

NOIRLab perspective on the future of data archives

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NSF's NOIRLab
IAUGA 2022

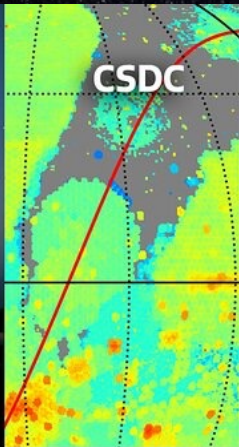
What is NOIRLab?

- NSF's National Optical-Infrared Astronomy Research Laboratory
- Combines all NSF-funded OIR assets in a single organization
- Launched Oct 2019; full operations as of Oct 2020

Kitt Peak



CSDC



Gemini

With our international partners



Cerro Tololo



Rubin Observatory Operations

An NSF-DOE Partnership



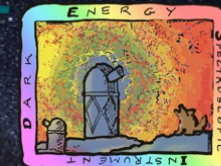
“... coordinate and integrate the observational, technical, and data-management capabilities...”

Many partnerships

Partnerships are integral to NOIRLab

- International
- Inter-agency
- Inter-institutional
- Public-private
- Community-based

*Diverse partners,
diverse archive
needs*



DARK ENERGY SPECTROSCOPIC INSTRUMENT

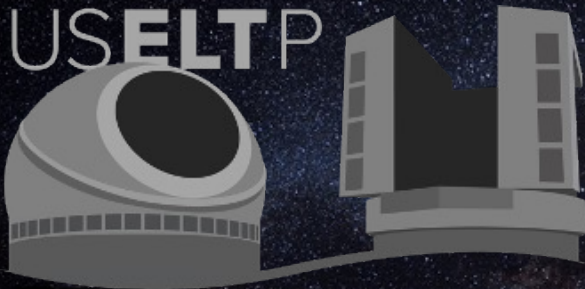
U.S. Department of Energy Office of Science



VERA C. RUBIN
OBSERVATORY



U.S. DEPARTMENT OF
ENERGY



THIRTY METER TELESCOPE



Big surveys and big data

Unprecedented data-driven research opportunities

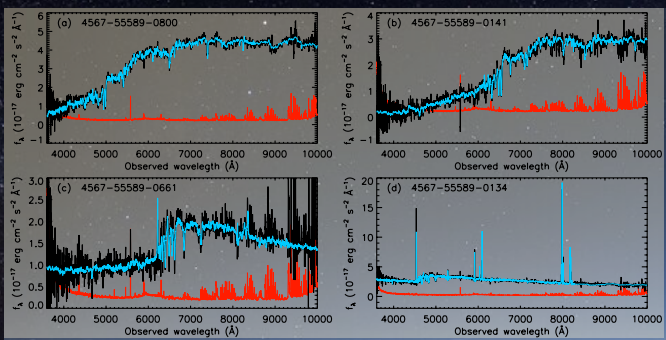
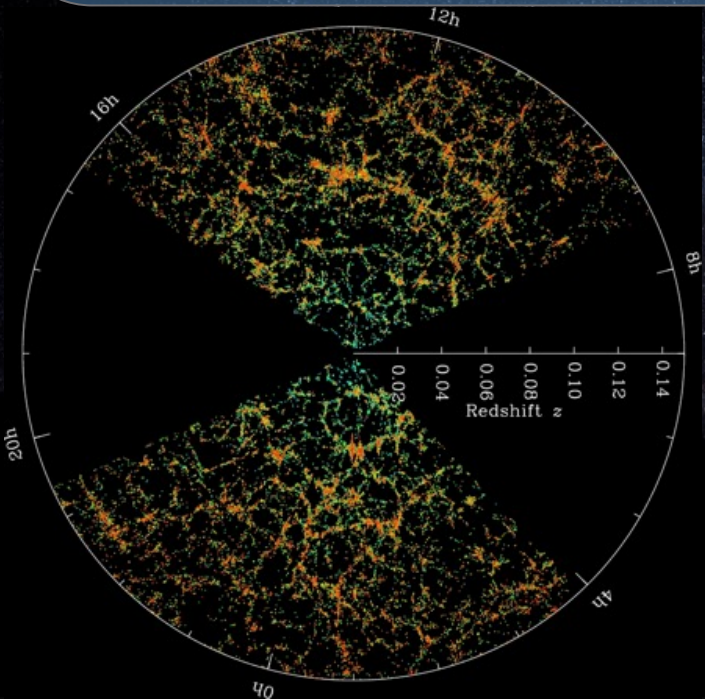
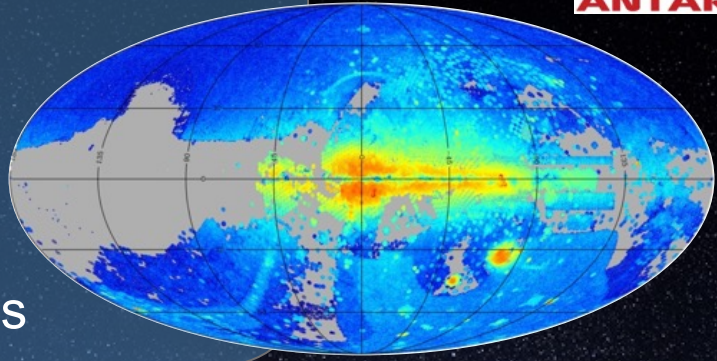
→ bring massive data sets together

