



IAU Catalyst, June 2021



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Editorial

My term as General Secretary has been most exciting, and has included notable events in the life of the Union, particularly the implementation of the IAU's first global Strategic Plan (https://www.iau.org/administration/about/strategic_plan/), which clearly states the IAU mission and goals for the decade 2020–2030.

It also included the IAU's centenary celebrations, which began during the General Assembly in Vienna (August 2018) and continued until 2020, and included more than 5000 activities involving several million people in 140 countries; for more details, see the Final Report at <https://www.iau.org/static/archives/announcements/pdf/iau100-final-report-ann20019.pdf>.

The triennium 2018–2021 was also decisive for the consolidation of international collaboration through the IAU offices, namely:

- The creation of the new Office of Astronomy for Education (OAE), whose agreement between the IAU and the Max Planck Society for the Advancement of Science was signed in December 2019; OAE is now fully operational;
- The Office of Young Astronomers (OYA) underwent a substantial upgrade with the revision of the IAU-Norwegian Academy of Science and Letters agreement in 2019;
- The renewal of the international agreement between the IAU and the National Astronomical Observatory of Japan for the Office of Astronomy Outreach (OAO), after a very positive review of its performance, was the opportunity for a profound restructuring and enhancement of the OAO;
- The IAU and the National Research Foundation of South Africa are currently preparing the new agreement for the Office of Astronomy for Development (OAD), after the very positive review of OAD's performance, which was completed recently (March 2021).

In addition, this triennium was also an intense period in terms of key management initiatives for an international organisation like the IAU. In fact, several policy documents have been prepared and others have been thoroughly revised. It is important to note that part of this work was done with the collaboration of individual members of the IAU, for example:

- The IAU Rules and Guidelines for Scientific Meetings (<https://www.iau.org/science/meetings/rules/>), which replaced an earlier version, a disorganised set of rules with many gaps and duplications and therefore difficult to interpret and which has now become a much shorter and more concise document, including a Step-by-Step section to help new users;
- The IAU Mission Rules (https://www.iau.org/administration/policies/mission_rules/) which define the conditions and procedures for the reimbursement of expenses incurred by any member of the IAU when on an authorised mission at the service of the IAU;
- The IAU Code of Conduct (<https://www.iau.org/static/archives/announcements/pdf/ann16007a.pdf>); here, I am grateful for the collaboration of Debra Elmegreen, John

Editorial

Hearnshaw and José Miguel Espinosa in the Ethics Policy section, and Monica Valluri and John Hearnshaw in the anti-harassment section;

- The IAU Communication Policy (<https://www.iau.org/static/administration/policies/iau-communication-policy11-11-2020.pdf>), prepared with the invaluable aid of Lars Lindberg Christensen, which applies to all IAU members to ensure that their communications are consistent with Union policy.

Also worthy of mention is the revised agreement reached with the Director General of ESO, which covers not only IAU web development, maintenance and update services, but also support for the production of Catalyst, during this three-year period.

In fact, Catalyst was launched during this triennium (June 2019), and the IAU website has been completely revised, in terms of structure and content, to enhance the institutional image and the brand.

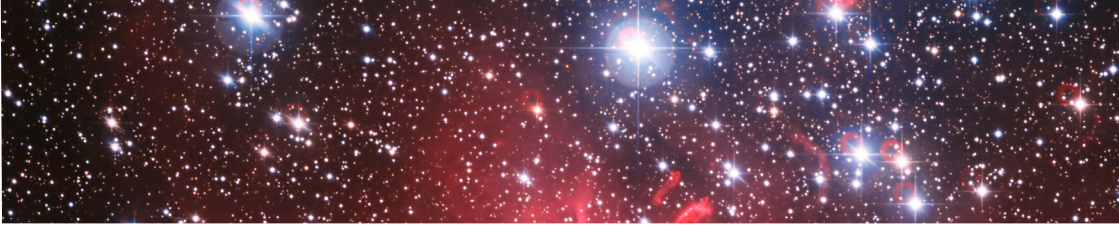
It is also worth mentioning the agreement reached with the CNRS-INSU, which allowed the IAU Office to be hosted free of charge at the Institut d'Astrophysique de Paris (IAP), during this three-year period.

A major change in the application process for individual members has also been implemented: prospective individual members apply every year, instead of every three years during the year of the General Assembly. Since 2019, applications for individual and junior membership of the IAU are accepted between October and December.

As this Catalyst reflects, the relationship with the foundations that generously support the IAU have also developed further during the three-year period, and the articles by the Gruber Foundation, the Kavli Foundation and the Shaw Prize Foundation make us aware of their inspiring goals and the reasons why they chose to support the IAU.

Of course, this triennium was also unique and very difficult for all of us. We suffered the impact of an unexpected pandemic that has become a huge threat to our lives and practices.

The IAU has not escaped the impact of the global pandemic: the Paris Office has been closed for over a year, most of the scientific symposia planned for 2020 have been postponed, the IAU Asia-Pacific regional meeting has been cancelled and many of the activities coordinated by the IAU offices have also been postponed. Even the General Assembly, scheduled for August 2021, had to be postponed for one year, except for the business sessions that will take place in August 2021, in virtual format.



But the IAU has to fulfil its mission and react to the circumstances. All regular management was switched to the virtual format, which was also adopted for scientific meetings. IAU offices also made an effort to readjust their activities to a format that could help mitigate the impact of the pandemic.

We must learn from this unwanted global experience, adopting new practices, for example to make widespread use of the technology available for live and remote streaming to open up to greater participation and inclusion in future IAU initiatives. Active participation in meetings and activities does not necessarily need to be in person. In the future, we will adapt some of the practices that were imposed on us last year.

We have already experienced how impactful a global crisis can be. We will proactively deal with other imminent threats; like climate change. The IAU is in a unique position to play a more active role in discussions on climate change; we can invest our scientific capacity to help prevent this other imminent and even more dramatic global crisis. Astronomers are well aware of the Earth's uniqueness as a life support system and the consequences of the continued unbalanced human activity. We will make our contribution as a scientific Union to identify the risks and draw attention to the necessary measures to help solve the problem.

