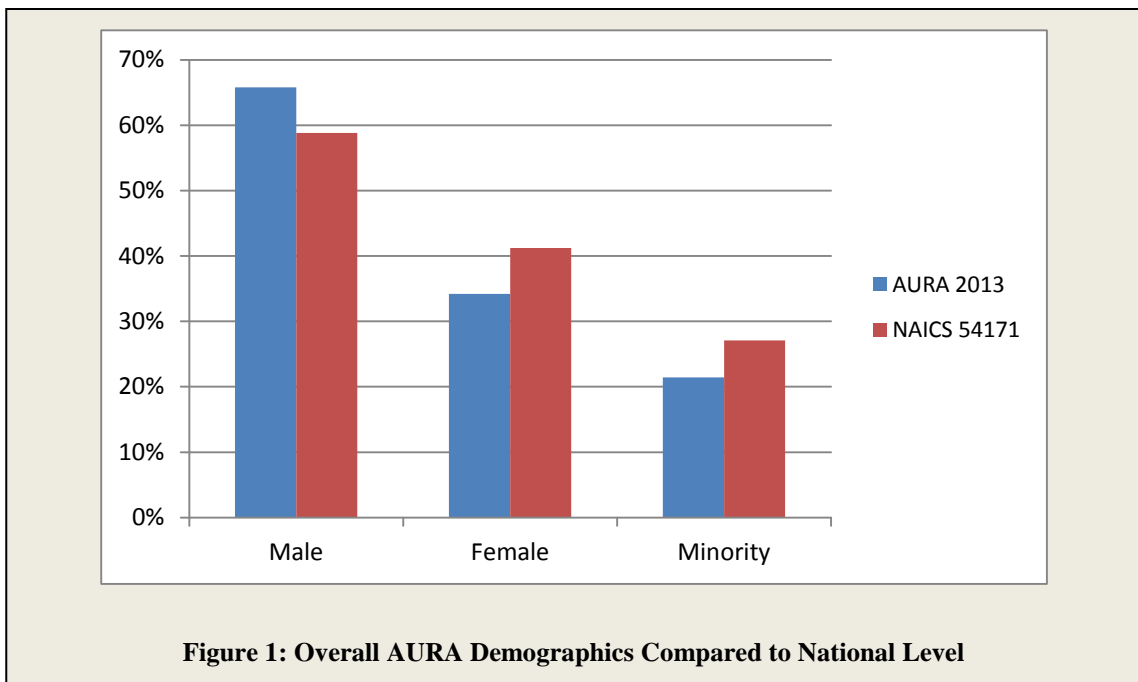
It is important to use this five-year milestone to reflect on our gains and areas where further work may be needed.

## AURA Demographics

### **AURA Employees**

AURA has made a concerted effort to establish a valid data base and standards for comparison over the past five years. We validate and track diversity in: the workforce of AURA employees; the makeup of the collection of individuals from the community that participate in its governance; and the students we influence in STEM careers.

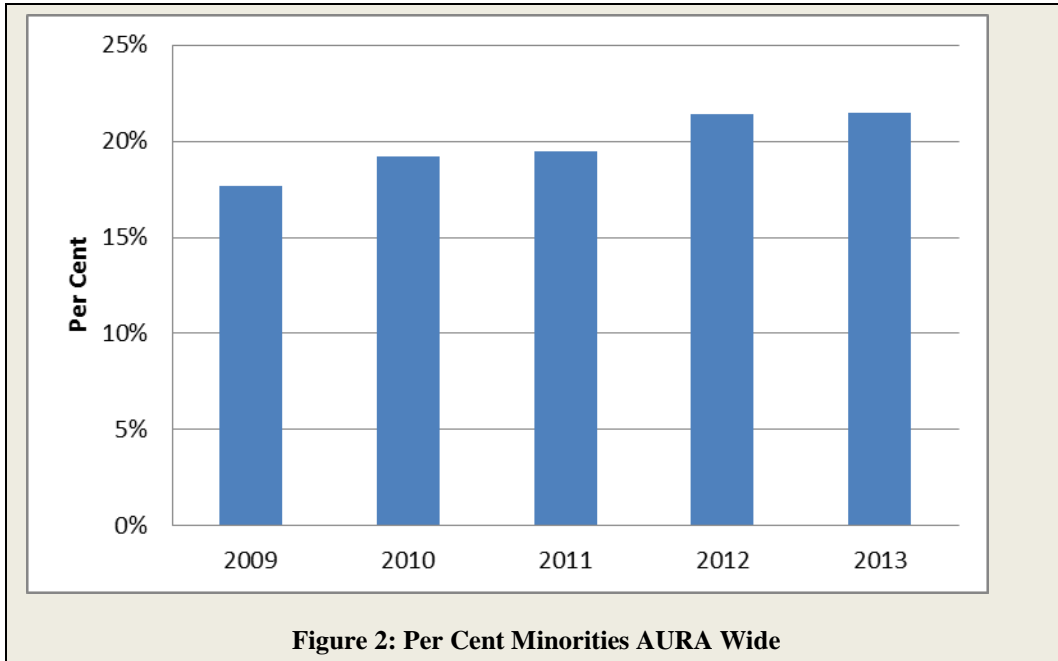
AURA compares its demographic makeup to the set of organizations that are required by the Equal Employment Opportunity Commission to report under the classification NAIC 54171, Private Sector Physical, Engineering, and Life Sciences<sup>1</sup>. There are over 300 thousand workers in this category, of whom AURA employs about a thousand.



