



# IAU Catalyst, December 2019



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# Editorial

We are about to end an exciting year marked by a very high number of events around the world commemorating the IAU centenary. However, 2019 exceeded expectations in many other respects: the large volume of IAU-related news highlighted by press release or announcement; the novelty of broadening IAU support to countries selected for the first time to organise an IAU symposium; the opening of an annual call for individual membership proposals, which will strengthen the bond between astronomers and their Union; the ability to engage new sponsors for various IAU initiatives; and, last but not least, the successful creation of the new Office of Astronomy for Education (OAE) with its strong emphasis on networking and diversity.

Indeed, the widespread interest in hosting the Office of Astronomy for Education has exceeded the most optimistic expectations and, despite the high number of applications, the IAU was able to complete the selection process within the initially proposed schedule. OAE will soon be fully operational.

Above all, in 2019 there were many exciting scientific discoveries and advances in the field of astronomy.

We are ready to implement the IAU Strategic Plan 2020–2030, in its various aspects. This strategic plan is the IAU's first comprehensive vision, clearly setting out its long-term objectives and framing the various competences and activities.

2020 will mark year one of this ambitious strategic plan. But it also promises to be an exciting year in several other aspects. The symbolic mark of 15 000 individual members of the Union is now a close realistic goal, although that of 100 member countries may still be a target for the future. In addition to its Paris Headquarters, the IAU will have four fully operational offices and it will sponsor 9 symposia, 2 regional meetings (APRIM 2020 and MEARIM 2020) and 2 international schools for young astronomers (Mexico and South Africa). And there is no shortage of other initiatives that are at the moment only dreams and ambitions, but which will soon be realised.

To conclude, the IAU is over 100 years old but stands out in its dynamism like never before.

**Maria Teresa Lago**, General Secretary IAU

# 1

## Executive Committee

The “à-côtés” of an IAU  
General Secretary’s life

**Jean-Claude Pecker**

General Secretary

1964–67

Having been associated with the IAU since 1948, I naturally hold many memories. It was hard work, with an eye on commissions, publications and working groups, from the naming of asteroids to the organisation of a meeting of the Executive Committee (EC), in Sydney, or Herstmonceux.

The EC meetings — a week or two a year — were indeed the most enjoyable part of my time, and the most important too, I believe. My first meeting of the EC was in Berkeley, in August 1961. It was very tense, as the work of the AGS did not exist before, and the IAU administration was totally new to me.

Other occasions were more pleasant, as in Armenia when Victor Ambartsumyan, as President, organised a visit to Lake Sevan. It was a very hot day and, to everyone’s surprise, Jan Oort jumped into the water; several of us followed him. We were then instructed to return to Erevan to visit an exhibition about the splendid achievements of the Armenian economy. That was too much! We convinced Ambartsumyan that a lakeside picnic would be more enjoyable and useful! From nowhere he managed to get a huge bowl full of grapes, some fish and some bread. It was fun to see Sternberk (VP) eating his bread and fish without a fork or spoon, embarrassedly standing in front of the splendid colours of the lake.

Twice, once during my tenure as a GS, and again later, I gathered the EC on my island, Île d’Yeu, in the Atlantic, near the French coast. The beach was right next door. Whenever possible, the Strömgrens immediately jumped into the ocean, as did Gratton. Others were more cautious, Vainu Bappu, for example. The meeting took place in my (large) living room. It was very pleasant and relaxed, except perhaps when Schwarzschild threw me a vibrant: “I OBJECT!”. “Miss IAU”<sup>1</sup> at the time was Brigitte Manning (Denise’s former assistant at the Meudon Observatory) and she had a good friend, a splendid artist named Jean Suzanne. So from these two EC meetings, I still have a magnificent sculpture and a beautiful canvas work, “Waves”, gifts from the EC. They still occupy a place of honour in my island home.

Another beautiful occasion was in Nice, when the EC, before a good fish meal at a beach restaurant, took a refreshing swim in the Mediterranean Sea. I still remember my dear friend Fricke's belly as he swam on his back. That swim was pleasant, friendly and refreshing, and I am glad to report that the meetings themselves, in such a friendly atmosphere, were also very fruitful.

I am proud of some achievements during my tenures. At that time, the secretariat moved with the GS and it was Edith Müller who subsequently obtained from the EC the decision to keep it in Paris, at the Institut d'Astrophysique de Paris (IAP).

The organisation of Symposia and Colloquia, and even more of the GA, was a fascinating task. Fascinating, but challenging! The volumes of the symposium came as a series, complemented by Volume XII C of the Transactions, a bilingual "style book", which I find still ok, perhaps even more so, for the preparation of all publications. Another interesting task was the connection to the International Council for Science (ICSU). I remember a controversy over the ICSU Abstracting Board (ICSU-AB), the organisation of which seemed a bit too "personal". A British colleague (I'm afraid I forget his name) and I were in charge of examining the ICSU-AB's expenses, and it was really a remarkable mess; our report ended in a kind of Shakespearean tragedy! It is a shame, because I think the ICSU-AB's role is still needed, especially when information is highly informatised, it is sometimes looking like a Tower of Babel.

Well! Altogether, I have splendid memories of the IAU. I still have many friends from that time. I am convinced that I achieved some useful actions, to the benefit of our astronomy. Now, I just want to say to today's astronomers, as one said to young French sailors: "*Bon vent!*"

#### Notes

<sup>1</sup> "Miss IAU" is the title given to the first Assistant Secretaries of the IAU. The first Miss IAU was Nel Splinter, and the first male Miss IAU was Arnost Jappel (Andersen, Beneke & Jansen, "The International Astronomical Union: Uniting the Community for 100 Years", Springer: 2019).