1.1**Forty-five years of IAU
membership****John Hearnshaw**
– New Zealand
IAU Vice-President

I joined the IAU in 1976 at the time I obtained my first tenured position in academic life as an astronomer at the University of Canterbury. I had previously done post-doc fellowships in Paris at Meudon and at Cambridge, Mass. at the Center for Astrophysics.

New Zealand hosted the first Asia-Pacific Regional IAU Meeting (APRIM) in 1978, and I served on the LOC. It gave me my first taste of IAU conferences.

My first real introduction to the IAU as an organisation was at the Montreal General Assembly (GA) in 1979. There were nearly 2000 astronomers there. Vainu Bappu (India) became President and Patrick Wayman (Ireland) was the new General Secretary. Both became friends. I still have memories of that first GA and I became hooked on big IAU meetings. Since then I have been to nine more GAs, and, although now retired, I hope to participate at two or three more.

Two GAs stand out for me: they were 2006 in Prague and 2018 in Vienna. In 2003 I took over from Alan Batten (Canada) as chair of the Program Group for the World-wide Development of Astronomy (PGWWDA). This group with about a dozen members made visits to developing countries to give lectures and advise on astronomy teaching and research collaborations. For the next nine years I made one or two visits annually to remote parts of the world and had many amazing experiences. Mongolia was my first such visit, and Uzbekistan, Tajikistan, Cuba, Trinidad, Vietnam, Mauritius, Paraguay, Thailand, Laos and Fiji followed in quick succession. Every visit was memorable and probably Tajikistan in 2010 was my absolute favourite. My interest in developing countries resulted in my organising a special session at the Prague GA on Astronomy for the Developing World. This was incredibly rewarding and I was able to invite many of my world-wide astronomy friends from developing countries to give talks.

I have always been interested in the history of astrophysics over the last two hundred years, so the Vienna GA was a wonderful opportunity to celebrate the centenary of the IAU with

the centenary symposium Under One Sky — actually several months ahead of the IAU's 100th birthday. I was able to organise a large part of that symposium with help from my SOC. I invited all living former IAU presidents and GS to give short talks, and most accepted.

In 2015 I was nominated to stand for the presidency of the new Division C (Education, Outreach and Heritage), a job I volunteered for without hesitation, knowing that Division presidents were invited to participate in Executive Committee meetings. I could indulge my love of international travel as well as serve the IAU. I spent three happy years in that role and then in 2018 I readily accepted an invitation to spend the next three years as an IAU Vice-President on the EC, replacing Debra Elmegreen who had just become President-elect. Of course, my chance to travel to EC meetings was abruptly curtailed when the pandemic struck in early 2020, and the EC has been meeting in Zoom conferences since then. They are just as productive but lack the excitement of travel and meeting old friends in person.

The IAU has undergone a remarkable evolution, especially in the last 50 years, and I am sure its strength is in its system of individual membership that most other scientific unions have not adopted. This has given the IAU the volunteered services of dedicated and talented individuals from all over the world, who feel a real commitment to the organisation and who have benefitted greatly from the personal friendships and collaborations that our structure provides. Certainly, my life has been enormously enriched by IAU service, and for that I am very grateful.

2

IAU Divisions, Commissions & Working Groups

2.1

Division J

Denis Burgarella

President of Division J

The International Astronomical Union's Division J is dedicated to Galaxies and Cosmology. It covers topics that range from resolved stellar populations in galaxies to the largest structures in the Universe.

We are at the end of the IAU 2018–2021 triennium. It is a good time to look back and see what happened. The first thing that probably comes to mind is COVID-19, with fewer interactions to ignite new collaborations that would catalyse new ideas. COVID-19 severely affected people in many ways, not only for young researchers but also for gender balance, inclusion & diversity, and even in family circles where poor working conditions certainly had a bad impact (Deryugina, Shurchkov & Stearns 2021, <https://www.nber.org/papers/w28360>; Myers et al. 2020, *Nature Human Behaviour* 4, 880) and simply on education (<https://www.unicef.org/press-releases/unequal-access-remote-schooling-amid-COVID-19-threatens-deepen-global-learning>).

Returning to Astronomy, how can we estimate the level of production? Maybe the simplest way (but see, e.g., Bornmann & Werner 2018, arXiv180506153B), would be to look at the abstracts of refereed papers in the ADS, with the words “galaxies” and “cosmology”.

The main conclusions that we can draw from Figure 1 are:

- the number of publications increases for both “galaxies” and “cosmology”.
- peaks in the distributions, again for both “galaxies” and “cosmology”. They seem to suggest that there is a surge of publication at the end of each year, papers that are actually published the following year.
- a bump in the years 2010–2014, for both “galaxies” and “cosmology” that might be related to the launch and the exploitation of the two ESA missions Planck and Herschel.
- we do not seem to see any impact of COVID-19 on the publication rate of Division J. Or, it is not apparent yet.

From the ADS as of February 2021

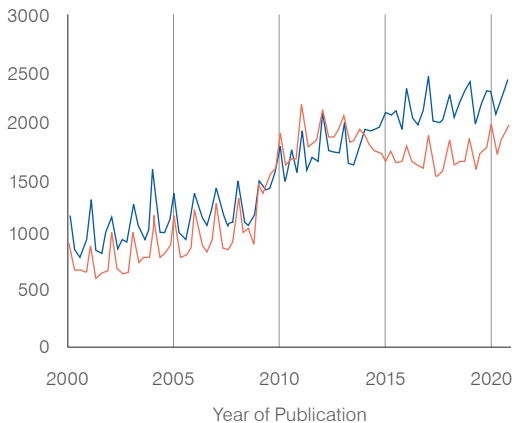


Figure 1: Papers with the word "galaxies" and papers with the word "cosmology" in the abstract from the Astrophysical Data System (ADS, as of February 2021).

