

**International Astronomical Union (IAU)**  
**Division C Astronomy Education, Outreach and Heritage**  
**Annual Report (2022)**

[\(https://www.iau.org/science/scientific\\_bodies/divisions/C/info/\)](https://www.iau.org/science/scientific_bodies/divisions/C/info/)

**I. Division C administration.**

**Current Steering Committee (August 2021 - August 2024):**

- Richard de Grijs (President), Macquarie University, Australia
- Edward Leocadio Gomez (Vice-President), Las Cumbres Observatory, United Kingdom
- Mirjana Pović (Secretary), Space Science and Geospatial Institute, Ethiopia, and Instituto de Astrofísica de Andalucía, Spain
- Susana E. Deustua (Advisor - Past President), National Institute of Standards and Technology, US
- Eleni Thomai Chatzichristou (member), European Research Council, Belgium
- Steven Gullberg (member), University of Oklahoma, US
- Mamta Pommier (member), Université de Montpellier, France
- Xiaochun Sun (member), University of Chinese Academy of Sciences, China
- Akihiko Tomita (member), Wakayama University, Japan
- Boonrucksar Soonthornthum (Commission C1 President), National Astronomical Research Institute of Thailand, Thailand
- Oana Sandu (Barbulete) (Commission C2 President), European Southern Observatory, Germany
- Christiaan L. Sterken (Commission C3 President), Vrije Universiteit Brussel, Belgium
- Juan Antonio Belmonte Aviles (Commission C4 President), Instituto de Astrofísica de Canarias, Spain

**II. Current Division C structure.**

**Division C Commissions:**

(4 Division Commissions and 1 Inter-Division Commission)

- Commission C1: Astronomy Education and Development  
[\(https://www.iau.org/science/scientific\\_bodies/commissions/C1/\)](https://www.iau.org/science/scientific_bodies/commissions/C1/)
- Commission C2: Communicating Astronomy with the Public  
[\(https://www.iau.org/science/scientific\\_bodies/commissions/C2/\)](https://www.iau.org/science/scientific_bodies/commissions/C2/)
- Commission C3: History of Astronomy  
[\(https://www.iau.org/science/scientific\\_bodies/commissions/C3/\)](https://www.iau.org/science/scientific_bodies/commissions/C3/)
- Commission C4: World Heritage and Astronomy  
[\(https://www.iau.org/science/scientific\\_bodies/commissions/C4/\)](https://www.iau.org/science/scientific_bodies/commissions/C4/)
- Inter-Division B-C Commission: Protection of Existing and Potential Observatory Sites  
[\(https://www.iau.org/science/scientific\\_bodies/commissions/B7/\)](https://www.iau.org/science/scientific_bodies/commissions/B7/)

Division C also hosts the Inter-Commission C1-C2-C3-C4 Working Group Astronomy in Culture (WGAC) [\(https://www.iau.org/science/scientific\\_bodies/working\\_groups/284/\)](https://www.iau.org/science/scientific_bodies/working_groups/284/)

**Division C Working Groups:**

(2 Division Working Groups and 1 Inter-Division Working Group)

- Working Group on Key Initiatives in Education, Outreach and Development  
[\(https://www.iau.org/science/scientific\\_bodies/working\\_groups/334/\)](https://www.iau.org/science/scientific_bodies/working_groups/334/)
- Star Names  
[\(https://www.iau.org/science/scientific\\_bodies/working\\_groups/280/\)](https://www.iau.org/science/scientific_bodies/working_groups/280/)
- Inter-Division C-E Working Group: Solar Eclipses  
[\(https://www.iau.org/science/scientific\\_bodies/working\\_groups/93/\)](https://www.iau.org/science/scientific_bodies/working_groups/93/)

**Additional note:** In 2022, the new Division C Working Group on Key Initiatives in Education, Outreach, and Development started its operation, by encompassing a number of valuable, consolidated programmes promoted by the IAU in connection with education, outreach, and development. This newly formed working group includes initiatives such as Galileo Teacher Training Program (GTTP), Network for Astronomy School Education (NASE), Pale Blue Dot (Astronomy for Global Citizenship and Environmental Awareness), and Universe Awareness (UNAWA). In 2022 two additional programs were incorporated, Eratosthenes Experiment (Greece), and Proyecto Eratosthenes (Argentina-America): la Tierra es Redonda.