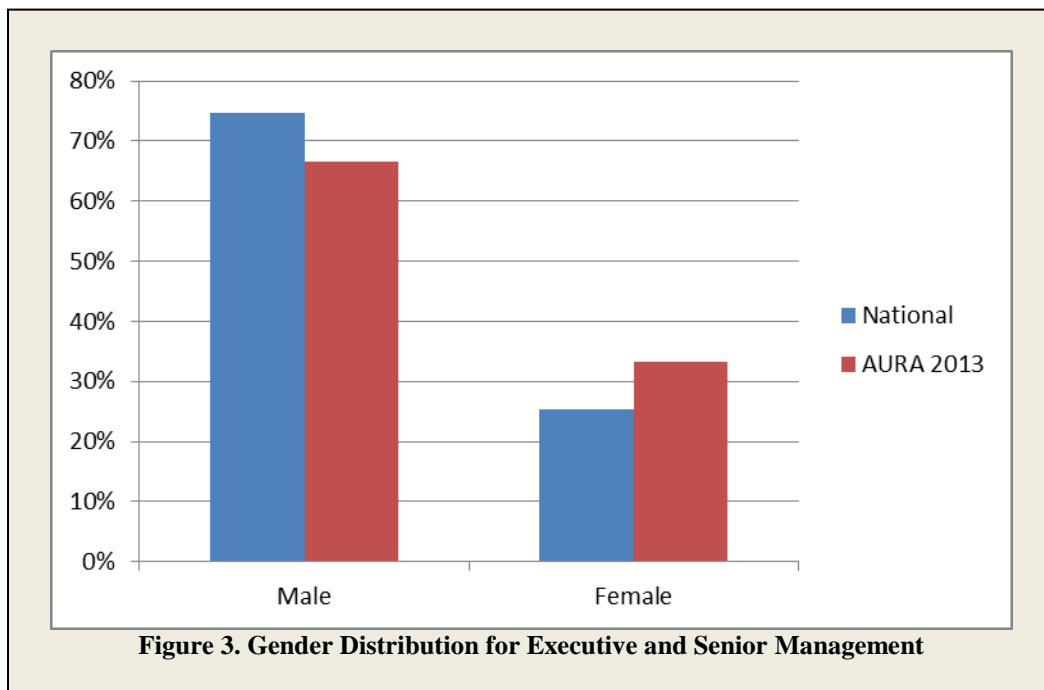
As seen in Figure 1, in 2013 women and minorities in AURA lag behind the national percentages for organizations in our category. AURA has shown improving trends in some important categories over the past five years. For example, Figure 2 illustrates the percentage of AURA employees who are categorized as minorities over the past five years.

Although these trends appear in the right direction, AURA still lags in the national context. AURA will need to continue to focus on improving its representation and workforce balance.

<sup>1</sup> See <http://www1.eeoc.gov/eeoc/statistics/employment/jobpat-eeo1/2009/index.cfm#centercol>. EEOC data generally track NSF Science and Engineering Indicators where data can be compared.

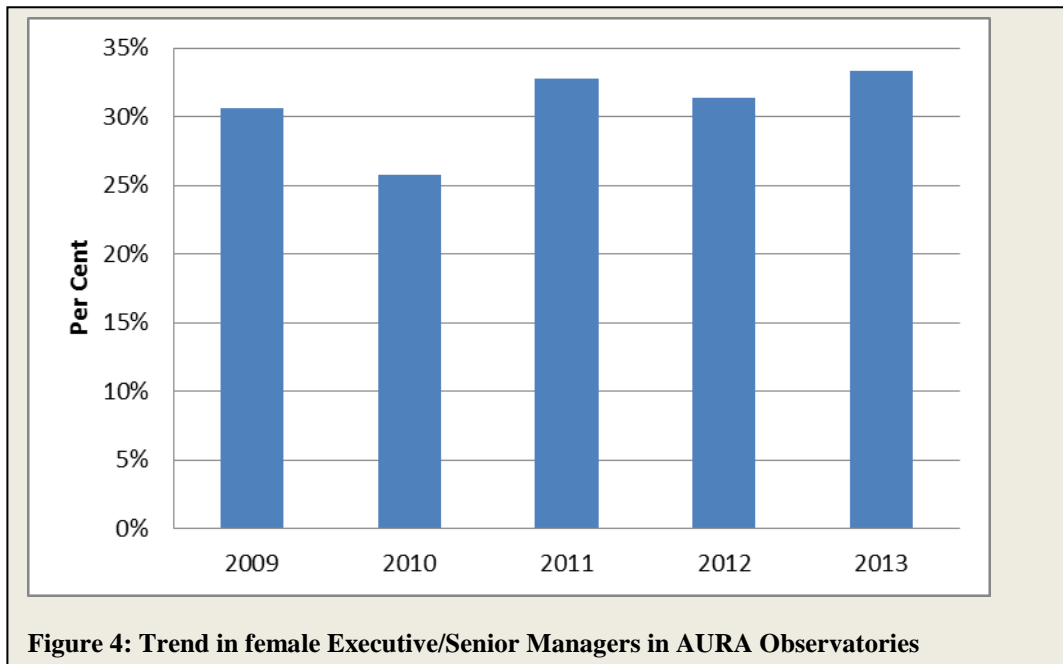


In tracking demographic trends for underrepresented minorities, it is important to distinguish gender factors as well. Of the 21.4% minority participation rate for AURA in figure 1, 8.6% are female and 12.9% are male. For the national picture, of the 27.1% shown in figure 1, female and male participation rates are, respectively, 12.6 and 14.5%.