# 2

## IAU Divisions, Commissions & Working Groups

### 2.1 Spanning the Heliosphere

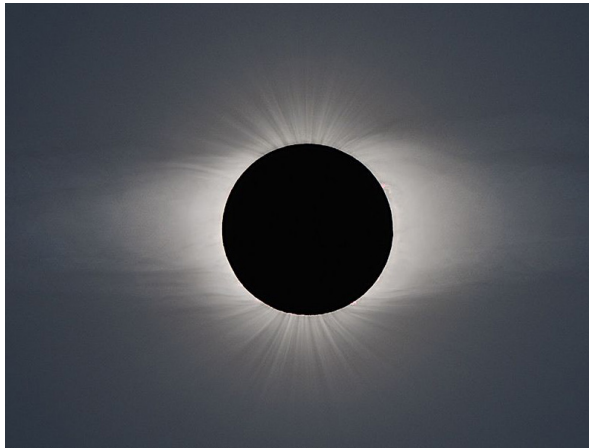
**Sarah Gibson**  
President of Division E

Division E (Sun and Heliosphere) encompasses the study of the Sun, its variability, activity and dynamics, as well as its impact on Earth and other bodies located within the heliosphere. We divide this broad topic into Solar Radiation and Structure (Commission E1), Solar Activity (Commission E2) and Solar Impact Throughout the Heliosphere (Commission E3).

Division E science is intrinsically interdisciplinary, lying at the interface of astrophysics, atmospheric science, and plasma physics. It is thus not surprising that all of Division E's working groups are interdivisional. The Coordination of Synoptic Observations of the Sun working group is shared with Division B (Data Science), and it recently successfully proposed Resolution B3: on the preservation, digitisation and scientific exploration of historical astronomical data at the recent General Assembly in Vienna. The Impact of Magnetic Activity on Solar and Stellar Environments working group involves Divisions F (Planets) and G (Stars), focusing on interdisciplinary science related to understanding the impact of stellar magnetic activity on the astrosphere. The Solar Eclipses working group, co-sponsored by Division C (Education and Outreach) provides a variety of eclipse-related resources to

*Figure 1: Pearly-white corona with pink prominences as viewed from the Cerro-Tololo Inter-American Observatory (CTIO) during the eclipse of 2 July 2019 in Chile.*

*Credit: © 2019 Williams College Eclipse Expedition (Jay Pasachoff, David Sliski, Alan Sliski, Christian Lockwood, John Inoue, Erin Meadors)/ Solar Terrestrial Program, NSF/CTIO/AURA Atmospheric and Geospace Sciences Division/Digital assembly and compositing by Wendy Carlos. All rights reserved.*



the general public and supports activities such as the recent IAU Symposium 354 during the 2019 eclipse.

We are excited this triennium to see what the future holds for Division E science with the advent of new international missions and projects that span the heliosphere. The Atacama Large Millimeter/submillimeter Array (ALMA) is dazzling us with new solar observations, and NASA's Parker Solar Probe has already flown closer to the Sun than any other spacecraft. It will soon be joined by ESA's out-of-the-ecliptic Solar Orbiter mission, and by space telescopes in development by India (Aditya) and China (ASO-S). On the ground, the 4-metre Daniel K. Inouye Solar Telescope (DKIST) will probe solar magnetism at fundamental scales and the Square Kilometre Array (SKA) will provide the opportunity to observe solar activity and its origins as never before. Finally, NASA's Interstellar Mapping and Acceleration Probe (IMAP) will look outwards to observe the interaction of the solar wind with the interstellar medium. From the Sun throughout the heliosphere, and all around the world, Division E science continues to expand!



*Figure 2: Total solar eclipse, La Silla Observatory, 2019. Credit: ESO/P. Horálek.*

## 2.2

### The EC WG on Astronomy for Equity and Inclusion

**Amelia Ortiz-Gil  
& Lina Canas**

Co-chairs of the  
Working Group (WG)  
on Astronomy for  
Equity and Inclusion

The International Astronomical Union, in its Strategic Plan for 2020–2030, has underlined the necessity of achieving real inclusion, diversity and equity in all fields of Astronomy (Goal 2). The Executive Committee (EC) Working Group (WG) on Astronomy for Equity and Inclusion was established in 2019, to propose and implement strategic actions in order to accomplish that goal.

In the last few years, many international institutions around the world have experienced an active shift in policies towards more diverse and inclusive workplaces. Nevertheless, we are, in practice, still far from achieving the desired results and in dire need of taking evidence-based actions supported by social studies.

There is also a pressing need to move beyond a simple social justice perspective (like avoiding any kind of discrimination) and start embracing the benefits that come from a diverse and inclusive research group/institution in terms of increasing competitiveness and excellence. It has been shown, for example, that diverse and inclusive groups/institutions foster diversity in research methods and in the questions being asked, leading to more creative approaches and solutions to the problems in hand, thereby helping to attain scientific excellence.

In order to achieve those goals, this WG has organised an IAU Symposium on Equity and Diversity in Japan (November 2019) which has gathered experts from all over the world and at which the Mitaka Resolutions were presented, a document that intends to serve as a guideline from and for the IAU community to achieve inclusion, diversity and equity in all fields of astronomy (research, education and outreach).

The focus of this WG is to foster inclusion and diversity actions that will encompass all the stages in the training of a professional astronomer. This will include outreach activities to attract young people to this science, support all through the education process with access to research journals and databases, and tools to allow people with disabilities to work in a research environment on an equal footing with their peers.



As we reach the end of 2019, it is time to look back and reflect on the IAU 100th anniversary celebrations<sup>1</sup> (IAU100).

Overall, around 5000 IAU100 events have been organised in 137 countries, engaging with millions of people worldwide. Most notably were the Moon Landing 50th anniversary celebrations<sup>2</sup>, with over 1000 activities in 127 countries, and the IAU100 NameExoWorlds project<sup>3</sup>, which gave the opportunity to 110 countries to each name their own exoplanet and parent star. IAU100 also supported the organisation of teacher training initiatives in 20 countries, the Inspiring Stars project<sup>4</sup> that encompasses best practices in inclusive activities, the establishment of a network of dark sky ambassadors<sup>5</sup> to raise awareness of light pollution, and the development of the open source exhibition Above and Beyond<sup>6</sup> present in over 75 countries. Another important milestone was the celebration of the 1919 solar eclipse centenary<sup>7</sup>, with the support of commemorative actions where the historic expeditions took place, São Tomé and Príncipe and Sobral (Brazil).

In addition, IAU100 supported 3 projects that use astronomy for development and peace<sup>8</sup> in different regions and provided micro-grants for 22 IAU100 Special Projects<sup>9</sup> at the local level.



