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Currents

In this Issue…

Outlook (NOAO and the 2010 Decadal Survey Report): The National Research Council recently released the 2010 Decadal Survey report: *New Worlds, New Horizons in Astronomy and Astrophysics*, which surveys space- and ground-based astronomy and astrophysics and recommends priorities for the most important scientific and technical activities of the coming decade. The report envisions a strong leadership role for NOAO. NOAO Director David Silva provides highlights from the report and his view of the coming decade.

ReSTAR Update (An Announcement of Opportunity in Preparation for Phase 2): NOAO will hold an open solicitation for partners to collaborate on the second phase of ReSTAR activities that will strengthen the smaller aperture component of the US System. Possible activities include developing new instrumental capabilities, providing new open-access opportunities on observing facilities, and renewing facility infrastructure. The program priorities will be guided by ReSTAR committee reports, including the recent report that reviews the priorities and process for Phase 2. This article describes the preliminary schedule for the open solicitation process.

Gemini Update (A New Optical Echelle and New Operations Models): Gemini has announced its intention to build a new high-resolution optical spectrograph, a development that is, in part, an outcome of the ALTAIR committee report. Gemini is soliciting science and instrument white papers from the community to help define the science case for and characteristics of the spectrograph. The white papers are due **7 September 2010**. The Gemini Observatory is also investigating new, lower-cost operations models for the post-2012 era.

Gemini Gateway (Gemini Data Workshop Presentations Available On-line): To increase the scientific return to the US community from its investment in the Gemini Observatory, NOAO held a workshop on Gemini instrumentation and data reduction techniques last month. The workshop was very successful, and presentations from the workshop are now available on-line. These materials include general introductions to detectors and observing techniques as well as more detailed information on individual Gemini instruments.

NOAO Goldberg Fellowship (The Search Is on for the Next Leo Goldberg Fellow!): NOAO is soliciting applications for the Leo Goldberg fellowship, a five-year post-doctoral fellowship that is aimed at supporting young astronomers of outstanding promise who have interests in observational astronomy, astronomical instrumentation, or theoretical astrophysics. Applications are due **8 November 2010**.

In this Issue

Opportunity (Kitt Peak Director Search Underway): The search is underway for the next NOAO Associate Director for the Kitt Peak National Observatory (KPNO). Applications are due **1 October 2010**. We encourage all interested parties to consider this opportunity to make a difference in the future of ground-based optical-infrared astronomy.

Your input is welcome on any of these issues. Please send your thoughts to currents@noao.edu.

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NOAO and the 2010 Decadal Survey Report

David Silva, Director, National Optical Astronomy Observatory

The 2010 Decadal Survey report opens exciting new windows of opportunity for ground-based optical/infrared astronomy and envisions a strong leadership role for NOAO over the next decade. In particular, the report

- Endorses the concept of the US O/IR System and the valuable role NOAO plays within it. This perspective is supported by recommendations for continued Telescope System Instrumentation Program (TSIP) funding and the development of a new mid-scale initiatives program.
- Recommends increasing the US share in the Gemini Observatory in parallel with the consolidation of Gemini and NOAO to reduce the total combined cost and to better serve the interests of the US community.
- Strongly endorses the Large Synoptic Survey Telescope (LSST) project and the leadership of NOAO in the construction, operation, community user support, and coordination of System-wide follow-up programs.
- Makes the explicit assumption that NOAO will be the Federal partner in a Giant Segmented Mirror Telescope (GSMT) project following a down select between GMT and TMT.

LSST rendering (left) and summit facility design (right)

While NOAO looks forward to working closely with the community to take full advantage of the new exciting opportunities as they emerge at Gemini, LSST, and GSMT, we will also continue to work closely with the community to demonstrate how the suite of smaller aperture facilities in the US System is highly relevant in the LSST and GSMT era and deserve continued NSF funding and broad community support.

I believe strongly that our 4-m class facilities have many more years of scientific productivity ahead. New world-class, workhorse instruments are on their way in both hemispheres and major new survey projects will begin soon. Looking further ahead, 4-m class telescopes will be critical tools for LSST follow-up programs.

In summary: I foresee a lively and exciting decade ahead for the ground-based O/IR community and for NOAO!

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ReSTAR Announcement of Opportunity in Preparation for Phase 2

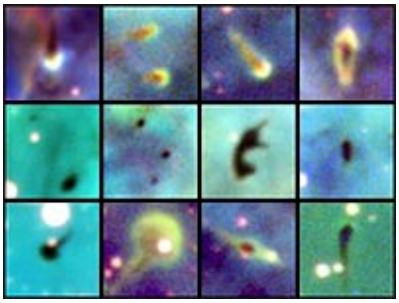
As described in earlier issues of *Currents*, NOAO's committee on Renewing Small Telescopes for Astronomical Research (ReSTAR) provided a compelling case for modernizing the capabilities on telescopes smaller than 6.5-m in aperture in the US System and increased access to these facilities. The ReSTAR committee activity is one of the pathways by which NOAO has been working to ensure that community access to facilities remains scientifically balanced over all apertures, a guiding principle articulated in the 2006 Senior Review Committee of the NSF Division of Astronomical Sciences. To address the ReSTAR committee recommendations, NOAO proposed a ten-year implementation plan.

