



# **NSF Update to Astronomy & Astrophysics Advisory Committee**

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**24 Feb 2023**

## Other Studies and Reports

- Decadal Surveys in addition to ASTRO2020
  - Planetary Science & Astrobiology; released in April 2022
  - Solar & Space Physics underway
  - Biological & Physical Science Research in Space underway
  - HEPAP/P5 underway
- Committee of Visitors being planned for summer 2023
- Senior Review/Portfolio Review planning underway
- MPS Advisory Committee; esp Subcommittee on Future Facilities
- AST Community workshops on 1) Data Infrastructure (Feb 2023) and 2) Instrumentation and Technology (later this year)



## Early Career and Broadening Participation Programs

- REU Sites
- GRFP\*
- AAPF
- CAREER
- MPS LEAPS\*
- MPS ASCEND\*
- Supplements: MPS-AGEP, MPS-GSRV, MPS-HI\*, FASED, REU, RET, etc
- PAARE...



## Partnerships in Astronomy & Astrophysics Research and Education (PAARE)

- Partnerships that
  - Strengthen education infrastructure
  - Strengthen research capacity
  - Create opportunities for student and faculty research
- Pathways into the research enterprise
  - Broaden participation in astronomy
  - Increase recruitment, retention, and success
  - Foster a diverse, inclusive, and equitable environment



# Research, Instrumentation, and Technology Programs

## **Astronomy & Astrophysics Grants (AAG)**

- Review underway

## **Advanced Technology & Instrumentation (ATI)**

- Review underway

## **Major Research Infrastructure (MRI)\***

- FY2023 Proposals received recently

## **Mid-Scale Innovations Program (MSIP)**

- No new proposals solicited for FY2023 funds

## **Mid-Scale Research Infrastructure (MSRI)\***

- MSRI-1 pre-proposals under review



## New Partnerships and Centers

- GLOW: Geoscience Lessons for and from Other Worlds  
NSF22-032 (GEO/EAR, GEO/AGS, MPS/AST)
- Astrophysics to be included in next AI Institute Solicitation (CISE)
- Arecibo Center for STEM Education and Research (EDU)
- Center for Advanced Radio Science and Engineering; Launched March 2022 at the University of Puerto Rico Mayagüez







## NOIRLab Renewal

(1 October 2022)

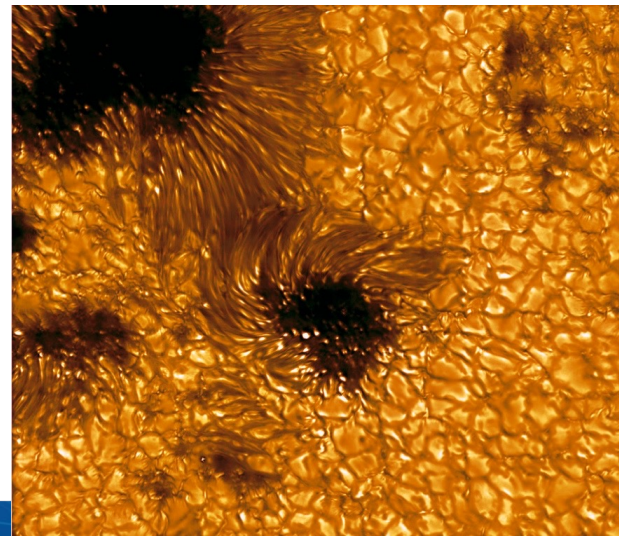
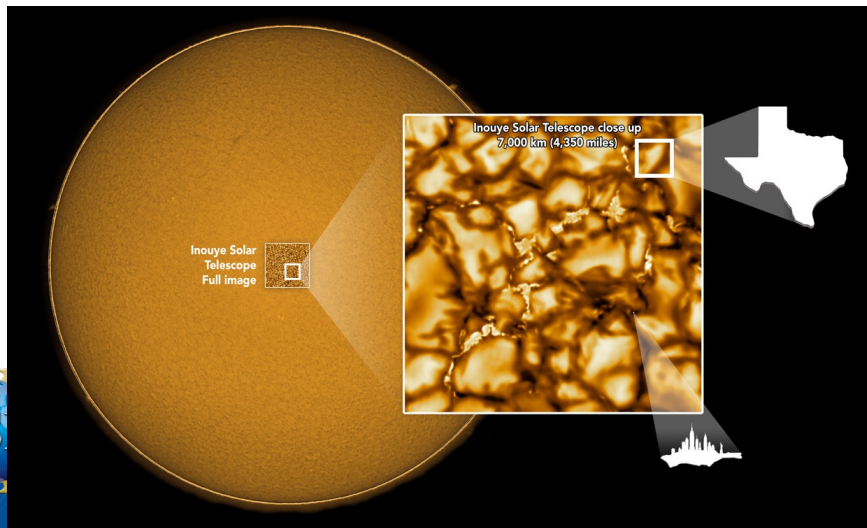
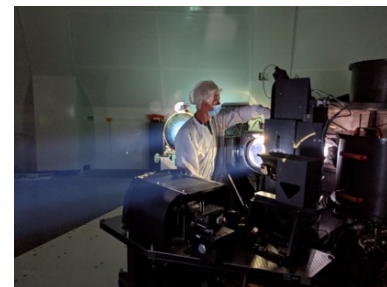
- NOIRLab Base
- Gemini N & S
- Rubin Operations





# Daniel K. Inouye Solar Telescope

DKIST Inauguration Ceremony :  
August 2022





## Vera C. Rubin Observatory



- EPO Construction complete, now in Operations.
- Telescope mount assembly completion in March.
- LSSTCam is fully assembled at SLAC, with final pre-ship testing imminent using new pumped coolant system.
- Forecast construction completion in late 2024.
- All projected NSF funding needs already appropriated.
- Close NSF and DOE coordination on budget and schedule. <https://ls.st/dates>



# Unexpected Disruptions Causing Significant Downtime

## NOIRLab

- Fires on Kitt Peak
- Gemini N primary mirror slightly damaged during recoating

## NRAO

- Cybersecurity event at ALMA

## NSO

- Volcanic eruption on Mauna Loa

## GBO

- Damage to azimuth wheel/track



CHALLENGES	OPPORTUNITIES
Maintain balanced portfolio, healthy grants programs, and sustainable operations and maintenance of facilities. All within our “base” AST budget	Crosscutting and NSF-wide programs; WoU-MMA; Existing programs, e.g. in CISE and TIP; External partnerships; GRANTED; EPSCOR. Chips and Science Act
Create pathways for major new investments; development, design, construction, and operations of new major facilities	Engagement with rest of NSF, NSB, etc to develop new paradigms for life-cycle costs; External partnerships
Relevance to changing federal and NSF-wide priorities. Growing awareness of astronomy’s impact on national security, but applied/commercial aspect is less clear.	Astronomy is an inspirational science. Strengths in data handling, archiving, interoperability; precision measurement technology
Demographic information; workforce and work environment	NSF/NCSES; Coordination with NASA, DoE, OSTP and across NSF.

