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Currents

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Program Update ([ALTAIR Seeks Community Input](#)): The ALTAIR committee, recently convened by NOAO, is charged with understanding the needs of the US community for resources such as instrumentation, observing modes, and observing time on ground-based O/IR telescopes in the 6.5- to 10-m aperture range. We ask you to [respond to the ALTAIR committee survey](#) regarding your current and future anticipated use of such facilities, including Gemini. Your input is needed to make this community planning effort a success!

LSST Update ([Science Collaboration Membership Applications Invited](#)): All interested members of the US community are invited to participate in shaping the science of LSST through membership in the LSST Science Collaborations. Proposals are now being accepted through NOAO. The application deadline is 29 August 2008.

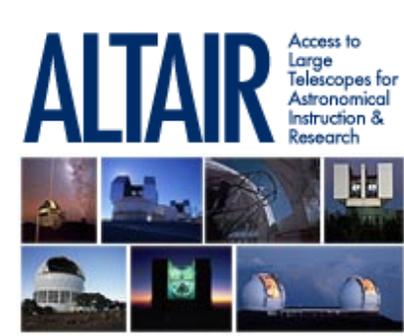
GSMT Update ([Science with Giant Telescopes—A Report on the Community Workshop](#)): The recent workshop on "Science with Giant Telescopes: Public Participation in TMT and GMT" (15-18 June 2008 in Chicago) brought together many interested members of the US community. The meeting highlighted the science opportunities offered by a GSMT and sparked discussion on issues such as the value of public data archives and the need for scientific balance across a range of apertures.

Outlook ([Transitions and Opportunities](#)): The new NOAO Director, David Silva, has arrived in Tucson. In this article, he shares his thoughts on some of the exciting opportunities ahead for the US community and for NOAO.

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ALTAIR Seeks Community Input

As described previously in *Currents*, the [Senior Review report](#) urged NOAO to ensure that community access to facilities remains scientifically balanced over all apertures. As part of its response to this request, NOAO has formed a community-based committee, ALTAIR (Access to Large Telescopes for Astronomical Instruction and Research), which is charged with developing a prioritized, quantitative, science-justified list of capabilities for 6.5- to 10-m telescopes in the US System, including Gemini.



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The committee will focus on what the US community desires in terms of capabilities and access to telescopes in this aperture range. It will address the current needs and uses of such facilities, and it will also attempt to predict how these needs will evolve over the next ten years. The charge and membership of the committee are available at the [ALTAIR committee Web site](#). 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-m telescopes.

Following the approach taken by ReSTAR, the ALTAIR committee is now [soliciting input from the broad community in the form of a survey](#) in order to understand the community's needs. The survey probes your current and/or anticipated future use of 6.5- to 10-m facilities, including aspects such as required instrumentation, observing modes, observing 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-m class telescopes.

[Please respond to the survey to make your views known!](#) Your input will guide the evolution of the NOAO program and the investment of NSF resources. We will report on the results of the survey in a future issue of *Currents*.

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LSST Science Collaboration Membership Applications Invited

The Large Synoptic Survey Telescope (LSST) project and NOAO announce the opportunity for interested members of the US astronomy and physics communities to participate in shaping the science for the LSST survey through membership in the LSST Science Collaborations. Over the course of ten years, the LSST will perform a six-band, multi-epoch optical survey of half the sky with an unprecedented combination of speed and depth. These data will allow major advances in many subject areas such as the following:



- Dark energy and dark matter,
- Distant supernovae,
- Large-scale distribution of galaxies,
- Stellar populations,
- Astrometry,
- Structure of the Milky Way,
- Solar System studies and near earth asteroids,
- Time-domain investigations spanning many topics of interest.

The present plan is for LSST first light in 2014. More information is available at:

<http://www.lsst.org> and <http://arxiv.org/abs/0805.2366>.