### **III. Division C members.**

[\(https://www.iau.org/science/scientific\\_bodies/divisions/C/members/\)](https://www.iau.org/science/scientific_bodies/divisions/C/members/)

Division C is growing, with 96 new members in total in comparison to March 2022 statistics. Out of that, 45 are new junior members. The current statistics are:

- Total number of active members: 2594 (2498 in 2021)
- Number of junior members: 281 (236 in 2021)

### **IV. Division C meeting during the IAU General Assembly (GA) 2022 (Busan, Republic of Korea).**

Division C organised a 2-days meeting titled '[Towards inclusion in astronomy education, outreach, history, and heritage](#)' during the IAU GA 2022, on Aug 5 and 8 (Chair Richard de Grijs, Programme Coordinator Edward Gomez, SOC Division C Steering Committee). This meeting focused on two important topics:

- Day 1: '*Beyond the pandemic: a discussion of lessons learned and new opportunities in Astronomy Education and Outreach in the post-Covid era*' - reflecting on how education and outreach projects adapted to the COVID-19 pandemic, the negative impacts and the positive solutions; and,

- Day 2: '*Respecting astronomy history and heritage: a discussion on the intersection of culture, science, and social movements*' - focusing on culture in the broadest sense, centered in space and time, and how societies have perceived them, accommodating contributions related to the topics developed by Commission C3 and C4 worldwide and in a diversified set of environments and human cultures.

29 talks have been presented in total, including 5 invited talks given by Jarita Holbrook (University of Edinburgh), Thilina Heenatigala (Earth-Life Science Institute, Tokyo), Mahdi Rokni (Students' International Network for Astronomy), Hasan Baghbani (International Teacher Astronomy Union), Michael Fitzgerald (Las Cumbres Observatory). In addition, 3 invited talks were presented by the 2019, 2020, and 2021 IAU PhD Prize winners Maria Giulia Andretta (from Italy), Magdalena Kersting (from Norway), and David Barrado Navascués (from Spain), respectively. Maria gave a talk titled "The conquest of the Moon. The history, the legacies and the cultural influence of the Moon landing. Analysis of the Italian media phenomenon as an example of pop science", Magdalena spoke about "General Relativity in Secondary School: Research-Based development of Learning Resources and Analyses of Students", and David about "Cosmography: the science of the two Orbs".

### **V. Symposia organised in 2022 related to Division C.**

In 2022, 3 IAU symposia (2 GA and 1 non-GA) were held that requested Division C support:

- IAUS 368: Machine Learning in Astronomy: Possibilities and Pitfalls (2-4 Aug 2022, Rep. of Korea) (<https://sites.astro.caltech.edu/IAUS368/>)

- IAUS 374: Astronomical Hazards for Life on Earth (9-11 Aug 2022, Rep. of Korea) (<http://multimessengerchakra2022.physics.uoc.gr/>)
- IAUS 375: The Multimessenger Chakra of Blazar Jets (5-9 Dec 2022, Nepal) (<http://hazards.astronomia.edu.uy/>)

## **VI. Symposia and meetings in 2023 under Division C.**

One symposium and one IAU-sponsored meeting will be organised in 2023 with Division C being the Coordinating Division:

- IAUS 386: Dark sky and astronomical heritage in boosting astro-tourism around the globe (13-17 Nov 2023, Ethiopia) (<https://iau386.essti.gov.et/>)
- AstroEDU: Astronomy Education Conference (AstroEdu): Bridging Research & Practice (10-12 May 2023, Canada) (<https://astroeducon.org/2023/>)

In addition, two more symposia will be held in 2023 with the requested support of Division C:

- IAUS 384: Planetary Nebulae: a Universal Toolbox in the Era of Precision Astrophysics (4-8 Sep 2023, Poland) (<https://iaus384-pne.ncac.torun.pl/>)
- IAUS 385: Astronomy and Satellite Constellations: Pathways Forward (2-6 Oct 2023, Canary Islands, Spain) (<https://research.iac.es/congreso/iaus385/>)

## **VII. Proposals received for future meetings and PhD prize.**

Division C received a petition to support 17 meetings in total to be organised in 2024, out of which 12 have been suggested as GA focus meetings (with Division C being the Coordinating Division for 5), 3 as GA symposia, and 2 as non-GA symposia. The revision of all submitted proposals has been carried out by the Steering Committee, and finally, Division C endorsed 13 proposals in total.

This year only one nomination for the PhD prize has been received and evaluated, but due to the lack of nominations the Steering Committee decided to not award a PhD prize this year. We would like to encourage more nominations to be submitted in the coming year.

## **VIII. Brief summary of main activities carried out under the Div C Commissions and Working Groups**

We summarise here briefly the main activities carried out under the Division C Commissions and Working Groups. For more information please visit the corresponding webpages (indicated here or above under point II).

- **Commission C1: Astronomy Education and Development.**

- C1 is involved in the organisation of the AstroEDU 2023 meeting titled “[Astronomy Education 2023 – Bringing Research and Practice](#)” to be held in Toronto, Canada, on 10-12 May. Three principal topics will be covered during the meeting: 1) Astronomy Education Research: Theory and Methodology, 2) Astronomy Education Practice: Tangible Outcomes, and 3) The Future of Astronomy Education.

