



Monthly Newsletter of International URSI Commission J – Radio Astronomy
October 2019

Officers

Chair: Richard Bradley
Vice-Chair: Douglas Bock

ECRs: Stefan Wijnholds
Jacki Gilmore

Prepared by R. Bradley, Chair, Commission J, rbradley@nrao.edu

News Items

Greetings from the Chair!

- **PAPER SUBMISSION FOR THE 2020 URSI GASS IS NOW OPEN!!** Please consider presenting your work at the Scientific Symposium – the Commission J program is listed in the Newsletter. URSI GASS details may be found at <https://www.ursi2020.org/>
- The Chair of Commission A, Yasuhiro Koyama, brought to my attention the current situation within the ITU-R regarding a possible redefinition of Coordinated Universal Time (UTC). The Activities Spotlight this month is on this interesting but rather contentious topic. In 2015, the ITU-R decided to continue further discussions until 2023 by cooperating with other relevant organizations, including URSI. An official statement from URSI is planned. In preparation for this statement, I'd like to open this topic for discussion within our Newsletter.
- Consider highlighting your research in the Activities Spotlight section of our Newsletter. The topic, writing style, and length are totally up to you. I am quite flexible with regard to your busy calendar in scheduling deadlines. The Spotlight articles and Photo from the Field section keeps your Newsletter fresh and interesting each month. Consider this your platform to share thoughts, ideas, historical notes, research activities, updates, etc.
- Looking for a past issue of the “J” Newsletter? The Newsletters and other URSI Commission J documents are archived at <http://www.ursi.org/commission.php?id=J#tab-section4> .

Submitted by R. Bradley



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

Rome, Italy 29 August - 5 September 2020

*** Tentative Program for Commission J – GASS 2020 ***

Sessions:

J01: New Telescopes on the Frontier

Conveners: Nipanjana Patra, Jeff Wagg, Arnold van Ardenne

J02: Recent and Future Space Missions

Conveners: Joseph Lazio, Heino Falcke, Yuri Kovalev

J03: Single Dish Instruments

Conveners: Alex Kraus, Anish Roshi, Jin Chengjin

J04: Very Long Baseline Interferometry

Conveners: Francisco Colomer, Taehyun Jung, Chris Jacobs

J05: Millimeter/Submillimeter Arrays

Conveners: Sheng-Cai Shi, Raymond Blundell

J06: Antennas and Receivers: Simulation, Design and Calibration

Conveners: Jacki Gilmore, Douglas Hayman, Pietro Bolli, David Davidson

J07: Digital Signal Processing: Algorithms and Platforms

Conveners: Grant Hampson, Albert-Jan Boonstra

J08: Short-Duration Transients, FRBs, and Pulsars: Observations, Techniques, and Instrumentation

Conveners: Jason Hessels

J09: The Impact of Radio Astronomy on Technology and Society

Conveners: Richard Schilizzi, Leonid Gurvits, Ken Kellermann, Richard Wielebinski

J10: Latest News and Observatory Reports

Conveners: Rich Bradley, Douglas Bock

J11: Big data: Algorithms and Platforms

Conveners: Stefan Wijnholds, Maxim Voronkov

Workshops and Shared Sessions

Workshop: Characterization and Mitigation of Radio Frequency Interference (Commissions JEFJGH)

Conveners: Amit K. Mishra (F), David M. Levine (F), Frank Gronwald (E), Richard Bradley (J)

Workshop: Some aspects of radio science in space weather (Commissions GHJ)

Conveners: Iwona Stanislawska (G), Richard Fallows (J), Patricia Doherty (G), Mauro Messerotti (H/J), Baptiste Cecconi (H/J), Vivianne Pierard (H), Janos Lichtenberger (H), Willem Baan (J)

J-ITU: Next Generation Radio Astronomy Science and Technologies (Joint URSI/IAU Session)

Conveners: Anthony Beasley, Carole Jackson, Gabriele Giovannini, Melissa Soriano

Mutual benefit between radio astronomy and ionospheric science (Commissions JG)

Conveners: Claudio Cesaroni (G), Maaijke Mevius (J)