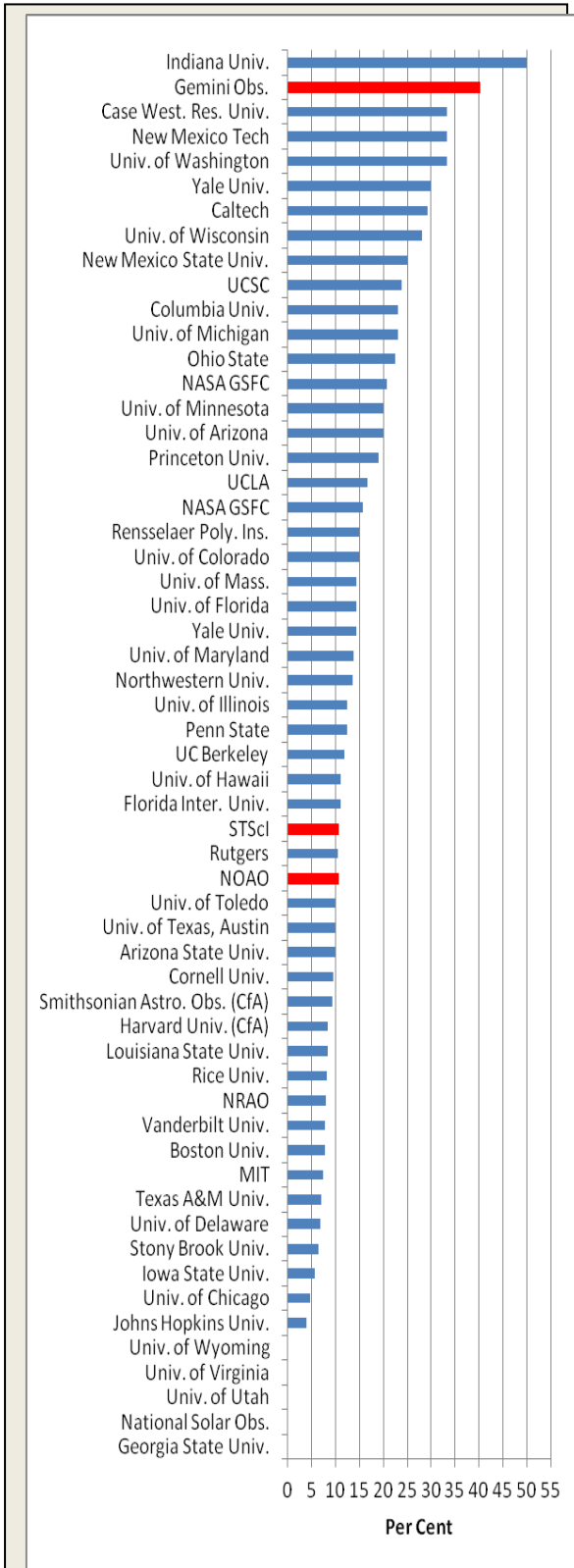
Over the past five years, AURA has also focused on ensuring that top management ranks receive attention in terms of recruiting and retention of women and minorities. For the highest employment classification, *Executive and Senior Management*, Figure 3 shows the gender demographics. This is a subset of the overall comparison in Figure 1, and represents about 7% of the AURA workforce. As seen, in 2012 AURA exceeds the national statistics for gender diversity in management ranks, as has been the case in the past several years.

Gender diversity in management has been a focus for all AURA observatories. Over the past five years, this has been sustained and shows a slightly increasing trend as shown in Figure 4.



In order to maintain this trend, special attention is needed during the search and recruitment process. The need to ensure diversity on a search committee in order to successfully recruit women and minorities has been widely acknowledged. It is increasingly recognized that the diversity of search committees is not always sufficient to achieve a more diverse workforce. Focused efforts must be made to ensure the diversity of applicant pools and “short lists”. In addition, AURA has instituted a policy of introducing search committees to current findings on unconscious bias. Guidelines for search committees are included under “Resources” on the AURA website at <http://www.aura-astronomy.org/about/diversity.asp>.

In 2013, NOAO appointed a female director for KPNO and a female interim director for CTIO, a historic event. During 2013, NOAO conducted a search for a permanent CTIO Director. Of the 8 search committee members, 3 were female. The search process included contacts to a number of female potential candidates, but the final pool included only male candidates.



**Figure 5. Per Cent Tenured Women Scientists**

In 2013, AURA also conducted a search for an LSST Director. Although female applications were solicited, the final pool and selection included only male candidates.

**Science Staff**

Over the recent past, about 25% of astronomy PhDs has been awarded to women. AURA Centers have attempted to meet or exceed this pool average in its demographic makeup. For Gemini, for example, 34% of the PhD science staff are women. At NSO, 17% of the science staff are female. For STScI, 20% of the 84 science staff are female showing a rebound over the decade in its representation of women. . At NOAO, 10 of 41 (or 24.4%)science staff are female.