## A Year Celebrating Under One Sky

**Jorge Rivero González**  
IAU100 Coordinator

*Figure 3: 100 Hours of Astronomy activity organised by the IIT Indore Astronomy Club in India. Credit: IIT Indore Astronomy Club.*

# 3 News

Another interesting aspect to highlight is that IAU100 has been a truly grassroots initiative with thousands of individuals holding their events under the IAU100 umbrella<sup>10</sup>.

Beyond these impressive numbers, it is always hard to evaluate the success of large-scale public engagement initiatives, which could only reliably be done by reviewing their impact in the community in the long term. However, we can already see preliminary indications that IAU100 has served to strengthen the IAU Office for Astronomy Outreach's network of National Outreach Coordinators, evidenced not only by the increasing number of new countries involved but also by the larger number of coordinated activities within the IAU100 framework.

The interesting legacy of global activities like this is that they serve as catalysts for many activities to be carried out in the years to come. And we are already seeing the first examples in that direction.

To many more centuries celebrating together under the same sky!

## Links

<sup>1</sup> <https://www.iau-100.org>

<sup>2</sup> <https://www.moonlanding50.org>

<sup>3</sup> <http://www.nameexoworlds.iau.org>

<sup>4</sup> <https://sites.google.com/oao.iau.org/inspiringstars>

<sup>5</sup> <https://darkskies4all.org>

<sup>6</sup> <http://100exhibit.iau.org>

<sup>7</sup> <https://www.iau-100.org/1919eclipse-anniversary-milestone>

<sup>8</sup> <https://www.iau-100.org/astronomy-for-development-projects>

<sup>9</sup> <https://www.iau-100.org/special-projects>

<sup>10</sup> <https://www.iau-100.org/events>

The 14th Asia-Pacific Regional IAU Meeting (APRIM) will be hosted in Perth, Western Australia between 6 and 10 July 2020 at the Perth Convention and Exhibition Centre. This is the first APRIM to be held in Perth, and we are looking forward to continuing the great tradition of previous meetings most recently in Taipei, Taiwan (2017), and previously in Korea, Thailand, China, Indonesia, Japan, India, Australia and New Zealand. We expect to welcome around 600 delegates from across the Asia-Pacific region to our beautiful oceanside city.

APRIM 2020 will be jointly hosted by CSIRO (Australia's national science research agency) and the International Centre for Radio Astronomy Research (ICRAR), and it will incorporate the Astronomical Society of Australia's Annual Science Meeting into its programme.

With the advent of new astronomical facilities, a wide range of research collaborations are being established between Australia, China, Canada, India, Korea, Japan, New Zealand, Russia, Taiwan and the US. These cover diverse areas including centimetre and millimetre radio astronomy, Very Long Baseline Interferometry, the Square Kilometre Array (SKA), the Giant Magellan Telescope and the Thirty Meter Telescope. In particular, this APRIM will take place at a time when the global effort to build the world's biggest radio telescope takes shape in South Africa and Australia. When completed, Australia's SKA site will host up to a million low-frequency antennas searching for radio waves from the first stars and galaxies to exist in the Universe.

The APRIM 2020 SOC has a focus on research areas that are of particular relevance to astronomers in Australasia and the wider Asia-Pacific region. The conference will be organised within these themes:

- Solar System Objects and Exoplanets
- Solar/Heliospheric and Stellar Physics and Evolution
- Interstellar Medium, Star Formation, and Milky Way
- Compact Objects and High Energy Astrophysics
- Galaxies, AGNs, Large Scale Structure and Cosmology
- Gravitational Waves/Multi-Messenger Astronomy

## 4.1

### Asia-Pacific Regional IAU Meeting 2020

**Barbara Catinella  
and George Heald**

**Chairs of the APRIM  
2020 SOC**

# 4 Scientific Meetings

*Figure 4: The galaxy NGC 1156 resembles a delicate cherry blossom tree flowering in springtime in this Hubble Picture of the Week. Credit: ESA/Hubble, NASA, R. Jansen.*

- SKA and Upcoming Ground- and Space-based Observing Facilities
- Diversity and Inclusion in Astronomy
- Public Outreach, Education, and Astronomy for Development

We particularly encourage participation and contributions from diverse and underrepresented sectors of the community.

Website: <http://aprim2020.org>



After the IAU centenary celebration last April in Brussels, a conference took place on 4 October in Paris, where the first President of the IAU, Benjamin Baillaud, was at the time Director of the Paris Observatory.

Entitled “Astronomers as Diplomats: when the IAU builds bridges between nations”, it illustrated how astronomers, confronted with political crises between nations, eventually succeeded (often after heated discussions between themselves) to “build bridges” in the interest of the community and “to promote and safeguard the science of astronomy in all its aspects” (IAU Statutes).

The conference focused on three periods where astronomers were particularly active:

- 1** The WWI period, with the precursor photographic all-sky mapping project *La Carte du Ciel*, initiated by the Paris Observatory in 1887; the epoch of the creation of the IAU and of other scientific unions, and of the Bureau International de l'Heure, in 1919, focusing on the very important role of Benjamin Baillaud;
- 2** The modern period, when China left the IAU for twenty years (1960–1980), while the USA-USSR “Moon race” took place, starting with the first images of the far side of the Moon obtained by the Soviets, exactly 60 years before the conference. After the Apollo landings, and unreported until now, a major crisis developed when the UN challenged the IAU about lunar nomenclature. This was followed by the convoluted story of Germany’s admission to the IAU (1951 to 1990).
- 3** Lastly, the contemporary period, marked by the IAU-UNESCO collaboration: in 2009 with the International Year of Astronomy, and since 2008 with the Astronomy and World Heritage Initiative, highlighting the Pic-du-Midi Observatory, installed in 1908 under the supervision of... Benjamin Baillaud.