- Volume 2 No. 1 issue of Astronomy Education Journal was published in December 2022. For more info please check <https://astroedjournal.org/index.php/ijae>.
- During August 14-22, 2022, the 15<sup>th</sup> International Olympiad on Astronomy and Astrophysics (IOAA) was held at Kutaisi, Georgia. There were 209 students from 37 main and 6 guest teams participating in the 15<sup>th</sup> IOAA. In addition, 24 students from 6 countries participated in on-line mode. For more information check <https://www.ioaastrophysics.org/>. The 16th IOAA will be held in August 2023 in Poland (<https://ioaa2023.pl/>).
- Under the WG of Astronomy Education Research & Methods, the sub-WG of [Astronomy Day in Schools](#) carried out activities related to the collection of videos that teachers are organising in astronomy, for helping other teachers to do activities in their schools. Online programs were carried out at equinoxes and solstices in 2022 in different countries. In addition, several presentations on the international meetings were given. For more information see the WG webpage <https://adis.narit.or.th/>.

- **Commission C2: Communicating Astronomy with the Public.**

Division C and C2 worked on the organisation of the Communicating Astronomy with the Public 2022 (CAP2022) conference in Sydney, Australia (12-16 September, LOC Chair Richard de Grijs), in collaboration with the IAU Office for Astronomy Outreach. The central theme of the conference was “*Communicating Astronomy for a Better World*”. This is the largest conference in the world regarding astronomy communication, and one of the principal activities of the C2. All information about CAP2022 can be found here <https://capconferences.org/2022>, and about the previous CAP meetings here <https://capconferences.org/>.

- **Commission C3: History of Astronomy.**

C3 carried out different activities during 2022, including:

- Participation in the meetings, submission of the proposal for hosting a Focus Meeting during the 2024 GA on ‘*History of Astronomy in South Africa*’, and giving support to the IAU Office for Astronomy Outreach by providing answers to general questions from the public.
- The Commission currently has three WGs on 1) Archaeoastronomy and Astronomy in Culture, 2) Ethnoastronomy and Intangible Heritage, and 3) Historical Radio Astronomy. All three WGs were active in fostering research and publications, organizing meetings, and maintaining up-to-date lists of publications in their respective fields.
- It organized informal Project Groups in order to facilitate research projects and international collaborations at the Commission level, including: Asian Astronomy, Biographical Encyclopedia of Astronomers (Third Edition), Historical Instruments, Archives, and Observatories, and Indian and Southeast Asian Stone Inscriptions. Project Groups are published in the [Journal of Astronomical History and Heritage \(JAHH\)](#). Ownership of JAHH has been transferred to the University of Science and Technology China.

For more information, follow the Commission C3 [webpage](#).

- **Commission C4: World Heritage and Astronomy.**

Principal activities carried out by the C4 are:

- Work is in progress regarding the nomination of the “Talayotic Menorca: a cyclopean island Odyssey” in the UNESCO World Heritage List.
- Preparation for the Global Centenary of the Modern Planetarium celebration in 2023, and for including the first modern planetarium located in Jena in Germany as one of the UNESCO world heritage sites.
- C4 is also engaged in a project related to a Potential World Heritage Nomination for Ireland's Classical Observatories of the 19th Century, including three Irish observatories of Armagh, Birr and Dunsink. A study tour of these observatories was carried out in 2022.

-C4 identified a list of seven Ukrainian observatories with relevant astronomical value for humanity that are currently at risk due to the war and collaborated with the WG on Astronomical Heritage in Danger for incorporating a list of sites into its portal and its map.  
For more information, follow the Commission C4 [webpage](#).

The **Inter-Commission C1-C2-C3-C4 Working Group Astronomy in Culture** was working on the ‘Culturally Sensitive Sites’ project to provide astronomers with insight as to Indigenous concerns regarding observatories that have been or are to be built upon Indigenous sacred lands. WGAC members Steven Gullberg and Jarita Holbrook were working on expanding the [Journal of Astronomy in Culture](#). Under the WGAC Working Group on Ethnoastronomy & Intangible Astronomical Heritage participated in several ethnoastronomy conferences, including the [International Indigenous Astronomy Conference](#) in South Africa and the [Oxford conference on Archaeoastronomy](#) in Argentina. They have proposed the organisation of the Focus Meeting titled [Gendered Astronomy, Gendered Sky](#) during the 2024 GA.

- **Inter-Division B-C Commission: Protection of Existing and Potential Observatory Sites.**

During the last year, the Inter-Div B-C Commission continued its work in several major areas.