We are now at the midpoint of Phase 1 of the ReSTAR implementation plan, a phase that extends for three years. As a result of the work carried out to date, it is apparent that by the end of Phase 1, the availability of high-performance instrumentation on 4-m class telescopes will have vastly improved. The next generation of wide-field imagers, including NEWFIRM, DECam, and ODI, will be in place or imminent. The workhorse spectrographs on the NOAO 4-m telescopes, in both the North and South, will have been replaced with modern instruments (versions of the OSMOS spectrograph). The SOAR telescope, with an instrument complement that includes ground-layer AO, medium- and high-dispersion spectroscopy, and near-IR imaging, will be in full operation. Partnerships, such as the current agreement with Caltech that provides nights on the Hale 200-inch telescope at Palomar, will augment the capabilities and observing time that are available through an open-access process.

It is now time to begin planning for Phase 2 of the ReSTAR implementation plan, as there are still many capabilities that do not exist or are in insufficient supply in the smaller aperture component of the US System. Furthermore, the evolution of other parts of the System, in particular the coming stream of discoveries by time-domain surveys, will accelerate the need for follow-up observations on facilities below 6.5-m in aperture.

To take steps in that direction, NOAO recently reconvened the ReSTAR committee to update their perspective on the development of the smaller aperture component of the US System, and to review the priorities and process for Phase 2. Their report (Update 2010) is available from the ReSTAR homepage.

One obvious deficiency of the Phase 1 process was that, in the interest of rapid progress, NOAO carried out a more limited search for community partners than would have been ideal. To address this issue, we are initiating an early start on the planning process for Phase 2, in order to hold an open solicitation for partners to collaborate on the next set of ReSTAR activities.



"Proplyds" harboring disks of gas and dust that could one day form planetary systems. This group in the Carina nebula (NGC 3372), imaged with the CTIO Blanco 4-m telescope, is the first large population of these objects to have been found outside of the Orion Nebula.

Image credit: N. Smith, J. Bally, J. Thiel, J. Morse, U. Colorado &

Through the open solicitation process, NOAO aims to identify partners to carry out activities that will strengthen the smaller aperture component of the US System. Strengthening the System could include developing new instrumental capabilities, providing new open-access opportunities on observing facilities, renewing facility infrastructure, among other possibilities. Guidance on the priorities of the

program will come primarily from ReSTAR committee reports.

CTIO/NOAO/AURA/NSF

The selection process will include the release of a draft solicitation document, an open community meeting to discuss the draft solicitation document and possible partnership opportunities, the release of a final solicitation document, the submission of written proposals, and a review by a non-advocate peer review committee. Successful proposers will collaborate with NOAO on a funding proposal to the NSF. The anticipated level of funding to be proposed for is $10-12 million over the three-year period, FY2012-2014.

Our preliminary schedule for these activities is as follows:

- The draft solicitation document is available now from the ReSTAR homepage. The document includes a more detailed description of the solicitation, including eligibility, review criteria, etc.
- The informational meeting to discuss the solicitation will be held Monday, 15 November 2010, at a site to be determined in Tucson, Arizona. Although the primary audience for this meeting is potential proposers, the meeting will be open to any member of the US astronomical community who is interested in participating in the discussion. Information on how to register for the meeting is given in the draft solicitation.
- The final version of the solicitation will be released on the ReSTAR website by 1 December 2010.
- Proposals will be due by 1 February 2011. A non-advocate peer review panel will meet later that month to review and rank the proposals.
- Based on the recommendations of the review panel, NOAO will negotiate memoranda of understanding with the selected partners. These will guide the development of a proposal to be submitted to the NSF early in FY 2012.

We encourage active participation in this process. Please contact us at currents@noao.edu with questions and comments.

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A New Optical Echelle and New Operations Models for Gemini

White Papers on High Resolution Optical Spectroscopy Solicited

Gemini has announced its intention to build a new high-resolution optical spectrograph. This development is, in part, an outcome of the report of the ALTAIR committee convened by NOAO and discussions among the individual Gemini partner communities. These groups all identified high-resolution optical spectroscopy as one of the most highly desired capabilities that is currently missing from the Gemini instrumentation suite.

In discussions over the last 6 months, the Gemini Science Committee recommended, and Gemini agreed, that a high resolution optical spectrograph is an appealing instrument to pursue at the present time because of the strong demand for the capability and the likelihood that it could be delivered on a short timescale (in 2014, approximately) and within the constraints of the Gemini base budget.

The Gemini Observatory is currently soliciting science and instrument white papers from the Gemini community in order to help construct the science case for and

define the characteristics of the new high-resolution optical spectrograph. While identifying critical science goals is the main goal of this effort, the call also solicits instrument and technology position papers that suggest solutions to the mass, volume, and gravity variant constraints imposed by the lack of a Nasmyth focus on Gemini.

