



May 2020 • Issue 66

Currents

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June AAS Meeting: NOIRLab-related events will include the following:

- Webinar by NOIRLab **Director Pat McCarthy** on “NSF’s NOIRLab: Impact of the COVID-19 Crisis and Science Restart Plans” [Read more...](#)
- NOIRLab **booth demos, assistance, and discussion** on:
 - **Data Lab** science platform (Mon 1 June, 1:40-2:40pm EDT)
 - **Astro Data Archive** (Mon 1 June, 5:30-6:30pm EDT)
 - **ANTARES** time domain broker (Tues 2 June, 1:40-2:40pm EDT)
 - **Time Allocation Committee** evolution (Wed 3 June, 1:40-2:40pm and 5:30-6:30pm EDT)
 - **Gemini User Support**
[For more information and updates...](#)
- Plenary presentation by **Dara Norman** (NOIRLab) on “The Inclusion Revolution”. [Read more...](#)
- Special session hosted by WIYN Observatory on their **exoplanet research capabilities** available through the NASA-NSF Exoplanet Observational Research (NN-EXPLORE) program. [Read more...](#)

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COVID-19 Update: In response to the COVID-19 situation, we are taking measures to ensure the safety of our staff and the public.

- Planning is underway for a limited restart of science operations and basic and time critical maintenance at each NOIRLab site. Gemini-North in Hawai'i restarted night-time observations on 19 May with a minimal on-site crew and excellent seeing. Limited restarts in Chile and Arizona are at least several weeks away.

For further details and updates as they occur, please see <https://nationalastro.org/coronavirus/>

First All-Virtual TAC: The 2020B NOIRLab proposal review, convened remotely in response to the COVID-19 health crisis, provided a valuable experience as our community moves into the future. Held in late-April/early-May, it was a chance to explore the advantages of virtual meetings (reduced travel time and expense, and a lower carbon footprint), the possibly different sociology of virtual meetings, and an opportunity to scope out potential disadvantages. [Read more...](#)

New Science Data Archive: A new data archive platform released by NOIRLab's Community Science and Data Center (CSDC)—the Astro Data Archive—has the primary role of serving public and proprietary pixel-based data products to PI and survey programs. Upgrades include a modern high-performing back-end, and near-instantaneous search/filter capabilities through the web interface. [Read more...](#)

From the Gemini e-Newsca

- Director's Discretionary Proposals are solicited for Gemini North with GMOS, GNIRS, and 'Alopeke.
- "Lucky imaging" with NIRI helps reveal the origins of lightning strikes and large storm systems on Jupiter.
- The new release of DRAGONS v2.1.1, now available, fixes bugs and offers added compatibility with astropy v4.
- A virtual machine image is now available to run Astroconda IRAF under MacOS 10.15+, which no longer allows users to run 32-bit binaries natively.
- Stuck inside with nothing to do? In the Gemini Card Game, now available for download, you can experience the complex decision-making needed to run a world-class observatory and the excitement of expanding our knowledge of the Universe!

Read more in the [Gemini e-Newsca](#)

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Summer AAS Meeting Events

With the [236th AAS meeting going virtual](#), the following events will be held online, within the virtual format being planned for the meeting.

Webinar: NSF's NOIRLab—Impact of the COVID-19 Crisis and Science Restart Plans

Pat McCarthy, NOIRLab Director
Monday, 1 June, 6:00-6:30pm ET

Abstract: Launched in October 2019, NSF's NOIRLab brings together all NSF-funded OIR nighttime astronomical research facilities within a single organization. NOIRLab is enabling the next decade of astronomical discoveries through world-class, cutting-edge facilities and science. Through its five Programs—[Cerro Tololo Inter-American Observatory](#) (CTIO), the [Community Science and Data Center](#) (CSDC), [Gemini Observatory](#), [Kitt Peak National Observatory](#) (KPNO) and [Vera C. Rubin Observatory](#) operations—NOIRLab serves as a focal point for community development of innovative scientific programs, the exchange of ideas, and other creative development. Closed to science operations since mid-March, a staged restart plan is unfolding now with facilities reopening on timescales appropriate for the conditions at each observatory site. Come learn how NOIRLab can enhance your science and our developing plans for getting you back on sky!