— galaxies
— cosmology



2.2

Inter-division G-H-J Commission Stellar Clusters Throughout Cosmic Space and Time

Amanda Karakas

School of Physics &
Astronomy,

Monash University,

Clayton VIC 3800 Australia

President of Commission H4

Star clusters are one of the most fundamental building blocks of galaxies and as such they are powerful tracers of the formation, assembly and evolutionary history of their parent galaxies. Star clusters are also the observational foundation for stellar astrophysics and provide essential benchmarks for studies of stellar evolution and nucleosynthesis, stellar and galactic dynamics, and the chemical evolution of galaxies.

The main goal of the IAU Commission H4 Stellar Clusters throughout Cosmic Space and Time is to support observational and theoretical research activities on the topic of star clusters. Research in this field is very diverse, and includes stellar population studies of nearby clusters, studies of globular clusters in our Milky Way galaxy, and studies of globular clusters in external galaxies, starburst and nuclear star clusters, and young massive star clusters. Thanks to continuing progress in hardware facilities and software, realistic simulations of the complex dynamical evolution of globular clusters using Monte Carlo and direct N-body simulations are now possible. Today, this aspect of star cluster research has an important role in understanding the exciting new field of research into gravitational wave sources.

Commission H4 promotes the dissemination of star cluster research through conferences, workshops and schools including the MODEST meetings, which have been held every year since 2002. Given the diverse range of objects studied by members of Commission H4 the conferences span topics from the formation of massive star clusters in dwarf galaxies to multiple populations in globular clusters. Commission H4 maintains close links with other Commissions in the IAU including those in Division G on Stars and Stellar Physics and Division H on the Interstellar Matter and the Local Universe. Our membership has also grown in recent years, from around 200 in 2018 to over 230 in 2021, which also reflects the growth in the number of researchers active in this field.

Established at the XXX IAU General Assembly in Vienna in 2018, the Junior Members Working Group¹ (WG) is the newest addition to the IAU. The WG comprises 714 members and the organisational duties are led by a committee of 8 early career researchers (ECRs). The aim of the WG is to develop an inclusive platform for ECR astronomers across the globe. It focuses on topics related to career development in academia and industry, as well as mobility, wellbeing, diversity and gender equity.

Since its inception, the Junior Members WG has initiated many activities for ECR astronomers. This has been particularly valuable over the last year, providing members with a sense of community and support. These activities included the IAU_PHOTON photo competition, the Early Career Astronomer Online Discourse Series, the IAU JM logo contest, and virtual coffee breaks for informal discussions. The WG has set up various social media channels to enhance communication between the ECRs globally, which includes Twitter, Instagram, Facebook, and a dedicated Slack workspace. All WG announcements can also be found in the news section of the WG website.

To develop a better sense of unity as well as encourage active participation amongst the ECRs, a logo competition was held in January 2021. The winner was decided by a vote open to all members of the WG. The winning logo (Figure 2) was designed by Katharina Immer at Leiden Observatory. This new logo will represent the WG and will be used for a variety of WG activities, appearing next to the official IAU logo.

To showcase the scientific and outreach activities of our 700+ and growing number of Junior Members, we launched the IAU Junior Member PHOto coNtest #IAU_PHOTON. The contest was launched in August 2020 and each month we select a winner from the submissions.

In October 2020, the Early Career Astronomer Online Discourse Series was launched, where prominent experts lead

2.3

IAU EC WG of Junior Members is born

Maria Drozdovskaya

Fatoumata Kebe

Co-Chairs

Sudeshna Boro

Saikia, Gaël Buldgen

Camilla Danielski

Christopher Moore

Themiya Nanayakkara

Eleanor Sansom

Organizing Committee



Figure 2: Junior Members WG logo

2

IAU Divisions, Commissions & Working Groups

discussions on careers in academia and industry alongside multifaceted science highlights. A professional career development workshop exclusively tailored to early career astronomers was also organised. The events are streamed via Zoom and YouTube, and attract on average 100–200 participants per live event. The recordings of these public events are available on our YouTube channel². This virtual series has been immensely successful and will be continued until the end of term of the current organising committee.

The current organising committee will step down in August 2021. We look to the next generation of ECRs to take over the leadership of the WG. We envision that the new organising committee will continue strengthening our community of ECRs in the long-term future of the IAU and our field of science.

Notes

¹ https://www.iau.org/science/scientific_bodies/working_groups/310/juniormembers/

² https://www.youtube.com/channel/UCZQsB5LY2Tv_tj9ddVdnPuw/featured

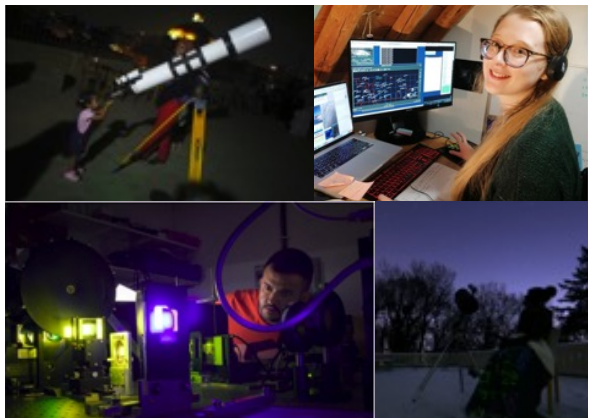


Figure 3: Some of our IAU_PHOTON winners of 2020-2021 (clockwise from top left: Alshaimaa Saad Hassanin, Sarah Leslie, Yanina Metodieva, Daniel Nóbrega Siverio)

The Shaw Prize Foundation has been collaborating with IAU since 2019, most notably in relation to the Shaw–IAU Workshops organised by the IAU Office of Astronomy for Education. The most recent Workshop was held (in a virtual online format) in October 2020.

The Shaw Prize was established under the auspices of Mr Run Run Shaw in 2002. Mr Shaw (1907–2014) was a major figure in the film and media industry in Hong Kong and across many parts of Asia; in later life he became a notable philanthropist, supporting education and healthcare.