Spectrum Management (Commissions ECJ)

Conveners: Amir Zaghloul (C), Tasso Tzioumis (J), Jose Borrego (E)

Solar, Planetary, and Heliospheric Radio Emissions (Commissions HJ)

Conveners: Patrick Galopeau (H), G. Mann (H) and H.O. Rucker (H), Pietro Zucca (J)

The polar Environment and Geospace (Commissions GHJ)

Conveners: Lucilla Alfonsi (G), Nicolas Bergeot (G), Mark Cliverd (H), Stefan Lotz (H)

Activities Spotlight – Leap Seconds

The International Telecommunication Union – Radio Communications Sector (ITU-R) is pondering the current practice of adding Leap Seconds to UTC (its rate defined by International Atomic Time) to force congruence with UT1 to within 0.9 sec. Should this practice continue? What are the advantages and disadvantages of allowing them to drift apart? The ITU-R asked for input from various organizations, including URSI, on this rather contentious topic. Some background information is available in this 2016 article in Nature Physics: <https://www.nature.com/articles/nphys3975> . Details of the ITU-R position may be found on pp. 357-359 of the Provisional Final Acts, World Radiocommunication Conference (WRC-15), reproduced at the end of this article for your reference. The complete document may be found at https://www.itu.int/dms_pub/itu-r/opb/act/R-ACT-WRC.11-2015-PDF-E.pdf

Last month, I posed the question to radioastronomy-hams@groups.io for an initial response. It generated some interesting comments and anecdotal stories highlighting both sides of the debate. As URSI begins drafting a response to the ITU-R request, input from Commission J is of utmost importance. Our Newsletter may be used to as forum for this discussion. To share your comments, suggestions, and stories with our readers please send them to me at rbradley@nrao.edu – they will appear in upcoming issues of the Newsletter. I'm looking forward to hearing from you.

Submitted by R. Bradley

[pp. 357-359 of the Provisional Final Acts, World Radiocommunication Conference (WRC-15)]

RESOLUTION COM5/1 (WRC-15)

Definition of time scale and dissemination of time signals via radiocommunication systems

The World Radiocommunication Conference (Geneva, 2015),

considering

- a) that the ITU Radiocommunication Sector (ITU-R) is responsible for defining the standard frequency and time signal service and the standard frequency and time signal-satellite service for the dissemination of time signals via radiocommunication;
- b) that the International Bureau of Weights and Measures (BIPM) is responsible for establishing and maintaining the second of the International System of Units (SI) and its dissemination through the reference time scale;

c) that the definition of reference time scale and dissemination of time signals via radiocommunication systems are important for applications and equipment that require a time traceable to the reference time,

considering further

a) that ITU-R is an organization member of the Consultative Committee for Time and Frequency (CCTF) and participates in the General Conference on Weights and Measures (CGPM) as an observer;

b) that BIPM is a Sector Member of ITU-R and participates in the relevant activities of ITU-R,

noting

a) that the international reference time scale is the legal basis for time-keeping for many countries, and de facto is the time-scale used in the majority of countries;

b) that disseminated time signals are used not only in telecommunications but also in many industries and practically all areas of human activities;

c) that time signals are disseminated by both wired communications covered by Recommendations of the ITU Telecommunication Standardization Sector (ITU-T) and by systems of different radiocommunication services (space and terrestrial), including the standard frequency and time signal service for which ITU-R is responsible,

recognizing

a) that No. 26.1 states that: “Attention should be given to the extension of this service to those areas of the world not adequately served”;

b) that No. 26.6 states that: “In selecting the technical characteristics of standard frequency and time signal transmissions, administrations shall be guided by the relevant ITU-R Recommendations”;

c) that the current definition of the international reference time scale UTC resulted from work completed in 1970 by the International Radio Consultative Committee (CCIR) of ITU, in full cooperation with CGPM;

d) that the ITU World Administrative Radio Conference 1979 (WARC-79) included UTC in the Radio Regulations, and since then UTC, as “strongly endorsed” in Resolution 5 of CGPM (1975), has been used as the main time scale for telecommunication networks (wired and wireless) and for other time-related applications and equipment,

resolves to invite the ITU Radiocommunication Sector

1) to strengthen the cooperation between ITU-R and BIPM, the International Committee for Weights and Measures (CIPM), CGPM, as well as other relevant organizations, and to carry out a dialogue concerning the expertise of each organization;