NOIRLab Booth Events and Activities

Join us at the NOIRLab booth in the virtual exhibit hall for the following events:

Data Lab science platform demo
Monday 1 June, 1:40-2:40pm EDT
Hosts: Stephanie Juneau and Robert Nikutta (CSDC/NOIRLab)

Astro Data Archive introduction and demo
Monday 1 June, 5:30-6:30pm EDT
Hosts: Sean McManus and Knut Olsen (CSDC/NOIRLab)

ANTARES time domain broker demo
Tuesday 2 June, 1:40-2:40pm EDT
Host: Chien-Hsiu Lee (CSDC/NOIRLab)

Evolution of the Time Allocation Committee introduction and discussion
Wednesday 3 June, 1:40-2:40pm and 5:30-6:30pm EDT
Hosts: Dara Norman, Verne Smith (CSDC/NOIRLab)

Gemini User Support: Live at the booth!
Monday 1 June, 9:00-10:00am, 1:40-2:40pm, 5:30-6:30pm
Tuesday 2 June, 5:30-6:30pm
Wednesday 3 June, 9:00-10:00am, 5:30-6:30pm
Hosts: Morten Anderson, Bryan Miller, Venu Kalari, André-Nicolas Chené, Rodrigo Carrasco (Gemini Observatory/NOIRLab)



Patrick McCarthy

Plenary Presentation: The Inclusion Revolution

Dara Norman, NOIRLab
Monday, 1 June, 12:40—1:30pm ET, Claudia J. Alexander Ballroom

Abstract: The field of Astronomy has seen major changes in the last couple of decades. There have been discoveries that have evolved our understanding of the Universe. The development of new methods and gathering of datasets have expanded topical areas of the field in profound ways. We have even seen the community begin to recognize and understand that the health and well-being of the workforce cannot be ignored if we intend to continue with scientific breakthroughs. In this talk I will highlight some growing trends toward more diversity and inclusion in the field, the importance of access to decision making and research opportunities to advancing these trends, as well as some of the structural changes needed to usher in an Astronomical inclusion revolution.



Dara Norman

Special Session: The NASA-NSF Exoplanet Observational Research (NN-EXPLORE) Program at the WIYN Observatory

Wednesday, 3 June, 2:50—4:20 pm ET, Maria Mitchell Room

The NASA-NSF partnership for Exoplanet Observational Research (NN-EXPLORE), which seeks to advance the understanding of exoplanets and exoplanetary systems,

supports community use of the open-access share of the WIYN 3.5-m telescope. To highlight the instrumentation and capabilities available to the community in support of the NN-EXPLORE program, the WIYN Observatory will hold a Special Session at the Summer AAS Meeting.



The session will include descriptions of science results and capabilities of WIYN’s new precision radial-velocity spectrometer NEID (NN-explore Exoplanet Investigations with Doppler spectroscopy). First offered in the 2020A semester, NEID is designed for high-precision radial velocity measurements of exoplanet host stars, with a goal of achieving 27 cm/s precision per measurement. The instrument provides open-access to measurements that enable the study of Earth- and super-Earth-mass planets orbiting bright host stars over a wide range of spectral types.

The special session will also feature the science results and capabilities of other WIYN instruments that can be used for exoplanet research. These include the NASA Exoplanet Star (and) Speckle Imager (NESSI), the multi-object fiber-fed spectrograph Hydra, the WIYN High Resolution Infrared Camera (WHIRC), and the One Degree Imager (ODI). Observers interested in learning how WIYN can enhance their exoplanet research are encouraged to attend.

First All-Virtual NOIRLab Time Allocation Committee Meetings in 2020B

Verne V. Smith, Mia Hartman, Chadd Myers, Dara Norman, Nicole van der Blik, Alfredo Zenteno, Adam Scott (NOIRLab)

The national observatory time allocation committees (TAC) have met face-to-face in Tucson every semester throughout the histories of KPNO, CTIO, NOAO—and now NSF’s NOIRLab—to carry out peer review of observing proposals submitted by the community. Although similar meetings were intended for the 2020B observing semester (1 August 2020 to 31 January 2021), our plans were overturned by the rapidly evolving COVID-19 situation.

In response to the developing health crisis, NOIRLab staff began planning, at the beginning of March, for the possibility of remote panel meetings, examining the requirements and needed infrastructure. When the World Health Organization declared a pandemic on 11 March 2020, NOIRLab decided on remote participation for all panels—both the NOIRLab Survey and Gemini Large and Long Program (LLP) panels, as well as the 8 regular NOIRLab panels (the 3 Galactic, 3 Extragalactic, 1 Solar System, and 1 NN-EXPLORE Exoplanet panels). Although small, individual panels dealing with special situations had met remotely in previous years, all TAC panels had never met remotely before.



A screenshot taken during the 2020B NOIRLab regular TAC meetings, with—clockwise from upper left—Courtney Dressing (Berkeley), Caryl Gronwell (Penn St.), Wayne Barkhouse (U. North Dakota), Chadd Myers (NOIRLab), Schuyler van Dyk (IPAC, Caltech), and Verne Smith (NOIRLab) in “Hollywood Squares” mode.

As part of the re-planning process, the NOIRLab proposal deadline was postponed from 31 March to 7 April due to the reality that many universities (and NOIRLab) were closing their offices and arranging for staff to work remotely. Despite the changing and challenging health situation, NOIRLab received 347 proposals for semester 2020B, a typical number compared to recent semesters.

