



*The National Radio Astronomy Observatory at the New Orleans Convention Center. Photo by Brian R. Kent.*

## Upcoming Events



[NRAO at AAAS - Astronomical Radar: Exploring the Solar System and Defending Planet Earth](https://aaas.confex.com/aaas/2024/meetingapp.cgi/Session/31587) (<https://aaas.confex.com/aaas/2024/meetingapp.cgi/Session/31587>).

February 15 - 17, 2024 | Denver, CO



[International Symposium on Space Terahertz Technology \(ISSTT\)](https://web.event.com/event/ed54f48e-ce7d-4361-8d7f-7c2e997215a6/summary) (<https://web.event.com/event/ed54f48e-ce7d-4361-8d7f-7c2e997215a6/summary>).

April 7 - 11, 2024 | Charlottesville, VA



[20th Synthesis Imaging Workshop](https://web.event.com/event/90ae72df-7675-41b5-b056-48af11e1aa7f/summary) (<https://web.event.com/event/90ae72df-7675-41b5-b056-48af11e1aa7f/summary>).

May 15 - 22, 2024 | Socorro, NM

## NRAO at AAS 243 in New Orleans

Brian R. Kent (NRAO)



The [National Radio Astronomy Observatory](https://science.nrao.edu/) and [Green Bank Observatory](https://greenbankobservatory.org) visited the city of New Orleans, Louisiana at the 243rd Meeting of the [American Astronomical Society](https://submissions.miramart.com/AAS243/Itinerary/EventsAAG.aspx). Conference sessions were hosted by observatory members and users. Participants from our REU, NAC, NINE, Reber and Post-Bacc programs presented their outstanding research. The community engaged at the annual NRAO Town Hall and Exhibit Display. Thanks to the AAS Office for all their hard work in making this science meeting possible.

Learn about all the great science from [NRAO in the press](https://public.nrao.edu/news/aas-243-nrao-press-announcement/) at AAS 243.

Read the [latest blog articles](https://public.nrao.edu/blogs/) from Brian Koberlein about student research at the meeting.

Click here for a [gallery of NRAO photos](https://science.nrao.edu/enews/17.1/images/public/).

*Photos courtesy of Brian R. Kent, Brian Koberlein, Danielle Rowland, Phil McCarten, and Todd Buchanan.*



Credit: Brian R. Kent, Brian Koberlein, Danielle Rowland, Phil McCarten, and Todd Buchanan

# ALMA Program News

Al Wootten and Arielle Moullet (NRAO/NAASC)



*Credit: S. Otarola*

A herd of vicunas circle the ALMA antenna operations site while in the background, carrier Otto finishes moving a 12-m-diameter antenna.

## ALMA Observing Status

Weather has been generally good at Chajnantor and the antenna movements have proceeded as planned; the array has contracted to C-3 in mid-January, remaining there until the February engineering period.

## Cycle 11 Update

A Cycle 11 [pre-announcement](https://almascience.nrao.edu/news/announcement-for-early-proposal-planning-for-cycle-11) (<https://almascience.nrao.edu/news/announcement-for-early-proposal-planning-for-cycle-11>) was released on December 19.

The Call for Proposals will open on March 21 and close on April 25 for Cycle 11, which is anticipated to begin on 1 October 2024. The Pre-announcement notes that the following technical capabilities are anticipated to be available for the first time in Cycle 11:

- Highest-frequency and longest-baseline observations with Band 9 in C-10 configuration, and Band 10 in configurations of C-9 and C-10.
- Full polarization in Band 1 on the 12-m Array with the same polarization capability and accuracy as in Band 3 - 7
- Band 1 on the 7-m Array for Stokes I only (no Stokes Q/U/V)
- Please see the pre-announcement for additional information; full details will be published in the Cycle 11 Call for Proposals.

