



**Monthly Newsletter of International URSI Commission J – Radio Astronomy**  
March 2018

**Officers**

Chair: Richard Bradley  
Vice-Chair: Douglas Bock

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**News Items**

Greetings Commission J Members!

Preparations continue for the 2018 URSI Atlantic Radio Science Conference (2018 AT-RASC). All of the submitted abstracts have been reviewed by the Commission officers. Activities associated with the Student Paper Competition and Young Scientist Award are completed. We are now ready to assemble the program. I'm aware of several scheduling conflicts that occur toward the end of the week so I'll do my best to arrange the schedule to alleviate potential problems. Also, there will be a short session on Photonics in Radio Astronomy included in the program – it was proposed too late to be included in the official announcement.

This month we highlight the NRAO/AUI Archives for radio astronomy. This is a wonderful resource for not only historians of science but also active researchers who seek a historical perspective for their work. The archives extend far beyond NRAO activities and includes information from a wide variety of sources. Archivist Ellen Bouton has generously provided an overview of the Archive for this edition of the Newsletter, including several links to websites for further information.

I appreciate the wonderful comments I've been receiving about the Newsletter. It is my pleasure to bring this to you each month. I welcome your ideas, articles, news, photos, etc. - I need your help to keep it interesting and informative.

*Submitted by R. Bradley*

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**2018 URSI Atlantic Radio Science Conference (2018 AT-RASC)**

28 May – 1 June 2018, ExpoMeloneras Convention Centre, Gran Canaria

**Abstract submission closed**

**Registration is now open**

<https://mailchi.mp/intec/at-rasc-2018-registration-is-now-open?e=6dc54cab9b>

- J.1 *Software Enabled Radio Astronomy*  
Richard Prestage, Cedric Viou, Alessandra Zanichelli
- J.2 *Large N Aperture Arrays*  
Eloy de Lera Acedo, Kris Zarb Adami
- J.3 *Pattern Recognition Applications in Radio Astronomy*  
Abhi Datta, David Rapetti
- J.4 *Novel Instrument Concepts and Observational Challenges*  
Douglas Bock, Richard Bradley
- J.5 *Detecting Hydrogen Near and Far*  
Jackie Hewitt, Eloy de Lera Acedo
- J.6 *Instruments for Education*  
Glen Langston, Kevin Bandura
- J.7 *Mm wave / sub-mm Wave Science and Technology*  
Pepe Cernicharo, Juan Daniel Gallego, Rolf Gusten

**Special Sessions:**

S-JACEFG – *Applications for pattern recognition methodologies*

S-EACFJ - *Spectrum Management and Utilization*

S-J - *Photonics in Radio Astronomy*

**Workshops:**

JB - *Polarimetry of advanced antenna systems in radio astronomy*

JG - *3-D ionospheric models for radio interferometric calibration*

GJEFH - *Space Weather*

Additional information will appear here as the conference program is assembled.

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**2019 URSI Pacific Radio Science Conference (2019 AP-RASC)**

9 -15 March 2019, New Delhi, India

Plans are underway for the 2019 AP-RASC in New Delhi, India. Please see

<http://aprasc2019.com/> for details. A possible RFI mitigation workshop associated with this meeting is being discussed.

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## **2020 URSI General Assembly and Scientific Symposium (2020 URSI GASS)**

*Rome, Italy*

The site for the next URSI General Assembly and Scientific Symposium has been chosen! Stay tuned for details. If you like to organize a session or workshop at the 2020 URSI GASS please let me know.

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### **Activities Spotlight**

#### **NRAO/AUI Archives**

Initial design discussions for the VLA? Reber's financial records for construction of his Wheaton antenna? 85 foot telescope log books for Frank Drake's 1960 Ozma observations? Doc Ewen writing about detecting the HI line? Ron Bracewell's notes and correspondence from his years at Cambridge? John Findlay's materials on Project West Ford? Woody Sullivan's 1971-1988 interviews of 255 radio astronomers? Early discussions about a millimeter-wavelength array? Nan Deiter's recollections of her time at Harvard in the 1950s? GBT design and construction? The creation of NRAO? We have it all (and much more) in the National Radio Astronomy Observatory/Associated Universities Inc. Archives.

Started in 2003, the NRAO/AUI Archives actively seeks out, collects, organizes, preserves, and provides access to institutional records, personal papers, multimedia materials, and oral histories of enduring value which document NRAO's historical development, institutional history, instrument construction, and ongoing activities, including its participation in multi-institutional collaborations. As the national facility for radio astronomy, the Archives also includes materials on history and development of radio astronomy in the United States, particularly if such materials are in danger of being lost or discarded by other institutions or individuals.