Preparations for the panel meetings, which involved the 55 TAC members and support staff from across the NOIRLab sites, were structured around the use of Bluejeans software. Participants were spread across Chile, the continental US, Canada, Mexico, and Hawaii, spanning 6 time zones.

Shortly after the fiftieth anniversary of Earth Day (22 April), the NOIRLab Survey and Gemini LLP panels convened remotely (29-30 April), with the remaining panels and merging TAC meeting virtually the following week (4-8 May). Each set of meetings began with an orientation session attended by all panels, after which individual panels convened in separate Bluejeans "rooms." Every panel included a NOIR Lab assistant who monitored the discussions, tracked any proposal grade changes, and attended to any technical issues.

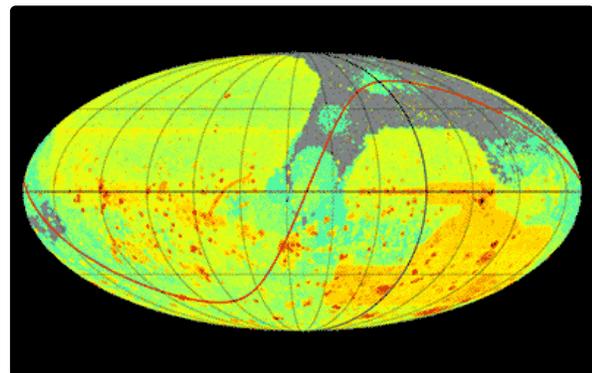
Overall the virtual meetings went very smoothly, with only a few minor technical issues and no major problems encountered. NOIRLab TAC staff "moved" from virtual "room" to "room" to monitor the process, as they do physically when meetings are held in Tucson.

The first all-virtual TAC meetings provided both practical and valuable experience as our community moves into the future. It was a chance to explore the advantages of virtual meetings (less travel time and expense, and a lower carbon footprint), the possibly different sociology of virtual meetings, and an opportunity to scope out any disadvantages. NOIRLab staff and TAC members are now discussing and being debriefed on their experiences. Stay tuned for a future report on the findings.

New Science Data Archive Launched

Sean McManus and Knut Olsen (NOIRLab's Community Science and Data Center)

Last month, the Community Science and Data Center (CSDC) rolled out a new data archive platform, the [NOIRLab Astro Data Archive](#), which will replace the current NOAO Science Archive software system later this year. The Astro Data Archive provides access to data taken with more than 40 telescope and instrument combinations from NOIRLab's CTIO and KPNO facilities, including those operated in partnership with the WIYN, SOAR, and SMARTS consortia. Both raw data and pipeline-reduced data products from the DECam, Mosaic, and NEWFIRM imagers are available, as well as advanced data products from teams carrying out surveys and other large observing programs with NOIRLab facilities.



[A crowd-sourced survey of the sky.](#) The map shows the total exposure time, on a logarithmic scale, for the science images taken with DECam (566,000 images), Mosaic (241,000 images), and the 90Prime (73,000 images) cameras over the period 2004-2020.

The holdings are extensive:

- Comprising 1.23 petabytes of raw and reduced data in total, 89% of the holdings are from DECam (1095 terabytes), with Mosaic (68 terabytes) and NEWFIRM (19 terabytes) contributing significant fractions.
- The DECam and Mosaic science exposures together currently cover approximately 90% of the sky. (DECam covers 74% and Mosaic 22% of the sky.)
- Large coherent survey datasets include those of the [Dark Energy Survey](#), the [DESI Legacy Imaging Surveys](#), the [DECam Local Volume Exploration \(DELVE\) Survey](#), and other NOAO Survey Programs.

The new system continues in its primary role of serving public and proprietary pixel-based data products to PI and survey programs. Upgrades include a modern high-performing back-end and near-instantaneous search/filter capabilities through the web interface. In addition, to meet the demands of data-intensive science, a [new API](#) (application program interface) is available. The API can be accessed through Python notebooks as well as through the NOIRLab Astropy/Astroquery module. Astroquery is a set of tools for querying astronomical web forms and databases. The Astro Data Archive website offers [example Python Jupyter notebooks](#), as well as [basic examples illustrating the use of the NOIRLab astroquery module](#).



The [welcome page](#) of the Astro Data Archive offers information and multiple ways to access the archive

To facilitate a smooth transition of Archive users and data services, the Astro Data Archive was deployed as a limited release and will be operated in parallel with the legacy Archive through the 2020A semester. The limited release offers a feature-complete system, prioritizing access to contemporary PI and survey instrument programs; access to some historic data is pending. The complete peta-scale collection of data products is expected to be available in October 2020, coinciding with the retirement of the legacy system.

Contact Us

We welcome your input on this issue of *Currents*. Please contact us at currents@noao.edu. We look forward to hearing from you!

Currents is a spark plug for communication between us and our community. It provides updates—and solicits community input—on observing opportunities and programs and policies on a more rapid timescale than is possible with our *Newsletter*.

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