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Currents

NOAO at the AAS: Join us at the June meeting in Austin Texas

- **Introducing the NOAO Data Lab**
Hands on session at the NOAO Booth
- **The All-Sky NOAO Source Catalog**
Poster by David Nidever in Session 216

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In this Issue...

NOAO Data Lab Public Release: The NOAO Data Lab opens its doors to the community on 5 June 2017. Created to foster community use of the high-value survey datasets now being collected with NOAO and other facilities, the NOAO Data Lab enables efficient exploration and analysis of large datasets. To learn more, visit the [Data Lab website](#) or the NOAO booth at the June AAS meeting for a hands on demonstration. [More...](#)

2020 Decadal Survey Community Input Invited: NOAO welcomes your input into our planning for the coming decade. Please visit our [Decadal Survey Planning website](#) to upload your white paper or contribute a science-based comment on areas in which NOAO can provide critical resources and/or areas that will strengthen the US ground-based OIR system in the coming decade. An updated ["Dear Colleague" letter](#) describes the request and our planning process.

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NOAO Data Lab Public release

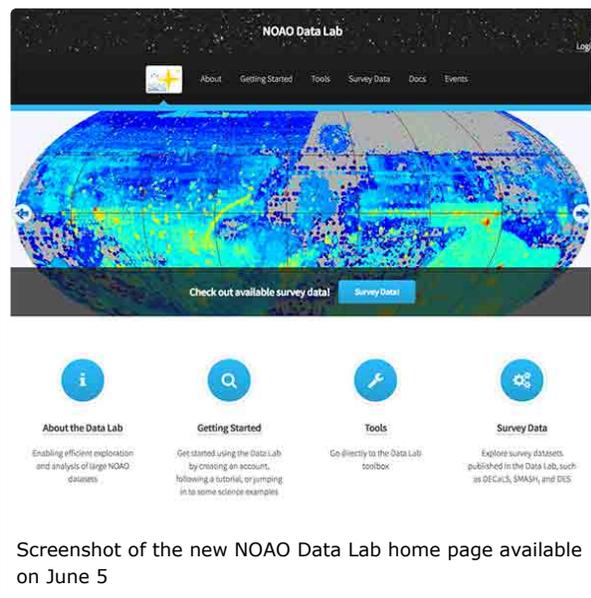
Knut Olsen, Data Lab Project Scientist

The NOAO Data Lab will be opened to users on June 5, 2017! Created to foster community use of the high-value survey datasets now being collected with NOAO and other facilities, the Data Lab provides the infrastructure that enables efficient exploration and analysis of large datasets. With the Data Lab you can:

- Create a user account that gives you access to software services, remote analysis, and storage space,
- Access web-based exploration and catalog query tools,

- Query databases containing ~1 billion objects from DECaLS DR3, SMASH DR1, and other surveys,
- Create image cutouts from any public image in the NOAO Archive,
- Store your search results in personal database storage or on a remote virtual disk, and
- Perform exploration and analysis through a Jupyter notebook server.

In the coming months, the Data Lab will provide access to the first catalog Data Release of the [Dark Energy Survey](#) (DES DR1), additional [DECaLS](#) catalog releases (DR4 and DR5), and the (nearly) all-sky NOAO Source Catalog.



Screenshot of the new NOAO Data Lab home page available on June 5

Visit <http://datalab.noao.edu> for more information and, after June 5, create a user account to get started!

NOAO Data Lab at the Austin AAS Meeting.

Coincident with the public release, the NOAO Data Lab team will be conducting live demos at the June AAS meeting. Visit the NOAO booth to:

- Learn to explore, query, and analyze catalogs such as DECaLS DR3 and SMASH DR1,
- See science examples that use the Data Lab (e.g., star, galaxy, and QSO identification with data from the DECaLS and SDSS surveys, and the discovery of a faint dwarf galaxy in SMASH survey data), or
- Work on a hack project with one of our Data Lab team members!



The younger set visits the NOAO Booth at the 2016 AAS Summer Meeting in San Diego, CA, which featured a preliminary demonstration of the NOAO Data Lab. The 2017 AAS Summer Meeting in Austin, TX, will again feature the Data Lab, this time as part of its public release.

Also at the AAS meeting, NOAO Data Scientist David Nidever will introduce the all-sky NOAO Source Catalog in his Session 216 poster.

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2020 Decadal Survey Community Input Invited

Dear Colleague,

In preparation for the 2020 Decadal Survey of Astronomy and Astrophysics, NOAO invites community input regarding scientific opportunities for the coming decade in areas in which NOAO can play a role in providing critical resources and/or areas that offer opportunities to strengthen the US ground-based OIR system.