Since 2004 the Shaw Prize has been awarded annually in three scientific disciplines: Astronomy, Life Science & Medicine, and Mathematical Sciences. The awards, made without regard to race, nationality, gender or religious belief, are dedicated to furthering societal progress, enhancing quality of life, and enriching humanity’s spiritual civilisation — goals that surely resonate with the IAU and with the initiative on Astronomy for Education.

The stars, the galaxies and the cosmos are subjects of great interest to many, and magnets that draw them into an intellectual world that is on the one hand driven by curiosity and unbridled imagination, and on the other hand firmly rooted in empiricism and rationality. In some fields one can benefit from advances understood by only a few (a relevant current example is receiving a vaccine without having to know anything about viruses); but astronomy achieves its impact through enhanced understanding in society. In celebrating the remarkable achievements of modern astronomy, we are therefore especially conscious of the need to engage not only the whole professional astronomical community, as represented by the IAU and its membership, but also the general public worldwide through educational initiatives. The Shaw Prize Foundation treasures its activities with the IAU and looks forward to continuing collaboration.

3.1

The Shaw Prize Foundation

Kenneth Young

Chairman of the Council



THE
SHAW
PRIZE
邵逸夫獎

Figure 4: the Shaw Prize Foundation logo

3.2

The Gruber Foundation

A. Sarah Hreha
Executive Director

The Gruber Cosmology Prize honours a leading cosmologist, astronomer, astrophysicist or scientific philosopher for theoretical, analytical, conceptual or observational discoveries leading to fundamental advances in our understanding of the Universe. The Prize acknowledges and encourages further exploration in a field that shapes the way the Universe is perceived and comprehended. Presented annually since 2000, the Cosmology Prize carries a gold medal and an unrestricted \$500 000 cash award.

The Gruber Foundation has formally partnered with the International Astronomical Union since 2001. The IAU nominates members of the Selection Advisory Board that ensures the scientific integrity of the Prize, thus allowing Gruber to honour the very best science. The Prize is awarded during the Opening Ceremony of the IAU's General Assembly, and in the intervening years an IAU officer participates in the award ceremony. The IAU also administers the Young Scientist Award funded by Gruber.

"My late husband Peter Gruber and I were grateful to partner with the IAU shortly after the Prize was established. The Cosmology Prize was the first of our international prizes and our successful relationship with the IAU provided a model for work with other scientific organisations. This included the important feature of establishing fellowships for early career scientists," said Patricia Gruber, co-founder and president emeritus of the Foundation.

Those interested in nominating someone for the Prize should note that the Gruber definition of cosmology is broader than that of the IAU. We encourage nominations from around the world that reflect the breadth of the field and the diversity of those working within it. With the Cosmology Prize, the Foundation seeks to extend the pioneering legacy of, among others, Plato and Aristotle; Ptolemy and Copernicus; Brahe, Kepler, and Galileo; Newton and Halley; Einstein and Hubble.



Figure 5: Logo of the Gruber Foundation

The founder of The Kavli Foundation, Mr Fred Kavli, used to remark that the aurora borealis above his childhood farm in Norway inspired him to think about science and in particular “the mysteries of the universe, the planet, nature and of man.” Today, The Kavli Foundation continues his vision, exploring these big ideas, through our mission to advance science for the benefit of humanity. We are proud to partner with the IAU to advance scientific research, international coordination in astrophysics, and public engagement with science.

Astronomy is an increasingly international and interdisciplinary field and thus Kavli is honoured to sponsor an annual Kavli-IAU Interdisciplinary Symposium. Starting in 2022, these symposia will bring together hundreds of researchers not just from astronomy but also from physics, mathematics, informatics, chemistry, biology, geology, the social sciences, and humanities to discuss astronomical issues. The exchange, among a diverse group with a range of perspectives, will spark surprising ideas and challenge modes of thinking. We believe that those ideas and the field as a whole will be stronger as a result. In addition, by bringing together different people, each an expert in their own discipline, we hope to catalyse entirely new and unexpected fields of research that will transform science in much the same way as the aurora transformed a boy in Norway many years ago.

3.3

The Kavli Foundation

Christopher L. Martin, PhD
Director of Physical Sciences



*Figure 6: aurora borealis
— a source of inspiration*

4 Scientific Meetings

4.1

XXXI GA Business Sessions Agenda

The XXXI General Assembly had to be postponed to August 2022 as a result of the restrictions imposed by the pandemic. However, the Business Sessions will take place in August 2021 in virtual format, with the following programme:

Monday 23 August, 13:30–14:50 CEST — “appetiser” session 1 with several invited short talks to create a stimulating GA-like environment

Monday 23 August, 15:00 CEST — IAU XXXI GA 2021 Business Session 1

1. Welcome, adoption of agenda
2. Listing of National Member representatives
3. Reminder of Voting Rules (*vote by NMs*)
4. Admission of new National Members (*vote by NMs*)
5. Report of the Executive Committee
6. Presentation of Changes to Bye-Laws
7. Presentation of Resolutions
8. Report of the Special Nominating Committee

Tuesday 24 August, 15:00 CEST — Session to discuss the resolutions; discussion also through Slack channel.

Thursday 26 August, 13:30–14:50 CEST — “appetiser” session 2 with several invited short talks

Thursday 26 August, 15:00 CEST — IAU XXXI GA 2021 Business Session 2

9. Welcome, adoption of Agenda
10. Changes to Bye-Laws (*vote by NMs**)
11. Honorary Members admitted by Executive Committee
12. Resolutions: recap of discussions (*vote by IM*, JM*, open until September 10*)
13. Proposed Division Presidents and Vice-Presidents
14. Financial Matters
 - Presentation of 2018–2020 accounts
 - Report of FC on 2018–2020 accounts
 - Presentation of 2022–2024 budget
 - Report of FC on 2022–2024 budget

Information on the voting:

15. Appointment of Finance Committee (*vote by NMs**)
16. Appointment of Membership Committee (*vote by NMs**)
16. Appointment of Special Nominating Committee (*vote by NMs**)
17. Election of Executive Committee 2021–2024 (*vote by NMs*)
18. Brief addresses of retiring and incoming President and GS

The National Members, Executive Committee, Division Presidents, Resolution Committee and other speakers will participate by Zoom, and have the opportunity to ask questions directly through Raise Hands.