The meeting attracted a significant fraction of non-astronomers, namely science historians, science law and policy experts, heritage professionals, UNESCO staff, etc. This

## 4.2

### Celebrating the IAU centenary in Paris: “Astronomers as Diplomats”

**Thierry Montmerle**

Former General Secretary

# 4 Scientific Meetings

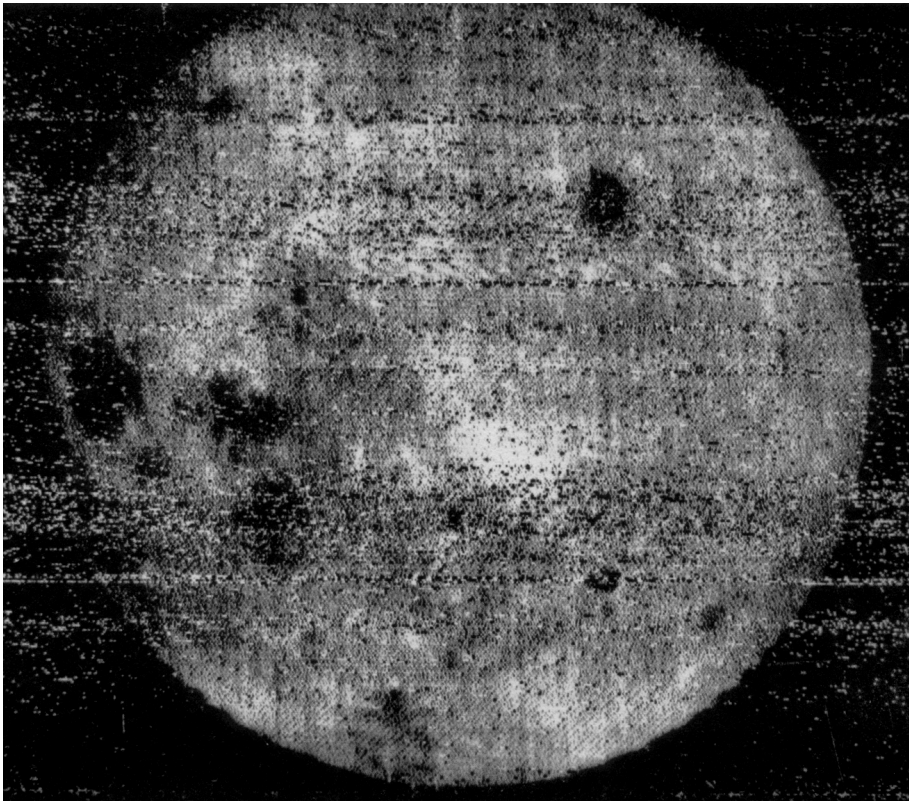
*Figure 5: The first image returned by Luna 3 showed the far side of the Moon very different from the near side, most noticeably in its lack of lunar maria (the dark areas).  
Credit: Creative Commons.*

was also one of the goals of the conference, which will be the basis for a book to be published by Springer.

### Notes

IAU Announcement of the conference: <https://www.iau.org/news/announcements/detail/ann19056/>

See also: "Under One Sky: The IAU Centenary Symposium", IAU Symposium 349 (Cambridge University Press), Edited by C. Sterken, J. Hearnshaw, and D. Valls-Gabaud (2019)



The IAU Secretariat Office is located in Paris, France, where it is hosted by the Institut d'Astrophisique (IAP).

Let me introduce myself, I am Maria Rosaria D'Antonio, IAU Head of Administration. I manage and monitor the internal and external financial operations as the Secretariat, a crucial Office of IAU that connects and shares information between the other IAU Offices in the world (OAO, OAD, OAE).

I am in charge of relations between the IAU and the National Members, supervising and monitoring the annual contributions from them, which is the IAU's main source of income.

I organise and manage the Annual Officers meetings held every year in Paris.

I am responsible for the organisation of the annual Executive Committee that is held annually, in different countries around the world, as well as all the preparatory meetings before the annual IAU General Assembly, organised every 3 years, where my main task is the management of grants for the participants, particularly students.

Educational activities are essential tasks at the IAU. It is my responsibility to run the finances for each ISYA, the International School of Young Astronomers.

I am also the leader of the IAU Inspiring Stars Task Force with Lina Canas (OAO), an IAU inclusion project collaborative initiative. The resources for the project are related to astronomy research, communication and development, and are collected via an open call around the world, which will be finally combined in a unique interactive exhibition.

I believe that this is a great opportunity for me to be part of the IAU family, to be part of the relations between different countries and cultures in the world with the same purpose, safeguarding and promoting astronomy, in order to encourage the world to be open-minded.

## 5.1

### IAU Secretariat

**Rosaria D'Antonio**

Head of Administration

# 5 IAU Offices

## 5.2

### The Office of Astronomy for Development (OAD)

Kevin Govender and  
Vanessa McBride

The Office of Astronomy for Development (OAD) has, since its launch in 2011, consistently engaged internationally with key individuals, organisations and groups in order to realise its founding vision "Astronomy for a better world". The annual call for proposals, launched in 2012, has been a cornerstone of the OAD's activities, opening up the opportunity for anyone anywhere in the world to come up with ways to use astronomy for development (as compared to developing the field of astronomy or conducting education and public outreach activities). The annual call has now matured into a two-stage process, with personalised expertise from both the astronomy and development fields available during proposal development. There is also a free, online course and extensive guidelines and resources (including lessons from all previously funded projects).

The community has come up with many interesting projects that respond to difficult situations around the world. Some examples from 2019:

- 1 Amanar uses astronomy to promote quality science education among youth and teachers in Sahrawi refugee camps in Algeria, enhancing both their resilience and engagement in the community through skill development and self-empowerment activities.
- 2 IDP Children's Astronomy Outreach in Nigeria aims to conduct astronomy sessions to inspire and educate children in Internally Displaced Camps, with the support of trained counsellors.
- 3 Astronomy for Canadian Indigenous Youth is using astronomy as a development tool to reduce the inequalities faced by Canada's First Nations youth.

Based on the lessons and ideas from these and many more funded projects, the OAD has established "Flagship" projects which are driven from the OAD itself, with the support of its 10 regional offices. These Flagship projects speak to the United Nations Sustainable Development Goals and consolidate the vision of Astronomy for Development set out in the IAU Strategy 2020–2030.



Ten years ago, two milestones helped set the course of the IAU's outreach activities for a decade: the unprecedented success of the International Year of Astronomy (IYA2009) and the IAU Strategic Plan (SP) for 2010–2020, focused on astronomy for development. In the following decade, the IAU OAO would be involved in coordinating large-scale projects, such as Cosmic Light (IYL2015), NameExoWorlds (2015) and the IAU100 (2019), using the network of National Outreach Coordinators (NOCs) as the backbone for its implementation.

