



The IAU 1919–2019

100 years of uniting the astronomical community

“The IAU has been and still is the way to get the worldwide community of astronomers organised. It is also a face for that discipline towards the outside world. It’s a powerful face with content, not just in terms of science but also showing what we bring to the rest of society.”

Ewine van Dishoeck

International cooperation in astronomy was not new when the International Astronomical Union (IAU) was founded in 1919. Astronomers had been visiting each other and exchanging data for many centuries. In the late nineteenth century, several large-scale international surveys had been organised, most notably the great Carte du Ciel and the related Astrographical Catalogue. George Ellery Hale, one of the founders of modern astrophysics, had founded the International Union for Cooperation in Solar Research.

The new IAU was part of a grand reorganisation of international science after the First World War. The next 25 years of the IAU were dominated by diplomatic and political issues related to the First and Second World Wars, but despite the political turmoil, the IAU quickly became one of the most active Unions. The General Assemblies became the prime international meetings in astronomy, thanks to the prominent role of the most senior astronomers.

Even though the number of scientific meetings has increased dramatically since then, the General Assemblies have remained central to the astronomical community.



Ewine van Dishoeck about her first General Assembly: “Many legends were there — for example, I remember seeing Chandrasekhar.”

Some of the core functions of the IAU were also established in those first decades: coordinating nomenclature, definitions and standards (including time in the Bureau Inter-



national de l'Heure), and promoting the exchange of data. At the same time, many active (and a few less active) Commissions were established, making it possible for many researchers to become actively involved in the Union.



Immo Appenzeller: "The IAU appeared to me as an important organisation. It was an organisation that could make the opinion of astronomers heard internationally and it could speak with authority."

After the Second World War, the IAU quickly resumed operations. It also began gradually to increase its activities, starting (modest) exchange programmes to support young astronomers who otherwise could not afford international travel in the difficult postwar years. It was a relatively small-scale affair, but it illustrated that the Union henceforth saw a role for itself in actively supporting individual researchers.



Jean-Claude Pecker, one of the first beneficiaries of the IAU exchange programme: "I consider the IAU as the Godfather — or the Godmother, if you will — of my scientific life."

It is no exaggeration to say that astronomy exploded in the 1950s and 1960s. New technology that had been developed for military purposes in the Second World War and the Cold War enabled astronomers to observe new parts of the electromagnetic spectrum. It began with radio astronomy (based on radar technology), which made an entirely new kind of universe visible. Then the Space Race made it possible to observe X-ray, gamma-ray and ultraviolet radiation and to visit other bodies in the Solar System, creating an immediate need for internationally recognised nomenclature. New discoveries followed each other at dizzying speed: gas clouds, quasars,

pulsars, gamma-ray bursts, background radiation and so on.

The astronomical community grew accordingly: more researchers with more diverse backgrounds, from electronic engineers to theoretical physicists. Triennial General Assemblies were no longer enough to keep up with the developments. From the early 1950s onwards, much scientific action moved to the new Symposia. The series of published IAU Symposium proceedings are an impressive record of a rapidly advancing science.

Gradually, the IAU community became more diverse, with more members from Asia, South America and Africa, and activities for young researchers. Regional meetings made it possible for many more astronomers to participate. Since 1967, yearly International (summer) Schools for Young Astronomers have inspired hundreds of young researchers, especially from developing countries.

The rapid growth of the discipline inevitably led to logistical problems. With over a thousand participants, General Assemblies were no longer conferences at which everybody knew each other, and no researcher could keep up with even the main



Johannes Andersen: "The thing I was most proud of on behalf of the IAU during my tenure was the International Schools for Young Astronomers."

developments in neighbouring fields. Initially, the IAU struggled to adapt. There were even attempts to limit the growth of membership, and a near-constant discussion on restructuring the Commissions.

In the end, the IAU embraced the expansion. Originally an organisation in which a small group of elite researchers represented the global astronomical community, it now strove to be an inclusive embodiment of the research community, including a growing awareness of gender equality issues. Gradually, programmes to stimulate the participation of young astronomers in general were started and the percentage of female members has increased slowly but steadily. Increasing geo-

graphical diversity was demonstrated, for example, by General Assemblies in Argentina and India.



The Women in Astronomy Lunch has become a regular feature of the IAU General Assemblies.

