

## First Thoughts and Early Priorities

David Silva

“Engaging the community” is always a hot topic at NOAO, and it is foremost in the mind of the director of NOAO. Making this engagement a two-way dialog is always a challenge. It is relatively easy to push out information: it is much harder to gather a representative opinion, and harder still to synthesize a diverse range of opinion into a coherent and robust program.

Gathering and synthesizing suggestions and opinions was a high priority for Todd Boroson, our recent interim director, and it remains a high priority for me. So, to whom do we talk?

First come our “owners”: the NSF, the AURA Board, and the AURA member representatives at large. Then come our standing committees: the Observatory Council (appointed by the AURA Board), the Users Committee (appointed by NOAO), the US Gemini Science Advisory Committee (also appointed by NOAO), the Program Review Panel (appointed by the NSF), and the Visiting Committee (appointed by the AURA corporate office). We meet with all these groups at least once per year. The AURA Board and Observatory Council meet three times per year. We talk with our NSF Program Manager (currently Tom Barnes) at least weekly.

For specific topics, we form and interact with ad hoc finite term committees, such as ReSTAR and ALTAIR (see articles elsewhere in this *Newsletter*). Major partnerships and projects create other community-based committees and boards (e.g., the WIYN Observatory, SOAR Observatory, Dark Energy Survey, the Large Synoptic Survey Telescope project). And of course we make NOAO staff scientists available for conversation at all American Astronomical Society (AAS) meetings, especially the winter meetings where we hold an annual town hall meeting.

A large number and broad range of US astronomers serve on these various boards, standing committees, and ad hoc committees or come to the town hall meetings. We are very grateful for their service, strategic guidance, and suggestions for near-term improvement.

In the future, I see an ongoing series of one-day meetings across the country to present our view of building the system and have a conversation with the audience. This will not replace the winter AAS town hall meeting, but augment it. Such meetings have the advantage of being more or less time constrained and more free-form, while involving less travel for participants. I'll write more about this meet-

ing series as plans for it mature. If you are interested in hosting one of these meetings, please contact Laurie Phillips ([lphillips@noao.edu](mailto:lphillips@noao.edu)).

I do not have space here to discuss our Web presence, but we know that it can be improved, in both form and content. The new NOAO e-newsletter, *Currents*, is a good step forward and I hope you read it. We can and will do more.

Obviously, NOAO senior staff members go to a lot of meetings where we discuss the key issues facing the national observatory and shape our efforts to provide the best possible scientific capabilities that we can afford. But we like talking to all of you more! It is the only way to be sure we are really helping you achieve your science aspirations and supporting the greatest adventure of our time—the scientific exploration of the Universe.

Ad astra and clear skies!

### Director's Office Transitions

I began a five-year term as NOAO director in early July. After serving as interim director for 18 months, Todd Boroson has returned to the deputy director role for three months to help me with my transition and to work important projects such as ReSTAR implementation planning. After September, Todd will

be on science sabbatical leave until mid 2009. Many thanks to Todd for stepping into the directorship at such a difficult moment and for providing such a steady hand at the helm. (And you're welcome for all the fish!)

Laurie Phillips has become the full-time administrative assistant for the NOAO Director's Office. Many of you already know Laurie from her recent assignments in the New Initiatives and Giant Segmented Mirror Telescope program offices, and her past role in the AURA corporate office. Welcome, Laurie.

Jessica Moy, Barbara Fraps, Mia Hartman, Beth Moore and Jane Price complete the Director's Office team. In a collaborative manner, these people perform crucial administrative roles in major report generation and management, telescope time allocation, science staff support, and committee meeting support. In addition, Jessica is the NOAO North librarian, Barbara works half time for the Data Products Program, and Beth works half time for the System Instrumentation Program.

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*First Thoughts and Early Priorities continued*

**Infrastructure Improvement Funding from NSF**

As I gazed out across the beautiful Sonoran Desert from the Mayall 4-meter telescope visitor gallery recently, I was inspired to ask, "Gosh, when is the last time these windows were washed?"

Okay, this is not the most serious problem facing NOAO. But it does illustrate the maintenance backlog NOAO has developed at all our aging facilities. In the aftermath of the Senior Review, we have re-emphasized infrastructure maintenance at all our sites.

To that end, I am pleased to report that the NSF recently awarded an extra \$300,000 to NOAO for infrastructure maintenance. This money will go mainly for critical projects that might forestall the loss of 4-meter observing time or performance quality, such as the floor-cooling system and main shutter emergency brakes at the Mayall, and a new instrument clean room at the Blanco. We've also put aside a small amount of money for new control room furniture and appliances.

And hopefully, we can get those Mayall windows washed soon. 

## The GSMT Chicago Workshop – First Steps Toward a National Design Reference Mission

Jay Elias

A very successful workshop titled "Science with Giant Telescopes" was held in Chicago in June. The workshop was intended to initiate community-wide discussions of the scientific opportunities potentially available through public participation in one (or more) of the Extremely Large Telescope (ELT) projects now underway. The workshop was sponsored by NOAO and its Giant Segmented Mirror Telescope Science Working Group (GSMT SWG).