2) to further and more widely study in cooperation with the relevant international organizations, concerned industries and user groups, through the participation of the membership, the various aspects of current and potential future reference time scales, including their impacts and applications;

3) to provide advice on the content and structure of time signals to be disseminated by radiocommunication systems, using the combined expertise of the relevant organizations;

4) to prepare one or more reports containing the results of studies that should include one or more proposals to determine the reference time scale and address other issues mentioned in 1, 2 and 3 above,

resolves

that until WRC-23, UTC as described in Recommendation ITU-R TF.460-6 shall continue to apply, and for most practical purposes associated with the Radio Regulations, UTC is equivalent to mean solar time at the prime meridian (0° longitude), formerly expressed in GMT,

instructs the Director of the Radiocommunication Bureau

1) to invite the relevant international organizations such as the International Maritime Organization (IMO), the International Civil Aviation Organization (ICAO), CGPM, CIPM, BIPM, the International Earth Rotation and Reference Systems Service (IERS), the International Union of Geodesy and Geophysics (IUGG), the International Union of Radio Science (URSI), the International Organization for Standardization (ISO), the World Meteorological Organization (WMO) and the International Astronomical Union (IAU) to participate in the work mentioned in *resolves to invite the ITU Radiocommunication Sector*;

2) to report on the progress of this resolution to WRC-23,

invites the Director of the Telecommunication Development Bureau

to assist the participation of developing countries in meetings, within approved budgetary resources,

invites administrations

to participate in the studies by submitting contributions to ITU-R,

instructs the Secretary-General

to bring this resolution to the attention of IMO, ICAO, CGPM, CIPM, BIPM, IERS, IUGG, URSI, ISO, WMO and IAU.

Workshop Announcements

High-Resolution Radio Interferometry in Space: Second International Meeting

Following the spectacular images from the Event Horizon Telescope and the successful Space VLBI missions HALCA and RadioAstron, there is growing interest in the next set of Space VLBI technical concepts, including next-generation constellations and millimeter-wavelength systems. This meeting is a second in a series of international meetings, the first of which was held at Noordwijk in 2018, <URL: <https://www.ru.nl/astrophysics/@1164989/future-high-resolution-radio-interferometry-space/> >. The focus of this second meeting is to review black hole and other Space VLBI science cases, and begin to assess the maturity of the relevant technologies and needed technology developments and roadmaps.

Date: 2020 January 27–29 (TBC), Venue: NRAO, Charlottesville, VA

Job Postings – Radio Astronomy and Related Fields

ASSISTANT PROFESSOR IN SPACE PHYSICS

School of Earth and Space Exploration

School of Mathematical and Statistical Sciences

Arizona State University

The School of Earth and Space Exploration (SESE) and the School of Mathematical and Statistical Sciences (SoMSS) at Arizona State University invite applications for a joint appointment as tenure-track Assistant Professor with expertise in space physics to begin August 2020. We encourage applications from a diverse range of candidates who approach space physics from varied perspectives, including theory, analysis, observation, and/or instrument development. Examples of research and teaching areas of interest include solar processes, space plasma physics, ionospheric dynamics, space weather and its impact on technological systems, or the general heliophysical environment and its response to solar events, as well as data analysis, computation, or engineering methods used to enable the study of space physics.

An essential characteristic of the academic environment at ASU is integration of research and teaching across traditional disciplinary boundaries. We seek someone who would be excited to catalyze research and educational collaborations with other faculty and groups. Existing areas of research emphasis at ASU that may present opportunities for collaboration include star-planet connections in exoplanetary systems, stellar models, planetary atmospheres and magnetism, ionospheric data modeling, resilient computing and microwave communications systems, and small satellite and instrument development. For more information, see <http://apply.interfolio.com/68689>