## Upcoming Meetings

- March 3-8th 2024 [The Physics and Impact of Astrophysical Dust](https://astro.ufl.edu/aspdust2024/) (<https://astro.ufl.edu/aspdust2024/>) Aspen CO - NAASC sponsored
- March 25-29th 2024 [Debris Disks in the Sonoran Desert](https://www.as.arizona.edu/DustDevils2024/) (<https://www.as.arizona.edu/DustDevils2024/>) Tuscon AZ - NAASC sponsored
- May 28-31, 2024: [Spatio-spectral modeling of interferometric data: preparing for the wideband era](https://science.nrao.edu/facilities/alma/naasc-workshops/ssmid/index) (<https://science.nrao.edu/facilities/alma/naasc-workshops/ssmid/index>), NRAO, Charlottesville - NAASC sponsored
- June 24-28, 2024: [The Promises and Challenges of the ALMA Wideband Sensitivity Upgrade](https://www.eso.org/sci/meetings/2024/wsu.html) (<https://www.eso.org/sci/meetings/2024/wsu.html>), ESO, Garching, Germany
- June 24-28th 2024 [Cool Stars](https://coolstars22.github.io/) (<https://coolstars22.github.io/>), San Diego CA - NAASC sponsored

## ALMA at the New Orleans January 2024 AAS

ALMA's scientific results were featured in 18 sessions, three press releases and three plenary talks, demonstrating the observatory's major footprint across the field. The NAASC staff onsite connected with the community at the NRAO exhibit booth, where several informal events were scheduled including meetings with the NRAO/GBO users committee. The ongoing ALMA's Wideband Sensitivity Upgrade and its scientific impact

were also featured in a special session dedicated to high-z sources, which highlighted the strong synergy between ALMA and JWST for the characterization of AGNs and their hosts.

## NRAO/NAASC Job Opportunity

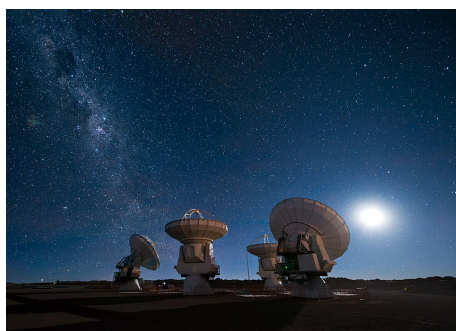
The North American ALMA Regional Center (NA ARC) is recruiting for a scientific staff position to support the commissioning of the ALMA Wideband Sensitivity Upgrade (WSU) - the exciting major upgrade of the array's components that will be taking place over the next several years. This is an opportunity for a scientist with experience in commissioning or developing cutting-edge scientific instrumentation relevant to ALMA. NRAO staff scientists are expected to facilitate and enable cutting-edge science by the community, help enhance the observing capabilities of ALMA, contribute to the overall NRAO mission, and demonstrate commitment to the principles of diversity, equity, and inclusion.

The successful candidate will play a major role in the planning, preparation, commissioning and rollout of the WSU, in particular the new Advanced Technology ALMA Correlator, and serve as a technical expert for the capabilities of the WSU during commissioning and in subsequent operations. Functional duties will be carried out in close coordination with other members of the NAASC, the North American ALMA Development team, and the JAO, and will include spending periods of time at the Operations Support Facility near San Pedro de Atacama, Chile.

For further information, visit the [NRAO Jobvite Website \(https://jobs.jobvite.com/nrao/job/oTiMqfw7\)](https://jobs.jobvite.com/nrao/job/oTiMqfw7).

## Cycle 11 (2024) ALMA Ambassadors

George Privon (NRAO/NAASC)



The North American ALMA Science Center (NAASC) is excited to announce the Cycle 11 (2024) ALMA Ambassadors. The [Ambassadors program \(https://science.nrao.edu/facilities/alma/ambassadors-program/\)](https://science.nrao.edu/facilities/alma/ambassadors-program/) is at the core of the NAASC efforts to reach out to potential ALMA users, and we are grateful for the Ambassadors' contributions to the community. We are looking forward to hosting the Ambassadors in Charlottesville from 13-15 February 2024 and working with them on a series of proposal preparation workshops. Training will cover topics related to ALMA proposal writing and data analysis, including:

interferometry basics, ALMA science capabilities, recent ALMA headlines, use of the Observing Tool, and guidance with speaking on these topics.