With the new IAU SP 2020–2030, the IAU envisions a clear core goal, to engage the public in astronomy through access to astronomical information and communication of the science of astronomy.

The IAU has international collaboration at the core of its mission, and the outreach office intends to strengthen the NOCs relations by launching the first NOCs Grant Scheme. Other actions will comprise officially endorsing international milestones, such as Women and Girls in Science, or the International Day of Light, and coordinating the IAU Astronomy Translation Network (ATN).

The sustainability aspect of our future projects is paramount. Not only under the framework of the development goals (SDGs), but for each outreach project: from design to implementation, we need to aim for “structural sustainability”, with continuity, scalability and eco-friendly impact assessment. As an example, we have the Communicating Astronomy with the Public Journal, with the latest edition having a digitally accessible edition online and drastically reducing the negative impact of the printed version (e.g., paper, print and shipping).

With international collaboration, sustainability and the IAU SP 2020–2030 at the core of our strategy for the IAU OAO, we are reshaping its actions for the next decade. We envision the IAU outreach activities as bridge-builders, facilitating access to information across our communities, from professional astronomers to the general public, and continuing our pursuit of taking astronomy to all.

## 5.3

### IAU Office for Astronomy Outreach

**Hidehiko Agata  
and Lina Canas**

National Astronomical  
Observatory of Japan

# 5 IAU Offices

## 5.4

### The Office for Young Astronomers

#### The International School for Young Astronomers

**Itziar Aretxaga**  
ISYA Director and  
**David Mota**, ISYA  
Deputy Director

The International School for Young Astronomers (ISYA) is a programme begun in 1967 by the IAU to aid the development of astronomy graduates around the world, targeting specifically those in astronomically underdeveloped countries and isolated groups. During its 53 years, it has organised 42 schools in 27 countries. Schools usually have ~ 30–50 students aided by a team of 10–15 lecturers for a 3-week-long intensive and broad-scope programme. Over time, ISYAs have hosted over 1400 students and 400 lectures. Many prominent IAU members were students of the programme, and it is now the case that alumni are enthusiastic promoters of, and lecturers on, new ISYAs.

The ISYA programme is currently overseen by the Office for Young Astronomers, and implemented by representatives of the IAU and the Norwegian Academy of Science and Letters. Together with the funds and guidance provided by the Office, the contribution of the local host institutes is paramount to the successful organisation of the ISYAs. The next schools will be held at the Universidad Autónoma de Chiapas, Mexico, in June 2020 and at the South African Astronomical Observatory in November–December 2020. We are currently looking for hosts for 2021 onwards.

*Figure 6: One of the ISYA family photos during the XXX IAU General Assembly 2018: alumni, lecturers and members of the OYA gathered in front of the IAU globe. Credit: OAD*



Conditions for astronomy vary around the globe, and hence ISYAs are tailored to local needs. The programme has a flexible portfolio of lectures that can fit an observational astronomy school, a computational astrophysics school or a school geared towards development, and we are assembling a portfolio for education too. Apart from seminal lectures and hands-on laboratories and observations, the school offers workshops on career development, outreach, short-scope projects for students, and long-lasting links and networks with lecturers and fellow students alike. Ex-alumni maintain a Facebook page that gathers together members from all generations.

Full information on the programme can be found at The International School for Young Astronomers webpage<sup>1</sup>.

### References

<sup>1</sup> [https://www.iau.org/education/school\\_for\\_young\\_astronomers/](https://www.iau.org/education/school_for_young_astronomers/)

*Figure 7: Group photo taken during the 42th ISYA hosted by the Yunnan Observatories, in Kunming, China, 14 October–1 November 2019. Credit: IAU*



# 5 IAU Offices

## 5.5

### The Office of Astronomy for Education (OAE)

**Maria Teresa Lago**  
IAU General Secretary

Following the approval of its Strategic Plan for 2020–2030 at the Vienna General Assembly in August 2018, the IAU launched an international call in October of the same year to establish the new Office of Astronomy for Education (OAE).

Letters of Intent (LoI) were received from a large number of prospective partners (23) from all continents.

In the meantime, a high-level ad hoc evaluation committee was set up, consisting of the President-elect (Debra Elmegreen), one Vice-President (Junichi Watanabe), the Division C President (Susana Deustua) and the General Secretary. This committee carried out the pre-selection of the LoIs received and, as a result, 9 invitations to submit a proposal were sent at the end of February 2019.

By the end of June deadline, the IAU received 6 proposals to host the OAE: 4 from Europe (France, Germany, Italy, the Netherlands) and 2 from Asia (China and India). The subsequent evaluation led to a clear ranking of the proposals, with the proposal presented by the House of Astronomy in Heidelberg (Germany) in an honourable first place. This will be the host of the OAE.

However, because astronomy is so relevant to education everywhere, we want to capitalise on the great interest generated worldwide by convening the OAE partnership.

Therefore the IAU Secretariat took the initiative to organise a workshop to discuss the implementation of the new office, involving not only the host institution but also representatives of the various high-level institutions and consortia from different parts of the world who answered the call.

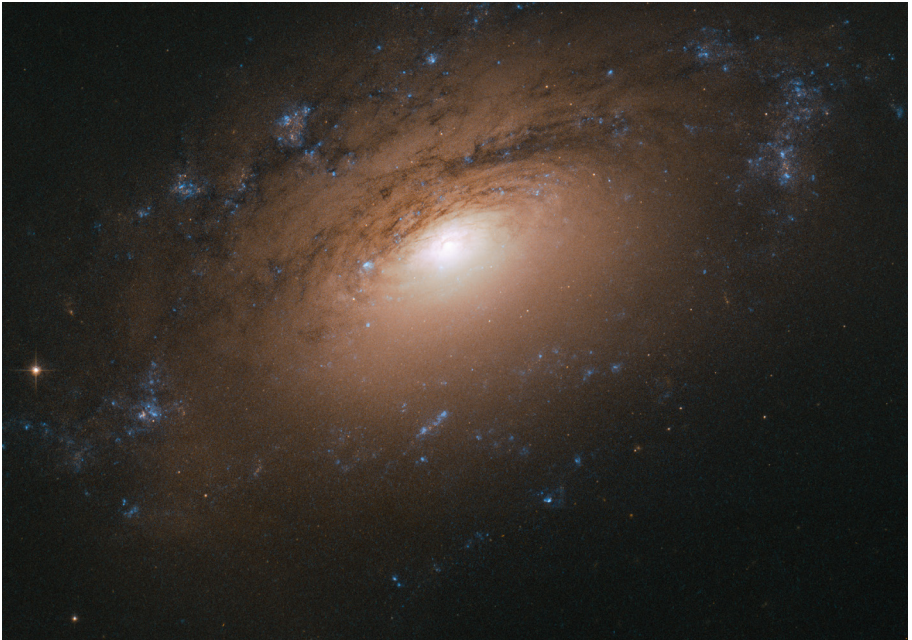
This was made possible with the generous support of the Shaw Prize Foundation, through the agreement signed with the IAU (in April 2019) to work together to promote astronomy and enhance astronomy for education. The Shaw Prize Foundation will fund an annual Shaw-IAU workshop on “Astronomy for Education”, an important activity for the new