The Individual and Junior Members and other interested participants can view the Business Sessions through a YouTube LiveStream (and subsequent recording). They will have a Slack Channel for comments and questions. The IAU Officers and secretariat will monitor the Slack Channel and communicate relevant questions to the speaker.

5 IAU Offices

5.1

IAU Paris Office

IAU Secretariat



Figure 7: The IAU Office in Paris has been closed since March 2020!

On 16 April 2011 the IAU's Office of Astronomy for Development (OAD) was officially launched by the South African Minister of Science and Technology and the President of the IAU, at the South African Astronomical Observatory (SAAO). A small, agile office with a global vision, the OAD has consistently striven towards the right mix of thinking big while working humbly — with "our head in the stars, but our feet on the ground". The world has certainly changed significantly over this decade, and the OAD has adapted quickly to these changes, none more significant than the COVID-19 pandemic. Events of this past year have brought into sharp focus the extreme levels of inequality in the world, as well as our vulnerability, as humankind, to such disasters. We see the breakdown of education systems, with those who "have" better able to adapt than those who "have not". We see increasing unemployment, homelessness and hunger, not to mention unprecedented effects of climate change. Progress made over decades of development has been wiped away within a year. A recent external review of the OAD quoted from one of several interviews that "if the OAD didn't exist we would have had to create it". This review report, when officially released, will shape the future of the OAD. One thing is clear though: we, as scientists, have a role to play in addressing challenges facing society globally. Unlike most other sciences, astronomy has the OAD — a place where astronomers around the world can go and explore ways that their skills and tools can be applied to addressing global (and local) challenges. With the OAD's 11 regional offices, and well-established grants process, we hereby call all astronomers to action. As we celebrate our first 10 years, we also recognise that our work has only just begun, and that we need to redouble our efforts to truly achieve the vision of "astronomy for a better world!"

5.2

Astronomy for Development: a call to action!

Kevin Govender

IAU OAD Director

5 IAU Offices

5.3

IAU Office for Astronomy Outreach: a Renewed Commitment to Access and Communication

Lina Canas

IAU OAO Director

Izumi Hansen

IAU OAO Deputy Director

In April 2021, the IAU and National Astronomical Observatory of Japan (NAOJ) signed a new agreement¹ that will secure the continuation of the IAU Office for Astronomy Outreach (IAU OAO) into the next decade. The agreement reaffirms the office's role in the IAU's worldwide efforts to enhance public knowledge and appreciation of astronomy and related sciences.

The IAU OAO will continue to promote public awareness of IAU activities while coordinating and managing international outreach campaigns for the IAU. The office will remain a central information hub for disseminating IAU-related public outreach activities around the world as it supports communication between the IAU and the public, access to open and public-friendly databases of astronomical information, translations, and international exchanges.

The IAU OAO has used the IAU Strategic Plan 2020–2030 as a basis to focus its programming to best increase the public's engagement with astronomy. The support provided to the outreach community has been strengthened with programmes such as, the NOCs Funding Scheme, dedicated funding for the IAU OAO's central network of national representatives; Telescopes for All, distributing telescopes to underserved communities; and connecting the public with IAU-members through online meetups with the Meet the IAU Astronomers! programme. The office has also worked to strengthen cooperation with the IAU Offices and Scientific Bodies, especially with IAU Commission C2 "Communicating Astronomy with the Public", while supporting internationalisation activities at NAOJ.

The IAU OAO looks forward to a bright future with its many partners, such as members of the international network of IAU National Outreach Coordinators (NOCs), national communities of amateur and professional astronomers, and science outreach professionals, as it enters the start of this agreement¹ and the next decade of astronomy outreach.

Notes

¹ New Agreement Signed for the Office for Astronomy Outreach: <https://www.iau.org/news/pressreleases/detail/iau2102/>

The International School for Young Astronomers has organised since its creation in 1967, 42 schools in 27 countries. We collect a feedback report from the attending alumni right after the school, and also 5 years afterwards.

In 2015 the ISYA was held in Honduras. The school enrolled 30 students. A 5-year feedback questionnaire was launched at the end of 2020 and half of the students replied to it. Although none of them are IAU members yet, 6 are undertaking a PhD degree and 3 have completed a master thesis. Those nine students are active researchers with ORCID numbers, working on topics like, astronomical instrumentation, stellar evolution, exoplanets, cosmology, computational astrophysics and outreach. While most of the students are located in their home countries, several are studying abroad in countries such as Belgium, Germany, Japan, Switzerland, and United States.

When asked “What do you value the most from the ISYA experience?” the answers included:

- To build a network of students and astronomers from Latin America.
- To better understand the different research areas of astronomy.
- Confidence to apply to other programmes and get an extra good mark in my CV.
- Added valuable knowledge that allowed me to carry out research in my country.
- Inspiration to pursue a career in astronomy.