The workshop was attended by close to 100 scientists, most of whom are not directly related to any of the three existing ELT projects. Presentations included summaries of project status from the Thirty Meter Telescope (TMT) and Giant Magellan Telescope (GMT), and from the European ELT project. Science-use cases were presented to illustrate the range and scope of programs that could be carried out on such telescopes, and a series of panel discussions described the issues and opportunities raised by operation of these potential new facilities.

The presentation materials are available online at [www.gsmt.noao.edu/swgt-presentations.php](http://www.gsmt.noao.edu/swgt-presentations.php). In addition, the participants who presented science-use cases were asked to produce a written document elaborating on one or more of the cases outlined in their workshop presentations, and these are also available on the Web site.

These use cases are intended to serve as indicators of ELT science areas interesting to the US community at large. Thus, they serve to reinforce and extend science case documents previously developed by the GSMT SWG and the two US-led projects. The comprehensive ELT science case that emerges will be the backbone for the development of a national Design Reference Mission (DRM), which the National Science Foundation has requested from NOAO. This DRM must be completed and prepared for presentation in time for the next round of decadal survey discussions in 2009-2010.

The next stage in broadening the national ELT science case will be a community-wide solicitation for additional use cases, probably in the form of a mock proposal process similar to that used for submission of NOAO observing proposals. Further details will be announced in future editions of the *NOAO/NSO Newsletter* and the electronic NOAO newsletter *Currents*.



**SCIENCE WITH GIANT TELESCOPES:**  
Public Participation in TMT and GMT

**JUNE 15-18  
2008**  
INTERCONTINENTAL HOTEL  
CHICAGO, ILLINOIS

The Workshop will be the next major step in developing the private-public partnership envisioned in the 2000 Decadal Survey; its proceedings will be a supporting document for presentation—on behalf of the entire US astronomical community—to the new Decadal Survey. For further details see <http://www.gsmt.noao.edu/swgt.php>

**Sponsored By**  
GSMT Science Working Group  
National Optical Astronomy Observatories  
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# LSST Mirror Unveiled

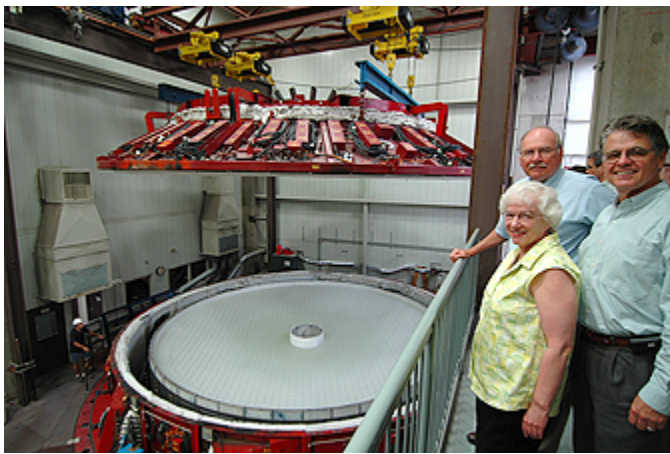
*Victor Krabbendam*

The Large Synoptic Survey Telescope (LSST) project achieved another significant milestone on 23 July 2008, when the casting furnace at the University of Arizona Steward Observatory Mirror Lab was opened to reveal a perfect casting of the LSST primary mirror.

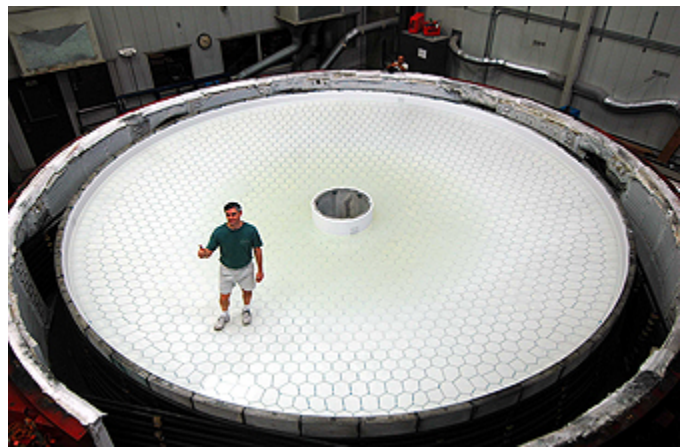
The top lid of the furnace was removed to expose the freshly cast mirror after the 112-day heating and cooling process. In March, 26 tons of glass was loaded into the furnace and heated to 1165 C while it rotated at 6.7 revolutions per minute so the glass could flow through the mold and form the base parabolic shape. Since then, the furnace has

let the glass slowly cool back to room temperature. This three-month process has gone very smoothly.

This milestone is a significant step toward building a unique mirror that has both the 8.4-meter diameter primary mirror surface and the 5-meter diameter tertiary surface of the LSST in the same optic. After the mirror is removed from the furnace and the refractory material is cleaned out, grinding and polishing can begin. The grinding effort will include removing nearly five tons of glass that is now pooled above the tertiary mirror as part of the casting. The fully polished mirror is scheduled for delivery in January 2012.