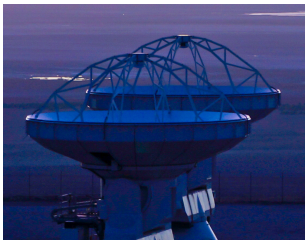
The ALMA Ambassadors will host a series of workshops targeted at the North American ALMA community-with content similar to Community Day and NRAO Live events from previous observing cycles-in advance of the Cycle 11 ALMA proposal deadline in April 2024. Later in 2024, Ambassadors will host community training events focused on ALMA Data Processing and Analysis techniques. Information on these events will be released in a future eNews and made available on the [NRAO Community Outreach Events page \(https://science.nrao.edu/facilities/alma/community\)](https://science.nrao.edu/facilities/alma/community).

Ambassador	Affiliation
Erica Behrens	University of Virginia
Mohit Bhardwaj	Carnegie Mellon University

Jack Birkin	Texas A&M
Méllisse Bonfand-Caldeira	University of Virginia
Hamid Hassani	University of Alberta
Jeff Jennings	Pennsylvania State University
Patrick Kamieneski	Arizona State University
Valentin Le Gouellec	NASA Ames
Stephen McKay	University of Wisconsin Madison
Jessica Speedie	University of Victoria
Yu-Hsuan (Eltha) Teng	University of California, San Diego

## Workshop: Spatio-spectral modeling of interferometric data

Arielle Moullet (NRAO/NAASC)



**May 28-31, 2024, Charlottesville, Virginia**

Explore and discuss the intricacies of spatio-spectral modeling of interferometric data with us on May 28-31, 2024, at the NAASC! This workshop will focus on identifying common challenges for modeling interferometric data across key science areas, paying particular attention to, but not limited to, the tools needed for handling increasingly complex data from the ALMA Wideband Sensitivity Upgrade

(WSU). A non-exhaustive list of topics includes:

- Inferring physical properties from spatio-spectral data.
- Limitations of image plane modeling and the complementarity of visibility modeling.
- Solving challenges with handling large data volumes and cluster processing.

The workshop will emphasize discussion and interactive hacking sessions aimed at attendees with prior interferometry experience. These sessions will culminate in a curated database of publicly available codes for ALMA data analysis and a public outline for future ALMA community development efforts. There will be a small number of talks on highly relevant topics and posters to share novel methods and software among attendees. We especially encourage applications from PhD students, postdocs, and early-career researchers. Some travel support for early-career researchers will be available as needed for participation. Please complete the Application form, which will open by mid-January on the [workshop website](https://science.nrao.edu/facilities/alma/naasc-workshops/ssmid) (<https://science.nrao.edu/facilities/alma/naasc-workshops/ssmid>), and fill out the interest form to stay informed.

## ngVLA Project News

Eric Murphy (NRAO)



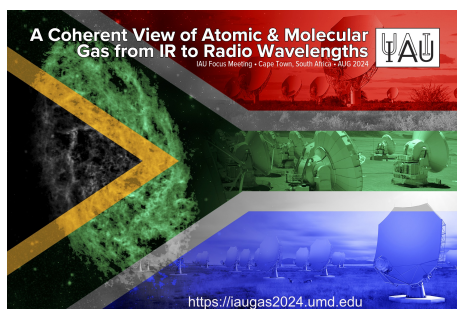
### Publications Mentioning ngVLA Surpass 1070

The [ngVLA](https://ngvla.nrao.edu) (<https://ngvla.nrao.edu>) was first discussed at a community workshop in 2015. During 2015-2023 the acronym ngVLA has appeared in [1074 publications](https://ui.adsabs.harvard.edu/search/q=full%3Angvla%20year%3A2015-2023&sort=date%20desc%2C%20bibcode%20desc&p_0) ([https://ui.adsabs.harvard.edu/search/q=full%3Angvla%20year%3A2015-2023&sort=date%20desc%2C%20bibcode%20desc&p\\_0](https://ui.adsabs.harvard.edu/search/q=full%3Angvla%20year%3A2015-2023&sort=date%20desc%2C%20bibcode%20desc&p_0)) indexed in the SAO/NASA Astrophysics Data System. This count features almost equal numbers of refereed

and non-refereed publications. The metric is a testament to the community's unwavering enthusiasm for the ngVLA. A big thanks to all publication authors!