One additional measure of the status of women within the scientific ranks is the percent of tenured staff who are women. Recently, the AAS Committee on the Status of Women in Astronomy compiled a list of major astronomy institutions and the per cent of tenured faculty or staff who were female<sup>2</sup>. Figure 3 shows the instiutions for which data is available and where AURA observatories fall. Generally larger institutions employ more tenured women astronomers, but have greater difficulty achieving higher percentages.

Although the overall demographics are difficult to change over the short term, a key measure of future success for AURA centers is recruitment, hiring, and promotions.

- For STScI for 2012, there were 58 new hires, of whom 27 were female and 12 were underrepresented minorities.

<sup>2</sup> See [http://www.aas.org/cswa/percent\\_tenured.html](http://www.aas.org/cswa/percent_tenured.html)

- There were also 34 promotions of whom 13 were female and 11 were underrepresented minorities (included overlapping categories).
- For LSST for 2013, there were 2 new hires, of whom 1 was a female underrepresented minority and 1 was a male non-minority. There was also 1 promotion of whom 0 were female and 0 were underrepresented minorities. There are presently 14 employees of LSST, 4 female and 2 minority, with no significant staffing increase planned until 2015.
  - For NSO, there were 15 new hires that were not temporary, of whom 4 were females and 2 were from underrepresented groups. There were three promotions, one of whom was female/minority
  - For NOAO there were 17 new hires, of whom 3 were female and 4 were underrepresented minorities. There were also 13 promotions of whom 7 were female and 5 were underrepresented minorities (included overlapping categories.)
  - For Gemini for 2013, there were 27 new hires, of whom 6 were female and 11 were from underrepresented groups. There were also 76 promotions of whom 2 were female and 36 were from underrepresented groups.

Turnover in AURA organizations is low. However, as opportunities to hire and promote women and underrepresented minorities arise, this will continue to improve the overall composition of AURA's workforce

### **AURA Governance**

Within its governance, AURA has also sought to preserve diversity. AURA's standing committees are listed at <http://www.aura-astronomy.org/>. In 2008, AURA set an informal goal to maintain at least 30% women and minorities in its governance. This goal was intended to lead the astronomy community in general, where such participation rates historically lag. As seen in Figure 6, over the past several years, this fraction has fallen somewhat for a variety of reasons. In 2013, however, this decline was halted.

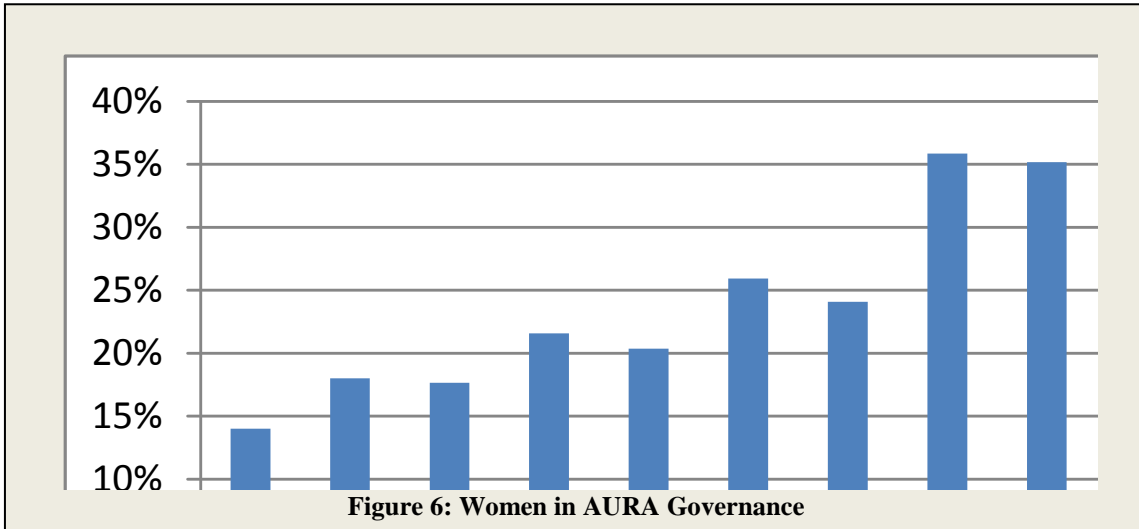
The reasons for the demographic makeup for AURA governance are varied. In addition to diversity goals, governance choices are sometimes highly constrained by a variety of other factors (e.g., the need to include representatives from certain institutions, the need to include specific international representatives, the need to gain specific scientific and management expertise, etc.).

AURA's Member Representatives, who are not included in Figure 6, generally reflect the makeup the senior levels of academia with less than 20% participation rate by women<sup>3</sup>. The 46 Member Representatives are appointed by the institutions themselves (i.e., by Presidents or Provosts) rather than by AURA. However, at the recommendation of the Workforce and Diversity Committee, AURA has now changed the form of its letter inviting the designation of Member Representatives to emphasize our desire to increase

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<sup>3</sup> See, for example, <http://www.aip.org/statistics/trends/highlite/women3/figure1.htm>.

the participation of women and underrepresented minorities. In 2014, the percentage of female member representatives increased from 20 to 22%.



### **Growing a Future Diverse Workforce**

AURA has focused its outreach and education programs to engage underrepresented populations, underserved geographic areas and institutions, and women. At the K-12 level, AURA has sought to provide the seeds of interest in science in general and future STEM-related careers. At the advanced student level, AURA institutions offer a valuable research experience that complements academic and career development at all levels and also provides to a growing number of students a familiarity with the operating environment for major public observatories.