The Cold War obviously posed problems. One of the most painful consequences was the cancellation of the General Assembly in Leningrad in 1951. And the membership of China and Taiwan was an extremely complex issue, for which a breakthrough solution was negotiated in 1979.

The end of the Cold War in 1989, and the end of South African Apartheid soon after, led to a great deal of optimism about international cooperation. The IAU extended several international support and exchange programmes to support former Eastern astronomers; these programmes were later extended to other developing nations. Many countries have joined the IAU since

then, and new countries have gradually become more prominent in astronomy; Spain, China and post-Apartheid South Africa are impressive examples.



Yoshihide Kozai: "The General Assembly [in Kyoto] was important for the East Asian region as a whole, attracting many young scientists from China, Korea, and other Asian countries."

For astronomy, the 1990s were also a period of optimism because of the Hubble Space Telescope and several other large space- and ground-based telescopes that enabled detailed observations in all spectral regions. At the same time, the increases in computing power opened up new ways of processing large amounts of data and modelling astrophysical processes. All this resulted in an impressive amount of new understanding of our Universe — but also in many new questions,

most notably about the nature of dark matter and dark energy. The discovery of exoplanets initiated an exciting new research field.

The IAU gradually had to devote more energy to its task of defending the interests of astronomy, especially against light and space pollution and against the fraudulent “selling” of names of astronomical objects. Since the 1990s, the IAU has also assumed a more prominent role in efforts to raise awareness of the need for global monitoring of potentially dangerous Near Earth Objects and consideration of mitigating actions.



Voting on Resolution 5A, “Definition of ‘planet’”, at the 2006 Prague General Assembly.

The last twenty years of the IAU have been characterised by a more active engagement with the outside world, and a greater professionalisation of the organisation. The discussion around the redefinition of Pluto as a

dwarf planet in 2006 was a major catalyst for the IAU’s public role. The amount of public interest took all astronomers by surprise. This posed challenges but also pointed to new opportunities for outreach. A few years later, the International Year of Astronomy 2009 was an extremely successful outreach project.

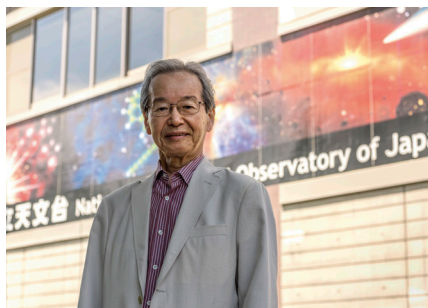


Catherine Cesarsky: “The International Year of Astronomy, pronounced by the United Nations, was a unique chance for world astronomy to enhance its visibility and for the IAU, leading the effort, to develop projects with lasting impact.”

Over the past ten years, the IAU’s efforts in outreach, education and development were scaled up significantly, as described in the Strategic Plan of 2009. Apart from public outreach, the main aim was to actively stimulate astronomical activities in all countries (“Astronomy for Develop-



ment”). Since then, professional offices for Astronomy for Development (South Africa, 2011), Outreach (Japan 2012) and Young Astronomers (Norway, 2015) have been established, and many more countries have joined the IAU.



Norio Kaifu: "The IAU has a long history, but its national membership still remains at around 80. We have many more countries that contribute to modern astronomy in the Asian-Pacific, Latin American, and Middle-East and African regions. Promotion of astronomy in these regions is, therefore, the way IAU should go."