5.4

The International School for Young Astronomers: call for feedback reports

Itziar Aretxaga

INAOE, Mexico,
ISYA Director

David Mota

University of Oslo,
Norway,
ISYA Deputy Director

Erlend Aarskaug Rud

University of Oslo,
Norway, OYA intern

Networking - Response distribution (%)	Yes	No
I remain in contact with some fellow ISYA alumni, other than those at my own country	100%	0%
I remain in contact with some ISYA directors	30.8%	69.2%
I remain in contact with some ISYA lecturers	46.2%	53.8%
I found a tutor/mentor among the lecturers at ISYA	8.3%	91.7%
I started collaborations with other alumni from the ISYA I attended	16.7%	83.3%
I started collaborations with some lecturers from the ISYA I attended	16.7%	83.3%
I have received announcements on education/training opportunities from ISYA directors or lecturers	80%	20%
I would like to remain or be added to the ISYA e-mail distribution list for announcements on studentships and specialized schools	85.7%	14.3%
I feel I can contact former lecturers or ISYA directors to ask for career guidance/reference/mentoring, if ever need it	71.4%	28.6%

5 IAU Offices

We present three tables which summarise the results. We would like to highlight that the vast majority of the students who participated in the feedback report remain in contact with their peers, intend to undertake a PhD and do research in astronomy and feel that the ISYA improved their knowledge of astronomy and also computer science. The programme for this cohort was, therefore, highly successful.

We are now launching a general survey to all alumni from generations 1967–2014, through a web-based platform. If you are an alumnus/a, please contribute at <https://nettskjema.no/a/isya> and invite others to do so as well.

Aim - Response distribution (%)	Yes	No
Complete a graduate program (PhD)	81.8%	18.2%
Find a postdoc position or another temporary training job	77.8%	22.2%
Find a technical assistant job in a laboratory or observatory	63.6%	36.4%
Find a research/teaching position (tenured or tenure track) in a university or observatory	88.9%	11.1%
Find a job in a primary/secondary/pre-university school	25%	75%
Find a job in outreach	50%	50%
Find an administrative/policy making job in the government	22.2%	77.8%
Find a job in the industry	33.3%	66.7%
Create my own company	25%	75%

Impact - Response distribution (%)	1	2	3	4	5
Through the ISYA I acquired a broader view of current astronomy topics	6.7%	0%	6.7%	33.3%	53.3%
Through the ISYA I acquired a broader view of current astronomy methods	6.7%	6.7%	6.7%	26.7%	53.3%
The ISYA helped me to better identify and understand my interests in astronomy	0%	20%	0%	13.3%	z66.7%
The ISYA contributed to strengthen my research and education in astronomy	0%	13.3%	13.3%	6.7%	66.7%
The ISYA helped me to strengthen and develop an outreach career in astronomy	7.1%	7.1%	21.4%	14.3%	50%
Attending the ISYA helped me having access to a graduate school	13.3%	6.7%	33.3%	26.7%	20%
Attending the ISYA helped me having access to a scholarship/fellowship	13.3%	6.7%	33.3%	26.7%	20%
Attending the ISYA helped me to improve my software and computational skills	6.7%	6.7%	20%	53.3%	13.3%

1 (strongly disagree), 2 (I somewhat disagree), 3 (I do not agree nor disagree), 4 (somewhat agree), 5 (strongly agree)

Leveraging astronomy for education — that is the mission of the Office of Astronomy for Education (OAE), founded in December 2019 as the newest of the four IAU offices. To that end, OAE is creating infrastructure for publishing and for finding educational resources, and supporting the professionalisation of both astronomy educators and astronomers in the areas of teaching and learning.

Projects that have kept us busy these past months include a survey of astronomy education worldwide and the first steps towards the creation (in collaboration with the OAO) of a multi-lingual glossary of astronomical terms as an aid for translating educational resources. We have also run an astrophotography competition whose results will be available as open education resources under a Creative Commons licence.

Notably, we have also taken an important first step towards establishing an international network of OAE Centers and OAE Nodes. These are dedicated teams based in various countries that will take an active part in OAE work, in effect extending the personnel and financial resources available to the OAE as a whole. March 2021 saw the establishment of the OAE Center Italy, as a collaboration between the IAU, the OAE and INAF, Italy's national centre for astrophysics, which heads a network that also includes the Italian Astronomical Society (SAIt) and the University of Rome Tor Vergata (TOV).

INAF is a well-established partner of the IAU, having hosted the first non-English edition of the IAU astroEDU platform since 2017. Coordinated by Stefano Sandrelli (INAF Milan), the OAE Center Italy will include staff members from several INAF institutions, as well as from SAIt and TOV. Its headquarters will be hosted at the Rome Astronomical Observatory, in Monteporzio. The OAE Center Italy will have a focus on astronomy education for primary schools, and it will also specifically support astronomy education in the Mediterranean region.

5.4

The Office of Astronomy for Education (OAE)

Markus Pössel

Director of OAE

Carolyn Liefke

Deputy Director of OAE

Stefano Sandrelli

Chair of OAE Centre Italy

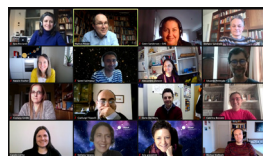


Figure 8: Group picture of the first joint team meeting of OAE Main Office staff with the staff members of the newly-established OAE Center Italy

6.1

French astronomers engaged in the IAU

Annie Robin

IAU French National
Committee for Astronomy,
Vice-President
International of SF2A
Research Director
at Institut UTINAM,
Besançon, France

Astronomy in France has a long history, and this is why French astronomers have been involved in the creation of the International Astronomical Union from the start, more than one hundred years ago. Since then, numerous French astronomers have contributed actively to the IAU. In particular, several have been its President (the first President of the IAU, Benjamin Baillaud in 1919, was French and so was its first female President, Catherine Cesarsky, in 2006), and Secretary (for example Jean-Claude Pecker in the 1960s, and more recently Jacqueline Bergeron and Thierry Montmerle) and many others have been involved in Commissions, Divisions, working groups, and executive and scientific committees. The IAU secretariat is located at the Institut d'Astrophysique de Paris.

France has more astronomers than any other country in Europe, and is second in the world after the USA. That, thanks to a ratio in France of about 1.35 astronomers per 100 000 inhabitants. Astronomy is part of our culture.

To celebrate the centenary of the IAU in 2019 a colloquium — Astronomers as Diplomats — was organised in Paris, with participants coming not only from astronomy but also history and sociology. It was an occasion to recall the French investment in the IAU, sustained by the French Academy of Science.