#### **K-12 and Teacher Training Activities**

##### **NOAO**

NOAO maintains a vigorous outreach effort in Arizona and Región de Coquimbo through a portfolio of programs that serve students directly and that provide professional development for teachers and informal science educators (e.g., museum and afterschool program educators). In Arizona, NOAO works across the state with teacher professional development and student-based programs in Sells, Yuma, Safford, Globe, and Flagstaff that reach a significant Hispanic and Native American student population.

In Chile, a major effort is being made to train astronomy guides for observatories run by small municipalities in rural regions. The EPO-South team has also continued its collaboration with CEAZA (Center for Advanced Studies in Arid Zones) in the joint project “Science, Education and Sustainability for the Touristic Development of the

Region of Coquimbo”. The project stresses dark skies education for sustainable tourism in rural coastal towns in northern Chile.

NOAO-North places a very high priority on working with educational organizations on the Tohono O’odham nation and partnering with the Tohono O’odham Community College (TOCC). An astronomy course is being taught this semester at TOCC by NOAO astronomers Drs. Colette Salyk and Katy Garmany. In the spring of 2013, NOAO organized a star party with the Tohono O’odham Community College American Indian Science and Engineering Society (AISES) chapter and another star party is scheduled with them at the college in February, 2014. Dark sky education activities and projects were also done with the University of Arizona AISES chapter throughout the fall 2013 semester. All 12 members of the Tohono O’odham Community College Astronomy 101 class observed at Kitt Peak in November 2013. The group was granted time on the WIYN 0.9-m telescope with its new Half Degree Imager camera, and every member of the class chose and observed their own object.

The NOAO-North EPO group is regularly asked to offer both school and after school programs on the Nation, which they carry out as their first priority. While these activities are difficult to assess, independent positive comments about Kitt Peak’s educational efforts are becoming very common. Some other outreach efforts include an NOAO-sponsored afterschool science program at the elementary school in Sells, the Tohono O’odham Fair and Rodeo, a Galileoscope-based program at Tohono O’odham High School, support for science fairs on the Nation, and an educational booth at the Shuk Toak District Day.

NOAO is a partner in Project STEAM: Integrating Art with Science to Build Science Identities among Girls, an NSF-sponsored informal science program (Co-PI Pompea). One aspect of the program is a two-week summer academy held in Tucson and Fairbanks, Alaska for middle school girls interested in art and science. The program strongly encourages Native American involvement in both locations. Our first academy in Tucson in the summer of 2013 had seven girls from the Tohono O’odham Nation (three from Sells and four from the San Xavier District) among the 35 program participants. For the Fairbanks Summer Academy, 14% of the participants were Alaska Native.

NOAO also continues with an active Project ASTRO program that includes minority-serving schools in the Tucson area by providing professional development and educational activities. The EPO group currently has one Tohono O’odham student employed part-time in conducting educational outreach programs. A second Tohono O’odham student in the NOAO undergraduate mentoring and outreach program graduated this year from the University of Arizona.

## **Gemini**

As an international institution, the Gemini Observatory’s educational programming focuses primarily on its local host communities; Hilo and La Serena. For over 5 years,



both Gemini sites have trained teachers to execute the Family ASTRO program, which has benefited hundreds of students and their families. Family ASTRO is part of a series of public education programs of the Astronomical Society of the Pacific (<http://www.astrosociety.org/education/family.html>). This program involves training educators in several basic areas of astronomy and physics by means of workshops aimed at “learning by doing” in a family-based environment in which each participating family group learns according to their own skills.

In addition to Family ASTRO and portable StarLab planetaria at both sites, Gemini’s flagship local outreach program is the extremely successful Journey through the Universe.

Entering its 10<sup>th</sup> year in Hilo, in 2013 *Journey Through the Universe* is now expanded to Chile under the name Viaje al Universo Chile. Together these two versions of the program, which bring observatory scientists and staff into classrooms for an intensive week of activities, are impacting thousands of students, parents and educators annually.

These programs are expanding each year with Dr. Jeff Goldstein, Director of the National Center for Earth and Space Science, making the key-note address to launch the start of the 20132 program in Hawai’i. Also, during 2013, for example, the *Journey Through the Universe* program in Hawai’i resulted in over 70 astronomy educators visiting over 8,000 children in 380 classrooms.

In 2013, the Viaje al Universo program, which engages Chilean students, teachers, and the public, ran for its third year; it featured dozens of classroom visits by scientists and educators. This combined with the annual AstroDay Chile program, which was founded by the Gemini outreach office, provided for some of the most significant outreach programs in Chile

## **STScI**

In 2013, the STScI Office of Public Outreach (OPO) spearheaded multiple new partnerships and initiatives to bring both HST and JWST to underserved communities and diverse audiences. One key partnership includes the Dream Academy – a national program that serves at-risk youth in ten cities throughout the United States. Other new partners that serve communities throughout Baltimore City, and that have the potential to impact local youth; include the Village Learning Place, Paul’s Place, and the Greater Homewood Community Corporation.