NRAO has facilities in multiple US locations, as well as at ALMA sites in Chile; the Archives for all of NRAO are in a dedicated space in Charlottesville at NRAO/North American ALMA Science Center (NAASC). Since we were starting from nothing, our first concern was records of NRAO – 17 full file cabinets of back Director's Office files that had been stored in an unheated, uncooled attic storage space for years. A grant from the American Institute of Physics, Center for the History of Physics, funded the organization, processing, and indexing of NRAO records from our organization and founding through 1979, a time period covering the tenure of our first two Directors, Otto Struve and David Heesch. More back files came to us from Tucson, from the warehouse in Green Bank, and from a storage area at the VLA site, and material continues to come to the Archives as files move from active to inactive status.

In 1995 Grote Reber donated materials to NRAO, 95 packing crates shipped to Green Bank, where they were opened and sorted by Reber, visiting for several weeks, and NRAO staff. Much of what he sent was old radio and electronic equipment, but the shipment included ~100 linear

feet of documents: correspondence, drawings, construction records, reports, photographs, notes, papers, and research materials. Reber's papers were transferred to the Archives in 2003, and a gift from the Reber estate funded their processing and allowed us to scan most of the material, see <http://www.nrao.edu/archives/Reber/reber.shtml>.

John Kraus, Ohio State Professor of Electrical Engineering and Astronomy for most of his career, was an antenna expert and build several radio telescopes, including an array of 96 helices completed in 1953, as well as "Big Ear," a fixed parabolic reflector, measuring 110 by 21 meters. After his 2004 death, Kraus' personal and professional papers (<http://www.nrao.edu/archives/Kraus/kraus.shtml>) were donated to the NRAO/AUI Archives by his son. In 2008 Ron Bracewell's family donated his radio astronomy papers (<http://www.nrao.edu/archives/Bracewell/bracewell.shtml>), including records from his time in Cambridge, at CSIRO, and his years at Stanford.

After completing his book, *Cosmic Noise: A History of Early Radio Astronomy* (Cambridge 2009) Woody Sullivan donated the 30 years' worth of research materials for the book, including 188 audio tapes for the extensive set of interviews he conducted between 1971 and 1988 with 255 radio astronomers around the world. Many of these interviews have been digitized and posted on the Web, and we continue to work towards making the full set available (<http://www.nrao.edu/archives/Sullivan/sullivan.shtml>).

Other collections (some large, some small) include papers of Donald C. Backer, Alan H. Barrett, Robert L. Brown, Bernard F. Burke, Marshall H. Cohen, Mark A. Gordon, David S. Heesch, David E. Hogg, Kenneth I. Kellermann, Morton S. Roberts, Arthur M. Shalloway, A. Richard Thompson, James S. Ulvestad, Paul A. Vanden Bout, and Gart Westerhout.

The Archives also includes Web resources: writings on their work with accompanying photos by Nanniellou Hepburn Dieter Conklin and H.I. (Doc) Ewen, an oral interview with Cambell M. Wade on the early VLA project and site search, and notes from early radio astronomy courses taught by H.C. van de Hulst (1951) and Kevin Westfold (1958).

Finding aids for all our collections are all on the Web, see <http://www.nrao.edu/archives/> for an overview, and we have an online catalog, <http://jump2.nrao.edu/dbtw-wpd/textbase/archivesearch.htm>. Both the online catalog and the finding aids include links to those materials that have been scanned. We hope you will explore our holdings! Contact Ellen Bouton, Archivist ([archivist@nrao.edu](mailto:archivist@nrao.edu)) for further information.

*Submitted by E. Bouton*

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## Photo from the Field



Should someone inform the operator that these antennas are not pointing properly? No, they're working just fine! This is ASKAP, a radio telescope being built by the CSIRO in Murchison Shire, 370km northeast of Geraldton in Western Australia. It's a network of 36 antennas, each 12 metres in diameter. While most radio telescopes see just one patch of sky at a time, ASKAP's phased-array feeds see 36 different patches of sky simultaneously. This is great for finding Fast Radio Bursts (FRBs) because the more sky you can see, the better chance you have of finding them. Normally, ASKAP dishes all point in the same direction for making images or to find faint FRBs. To find lots of FRBs we need to cast an even wider net. Here we see ASKAP antennas during fly's-eye observing. All the antennas point in different directions.

*Photographer: Kim Steele, Curtin University.*

If you have an interesting photograph that you wouldn't mind sharing with others in the public domain I encourage you to please send a copy to me along with a brief caption and the person's name or organization to whom I should credit.



Stimulating and co-ordinating, on an international basis, studies, research, applications, scientific exchange, and communication in the fields of radio science