

Report of the International Astronomical Union (IAU) to the 25th meeting of the CCU (21-23 September 2021)

The IAU, founded in 1919, is the international astronomical organisation that brings together more than 12 000 active professional astronomers from more than 100 countries worldwide. Its mission is to promote and safeguard the science of astronomy in all its aspects, including research, communication, education and development, through international cooperation. Its Individual and Junior Members are structured in Divisions, Commissions and Working Groups. In addition, the IAU collaborates with various scientific organizations all over the world. It also serves as the internationally recognised authority for assigning designations to celestial bodies and the surface features on them.

1) Activities of the IAU since the 24th meeting of the CCU

The period 2019-2021 has been an unusual period due to the Covid 19 pandemic, which resulted in postponing the 2021 “IAU Symposia”, either to the end of the year 2021, or to 2022. But, this was also a very busy period with starting to implement the new Strategic Plan, celebrating 100 years of the IAU worldwide just before the pandemic, and with addressing major challenges.

The 31th General Assembly to be held in August 2021 has also been postponed to 2022. However, the « Business Sessions » that would normally have taken place during the GA, have gone ahead separately, in virtual format, on 23 and 26 August 2021. These sessions were preceded by « IAU Today sessions », with talks by international prizewinners, IAU PhD Prize winners, and leaders of IAU Offices and Executive Committee Working Groups.

The scientific sessions of the 31th GA will take place in Busan (South Korea) in August 2022. This will include 5-day Symposia on various astronomical topics, 2-day Focus meetings on topical issues, one-day scientific meeting of each of the nine scientific Divisions, and a large number of meetings of scientific commissions and working groups.

At the 2021 GA Business Sessions, the IAU welcomed a few new National members and Observers, approved new Honorary, Individual and Junior Members, presented the budget and accounts for 2018–2021, and approved the budget for the next triennium along with a few changes to the Bye-laws. The members of the IAU Committees for the next triennium were approved as well as Division Presidents and Vice Presidents.

The Officers of the IAU Executive Committees for the period 2021-2024 are:

President: Debra Meloy Elmegreen

General Secretary: José Miguel Rodríguez Espinosa

President-elect: Willy Benz

Assistant General Secretary: Diana Worrall

2) Adoption of IAU 2021 Resolutions

Four new Resolutions were presented and voted electronically at the GA :

1. Resolution B1 in support of the protection of geodetic radio astronomy against radio frequency interference.
2. Resolution B2 on the improvement of the Earth’s rotation theories and models.
3. Resolution B3 on the Gaia Celestial Reference Frame.
4. Resolution B4 on the use of a standard photometric system in ultraviolet (UV)

Resolution B1 is related to the IAU’s [ongoing efforts](#) to preserve dark and quiet skies for the protection of the science of astronomy. The other three resolutions seek to establish and improve standards and reference frames, to facilitate cooperation in astronomy research.

3) List of current IAU Commissions and Working Groups relevant to the CCU matters

- Division A Commission on *Fundamental standards*
- Division A Commission on *Earth Rotation*
- Division A Commission on *Solar System Ephemerides*
- Division A WG *Numerical Standards in Fundamental Astronomy*
- Division A WG *Standards of Fundamental Astronomy*
- Division A WG on *Metrology standards*

4) 2018 Official position of the IAU concerning the definition of the term unit

This issue was one of the items in the agenda of the meeting of the IAU Commission on "Fundamental standards" during the 2018 IAU General Assembly. This resulted in a draft position that was submitted to the IAU General Secretary who gave his agreement. The following official position was provided at the 23th CCU meeting: "The formulation "value of the unit" is considered as unnecessarily complicating the issue and recursively defining what a unit is."

No other IAU discussion on that topic was held since that time.

5) Position of the IAU on the choice of units for angles and dimensionless quantities

Astronomers make extensive use of SI units and have always used, defined and also realized, units at a high accuracy level. However, they have a practical approach to the problem and are therefore using radians and Hertz on this way.

No official discussion has been organized so far within the IAU on the choice of units for angles and dimensionless quantities, this question having only been discussed during informal discussions between a few members of the IAU. It might be difficult to achieve an IAU consensus on this issue, astronomy being made up of various sub-fields, close to either mathematics, or physics, or chemistry, etc., which could lead to different points of view.

We can hope that future IAU discussions on this issue will be facilitated by comparing the various views expressed at the 25th CCU meeting and reviewing the IUPAP draft recommendation for a resolution on SI units.

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