The STScI/OPO group maintained partnerships with local schools in 2013; specifically with Baltimore City’s City Neighbors High School. This partnership has provided four underserved students with an opportunity to intern in STScI’s OPO and apply STEM processes through mentoring and job shadowing experiences. Additionally, OPO was invited to partake in the STEM Achievement in Baltimore Elementary Schools (SABES) project in collaboration with both Baltimore City Public Schools and the Johns Hopkins University’s School of Education. The OPO education team supports SABES by

providing technical assistance with the development and review of grade five curriculum units, resulting in Hubble education resources being embedded into the units and made accessible to educators and students throughout Baltimore City's elementary classrooms.

In addition to the above, the STScI/OPO group maintained partnerships with STEM education and career development initiatives such as the Maryland Business Roundtable for Education, NASA's Micro Observatory, and the Maryland Space Grant Consortium. OPO continues to support several local STEM events to bring HST and JWST to young women and Baltimore City youth. (Expanding Your Horizons Career Discovery Day, Girl Power, ISC Tech Expo, Morgan State University's SEMAA Conference, and NASAScience4Girls). OPO also continued to disseminate copies of the "Visions of the Universe" traveling exhibit to underserved areas throughout the U.S., reaching over 40,000 students and educators, and continues to maintain its Tactile Astronomy initiative.

STScI's Youth for Astronomy & Engineering (YAE) program, which focuses on community youth outreach, offered day and evening workshops and events for underrepresented youth as well as their families. This included the spring "Women's Science Forum", summer "Family Night at the Institute", fall "Parent & Daughter/Son Evening Under the Stars", and spring/fall monthly "YAE Astronomy Club" sessions. In 2013, YAE added the "Engineering Club" program for high school and middle school students. The percentage of attendees from the Baltimore City has risen to 43%. This is a significant jump from over 5 years ago when the attendees from Baltimore City was less than 5%.

In partnership with the Office of Public Outreach, YAE sponsored an Educator's Workshop for middle school teachers. Educators participated in talks on different science topics and hands-on science activities.

YAE also held two education programs in partnership with the Pimlico Middle School in Baltimore as part of the U.S. Dream Academy, a national after school program for at risk children. The Pimlico school events were a result of a request from Rep. Elijah Cummings' office. YAE & the STScI Office of Public Outreach are in the process of expanding this partnership to the national network of U.S. Dream Academy school programs.

## **NSO**

During 2013, one female African-American middle school teachers participated in the NSO Research Experience for Teachers (RET) program.

Project CLEA (Contemporary Laboratory Experiences in Astronomy) develops laboratory exercises that illustrate modern astronomical techniques using digital data and color images. They are suitable for high school and college classes at all levels, but come with defaults set for use in introductory astronomy classes for non-science majors. NSO provides a module using GONG data that allows the student to measure solar rotation and learn about the difficulties of inferring three-dimensional information from two-

dimensional projections, and this year there was renewed interest in the transit of Venus. With the new solar cycle reaching an early maximum, we plan to get an additional sequence of images from this new sunspot cycle, so that we can get some spots at higher latitudes that industrious students can use to plot differential rotation.

Project ASTRO is a national program that improves the teaching of astronomy and physical science by linking professional and amateur astronomers with local educators. Each astronomer is matched with an educator in a one-on-one partnership and commits to visiting the educator's students at least four times during the school year. NSO staff participates in the annual Project ASTRO two-day workshop hosted by NOAO and engages in mentoring throughout New Mexico and Arizona.

RASL, DASL, Project CLEA, and Project ASTRO can all be accessed through the NSO education and public outreach link at <http://eo.nso.edu/>. NSO is a strong participant in the Southwest Consortium of Observatories for Public Education (SCOPE). SCOPE is a consortium of research institutions in the Southwest that promotes public awareness of astronomy through access and education. This valuable collaboration results in excellent interaction among the public and educational outreach staff of these groups and the NSO.

## **LSST**

The LSST Construction project became an AURA Center in October of 2011. It is different from other AURA Centers in a few significant ways. LSST is not yet an operating center; it is a construction project, working toward a federal construction start. Staffing is limited (14) and focused on designing and building the facility (and getting past the next review). LSST will not be a classic observing facility where a single team of investigators applies for time and conducts (private) research; LSST is a survey telescope, scanning the sky with a carefully programmed cadence to maximize the science output for multiple investigations, with all observations stored in a massively parallel database, open to US and Chilean researchers. LSST has always been designed as a public facility, open to researchers and the public.

Plans for an extensive, embedded program for Education and Public Outreach (EPO) has been part of LSST from the beginning, with shared planning and resources for all users. It is this integrated nature of education and research, coupled with the long lead time for planning and building community, that provide the tremendous opportunity for transformative EPO with LSST.

Since April 2011, the quarterly publication of LSST E-News has been translated into Chilean Spanish (by a volunteer) and posted online at <http://www.lsst.org/lsst/news/enews>.

Changing membership of the existing LSST EPO Outreach Advisory Board, and the creation of one or more EPO Science Collaboration Teams, are being explored as possible mechanisms for increasing diverse participation in LSST EPO.

The LSST project maintains a database of activities designed to increase participation of underrepresented groups at the 40 LSST Institutional Members as a possible source of leveraging opportunities for LSST EPO.