The Science Collaborations, which are opening their membership to the US science community, will help develop and document the science opportunities provided by the LSST, finalize the design of the system and observing strategy, undertake end-

to-end simulations, commission instrument and data management systems, and develop and ultimately perform analyses of LSST science data. These collaborations are intended to work closely with the LSST construction project, although they are autonomous ventures.

Individuals (including groups of up to three) who wish to join one or more of these collaborations are asked to submit a proposal through NOAO. Further details and information on applying for membership are available at:

http://www.noao.edu/lstt/collab_prop/Scicollab.htm.

The application deadline is 29 August 2008.

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Science with Giant Telescopes—A Report on the Community Workshop

The discussion surrounding the issue of giant telescopes has brought into sharp focus the broad range of community perspectives on public-access facilities. The Giant Segmented Mirror Telescope (GSMT) was the highest priority ground-based recommendation of the previous (2000) decadal survey. Two “private” projects, the Thirty Meter Telescope (TMT) and the Giant Magellan Telescope (GMT), have begun technical development and fund raising. As described in the previous issue of *Currents*, both projects have recently approached the community (see “[AURA receives letters from GMT and TMT boards](#)”), requesting public participation, support, and funding.

Meanwhile, the NSF Senior Review observed that NOAO was moving too aggressively towards such participation at the expense of the current facilities. Wayne van Citters, then Director of the Division of Astronomical Sciences at the NSF, asked NOAO to act as a program manager for public participation in GSMT, including the development of a report (a community “Design Reference Mission”) that specifies and justifies community participation in these projects and in the use of these facilities. As a step towards this goal, NOAO, through the GSMT Science Working Group and with the endorsement of the NSF, held a workshop, “Science with Giant Telescopes: Public Participation in TMT and GMT,” on 15-18 June in Chicago.



Science with Giant Telescopes Workshop:

At the Chicago workshop, the first half-day was taken up with presentations describing the high-level design, instrument concepts, and status of the GMT and TMT projects as well as the ESO project, the E-ELT. The next 1.5 days included both science sessions—short presentations on possible observational projects—and programmatic sessions, in which presentations on “lessons learned” were followed with plenary discussions. The final half-day concluded with a wide-ranging discussion of several important questions that had been raised during the workshop.

Approximately 100 astronomers attended the workshop, including about 65 from institutions outside the TMT and GMT partnerships. The agenda, presentations, and pieces of the report as it is assembled, are available at

<http://www.gsmt.noao.edu/swgt.php>.

Many interesting possible science projects were presented, such as mid-IR studies of nearby sites of star and planet formation, stellar populations and their histories in nearby galaxies, and large-scale structure and the formation of the first galaxies. It was clear that both the collecting area of a GSMT and its ability to reach the diffraction limit will drive important breakthroughs in all of these areas. It is also clear that synergies with JWST, ALMA, LSST, and other future facilities strengthen the need for the capabilities that these telescopes will provide.

Highlights from the Programmatic Sessions:

Ground-based observatories have lagged spaced-based facilities in developing the ability to archive reduced data. The reasons are, at least partly, technical: the plethora of instruments and their modes, the need to address different and variable environmental conditions, and the widespread use of classical observing all contribute to the challenge of producing uniform, high-quality reduced data. In addition, maintaining and operating an archive is a significant cost. Although everyone agreed that raw data, calibrations, and metadata should be kept, opinions about the cost-effectiveness of providing a public archive of reduced data varied considerably.

There was also an extensive discussion of the relationship between federal participation in GSMT telescope projects and future access to current (smaller aperture) facilities. Representatives from both Carnegie and Caltech spoke about their intentions to divest themselves of portions of their current facilities. The community might see this as an opportunity to incorporate increased access to these facilities into the national system. It is clear that broad community support for future federal investment in a giant telescope will require maintaining community access to a suite of facilities that is scientifically balanced over a range of apertures.