French professional astronomers are represented in a society called the Société Française d'Astronomie et d'Astrophysique (SF2A), founded in 1978, which is also part of the European Astronomical Society (EAS). It aims to contribute to the development and cultural influence of astronomy in France, bringing together professional astronomers who share its spirit and objectives.

In recent years the IAU has created several important offices to improve its impact on society, such as the Office of Astronomy for Education, Astronomy for Development, Office of Astronomy Outreach, and Early Career Astronomers.

These new structures are efficient tools to create worldwide networks of resources and links between people involved in astronomy and the Society. France is participating actively to these IAU efforts with National Astronomy Education Coordinators (NAEC) and a National Outreach Coordinator. Among other actions we recently participated in the worldwide project NameExowords which aimed to involve the public in naming newly discovered exoplanets. Nearly one thousand French people proposed names for the star HD149026 and its planet HD149026b, and even more voted to name the star Bélénos and its planet Bélisama, the god of light and goddess of fire, respectively, from Gaulish mythology.

Recently the IAU engaged in raising the issue of Dark and Quiet Skies conservation, for human culture, heritage, and health, highlighting the importance of sky darkness, in both the optical and the radio domains, for astronomical research. France is actively supporting this action, helping to raise the problem at the level of the United Nations, and to find solutions.

France will actively continue to support IAU involvement, contributing to making astronomy a broad base of knowledge and a dream for a large public, together with an open-minded spirit of equity.

7 IAU Publications

IAU Symposia

IAUS 356 - Nuclear Activity in Galaxies Across Cosmic Time

7–11 October 2019.

Addis Ababa, Ethiopia
Eds. Pović, M., Marziani, P., Masegosa, J., Netzer, H., Negu, S. H., Tessema, S. B.
Cambridge University Press
ISSN 1743-9213
2 Feb 2021

IAU Information Bulletins / Catalyst

IAU Catalyst December 2020

December 2020
IAU Secretariat
4 Dec 2020

IAU Offices Publications

IAU OAE Annual Report 2020

IAU Office of Astronomy for Education
31 Jan 2021
<https://www.iau.org/static/publications/iau-offices/IAU-OAE-Annual-Report-2020.pdf>

IAU Outreach Initiatives 2021

IAU Office for Astronomy Outreach
1 Jan 2021

2nd Shaw-IAU Workshop on Astronomy for Education

6–9 October 2020 (online)
IAU Office of Astronomy for Education
31 Dec 2020
https://www.iau.org/static/publications/iau-offices/Shaw-IAU-WS2020_screen.pdf

IAU Related Publications

Springboard to Action — Recommendations for improving equity, inclusion and diversity in Astronomy

Patricia Brogna, Lina Canas, Susana Deustua, Sonia Duffau, Garry Foran, Beatriz Garcia, Jimi Green, Jarita Holbrook, Tune Kamae, Chiaki Kobayashi, Annette Lee, Thelma Oppelt, Amelia Ortiz Gil, Francesca Primas, Prospery Simpemba, Irsad Tio Majid, Lucianne Walkowicz, Junichi Watanabe, & the IAUS358-SOC
11 Jan 2021

<https://www.iau.org/static/publications/springboard-booklet-150dpi-2page-view.pdf>

**AstroEDU Meeting 2019:
Astronomy Education
Conference: Bridging
Research & Practice**

Eds. Bretones, P.S.;
Eriksson, U.; Russo, P.
30 Mar 2021

https://www.iau.org/static/science/scientific_bodies/commissions/c1/astro-edu-proceedings-2019.pdf

**Dark and Quiet Skies for
Science and Society**

Online Workshop
29 Dec 2020

<https://www.iau.org/static/publications/dqskies-book-29-12-20.pdf>

Reports

**7 Triennial Division
Reports (2018–2021):**

https://www.iau.org/publications/iau/division_reports/

**31 Triennial Commission
Reports (2018–2021):**

www.iau.org/publications/iau/commission_reports/

**43 Triennial Working Group
Reports (2018–2021):**

https://www.iau.org/publications/iau/wg_reports/

IAU Press Releases and Announcements References

<https://www.iau.org/news/pressreleases/>

<https://www.iau.org/news/announcements>

<https://www.iau.org/publications/iau/>

IAU News

We welcome submissions for newsworthy IAU developments to be considered for IAU Press Releases and Announcements. News is defined as any important development in the Union that ought to be communicated to a wider audience or a communication about astronomy but also between astronomers.

IAU Newsletters

<https://www.iau.org/publications/e-newsletters/>

8

Cooperation with other Unions and Organisations

8.1

Women in Physics and the International Union of Pure and Applied Physics

Gillian Butcher

University of Leicester
(UK), IUPAP's
Vice-President at Large
and Gender Champion

Igle Gledhill

University of the
Witwatersrand
(South Africa), past Chair
IUPAP's Working Group
on Women in Physics

Silvina Ponce Dawson

UBA & CONICET
(Argentina), IUPAP's Acting
President Designate

The International Union of Pure and Applied Physics (IUPAP, iupap.org) represents identified physics communities from all over the world. It currently has 60 member countries that are directly involved in its organisation and decisions. The IUPAP was created in 1922 to “assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity”. It has expanded its aims over the years to embrace policies to promote interdisciplinary collaborations, to increase the scientific literacy of the general public and to help change the scientific landscape making the practice of physics more inclusive and diverse. In particular, it has taken several actions for over 20 years now to increase the participation and improve the situation of women physicists. The creation of the IUPAP's Working Group on Women in Physics in 1999 was a milestone that still exerts an enormous impact on physics communities all over the world. While it was initially thought of as a finite-term structure “to survey the situation of women physicists in IUPAP member countries, to analyze and report the data collected along with suggestions on how to improve the situation and to suggest ways to increase the participation of women within the IUPAP structure”, its existence has been renewed continuously by the Union's General Assembly. The actions of the Working Group gave visibility to a problem that had often gone unnoticed. The Group raised awareness and, most importantly, contributed to the creation of a very active network of women in physics working groups in more countries than are IUPAP members. The first activities of the IUPAP's Working Group included commissioning the Statistical Research Center of the American Institute of Physics to perform a survey¹ on the situation of women physicists and organising an International Conference on Women in Physics (ICWIP). This first ICWIP took place in Paris, France, in 2002 and started a series of conferences held triennially in different parts of the world. ICWIP conferences constitute a platform where members of the international network of working groups meet, discuss policies, exchange ideas on science and gender, describe difficulties and progress over the last three years, learn from regional differences and establish mentoring schemes and