## Follow the Monarchs: A Journey to Explore the Cosmos at (Sub)milliarcsecond Scales with the ngVLA

We are pleased to announce this ngVLA international science conference, to be held in person in the UNESCO World Heritage site of Morelia, Mexico. The conference will highlight and explore the novel scientific opportunities that will unfold with the unprecedented angular resolution and sensitivity capabilities offered by this new facility. The conference dates are still to be confirmed, but will be around November when the Monarch butterflies complete their migration journey from Canada and the US to the mountains surrounding Morelia. Stay tuned for more details.



Credit: Jeff Helderman (NRAO/AUI/NSF)

## A Coherent View of Atomic and Molecular Gas from Infrared to Radio Wavelengths

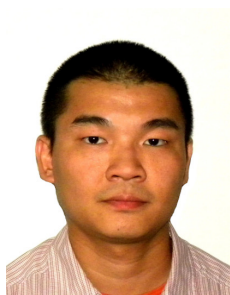
This meeting will be held in August 2024 in Cape Town, South Africa, at the XXXII International Astronomical Union General Assembly. The Focus Meeting will explore how the work taking place at existing facilities is shaping our understanding of the interstellar medium structure and feedback in our own Milky Way and external galaxies, and how this work is re-framing the science that will be addressed by the remarkable capabilities of future radio observatories. Key Focus

Meeting organizers are Alberto Bollato (U Maryland), Nami Sakai (RIKEN) and Eva Schinnerer (MPIA).

Registration for the [Focus Meeting is open \(https://astronomy2024.org/registration/\)](https://astronomy2024.org/registration/).

## Bang Nhan Appointed to the Committee on Radio Frequencies (CORF)

Chris De Pree (NRAO)



Assistant scientist, Dr. Bang D. Nhan, of the Electromagnetic Spectrum Management (ESM) Division at the National Radio Astronomy Observatory (NRAO) was nominated to serve as a committee member on the National Academy of Sciences, Engineering, and Medicine's Committee on Radio Frequencies (CORF) in October 2023. CORF is a standing committee that considers the needs for radio frequency requirements and interference protection, and acts as a channel for representing the interests of U.S. scientists in the work of the inter-union commission on frequency allocations for radio astronomy and space science (IUCAF) of the International Council of Scientific Unions.

CORF monitors and responds to radio frequency interference and allocation issues as they arise and works closely with the spectrum manager at the National Science Foundation (NSF) and the frequency management office at the National Aeronautics and Space Administration (NASA). CORF is sponsored by NASA and the NSF and was established in 1961. The Committee participates in filing comments before the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA). CORF is sponsored by NASA and NSF. Dr. Nhan's current committee term will last until the end of June 2026.

Dr. Nhan was a Jansky Postdoctoral Fellow at the NRAO's Central Development Laboratory (CDL) and is currently serving as the RFI Scientist for NRAO, a position funded by a Spectrum Innovation Initiative: National Radio Dynamic Zone (SII-NRDZ) grant from the NSF. In this role, he is assisting the NRAO and the

Green Bank Observatory (GBO) in coordinating tests and observational data sharing with satellite internet service providers to develop a spectrum-coexistence framework between the radio observatories and the satellite constellations. Dr. Nhan's research interests include developing instrumentation, signal processing, and measurement techniques for different radio astronomy and engineering applications that may require high dynamic range and low signal-to-noise ratio sensitivity. Dr. Nhan is experienced in utilizing computational electromagnetic (CEM) simulation software in conjunction with laboratory measurement (in anechoic chamber and antenna range) to evaluate the EM performance of antenna and RF/microwave systems, along with their EM compatibility (EMC). Dr. Nhan has led the effort in developing two broadband antenna prototypes for the NSF-funded Advanced Spectrum Monitor (ASM) system at CDL, designed to operate between 1-50 GHz for spectrum monitoring and direction finding for radio frequency interference (RFI). Dr. Nhan earned a Ph.D. in astrophysics from the University of Colorado at Boulder.