The workshop was a very productive beginning to this dialog. There will be future GSMT workshops, and additional opportunities for the ground-based O/IR community to learn about the TMT and GMT projects, to discuss the issues, and to make their voices heard. Watch *Currents* for future announcements on this topic.

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Outlook: Transitions and Opportunities

David Silva, Director, National Optical Astronomy Observatory

Transitions are a challenge: new housing, new places, and new social networks. Transitions are stressful and energy intensive. Why do we do this to ourselves? But transitions also mean new starts, interesting challenges, and exciting opportunities for growth and success. As it is for me, so it is for NOAO.

As I see it, the mission of NOAO is to provide open access to world-class observing capabilities across a broad range of telescope apertures, to accomplish this within a national (and perhaps international) system of observatories, and to catalyze the development of key technologies for the benefit of all observatories in that system. In other words, our goal is to provide a broad and diverse platform for scientific excellence.

Defining that platform requires constant engagement with the community at large and the National Science Foundation, the ultimate source of our strategic direction.



There's a lot going on at NOAO. What am I excited about?

I am excited about the [Dark Energy Survey](#). Not only will DES attack one of the most fundamental science questions of our time, it will provide the community with a new, 4-m class, state-of-the-art, wide-field, optical imaging system, complete with a data processing pipeline. But DES also presents NOAO with the opportunity to learn (from scientific, technical, and sociological perspectives) how to collaborate with the DOE, the NSF, and a broad university consortium. These lessons will serve us well in the future.

I am excited about our plan to achieve access to new, high-efficiency optical and infrared spectrographs on 4- to 5-m class telescopes. Given a high priority by the ReSTAR committee, such instruments will complement existing state-of-the-art imagers. Our plan involves both building copies of recent instruments for NOAO facilities and buying time on other facilities. The outgoing interim NOAO Director, Todd Boroson, has been developing the plan with the NSF over the last 6 months. The plan will hopefully be available for public discussion by the end of the year.

I am excited by the ALTAIR process. Just as the ReSTAR recommendations have led to a compelling, new roadmap for science capabilities on 2- to 4-m aperture facilities, the ALTAIR committee will provide a roadmap for federally supported observing capabilities and open access at the 6.5- to 10-m aperture level (see the [related article](#) in this issue).

I am excited about [LSST](#) and the involvement of NOAO as a strong and active partner. For me, LSST is a fascinating combination of well-defined science missions (e.g., finding all potentially harmful asteroids down to 140-m in size) and the exploration of astrophysical terra incognita. I've joined the LSST stellar populations collaboration. I hope many of you will apply to join one of the LSST science collaborations as well (see the [related article](#) in this issue).

And of course, I am excited about GSMT. It was wonderful to see the US community engage with NOAO and the two US-led projects, [GMT](#) and [TMT](#), at the Science with Giant Telescopes meeting (see the [related article](#) in this issue). Both projects seek federal participation and the NSF has requested that AURA and NOAO enable community discussion about the merits, desirability, and conditions of such participation. This workshop was a good first step. I look forward to further open, broad, and frank discussion as we all head toward the next Decadal Survey.

I'm excited and I hope you are too. It's a great time to be back at NOAO. It's a great time to be NOAO Director. I am looking forward to meeting all of you soon.

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Contact Us

Did something interesting, inspiring, or surprising happen on a recent observing run? Please tell us about it! Is there a topic that you would like to see covered in a future *Currents*? If you are planning a regional astronomy meeting or department internal symposium, would you like someone from NOAO to give a presentation on our new program? Please contact us at currents@noao.edu. We look forward to hearing from you!

Currents is a sparkplug for communication between NOAO and our community. It provides updates—and solicits community input—on NOAO observing opportunities and NOAO programs and policies on a more rapid timescale than is possible with the quarterly NOAO Newsletter.

NOAO is the national center for ground-based nighttime astronomy in the United States and is operated by the Association of Universities for Research in Astronomy (AURA), Inc. under cooperative agreement with the National Science Foundation.