office. This support will be for a period of 5 years, with the possibility of extension after this period.

Probably while you are reading this article the first workshop will be taking place at the IAP in Paris, the site of the IAU Secretariat. We will be discussing with all those who have presented several interesting concepts for the OAE by revisiting their proposals. We will be sharing ideas, ambitions, experience and practice, but also laying a solid foundation for a global collaborative network through a broad and inclusive Office of Astronomy for Education.

The birth of the OAE could not have taken place under a more auspicious sky.

*Figure 8: NGC 3169.  
Credit: ESA/Hubble  
& NASA, L. Ho*



# 5 IAU Offices

## 5.6

### The IAU Press/ Webmaster Office

**Raquel Yumi Shida**  
IAU Webmaster

If you are reading this article, the chances are that it was downloaded or displayed from the IAU website. The upload and maintenance of this and all the IAU Catalyst issues, as well as the other online IAU publications and related archives, are coordinated by the IAU Webmaster.

The current IAU Webmaster is Raquel Yumi Shida, who also works as the IAU Deputy Press Officer in parallel to her duties as the Head of the Web Team in the Department of Communication at the ESO Headquarters in Germany. Her responsibilities as the Webmaster include updating the content of the various IAU web pages and participating in decisions on major structure changes, expansion of archives and general design upgrades, after discussions with the Press Officer, the General Secretary and other web team members.

As Deputy Press Officer, Raquel helps with reviewing and publishing announcements, press releases, newsletters, images and videos related to the IAU.

Since the last General Assembly in 2018, particular attention has been given to improving the online communication amongst members of the same Commissions and Divisions, via the upgrade of mass-mail capabilities, and expansion and access of internal pages and static files. There has also been a considerable increase in the number of publications of announcements and open source images and videos during this phase, thanks to the various activities related to the IAU centenary.

A perfect web site that pleases all users worldwide does not exist, as each individual has different preferences, perceptions and needs. Each IAU member probably has some complaint about [iau.org](http://iau.org), but also something complimentary to say about it (hopefully!). The IAU Webmaster welcomes opinions and suggestions for [iau.org](http://iau.org) from all members — they will be taken into account in future upgrades, taking account of the available resources.

Contact: [rshida@eso.org](mailto:rshida@eso.org)

In the last two years, the Astronomical Society of Japan (ASJ) has been actively promoting discussion of the relation between astronomy and national security, especially in respect of military research.

This is because in 2015 the Ministry of Defence in Japan started the National Security Technology Research Promotion Fund<sup>1</sup> to encourage researchers to join basic research to develop technology for national security, i.e., military, purposes.

This prompted various discussions and raised concerns among researchers, because to join military research may affect world peace, and also influence the autonomy of research and unrestricted publication of research results.

Hence the Science Council of Japan (SCJ) released a statement on Research for Military Security on 24 March 2017 asking Japanese universities and institutions to create a system to review research proposals that might be used for military security research for their appropriateness, both technologically and ethically, and also to encourage academic societies and other communities to develop guidelines appropriate to the characteristics of their respective disciplines and fields<sup>2</sup>.

In response to this statement, the ASJ has continued serious discussion for two years<sup>3</sup>. Special sessions were held

## 6.1 Astronomy and National Security: a statement from the ASJ

**Kazunari Shibata**  
President of the  
Astronomical Society  
of Japan, 2017–2019

*This is a controversial topic that, however, deserves to be debated by any astronomer community*

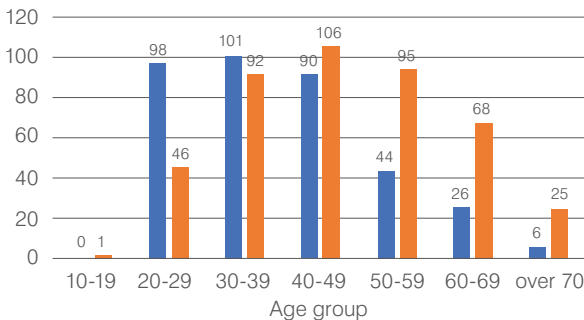


Figure 9: Do you agree with the National Security Technology Research Promotion Fund?  
■ Yes ■ No

at the ASJ's bi-annual meetings, some feature articles were run in our publication, and two surveys were conducted of ASJ members, who we found to be broadly divided in their opinions about the National Security Technology Research Promotion Fund.

Finally the ASJ made the following statement on 15 March 2019<sup>4</sup>:

- The Astronomical Society of Japan (ASJ) shall not engage in any research or activities that might threaten human security or world peace because it was founded to promote and advance astronomy as its primary mission.
- As a group of scientific investigators, we the ASJ recognise our responsibilities in society, and we shall contribute to human security and world peace through research, education, and the promotion of astronomy, as well as through international research collaborations and exchanges.