research partnerships of various sorts. The discussions ultimately lead to a set of resolutions and recommendations that upon approval at a final gathering are presented to the IUPAP officers and General Assembly. The results of the discussions and the presentations of the ICWIP participants are documented in the conference proceedings that have been published by the American Institute of Physics (AIP) since the first ICWIP². ICWIP conferences also include plenary talks by women scientists that combine the presentation of research results with personal accounts. Active participants of the IAU have been plenary speakers at different ICWIPs. In particular, the contributions of Silvia Torres-Peimbert at the 5th ICWIP were fundamental to the writing of the Waterloo Charter on Women in Physics, a declaration of principles that drew inspiration from the Baltimore Charter and the Pasadena Recommendations of the American Astronomical Society (AAS), which will be approved by the IUPAP's General Assembly in October 2021. Among other activities, between ICWIPs the Working Group awards travel grants to women physicists from developing countries who are at an early career stage.

Through the many recommendations and resolutions built at ICWIPs, the Working Group actions have impacted directly on the IUPAP's internal structures and sponsored activities. For example, it is now mandatory that women are more than 10% of the speakers and committee members at conferences sponsored or supported by the IUPAP. A target of at least 20% is recommended and the organisation of a session for all conference attendants on Diversity and Inclusion in Physics is encouraged. An anti-harassment policy for sponsored conferences is being enforced as well. Regarding the IUPAP organisation, the position of Vice-President at Large with Gender Champion duties was created to facilitate the communication between the Executive Council and the Working Group on Women in Physics, to control the compliance of the gender-related policies approved by the union and to ensure that the organisation itself practises what it recommends to its members. The new set of statutes and bylaws to be approved

by the 2021 General Assembly, on the other hand, states that at least one of each Commission's officers (Chair, Vice-Chair and Secretary) should be a woman and that, for the IUPAP's presidency, "at least one of the President, President-Designate and Immediate Past President will be a woman, and at least one shall be a man."

A very fruitful and rewarding activity that the IUPAP has participated in is the project entitled "A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?" This interdisciplinary project involving 11 international partners generated data on which to base future actions to help reduce the gender gap in STEM³. It initiated a global survey of scientists that attracted over 34 000 responses. IUPAP representatives helped organise the survey, which was carried out by the Statistical Research Center of the AIP, based on the Global Survey of Physicists that had been run in 2009–2010⁴. Perhaps the most important aspect of the project has been to establish a network of women scientists who, working in different disciplines, share the common interest of increasing inclusion and diversity in their fields. This very successful first experience has led its participants to create the Standing Committee for Gender Equality in Science (SCGES), an interdisciplinary platform through which we expect to continue sharing experiences, ideas and friendship. The IAU has been an active partner of both the Gender Gap project and of SCGES. We expect that our partnership and cooperation will be expanded and strengthened through our joint work in the SCGES and many other future activities.

Notes

¹ Ivie, R., Czujko, R. & Stowe, K. 2002, AIP Conf. Proc., 628, 49

² Hartline, B. K. & Li, D. 2002, AIP Conf. Proc., 628, 3

³ Roy, M.-F. et al. 2020, A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?, Zenodo (2020); doi: 10.5281/zenodo.3882609

⁴ Ivie, R. & Tefaye, C. 2012, Physics Today, 65, 47

- 15 July is the deadline for additional nominations from the National Members for future members of both the Membership Committee and the Finance Committee
- 16 December: Both the IAU PhD Prize and the Gruber Foundation Cosmology Prize nominations open for 2021.
- The IAU Offices Family Meeting (OAO, OAD, OYA & OAE) will take place from 20–22 July.
- By 30 July the Finance Committee will submit a report, including the auditor's reports, to the EC on its findings and recommendations concerning the development of the Union's finances over the preceding triennium.
- 18 August is the date of the Finance Committee preparatory meeting which will be a virtual meeting.
- 19 August is the date of the preparatory meeting with the National Members (10 am CEST for Europe/Africa/Asia and 8 pm CEST for the Americas) — both will be virtual meetings.
- 23 August is the date of the Business Meeting 1 (3 pm CEST) also a virtual meeting.
- 26 August is the date of the Business Meeting 2 (3 pm CEST) which will be a virtual meeting.
- 27 August is the date of the EC Meeting 106 (2 pm CEST) which will be a virtual meeting.
- 31 August is the date by which all Working Groups and Associates membership will end unless actively re-proposed by their parent bodies.
- By 1 September all new Committees for the new triennium will be instated.
- The deadline for Letters of Intent (LoIs) for 2023 Symposia is 15 September.
- The Letters of Intent (LoIs) will be published on the IAU webpages by 30 September.
- 1 October is the date when the Individual and Junior Membership applications open.
- 1 December is the deadline for submission of full proposals for 2023 Symposia.

For upcoming Administrative Dates and Deadlines see:

<https://www.iau.org/administration/events/future/list/1/>

Upcoming IAU Meetings are listed online at:

<https://www.iau.org/science/meetings/future/>

9.1

IAU Dates and Deadlines from June to December 2021



Editor in Chief: Teresa Lago
Editing: Teresa Lago, Madeleine Smith-Spanier
Copy-editing: Peter Grimley
Layout: Lorenzo Benassi
Production: European Southern Observatory

Cover: Excellence in Astronomy Education and Public Outreach. Credit: A. Dyer/IYA2009