LSST is evaluating a range of future projects that are designed to promote awareness of STEM related matters, achieve mastery of some selected STEM skills, and inspire leadership. Pilot projects will be initiated when construction funding becomes available, with full implementation possible only after the LSST survey begins. These projects include:

- EPO Portal: a dynamic web portal that provides entry points for all LSST EPO
- LSST@HOME browsing, adoption, and network participation allow personalized access to portal and sharing
- Providing access to data products and science updates for content developers of planetarium shows, exhibits, and kiosks
- Professional Development Workshops for Content Developers or Classroom Instructors, online and face to face
- Citizen Science – involving non-specialists in the research process such as “alert tagging” through LSST EPO and partners
- Classroom Research Projects – middle school through undergraduate
- Undergraduate Internships (PAARE, IINSPIRE, REU, RET, FaST)

### *Advanced Student Activities*

Student intern programs directly expose future potential hires to the observatory working environment. Although not formally a Broadening Participation program, the NSF Research Experience for Undergraduates (REU) has been one of the most effective tools used by AURA, as well as other qualifying institutions, in order to contribute to STEM workforce development through research-based training and education. For STScI and Gemini, which are unable to participate in the REU program, comparable active intern programs have been established.

- For NOAO North, the REU program in summer 2013 totaled 6 students, 5 of whom were women and one is an underrepresented minority. At NOAO-S, there were 6 REU students, 4 of whom were female. For the 2013 PIA program, there were 2 students, both of which were male. In recent years, the PIA program has increased acceptance of students from universities around the country, not just in Santiago. The PIA students in 2013 were from the University of Concepción and the University of Valparaíso.
- At NSO, 2013 saw a class of 6 REU summer students, of whom 2 were female. Two REU students will present poster papers on their respective projects at the January 2014 meeting of the American Astronomical Society in Washington, DC. The NSO anticipates that another REU student will present a poster papers at the 2014 meeting of the AAS Solar Physics Division (SPD) in Boston, Massachusetts.
- The NSO also has actively participated in the NSF’s International Research Experience for US Graduate Students in collaboration with the Indian Institute of Astrophysics (Bengaluru). 2013 was the final year of the current grant for this

program, and in summer 2013 there were two interns, a female from Hunter College of the City University of New York and a male from the California State University, Northridge, a Hispanic serving institution. NSO plans to submit another proposal to the NSF Office of International Science and Engineering (OISE) for additional funds to continue this program.

- The NSO mentored 7 Summer Research Assistants including 2 (1 female and 1 male) from the Akamai Program and 5 graduate student SRAs (3 males from a Hispanic serving institution New Mexico State University, 1 female from the Fisk-Vanderbilt Masters-to-PhD Bridge Program, and 1 African American male from the University of Colorado-Boulder)
- For Gemini, during 2013 there have been 19 interns (13 male, 6 female) who have gained experience in STEM occupations in the Gemini workplace. The interns came to Gemini through a variety of programs in Hawai'i and Chile as well as partnerships formed within the Gemini Partner host countries.
- For the Space Telescope Science Institute, 13 summer interns were selected, of whom 6 were female; 5 of the 12 identified themselves as being from underrepresented groups. Two female participants in our summer student program will be presenting posters at the AAS winter meeting in Washington. One of the students participating in our summer program came to STScI via the IINSPIRE Program, a partnership between AURA and Iowa State.

AURA Centers have also reached out in other ways. In November, the NSO sponsored a special Akamai Technical Workshop in Maui, with 5 staff in attendance. This was intended to stimulate interest in engineering careers among alumni of the Akamai Internship Program. The long-range goal for the NSO in the Akamai program is to build the local STEM workforce on Maui in order to achieve a stable reservoir of technical talent available to support ATST operations and on-site instrument development activities.

All AURA Centers have benefitted from the NSF's Partnerships in Astronomy and Astrophysics Research and Education Program (PAARE). Although not directly eligible to submit proposals, AURA Centers have acted as partners in the overall bridge program by providing valuable research experience. Since 2009, AURA Centers have hosted 11 PAARE students, 8 from the Fisk-Vanderbilt program alone. Two of these students have subsequently gained employment in AURA centers. This demonstrates what is possible through strategic engagement with specific programs, and the valuable connections that can be made between student programs and workforce development. As discussed next, it is in AURA's interest that programs such as PAARE be further refined and sustained within the NSF portfolio.

### **Organizational Initiatives**

Another valuable initiative completed in 2013 was the re-issuance of the AURA Climate Survey. Since the initial 2009 survey, all AURA Centers have implemented actions specific to their organization to address any improvements or actions suggested in that survey. In late 2012, AURA conducted the second confidential survey

of the attitudinal climate in the Centers. This survey was designed to focus on staff perceptions of respect, communication, fairness, diversity and leadership at their Center. Of the 68 questions, 42 were repeated from the 2009 survey and 26 questions were new.

The purpose of the survey is to:

- Look for changes in attitudes and perceptions, since the 2009 climate survey;
- Identify new and/or continuing areas of concern; and
- Understand and improve the quality of the workplace environment at AURA Centers.

These surveys also provide an opportunity for AURA to evaluate the state of readiness of its Centers in supporting, and even leading, progress on diversity initiatives in the astronomical community.

The survey had a 72% response rate. Overall, staff indicated that the climate is generally positive. Nearly all (95%) of the questions received a positive (slightly to strongly agree) response from >70% of participating employees. 43% of the questions received a strongly positive (agree or strongly agree) response from >70% of participating employees.