The Observatory encourages anyone with an interest in high-resolution optical spectroscopy on Gemini, both observers and instrument builders, to participate. Interested participants are requested to notify Eric Tollestrup, Associate Director of Development (etollestrup@gemini.edu, 808-974-2511) of their intent to submit a white paper. White papers are due **7 September 2010**. The results of the solicitation will be compiled and forwarded to the Gemini Board for discussion at the November Board meeting, after which the Board may issue a call for proposals to build an instrument.

The push to build a high-resolution optical spectrograph for Gemini is the first step in a new round of instrumentation development at Gemini, which has an anticipated emphasis on delivering high-demand capabilities that are currently missing from the Gemini instrumentation suite and replacing high-demand instruments that are aging and obsolete.

New Operations Models for Gemini

With the current Gemini partnership agreement set to expire at the end of 2012, the NSF and the Gemini partners have been working to negotiate a new partnership agreement. As the UK has announced their intention to withdraw from the partnership at the end of the current agreement, the Gemini Observatory may face a budget reduction of as much as 25% (the same fraction as the UK share in the original partnership).

In anticipation of this possibility, the Gemini Observatory is currently investigating new, lower-cost operations models for the post-2012 era. Possible future operations models will be discussed at the November meeting of the Gemini Board. We will report on any developments on this topic in future issues of *Currents*.

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Gemini Data Workshop Presentations Available On-line

Gemini Data Workshop, July 19-22, 2010

In July NOAO, along with the Gemini Observatory, held a workshop on Gemini data with the goal of providing the community with tools and skills to help maximize the scientific return from Gemini. The workshop covered the basics of astronomical data reduction and featured breakout sessions focused on specific Gemini instruments and capabilities. More than 60 participants attended. Most were from US institutions, with additional participants from the Gemini partner countries Brazil, Canada, and Chile.

The tutorials and presentations from the workshop are now available on-line at the workshop website. Highlights include the presentations on how CCDs work and the basics of their calibration (by Steve Howell, NOAO); how IR detectors work and how

they differ from CCDs (by Dick Joyce, NOAO); an introduction to adaptive optics (by Julian Christou, Gemini Observatory), and the calibration of low-resolution optical spectroscopy (by Tom Matheson, NOAO). These presentations are particularly accessible to a broad audience.

Other presentations cover data reduction issues for specific Gemini instruments. Astronomers who have previously encountered difficulties installing IRAF may wish to visit the workshop website to explore the packages prepared by Kathleen Labrie (Gemini Observatory) that enable a complete install of IRAF and Gemini IRAF for popular operating systems. These packages are not guaranteed to work on every system, but they were successful for the overwhelming majority of workshop attendees who used them.

Further details on the workshop are provided in the September NOAO Newsletter. Comments on the workshop presentations may be addressed to the workshop coordinators Verne Smith (vsmith@noao.edu), Tom Matheson (tmatheson@noao.edu), and Nancy Levenson (nlevenson@gemini.edu).

NOAO and Gemini plan to offer similar workshops in the future. Given the enthusiasm shown by the July workshop attendees, it is clear that there is strong interest in learning how to work with Gemini data. We hope to build on the success of this workshop to develop a new generation of observers who will fully utilize the capabilities Gemini has to offer.

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The Search Is on for the Next Leo Goldberg Fellow!

Goldberg Fellows Past and Present

NOAO is soliciting applications for the Leo Goldberg fellowship, a five-year post-doctoral fellowship that is aimed at supporting young astronomers of outstanding promise who have interests in observational astronomy, astronomical instrumentation, or theoretical astrophysics. These fellowships are intended to advance innovative and groundbreaking scientific research and to encourage long-term projects.

In addition to pursuing their independent research programs, past Goldberg Fellows have had the opportunity to engage in NOAO-related activities such as planning for the Large Synoptic Survey Telescope (LSST) and the commissioning of wide-field IR imager NEWFIRM. Opportunities for future Goldberg Fellows include LSST development, the Dark Energy Camera and Dark Energy Survey at CTIO and the Kitt Peak Ohio State Multi-Object Spectrograph (KOSMOS).

Applications are due **8 November 2010**. Details on the application process and evaluation criteria are described in the Goldberg Fellowship ad in the AAS Job Register and in the September issue of the NOAO Newsletter. For further information on the fellowship and application process, please contact Joan Najita (najita@noao.edu), who heads the NOAO Office of Science.

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Kitt Peak Director Search Underway

A search committee has been formed and charged with recommending to NOAO Director David Silva and to AURA the next NOAO Associate Director for the Kitt Peak National Observatory (KPNO). The future of KPNO is exciting, with new instruments headed to the Mayall and WIYN telescopes in the near term and the possibility of a

Large Survey Project being carried out on the Mayall telescope in the coming decade. Over the long term, KPNO would benefit from the leadership of a Director with a vision for how KPNO fits into the US System of observing facilities.

Kitt Peak National Observatory

As described in the announcement, applications for the Directorship are due **1 October 2010**. Following an interview process, the search committee is expected to forward their recommendation to the AURA Observatory Council in early February. We encourage all interested parties to consider this opportunity to make a difference in the future of the ground-based O/IR astronomy. Interested parties are invited to contact NOAO Director David Silva (dsilva@noao.edu) for further information.

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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.