## **Abstract date extended - International Symposium on Space Terahertz Technology 2024 - Registration and Call for Abstracts**

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Registration is now open for the 2024 International Symposium on Space Terahertz Technology (ISSTT)! The Symposium will be held in Charlottesville, Virginia USA from April 7th to April 11th, 2024. Registration is available for in-person and virtual participation. Discounted rates, as well as lodging waivers, are available for all eligible students.

This year's Symposium will feature:

- a variety of presentations on current millimeter, submillimeter-wave and Terahertz technologies and applications in astrophysics, planetary science, Earth science and remote sensing.
- a special session on metamaterials.
- the Student Poster Competition in which winners can earn a ten minute oral presentation as well as a cash prize.
- two "Speed Geeking" sessions to help facilitate focus on additional posters in a new, more inclusive, interactive format.
- Solar eclipse party on Monday afternoon!

Submissions for the ISSTT 2024 meeting will be in the form of one-page abstracts. Student competition entries are encouraged to be two pages. All abstracts should be uploaded by January 28, 2024 as a pdf file on the [Symposium website \(https://go.nrao.edu/ISSTT24\)](https://go.nrao.edu/ISSTT24).

Registration is open through March 18, 2024. Attendance is limited. For more information, visit the [conference website \(https://go.nrao.edu/ISSTT24\)](https://go.nrao.edu/ISSTT24).

## **URSI AT-RASC 2024**

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Alessandro Navarrini (NRAO)



The triennial URSI Atlantic Radio Science Conference (URSI AT-RASC) is one of the URSI flagship conferences besides the URSI General Assembly and Scientific Symposium and the AP- RASC (Asia-Pacific Radio Science Conference).

Detailed information on paper submission as well as travel information are available through the [conference website \(https://www.at-rasc.org\)](https://www.at-rasc.org). Authors can opt to submit papers presented at this



4th URSI AT-RASC to IEEE Xplore and can take advantage of reduced page charges when submitting an extended or updated version of the papers to Radio Science Letters. In addition, there will be special programs for young scientists, a student paper competition, and programs for accompanying persons. **Paper submission deadline: January 20, 2024.**

## **NRAO Remembers and Celebrates the life of Mort Roberts (1926-2024)**

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The NRAO celebrates the life and honors the passing of its former Director, Morton S. Roberts.

Morton S. Roberts (1926-2024) was a scientist at the National Radio Astronomy Observatory (NRAO) from 1964-1978, served as Director of NRAO from 1978-1984, and was Senior Scientist at NRAO until his retirement in 2002, when he became an Emeritus Senior Scientist.

His research encompassed both optical and radio astronomy. He was an authority on the study of neutral hydrogen in galaxies. Among the highlights of his research are the first measurement of extragalactic HI absorption in radio galaxies; the first high-redshift hydrogen detections, with a resultant determination of the remarkable constancy of several fundamental constants of physics over a look-back time of one third the age of the Universe; and the first clear enunciation that many, if not most, galaxies have flat rotation curves, providing the then most definitive observational evidence for dark matter in galaxies. Roberts was a Co-Investigator for the ASTRO Imaging Experiment on the Columbia and Endeavor shuttles. Over his long career he served as American Astronomical Society (AAS) Vice President, Councilor, and on many AAS committees and boards. He was a Vice President of the International Astronomical Union (IAU), during his time on the IAU Executive Committee he served twice as Treasurer, and he was on numerous IAU committees and commissions. He was on visiting, advisory, or assessment committees for Arecibo Observatory, Department of Terrestrial Magnetism, Max-Planck-Institut für Radioastronomie, Carnegie Institution of Washington, Space Telescope Science Institute, Johns Hopkins University Dept. of Physics and Astronomy, and Association of Universities for Research in Astronomy (AURA). He served on editorial boards or as editor for Annual Review of Astronomy and Astrophysics, Astronomical Journal, and Astronomy and Astrophysics.

[Read more \(https://www.nrao.edu/archives/roberts-finding-aid\)](https://www.nrao.edu/archives/roberts-finding-aid) about the work of Mort Roberts at NRAO, and his [tribute page \(https://www.everlywheatley.com/tributes/Morton-Roberts\)](https://www.everlywheatley.com/tributes/Morton-Roberts).

Image and text from the NRAO Archives.