Explosion of time-domain science

→ infrastructure to enable real-time follow-up

Spectroscopy to unlock astrophysics

→ new software for data reduction and analysis





Inclusive science in the ELT era



US Extremely Large Telescope Program

- Highest Decadal priority for US ground-based OIR astronomy
- Goal: major US federal investment in both TMT and GMT to enable significant open-access observing time on both telescopes

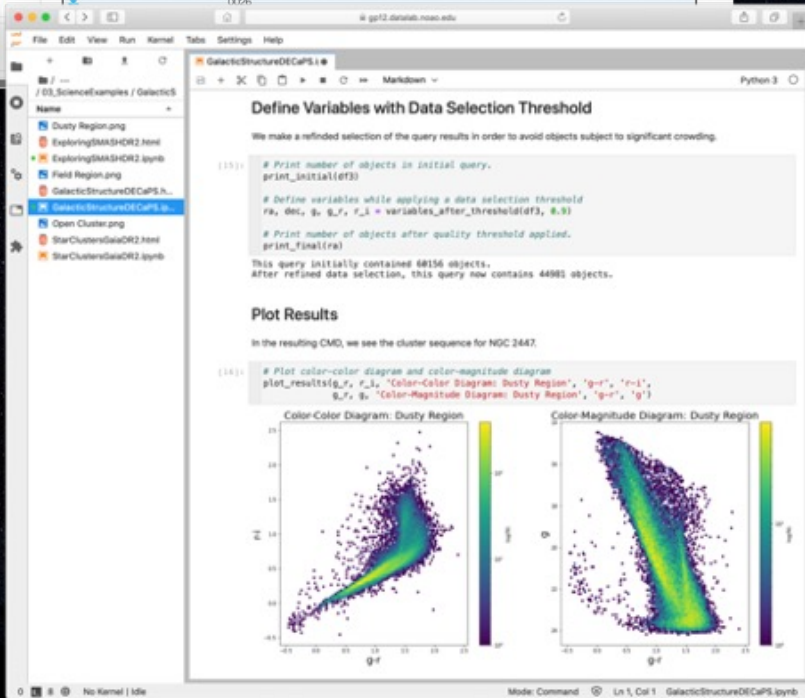
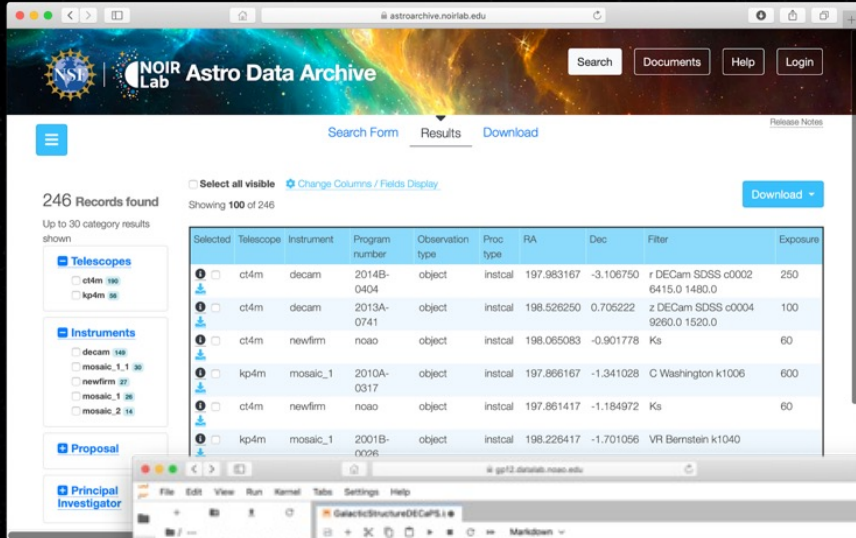
USELTP



NOIRLab role: make GMT+TMT research accessible to all scientists

- Flexible and accessible observing program design
- Open collaborations for Key Science Projects
- ***Integrated approach to data products and archiving***