#### Notes

<sup>1</sup> National Security Technology Research Promotion Fund: a special fund established in 2015 by the Acquisition, Technology and Logistics Agency (ATLA) under the Ministry of Defense: [https://www.mod.go.jp/atla/en/policy/research\\_and\\_development.html](https://www.mod.go.jp/atla/en/policy/research_and_development.html)

<sup>2</sup> Statement of the SCJ on Research for Military Security: <http://www.scj.go.jp/ja/info/kohyo/pdf/kohyo-23-s243-en.pdf>

<sup>3</sup> See also the Nature article: <https://www.nature.com/articles/d41586-018-04588-1>

<sup>4</sup> Statement of the ASJ [http://www.asj.or.jp/asj/en/intro\\_E.html](http://www.asj.or.jp/asj/en/intro_E.html)



The internationalisation of science is thoroughgoing and is increasing at a rapid pace. This is reflected in international collaborations, publishing, facilities, instruments, and in international scientific organisations (Adams, 2013; Wagner et al., 2015; Wagner & Jonkers, 2017).

A decade ago, the US Department of State recognised, *“Science and technology (S&T) cooperation helps to ensure that US scientific standards and practices play a substantial role in the establishment of international benchmarks. It also has significant indirect benefits as well, contributing to solutions which encourage sustainable economic growth by: promoting goodwill, strengthening political relationships, helping to foster democracy and civil society, and advancing the frontiers of knowledge for the benefit of all.”* Although this statement does not appear on the Department’s current website, it nevertheless remains as true now as it was then.

One hundred years ago, the US National Academy of Sciences was a founding member of the International Astronomical Union (IAU) and several other unions, and it continues to adhere to most of these unions today. These organisations fulfill essential roles in the global science community and help advance science worldwide. While specifics vary, many are responsible for their disciplines’ internationally recognised nomenclature, constants, and other standards. They also organise scientific research programmes, publish respected journals and books, maintain databases and/or monitor databases of importance to their fields, identify new and emerging issues, confer major international awards, and promote diversity and the careers of young scientists. Each union supports a unique, powerful, international network, including relationships with UN bodies.

The public knows and values things the scientific unions do, even if they do not know who is responsible. Anyone interested in space, whether student or senior citizen, remembers the IAU’s decision in 2006 affecting Pluto, even if they do not

## 6.2

### The Importance of the IAU and International Scientific Unions

**Kathie Bailey**

Director, Board on International Scientific Organizations  
National Academies of Sciences, Engineering and Medicine (USA)

*Figure 10: A gigantic image of the Triangulum Galaxy — also known as Messier 33. Credit: NASA, ESA, and M. Durbin, J. Dalcanton, and B. F. Williams (University of Washington)*

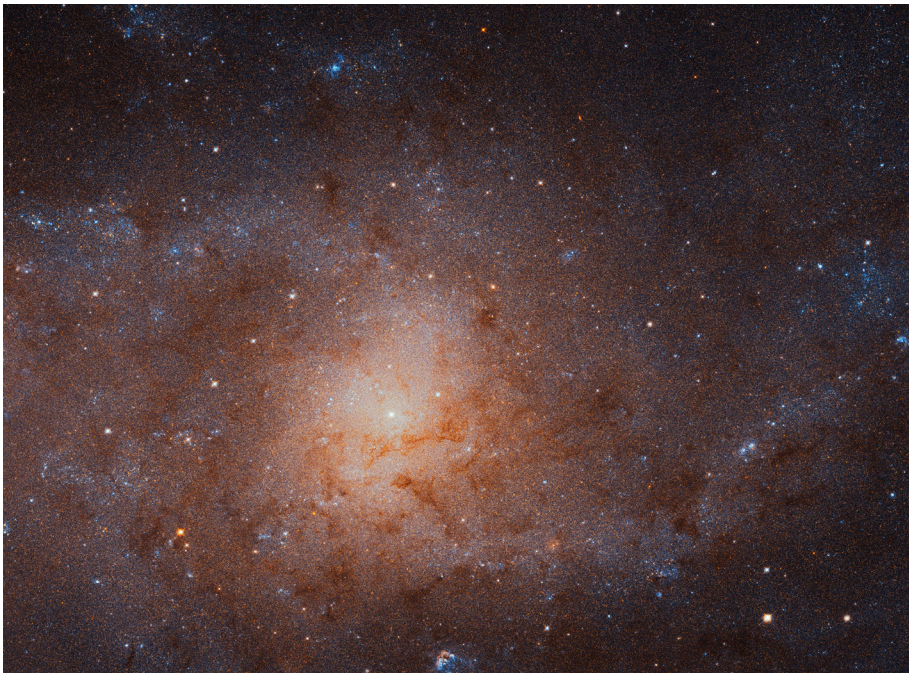
recall or understand the reasons behind it. The United States values its membership of the IAU and other international scientific unions, and looks forward to additional progress and even greater accomplishments in the next 100 years.

#### References

- Adams, J. 2013, *Nature*, 497, 557.  
Wagner, C. et al. 2015, *PLoS ONE* 10(7): e0131816.  
Wagner C. & K. Jonkers. 2017, *Nature*, 550, 32

#### Links

Department of State: Science and Technology Cooperation website:  
<https://2001-2009.state.gov/g/oes/stc/>



### 6.3.1. IAU100 NameExoWorlds

Within the framework of its 100th anniversary commemorations, the International Astronomical Union (IAU) has organised the IAU100 NameExoWorlds global campaign that allows any country in the world to give a popular name to a selected exoplanet and its host star. The global results will be announced in December 2019.

### 6.3.2. Annual admission of Individual and Junior Members

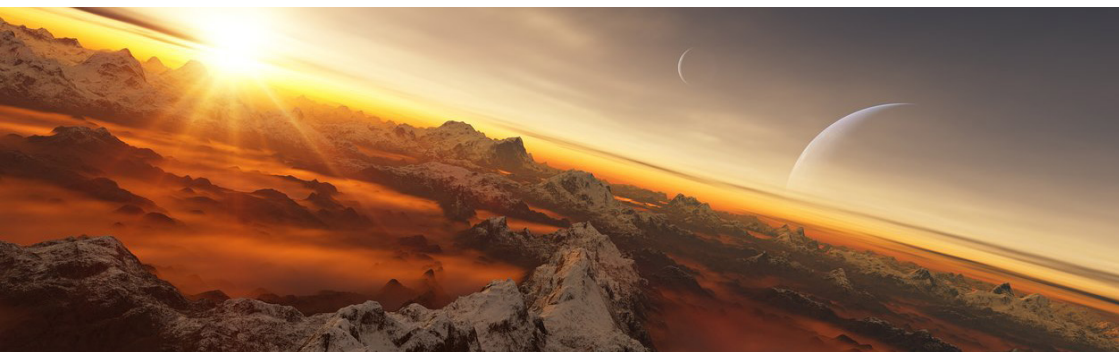
Applications for the new annual intake of IAU Individual Members and Junior Members opened on 1 October as announced earlier this year. This is the first round of applications since this increased frequency has taken effect. The process of applications and admissions runs side by side for both categories of membership. The timeline for application review and admission is as follows:

- 15 December 2019: deadline to accept applications for Individual and Junior IAU Membership.
- 15 February 2020: deadline for the review of applications by the respective NCAs and Adhering Organisations and to send the General Secretary the lists of proposed candidate Individual and Junior Members together with the relevant referees' assessments. These lists will subsequently be reviewed by the Membership Committee.
- 31 March 2020: deadline for review by the Membership Committee of the lists of proposed candidate Individual and Junior Members and to send the General Secretary the final list of proposed Individual and Junior Members.
- May 2020: The final list of proposed Individual and Junior Members will be submitted to the Executive Committee for approval during its meeting in May 2020.
- 7 June 2020: Accepted Individual Members announced.

## 6.3

### Not to be missed

*Figure 11: Exoplanet rendering.  
Credit: IAU/L. Calçada*



IAU Publications  
since June 2019

**IAUS 339 - IAU Symposia****Southern Horizons in Time-Domain Astronomy**

Electronic version

November 2017, Cape Town, South Africa

Ed. R. Elizabeth Griffin

Cambridge University Press

ISSN 1743-9213

2 Sep 2019

**IAUS 349 - IAU Symposia Under One Sky: The IAU Centenary Symposium**

Electronic version

August 2018, Vienna, Austria

Eds. Sterken, C., Heranshaw, J., Valls-Gabaud, D.

Cambridge University Press

ISSN 1743-9213

14 Oct 2019

**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 beyond the scope of just one of the Scientific Bodies. It is also a means of communication not only about astronomy but also between astronomers.

**Links**

<sup>1</sup> IAU Publications: <https://www.iau.org/publications/iau/>

<sup>2</sup> IAU Press Releases & Announcements References: <https://www.iau.org/news/pressreleases/>

<sup>3</sup> IAU Announcements: <https://www.iau.org/news/announcements>

International cooperation is at the very heart of ESO, the European Organisation for Astronomical Research in the Southern Hemisphere. ESO's 1962 Convention aimed to establish powerful observatories in the southern hemisphere; our convention has been ratified so far by 16 Member States. Moreover, the agreements with Chile in 1963 started a most fruitful partnership which continues to be very strong.

After establishing the observatory sites of La Silla (50 years ago) and Paranal (20 years ago), ESO's next big programme was ALMA (the Atacama Large Millimeter/submillimeter Array), a partnership with NSF (USA) and NINS (Japan). This expanded the frontiers of ESO's international cooperation even further. More recently, a strategic partnership between ESO and Australia on La Silla-Paranal has been established. ESO's widening of its capabilities toward the shortest wavelengths by hosting and operating the southern array of CTA (the Cherenkov Telescope Array) at Paranal Observatory is a further step in embarking on global collaborations.

Besides building and operating powerful ground-based astronomical facilities, which will include the largest ground-based optical telescope in the next decade (the ELT), ESO's mission includes facilitating the exchange of scientific and technical knowledge related to astronomy, and more generally fostering cooperation in astronomy. By implementing its mission, ESO thus supports the IAU in its goal of promoting astronomy through international cooperation.

The collaboration between ESO and the IAU includes the support provided by ESO to the professional communication and outreach efforts of the IAU. At a time of unprecedented public interest in astronomical discoveries, amplified by new media that have revolutionised scientific communication, we are committed to sharing resources and expertise to enhance the public's appreciation of astronomy.

It is not then surprising that ESO has been cooperating with the IAU such that each helps the other with communicating

## 8.1

### ESO-IAU Cooperation

**Xavier Barcons**

**Director General**

**Fernando Comerón**

**Head of the Data**

**Management and**

**Operations Division**

# 8

## Cooperation with other Unions and Organisations

Figure 12: The VLT at sunset.

Credit: ESO/S. Goebel

astronomy to scientists and society in general. Joining forces in this endeavour has proven fruitful for both parties over the years, and we look forward to continuing it in the future as astronomy develops, partly thanks to new discoveries that ESO facilities will continue to enable!



- From 10 to 12 February we will host the annual Officer's Meeting (OM) in the Paris Office.
- 15 February marks the deadline for the review of Individual and Junior Membership applications by the respective NCA, adhering organisation or Division Presidents.
- 15 March is the deadline for Divisions, Commissions and Working Groups to submit their annual reports to the IAU General Secretary. This is also the deadline for the IAU General Secretary to submit the annual financial report and the external auditor's report to the Finance Committee for review.
- 31 March is the deadline for applications for the Gruber Foundation Fellowship to be submitted.
- 15 April is the deadline for the Finance Committee to provide the IAU General Secretary with its report on the annual the Union's financial affairs.
- May is host to various deadlines including:
  - 1 May: Call for Letters of Intent (LOI) for Symposia 2022 opens
  - 12–15 May is the annual Executive Committee (EC) meeting which will take place in Washington D.C., USA.
  - 15 May marks the announcement of the recipients of the Gruber Foundation Cosmology Prize
  - Announcement of the recipient of the Shaw Prize in Astronomy
  - 31 May is the date when applicants will be notified by the IAU GS of the outcome of the selection for the Gruber Fellowship. This is also the date of the communication, by the AGS to the SOC's, of the final selection of Symposia and Focus Meetings for 2021.
- 7 June is when applicants for Individual and Junior Membership will be informed if they are accepted as members of the IAU.
- 15 June is when the PhD Prize winners will be announced as well as the announcement of Symposia and Focus Meetings for 2021.

Upcoming IAU Meetings are listed online at: <https://www.iau.org/science/meetings/future/>

## 9.1

Important events  
coming up in the  
next six months  
within the IAU



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**Layout:** Lorenzo Benassi

**Production:** European Southern Observatory

*Cover: VLT Auxiliary Telescope silhouette. Credit: Y. Beletsky/ESO*