## **New NRDZ Video**

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Chris De Pree (NRAO)

This short video looks at the importance of the National Radio Quiet Zone (NRQZ), and how it and a planned National Radio Dynamic Zone (NRDZ) will help us to continue to make important discoveries about our universe. In an age of increased technological noise, it is important to preserve and adapt these Quiet Zones not only to protect the investment into radio astronomy but also to safeguard the future of cosmic exploration.

Click [here \(https://www.youtube.com/watch?v=3s8yG\\_ncM9U\)](https://www.youtube.com/watch?v=3s8yG_ncM9U) to watch the video.



Image: One World Network /NSF/AUI/NRAO/GBO.

## Arizona Radio Observatory 2024A Call for Proposals

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Remo Tilanus (ARO)



Credit: ARO

The [University of Arizona's Stewart Observatory \(https://www.as.arizona.edu/\)](https://www.as.arizona.edu/) solicits proposals for [Arizona Radio Observatory \(https://aro.as.arizona.edu/\)](https://aro.as.arizona.edu/) (ARO) telescopes for observing during **semester 24A** (Feb 21 - Jun 15, 2024) for:

- (1) The 10-m UArizona ARO Submillimeter Telescope (SMT), located on Mount Graham, Arizona. Proposals are invited from the general astronomical community for observations with the 1.3 (ALMA Band 6) and 0.8 (ALMA Band 7) mm receivers and the standard backend with bandwidths of 32 to 2000 MHz and channel resolutions from 0.25 to 1 MHz.
- (2) The UArizona ARO 12-meter Telescope (12M), located on Kitt Peak, Arizona. Proposals are invited from the general astronomical community for observations with the 4-band receiver covering the 4, 3 (ALMA Band 3), 2, and 1 (ALMA Band 6) mm bands and the AROWS backend with bandwidths of 20 to 4000 MHz and channel spacings from 9.8 to 625 kHz.

In case of more requested observing time than schedulable observing time, preference will be given to Arizona (UArizona, ASU, and NAU) and student thesis proposals. Proposers are requested to fill out both pages of the cover sheet, science justification (two pages), technical justification (two pages), and past allocation update (one page).

View the [ARO Call for Proposals \(https://aro.as.arizona.edu/?q=observing-aro/proposals\)](https://aro.as.arizona.edu/?q=observing-aro/proposals) for complete instructions. The deadline for proposals is 23:59 MST on Jan 31, 2024.

## VLA and ngVLA featured in Pasatiempo Magazine

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Corrina Feldman (NRAO)



The Very Large Array and next generation Very Large Array project are both featured in the cover story of the January 2024 edition of Pasatiempo Magazine, a publication of the Santa Fe New Mexican newspaper.

"The massive edifice was built in the 1970s and tweaked to allow new technology in 2011; to this day, it's the most powerful and most flexible instrument of its kind.

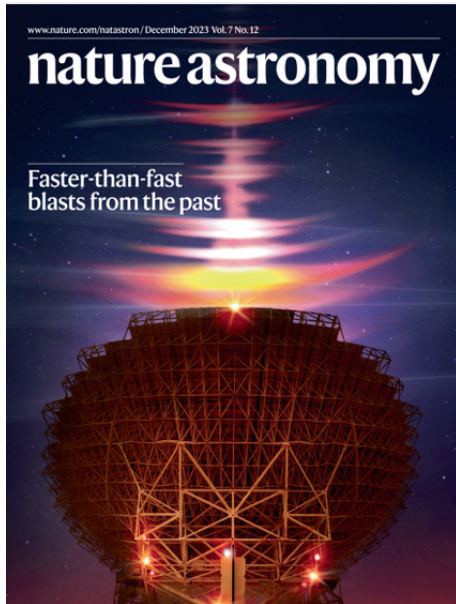
More than 200 Ph.D.s have been awarded based on research conducted at the site...The VLA, over time, will yield to the ngVLA, which stands for Next Generation Very Large Array, and construction on a prototype antenna dish will begin in January... 'There are hundreds of people who use the VLA every year. Students need it for their work,' VLA Site Director Trish Henning says."