Archives play many roles



PI data access

Supporting pipelines and data-product generation

User support

Operational data transfer hub

Support for time-domain science analysis

Platform for innovation

Integration with science platforms

Data discovery & archival research

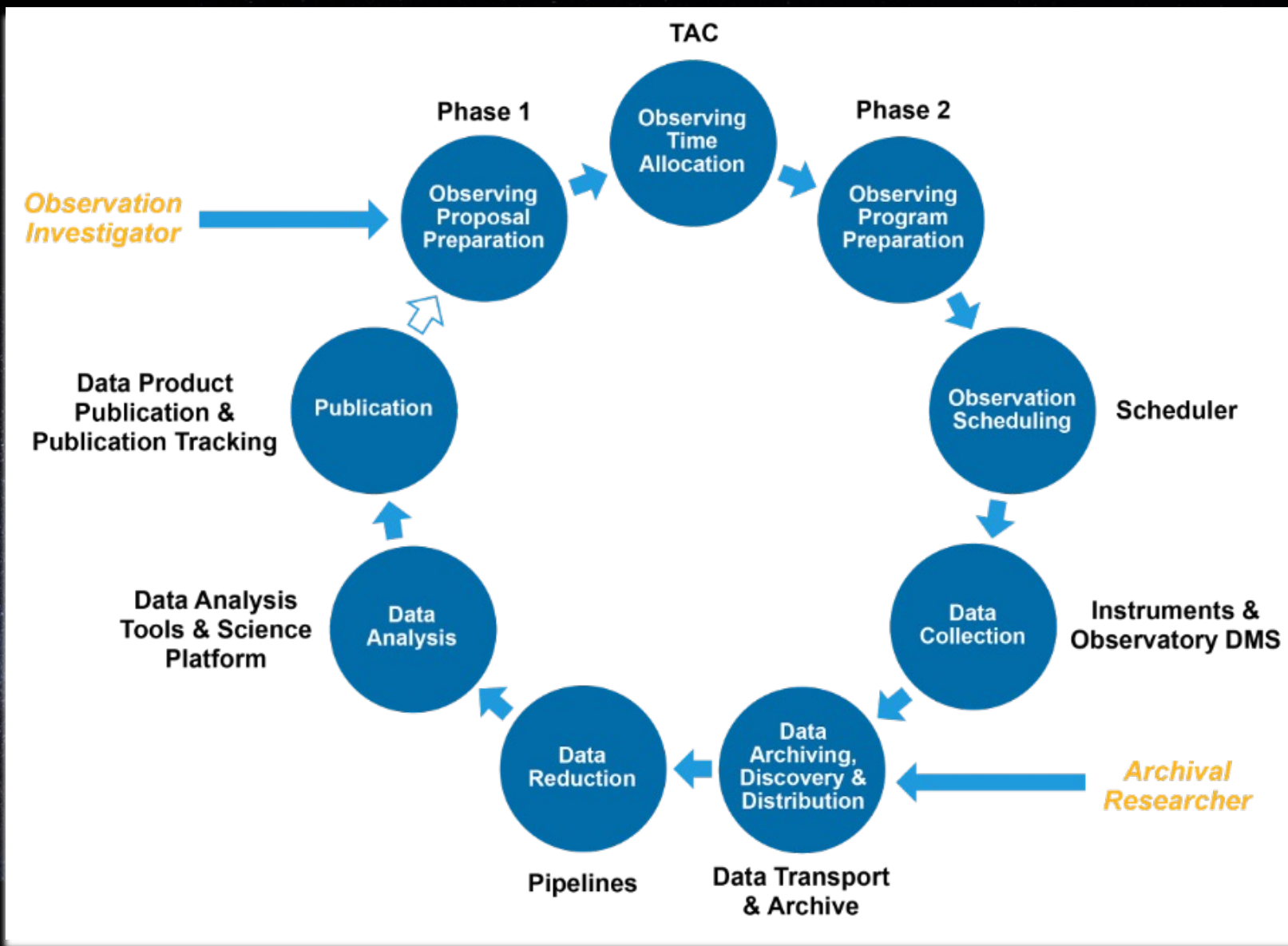
Interoperability with other archives

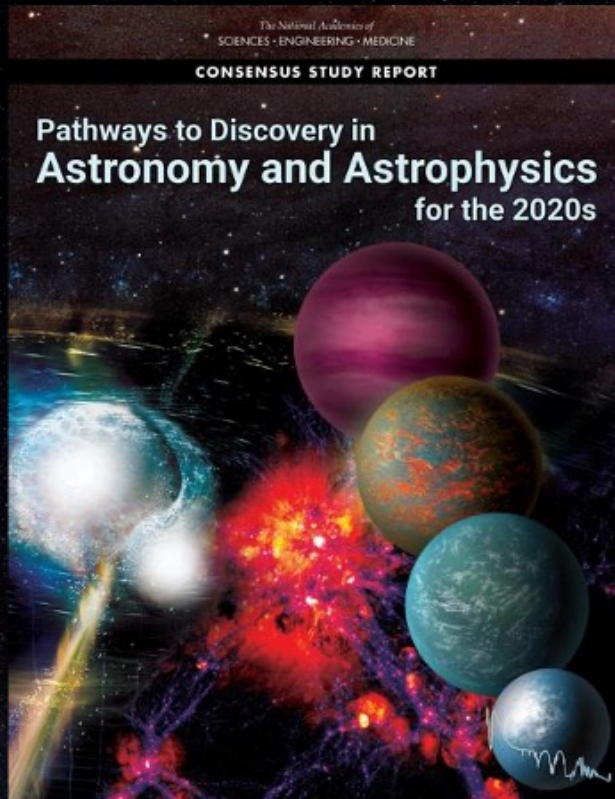
Hosting contributed data products

Long-term stewardship and curation



Powering the cycle of discovery





Working together to implement the recommendations of Astro2020 for data and archives in OIR astronomy

