



## Annual Report of the International Association of Meteorology and Atmospheric Sciences (IAMAS) 2021

[www.IAMAS.org](http://www.IAMAS.org)

Submitted by Steven A. Ackerman, IAMAS Secretary-General

### **Introduction**

IAMAS is a research association of the International Union of Geodesy and Geophysics (IUGG) that focuses on all aspects of the gaseous envelope around the Earth and other planets. The main work is conducted, coordinated, and communicated through IAMAS's 10 International Commissions (IC), which, in alphabetical order, are the:

- International Commission on Atmospheric Chemistry and Global Pollution (iCACGP),
- International Commission on Atmospheric Electricity (ICAE),
- International Commission on Climate (ICCL),
- International Commission on Clouds and Precipitation (ICCP) including the Committee on Nucleation and Atmospheric Aerosols (CNA),
- International Commission on Dynamical Meteorology (ICDM),
- International Commission on the Middle Atmosphere (ICMA),
- International Commission on Planetary Atmospheres and their Evolution (ICPAE),
- International Commission on Polar Meteorology (ICPM),
- International Ozone Commission (IOC), and
- International Radiation Commission (IRC).

All of the international commissions, and IAMAS as a whole, play a leading role in global coordination, communication and discussion of the latest research through organizing and participating in a wide range of scientific meetings that are open to all scientists.

The global COVID-19 pandemic continued through 2021 and necessitated the cancellation or postponement of conferences, workshops and field programs (<https://www.iamas.org/meetings/>).

### **Administration and strategic planning.**

#### i) IAMAS Bureau Meetings

Regular administrative meetings have all been held virtually. Face-to-face meetings were not conducted to minimize health concerns.

#### ii) Improving the engagement of early career scientists in IAMAS

An IAMAS goal is to engage early career scientists in our activities. IAMAS now has an early career committee (<https://www.iamas.org/ecs/>) to advocate for and build a community among this critical group. In addition to the committee, an early-career scientist sits on the IAMAS Bureau, with the same responsibilities as other IAMAS Bureau members (see <http://iamas.org/bureau/>). The term of appointment is two years. Dr. Jing Li of Peking University, China currently serves in this role and is involved in a leadership role of our association – helping to promote the activities of IAMAS and its commissions amongst the next generation of atmospheric scientists. Dr. Sarah Perkins-Kirkpatrick, from Climate Change Research Centre at UNSW, collaborates and assists Dr. Li in IAMAS early career scientist activities.

In addition, the commissions are encouraged to bring ECSs into their membership and management groups to ensure that the views and requirements of the next generation of scientists are considered.

### iii) Funding

As with last year, the pandemic led to many meetings and conferences moving to virtual formats or postponing to a later date. Funds approved for commission workshops and meetings, were approved for use next year.

We have legally incorporated IAMAS in the US and are in the final processes of acquiring a not-for-profit status in the US. Once finalized, we will set up a bank service to facilitate the distribution of IAMAS funds to our commissions in support of their approved scientific activities.

## Activities

The IAMAS-IACS-IAPSO virtual assembly was held during the week of 19-23 July 2021. The virtual assembly comprised invited speakers (Table 1) selected to speak for a limited period each day to enable all members of IAMAS around the world to hear simultaneously the selected talks. While 550 individuals registered, 187 individuals joined the seminars at one time or another over the week. The presentations were recorded and are available on a YouTube playlist at: <https://www.youtube.com/channel/UCP3bCxu-NIgIINmeoHgGxEQ/videos>

Planning is underway for the IUGG General Assembly in Berlin, Germany during 11-20 July 2023. While vaccines helped make 2021 more sociable, the new approaches to virtual formats of meeting will continue and in addition, will likely influence face-to-face meetings.

In 2019, a new IAMAS website design was developed to modernize the look and support user needs. The official website was also migrated to a secure web server. We are now in the process of moving the web pages of our commissions to the same server. To date, ICMA, ICCP, ICDM, ICPAE, and ICPM have moved their web sites to this host. Thanks to Bill Bellon, Maria Vasys and Leanne Avila of the University of Wisconsin–Madison Space Science and Engineering Center for their assistance with the transfers. We anticipate this will provide for better continuity in the websites moving forward as the commissions' leadership change.

Table 1. Invited speakers for the IAMAS-IACS-IAPSO virtual assembly.