Read the article ([https://www.santafenewmexican.com/pasatiempo/the-very-large-project/article\\_953d0908-84bb-11ee-b883-37fcb9c67d0.html](https://www.santafenewmexican.com/pasatiempo/the-very-large-project/article_953d0908-84bb-11ee-b883-37fcb9c67d0.html)) in its entirety.

## GBT makes the cover of Nature Astronomy

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Jill Malusky (NRAO/GBO)



The Green Bank Telescope was featured on the cover of Nature Astronomy, with an article about [ultra-fast radio bursts](https://www.nature.com/natastron/volumes/7/issues/12) (<https://www.nature.com/natastron/volumes/7/issues/12>) by Snedlers et al.

Image: Futselaar/ASTRON/NSF/AUI/NRAO/GBO. Cover design: Bethany Vukomanovic.

## Recent Science Media Releases

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[Astronomers Discover Most Massive Neutron Star - or Least Massive Black Hole](https://greenbankobservatory.org/astronomers-discover-most-massive-neutron-star-or-least-massive-black-hole/)  
(<https://greenbankobservatory.org/astronomers-discover-most-massive-neutron-star-or-least-massive-black-hole/>)

January 18, 2024



[New Details of Supermassive Black Hole's Shadow Revealed](https://public.nrao.edu/news/new-details-of-supermassive-black-holes-shadow-revealed/)  
(<https://public.nrao.edu/news/new-details-of-supermassive-black-holes-shadow-revealed/>)

January 18, 2024



[Early Evolution of Planetary Disk Structures](https://public.nrao.edu/news/early-evolution-of-planetary-disk-structures-seen-for-the-first-time/) (<https://public.nrao.edu/news/early-evolution-of-planetary-disk-structures-seen-for-the-first-time/>)

January 8, 2024



[Mystery of Star Formation Revealed](https://public.nrao.edu/news/mystery-of-star-formation-revealed-by-hearts-of-molecular-clouds/) (<https://public.nrao.edu/news/mystery-of-star-formation-revealed-by-hearts-of-molecular-clouds/>)

January 8, 2024



[COSMIC: SETI Institute Unlocks Mysteries of the Universe](https://public.nrao.edu/news/cosmic-seti-institute-unlocks-mysteries-of-the-universe-with-breakthrough-technology-at-the-very-large-array/)  
(<https://public.nrao.edu/news/cosmic-seti-institute-unlocks-mysteries-of-the-universe-with-breakthrough-technology-at-the-very-large-array/>)

January 8, 2024

[More NRAO Media...](https://public.nrao.edu/news/) (<https://public.nrao.edu/news/>)

**Contact the NRAO press office (<https://public.nrao.edu/press-office/>) to share your new and exciting science results.**

## From the Archives

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Ellen Bouton



Credit: Ellen Bouton

**About this month's photo:** Following NSF final approval in February 1965 and 2.5 years of construction on Kitt Peak AZ, NRAO's 36 foot telescope began formal operation in January 1968. This photo, taken in September 1967, late in the construction process, shows the prime focus at the end of the bipod receiver mount, with the stabilizing guy wires visible. The pipe carried cooling air to the receiver, which was bolted to the adjustable Stirling mount. And yes, the man on the left really is standing on top of the electrical boxes! Why? Is he holding a tape measure or a plumb line? Is he indicating a measuring point or a direction to shift?

**From the Archives** is an ongoing series illustrating NRAO and U.S. radio astronomy history via images selected from our collections of individuals' and institutional papers. If readers have images they believe would be of interest to the Archives, please contact [Ellen Bouton \(mailto:archivist@nrao.edu\)](mailto:archivist@nrao.edu).

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Contact the Editor ([mailto:bkent@nrao.edu?subject=NRAO eNews Editor](mailto:bkent@nrao.edu?subject=NRAO%20eNews%20Editor))  (<https://twitter.com/TheNRAO>)

 (<https://www.facebook.com/pages/Charlottesville-VA/National-Radio-Astronomy-Observatory-NRAO/22534272968#!/pages/Charlottesville-VA/National-Radio-Astronomy-Observatory-NRAO/22534272968>)

 (<https://www.instagram.com/national.radio.astronomy>)



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