John Schaefer (back), Sidney Wolff, and Don Sweeney (front) observe the opening of the furnace for the debut of the LSST mirror. Photo: V. Krabbendam



Randy Lutz, casting manager at the Steward Mirror Lab, is very pleased following his initial inspection of the LSST mirror casting. Photo: V. Krabbendam

## ALTAIR Committee and Survey

*Joan Najita*

As part of its response to the NSF Senior Review, NOAO has formed a community-based committee called Access to Large Telescopes for Astronomical Instruction and Research (ALTAIR), which is charged with developing a prioritized, quantitative, science-justified list of capabilities for 6.5- to 10-meter telescopes in the US system, including Gemini. The committee has been asked to focus on what the US community desires in terms of capabilities and access to telescopes in this aperture range both now and over the next 10 years. Details on the charge and membership of the committee are available at the ALTAIR committee Web site ([www.noao.edu/cgi-bin/altair/survey.pl](http://www.noao.edu/cgi-bin/altair/survey.pl)).

The goals of the ALTAIR study are similar to those of the recent ReSTAR committee study, which studied the needs of the US community for 2- to 4-meter telescopes. The reports of both committees will be used by NOAO to meet the Senior Review directive that community access to facilities remains scientifically balanced over all apertures.

Following the approach taken by ReSTAR, the ALTAIR committee is currently soliciting community input by means of an online survey. The survey probes your current and/or anticipated future use of 6.5- to 10-meter facilities, including aspects such as required instrumentation, observing modes, observ-

ing time, and other resources. The first part of the survey, which is designed to provide a snapshot of your needs and priorities, requires only about 10 minutes to complete. In the second part of the survey, you are invited to describe in greater detail the resources needed to achieve your future science goals. You are also invited to express your views on the allocation of US federal funding for 6.5- to 10-meter class telescopes.


Please respond to the survey to make your needs and views known. Your input will guide the evolution of the NOAO program and the investment of NSF resources.

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*ALTAIR Committee and Survey continued*

Survey input received by mid August will be discussed in early September at the next meeting of the ALTAIR committee. However, the survey Web site will remain open

into the fall, so you still have the opportunity to respond to the survey if you have not already done so. A high response rate will be important in demonstrating the demand

for resources at the 6.5- to 10-meter aperture class. The survey results will be reported here and in future issues of the NOAO electronic newsletter *Currents*. 

## Building the ReSTAR System

*Todd Boroson*

Last year, the Renewing Small Telescopes for Astronomical Research (ReSTAR) committee surveyed the US community and assembled a set of recommendations and priorities for capabilities needed on small and mid-sized telescopes. Their report can be accessed at [www.noao.edu/system/restar/files/ReSTAR\\_final\\_14jan08.pdf](http://www.noao.edu/system/restar/files/ReSTAR_final_14jan08.pdf).

As a response to this report, NOAO initiated two activities: (1) an effort to modernize the mountaintop and telescope infrastructure and restore community access at our existing facilities, Kitt Peak National Observatory and Cerro Tololo Inter-American Observatory, and (2) development of a program to provide new or upgraded instruments and additional access on telescopes in this aperture range, including some owned and operated by non-federal organizations. This article reports on the status of that second activity.

Our adopted approach to this activity includes four components. First, the program will address the most pressing needs for modern, high-performance instrumentation, emphasizing optical and infrared spectroscopy. We will identify already designed and developed instruments that have demonstrated the needed capabilities, and we will partner with community groups to adapt them and build them. Much of the work will be done by instrumentation groups throughout the community. While the initial partnerships will be determined by the existence of good instrument designs and willing and capable



teams, there will be future opportunities for other groups and other instruments.

The second component will be new partnerships with existing facilities to provide new public access. We are discussing opportunities with several observatories that have or are developing state-of-the-art instrumentation, and have operations and support models that are consistent with broad community access. We will try to structure these as long-term commitments (3-5 years minimum) so that both the users and the facilities can expect some continuity.

The third component will be an effort to broadly improve the supporting infrastructure, including things like telescope control systems, calibration systems, and equipment for handling and maintaining modern instruments. Whether these improvements focus on the federal facilities or can be applied to non-federal facilities will depend on whether the NOAO core budget is close to the level promised or not. This sort of infrastructure renewal was built into the plan for the higher level of funding that we were told to expect, but this level has—so far—not materialized. If the ReSTAR-funded improvements are

used for non-federal facilities, this will translate into more new access for the community.

Finally, we will undertake studies to understand what the next phase of ReSTAR implementation should be. There are a number of areas, including time-domain research, adaptive optics, and optical interferometry, that are clearly important but not at the top of the priority list. How should the program evolve to address those needs?

Community input and guidance will be requested and utilized throughout the process. The ReSTAR recommendations and priorities come from a community survey, and, as the details of the plan are developed, they will be reviewed by community-based committees, including the ReSTAR committee and the NOAO Users Committee. We will publicize them for community discussion. We expect to have a white paper that describes the plan and the options we have chosen available through the NOAO Web site in the next few weeks. Please watch the Web site and our *Currents* electronic newsletter for more information and a chance to comment.