We welcome a broad range of science ideas that motivate the need for resources such as:

- *Large science programs that use existing facilities at KPNO, CTIO, Gemini Observatory, and LSST*
- *Community access to observing time on non-NOAO facilities*
- *Community access to archival datasets not currently in the public domain*
- *Resources for the exploration and analysis of large datasets and the time domain*
- *New investigations and instrumentation at the mid-scale level (\$2M-\$100M)*
- *New observing facilities*
- *Other*

The scientific opportunities may build on the science and resources described in the recent studies “[Optimizing the US Ground-based OIR Astronomy System](#)” (the Elmegreen report) and the report from the Kavli Futures Symposium “[Maximizing Science in the Era of LSST: A Community-based Study of Needed OIR Capabilities](#)”, but they are by no means restricted to these. Concepts may include NOAO as a major or minor partner with universities and/or other federal agencies. To stimulate the flow of ideas, example items from the 2010 Decadal Survey and the above recent reports are listed below this letter.

To participate in this planning process, please [visit our website](#) where you can:

Submit a brief white paper. Upload by **1 September 2017** a brief description (not more than 3 pages) in pdf format of your science concept and resource needs. Include a brief description of how your concept fits in with the [NOAO mission](#) and the [NOAO Strategic Plan](#).

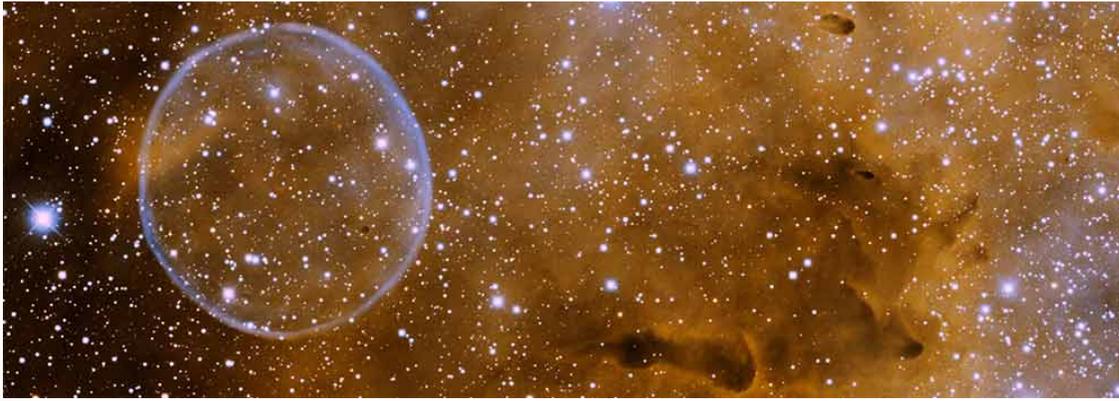
Contribute to the development of community-based white papers. Suggest a white paper topic and/or contribute to topics suggested by others.

We expect to convene in early 2018 a community workshop to discuss the input received and to work toward an integrated development program that NOAO will present to the Decadal Survey committee. Please contact me (najita@noao.edu) with questions or suggestions. We look forward to hearing from you!

Sincerely,

Joan Najita

NOAO Chief Scientist



Examples from the Astro2010 Report

- Advanced technologies and instrumentation development
- Data archiving programs
- Highly multiplexed spectroscopy for a big baryon oscillation spectroscopic survey
- Large Synoptic Survey Telescope
- New instrumentation for exoplanet initiatives
- Next generation adaptive optics systems
- Open observing time on existing facilities
- Participation in a Giant Segmented Mirror Telescope (GSMT)
- Telescope System Instrument Program

Examples from “Maximizing Science in the Era of LSST”

- Highly multiplexed, 8-m wide-field optical multi-object spectroscopic capability
- Broad wavelength coverage, moderate-resolution ($R = 2000$ or larger) OIR spectrograph on Gemini South
- Development and early deployment of an alert broker, scalable to LSST
- Support into the LSST era for existing high-priority capabilities (wide-field imaging, multi-color imaging, spectroscopy, AO-fed diffraction limited imaging)
- OIR system infrastructure developments that enable efficient follow-up programs^[1]_{SEP}
- Data exploration and analysis tools that work at the scale of LSST
- Training for scientists at all career levels in LSST-related analysis techniques and computing technologies

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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 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 *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.

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