- The IAU Center for the Protection of the Dark & Quiet Sky from Satellite Constellation Interference (IAU CPS, <https://cps.iau.org>) has been fully established and started with its activities, under the scope of 4 Hubs: SatHub, the Industry and Technology Hub, the Policy Hub, and the Community Engagement Hub. CPS news and accomplishments under each hub can be followed at <https://cps.iau.org/news>.

- A delegation from the IAU attended the 60th Session of the Scientific and Technical Subcommittee of the UN Committee on the Peaceful Uses of Outer Space (COPUOS) in February 2023. This meeting led to the creation of an Expert Group with the task of promoting awareness of and providing guidance on the impact of satellite constellations on astronomy, as well as enabling communication and cooperation between Member States and stakeholders.

- The Inter-Division Commission organised a Focus Meeting during the 2022 IAU GA titled “*Toward a World Standard for Dark and Quiet Sky Protection*”, covering ten topical sections that had 45 speakers and 49 oral presentations.

- Currently, the Inter-Division B-C Commission is involved in the organisation of the IAU 385 symposium, mentioned above (<https://research.iac.es/congreso/iaus385/>).

For more information, see the Inter-Division B-C Commission annual reports:

[https://www.iau.org/science/scientific\\_bodies/working\\_groups/288/](https://www.iau.org/science/scientific_bodies/working_groups/288/)

- **Working Group on Key Initiatives in Education, Outreach and Development.**

The main initiatives under this WG continued during 2022 their activities with teachers training (e.g., NASE and GTTP/NUCLIO) and with activities for the general public. In particular, the Eratosthenes Experiment was organised in 389 schools from 63 countries all over the world, calculating the circumference of the Earth by using e-Learning educational tools and simple instruments (<http://eratosthenes.ea.gr>). The Eratosthenes Project America involved in its activities 72 schools, and ~ 5000 students. NASE organised > 40 teachers trainings in 2022 in different parts of the world (<http://sac.csic.es/astrosecundaria/en/Presentacion.php>). Updates on all activities and initiatives can be followed up through the WG webpage and the links given there: [https://www.iau.org/science/scientific\\_bodies/working\\_groups/334/](https://www.iau.org/science/scientific_bodies/working_groups/334/).

- **Star Names Working Group.**

During 2022, Star Names WG was seeking input from the community on documenting Indigenous and historical names of stars and asterisms. It also developed new strategies and methods for adding new star names to the international catalogue by reactivating an existing database (<http://ancient-skies.org>) and by providing a query plugin for Stellarium. It is working towards expanding its database for the names of stars from different cultures, and seeking opportunities for adding (unique) proper names for individual stars in the IAU star name catalogue ([https://www.iau.org/public/themes/naming\\_stars/](https://www.iau.org/public/themes/naming_stars/)).

- **Inter-Division C-E Working Group: Solar Eclipses.**

Some of the main news and activities carried out under the WG include:

- The Moore Foundation has given a grant for US Libraries to distribute 5 million sets of partial-eclipse safety glasses for the 2023 and 2024 American eclipses.
- Several public talks have been given during 2022 on solar eclipses.
- WG attended and was involved in the organisation of the Solar Eclipse Conference in Sigüenza, Spain, on Sep 1-2, 2022 ([www.sec2022.com](http://www.sec2022.com)).

More information can be obtained at <http://eclipses.info>.

The WG Chair, Jay Pasachoff, sadly passed away. Two new joint chairs have been appointed.

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**In Memoriam:**

Division C is sad about the loss of **Rajesh Kochhar** from India who passed away in March 2022. He was a member of the Steering Committee since 2021, and he contributed for many years to different IAU activities, in particular to those related to Division C and several of its commissions.

Division C is also sad about the loss of other members who promoted actively the importance of education, outreach, and heritage of astronomy during their lifetime: **S. M. Razaullah Ansari** (1932-2023), **Magnus Axelsson** (-2022), **Guillermo Bernabeu** (1948-2022), **Alejandro Feinstein** (1929-2022), **J. Donald Fernie** (1934-2022), **Attilio Ferrari** (1941-2022), **Mohammad Heydari-Malayeri** (1947-2023), **Ahmad Kiasatpour** (1935-2022), **Arlo U. Landolt** (1935-2022), **Anny-Chantal Levasseur-Regourd** (1945-2022), **Julie H. Lutz** (1944-2022), **Michael R. Molnar** (1945-2023), **Carolina Johanna Ödman-Govender** (1974-2022), **Jay M. Pasachoff** (1943-2022), **Michael R Rosa** (1953-2022), **Maarten Schmidt** (1929-2022), **William Tobin** (1953-2022), and **Michael Zeilik** (1946-2022).

We are grateful for the legacy that our colleagues left. We transmit our love to their families, friends, and colleagues, and wish them peace.

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Edited by:

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Division C Steering Committee