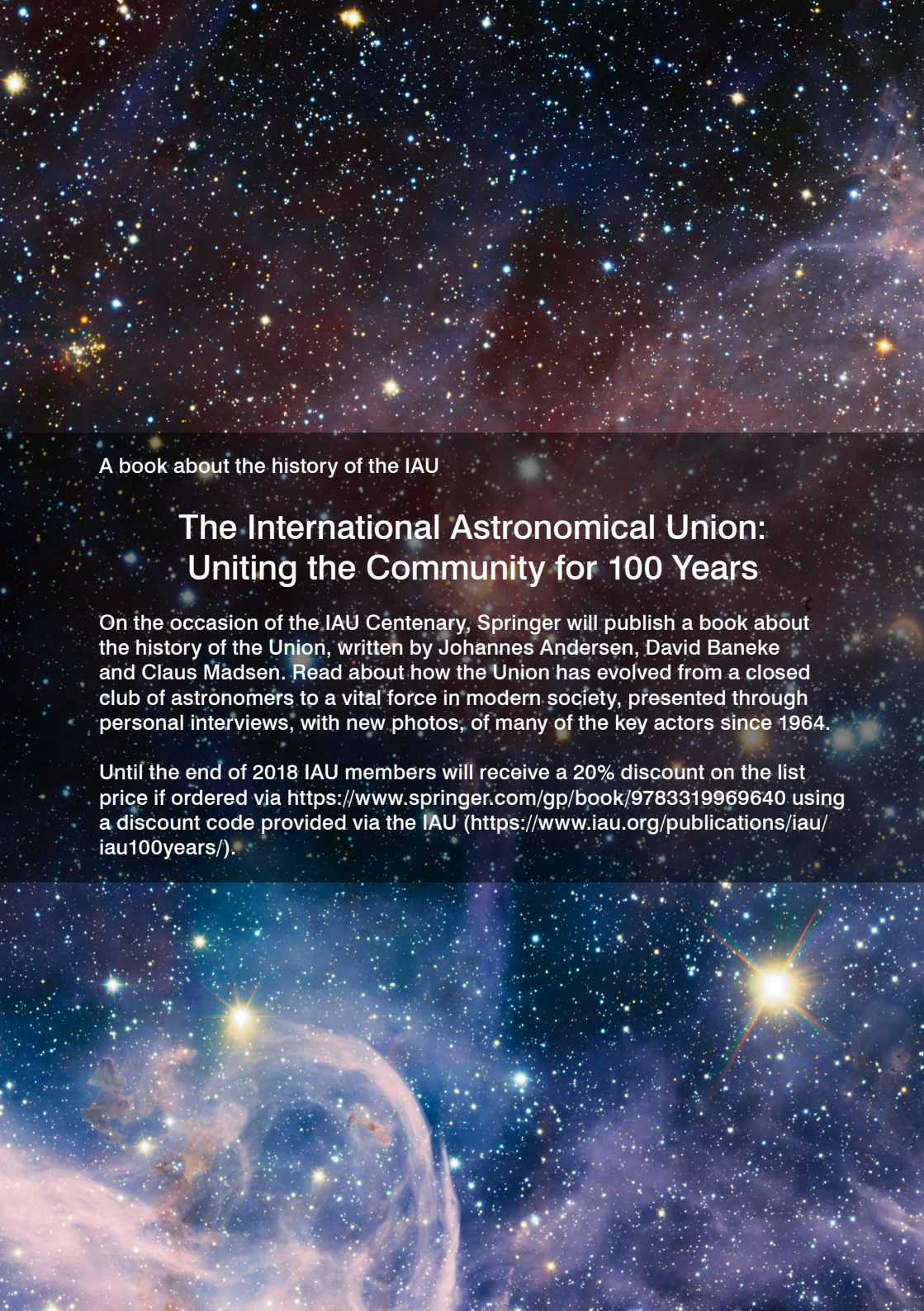
In 2018, a new Strategic Plan was presented, with great ambitions to expand the IAU's outreach and development activities and its role in building a science-based consensus on the next new global-scale infrastructures. It proposes a new Office of Astronomy for Education, for

example. The IAU now aims to include all professional astronomers, including those who are just starting their careers; from 2018, it will have "junior members".

Our understanding of the Universe we live in has changed dramatically since the founding of the IAU, just one century ago. The Universe is larger, more diverse and more dynamic than anybody could have imagined. And much is still unknown. The recent detection of gravitational waves just opened another new window — who knows what we will see there.



George Miley: "If through the IAU we astronomers can have a way to communicate across — and despite — the political boundaries, then we've done something really important for the world."



A book about the history of the IAU

The International Astronomical Union: Uniting the Community for 100 Years

On the occasion of the IAU Centenary, Springer will publish a book about the history of the Union, written by Johannes Andersen, David Baneke and Claus Madsen. Read about how the Union has evolved from a closed club of astronomers to a vital force in modern society, presented through personal interviews, with new photos, of many of the key actors since 1964.

Until the end of 2018 IAU members will receive a 20% discount on the list price if ordered via <https://www.springer.com/gp/book/9783319969640> using a discount code provided via the IAU (<https://www.iau.org/publications/iau/iau100years/>).