The results of the survey have been published at each AURA center. Each center will continue to address the broad issue of perceptions of fairness and equity in recognition, accountability and reward as best each can in this challenging budgetary environment. We continue to make incremental improvements to open communication in Centers. We have been and will continue to look at our policies and procedures to determine what is needed, missing or should be updated and clarified. We recognize that improving practices and perceptions in all of the above areas must be an ongoing commitment and each center will continue to focus on their specific areas of concern.

### **Community Engagement**

AURA has continued its commitment to establish a greater presence at national meetings associated with underrepresented minorities. For 2013, AURA participation included:

- Dr. Dara Norman began tenure as a counselor for the American Astronomical Society and continues as a member of the society's demographics committee and as an advisory board member of the AAS's longitudinal study tracking the careers of male and female graduate students.
- In June, Dr. Norman was invited and served on a review panel for the National Radio Astronomy Observatory's (NRAO) diversity programs.
- Dr. Norman was invited and gave presentations on unconscious bias in the STEM workforce at a number of local venues including, National Solar Observatory, Lunar and Planetary Lab, and the University of Arizona's Steward Observatory.

Presentations were also made to the NOAO Telescope Allocation Committees (TACs), made up of astronomers from throughout the community.

- Dr. Norman continued as co-chair of the ASTRO committee for the National Society of Black Physicists (NSBP), participating in workshops and submitting funding proposals to support student involvement in the astronomy enterprise.
- STScI continued the HST Summer STEM Internship program in partnership with the Maryland Space Grant Consortium. This internship program provides an opportunity for an underrepresented undergraduate student to participate in STEM activities related to HST computer science applications.
- STScI continues to develop strong ongoing partnerships with area colleges, universities and city/county organizations in an effort to generate a pipeline of interns, particularly in science, engineering, and outreach. Ongoing relationships exist with University of Maryland, Baltimore County (UMBC), Capitol College, Morgan State University, ITT Technical Institute, the Mayor of Baltimore's YouthWorks Program, and My Sister's Circle. In 2013, members of STScI's engineering group met with faculty from Capitol College to identify opportunities to partner on curriculum design, mentoring and participation in identifying and evaluating senior projects.
- In 2013, STScI supported 7 additional college interns. Of the 7, 2 were female and 1 was from an underrepresented minority group.
- STScI increased participation of high school student interns in 2013. Area high school students participated throughout the year working on projects with researchers and our Office of Public Outreach. STScI supported 9 students, 4 of whom were female and 7 from under-represented minorities, from local high schools.
- In 2013, STScI marked a significant event by hiring into a permanent science support position one of its first high school interns, an African-American female. She started working on a science project with one of the Institute's researchers at age 15 through a high school program. Based on her aptitude and interest, she continued to be engaged on research projects through her undergraduate studies, participated in our summer program, and now, upon graduation, was hired into a permanent science support position. STScI believes that repeated engagement is a significant factor in maintaining a pipeline and we look to replicate this model with other students and other programs. STScI participated in the AAS in January, 2013, Hiring our Heroes career event in February, 2013, Veteran Careers in Aerospace career event in April, 2013 and the National Society Black Engineers/Hispanic Engineers Conference in September, 2013. Professional staff from our science and engineering areas are participating with the HR staff at these events.
- Over the past year, STScI has built a relationship with Maryland's Department of Rehabilitative Services and the Veteran's Administration to create opportunities for employment of veterans and individuals with disabilities. Approximately 6 individuals have participated in work experience activities and internships.
- NSO continues its participation in the Akamai program in Hawaii, and the University of Hawaii-Maui and local middle and high school teachers to develop a program for Maui,

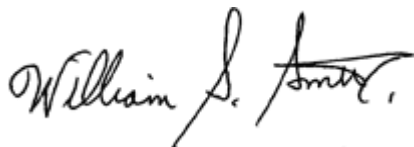
- NSO is working to increase the strength and breadth of the university community pursuing solar physics in collaboration with our ATST university partners and other groups to recruit and help diversify the community of scientists doing solar research. This has started in the form of a joint program (Collaborative Graduate Education Program) involving the University of Colorado, New Jersey Institute of Technology, University of Hawai'i (CU/NJIT/UH) and NSO. The first phase is to establish remote teaching at all three university sites, then expand once the logistics of the program are well understood
- AURA was represented at the Third Annual Gender Summit in Washington DC during November 2013, with Dr. Heidi Hammel (AURA Executive Vice President) attending, as well as scientists from AURA Centers.

### Summary

Over the past five years, AURA's focus on the workplace, and future workforce, has begun to result in the gains we anticipated. The impediments are large, however, and dramatic progress in the near term is unlikely.

- AURA demographics have slightly improved but still lag the general population of comparable R&D organizations. Some areas, however, such as women in top management, seem to lead the community.
- Our focus on ensuring a proactive recruiting program at all levels, free of unconscious bias, may lead to even greater gains.
- AURA Governance continues to decline in its diversity and greater attention will be needed to reverse these trends.
- AURA's effort to cultivate a future, more diverse, workforce has established itself as a high priority for all AURA Centers. Our engagement with students through the REU and PAARE programs, and new partnerships such as IINSPIRE, will expand our engagement with underrepresented minorities, and geographic and institutional sectors that have not had high participation rates in STEM fields.
- AURA managers have continued a proactive engagement and presence in national meetings and have participated in other opportunities for community leadership.

I thank the members of the Workforce and Diversity Committee and all of the AURA personnel who have contributed to these activities



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