<b>Monday 19 July</b>		<b>Remote sensing of the atmosphere, ocean and cryosphere</b>				
Pepijn Veefkind	NL	UTC+2	15:15 UTC	17:15 local	IAMAS	
Paolo Cipollini	UK	UTC+1	15:45 UTC	16:45 local	IAPSO	
Byongjun Hwang	UK	UTC+1	16:15 UTC	17:15 local	IACS	
<b>Tuesday 20 July</b>		<b>Field observations of the atmosphere, ocean and cryosphere</b>				
Laura Stevens	UK	UTC+1	15:15 UTC	16:15 local	IACS	
Markus M. Frey	UK	UTC+1	15:45 UTC	16:45 local	IAMAS	
Joellen Russell	USA	UTC-7	16:15 UTC	09:15 local	IAPSO	
<b>Wednesday 21 July</b>		<b>IAMAS-IACS-IAPSO Early Career Scientist Awards</b>				
Marta Abalos	Spain	UTC+2	15:00 UTC	17:00 local	IAMAS	
Thomas Wahl	USA	UTC-4	15:20 UTC	11:20 local	IAPSO	
Jessica Fitzsimmons	USA	UTC-5	15:40 UTC	10:40 local	IAPSO	
Giullia Mazzotti	Switzerland	UTC+2	16:00 UTC	18:00 local	IACS	
David Bigelow	Canada	UTC-8	16:20 UTC	08:20 local	IACS	
<b>Wednesday 21 July</b>		<b>Coupled changes and variability in the atmosphere, ocean and cryosphere</b>				
Elizabeth Barnes	USA	UTC-6	16:45 UTC	10:45 local	IAMAS	
<b>Thursday 22 July</b>		<b>Coupled changes and variability in the atmosphere, ocean and cryosphere</b>				
Ruzica Dadic	NZ	UTC+12	12:15 UTC	00:15 local	IACS	
Matthew England	AU	UTC+10	12:45 UTC	22:45 local	IAPSO	
<b>Friday 23 July</b>		<b>Modelling atmosphere, ocean and cryosphere interactions</b>				
Cecile Agosta	France	UTC+2	15:15 UTC	17:15 local	IACS	
Jenny Mecking	UK	UTC+1	15:45 UTC	16:45 local	IAPSO	
Doug Smith	UK	UTC+1	16:15 UTC	17:15 local	IAMAS	

#### **Awards:**

- Prof. Ayako Abe-Ouch (ICCL) was awarded the Milutin Milankovic Medal at EGU 2021.
- Dr. Emilie Capron (ICCL) was awarded the AXA Award 2021 for Climate Science from the AXA Research Fund.
- Dr. Luis Ladino (ICCP) received the Marcos Moshinsky award for young scientists.

## Activities of the ECS committee

The IAMAS ECS committee was officially formed in January 2021, with 10 members representing 10 IAMAS commissions. The main activities in 2021 included:

- Established a webpage under the IAMAS main site;
- Established a mailing list with a sign-up form on the web site;
- Reactivated and maintained the IAMAS Twitter account.
- Started a monthly webinar in June 2021, and a YouTube channel to store the recorded talks. The speakers and talks were:
  - June 22, Joyce Penner, An introduction to IAMAS
  - June 22, Jiale Lu, South Pacific Ocean climate dynamics and predictability
  - August 25, Edward Gryspeerdt, Quantifying the human impact on climate by doing experiments on clouds
  - September 21, Xi Zhang, Diverse clouds and hazes in planetary atmospheres
  - October 20, Fernando Iglesias-Suarez, On the multi-decadal variability of the tropical stratosphere
  - November 23, Georgios Gkatzelis, Knowns and unknowns on the impacts of COVID-19 lockdowns on urban air quality: A glimpse into what the future may hold
- Held a zoom meeting with YESS (Young Earth System Scientists)
- Held a zoom meeting with W2W (Waves to Weather) ECS committee
- Attended the W2W ECS annual meeting and gave a presentation about IAMAS and IAMAS ECS on Dec 8.

Plans for 2022 include:

- Continue ECS webinar series
- Hold a one-week online event in summer (June or July) 2022, with scientific sessions, professional talks on manuscript writing, proposal writing, women scientists, etc.
- Continue connecting with YESS, W2W and other organizations by inviting them to our events and attending their events.
- Start regional working groups (we already started one in China) and regional activities

## Highlights from the IAMAS International Commissions

### iCACGP (<http://www.icacgp.org/>)

As the pandemic continued into 2021, iCACGP, like many other groups, modified our activities to adapt to the restrictions imposed by the pandemic. This meant we held three virtual meetings throughout 2021 to discuss business in lieu of the face-to-face meeting that would have occurred at BACO. iCACGP convened the session “The Atmosphere - the “forgotten” domain in the Sustainable Development Goals?” at the Sustainability Research & Innovation Congress 2021 (SRI2021<https://sri2021.org/>) where the importance of the atmosphere in the UNSDGs (United Nations Sustainability Development Group) was discussed. Progress has been made on the transfer of the iCACGP website to the IAMAS hosted website. Planning continued for the 15th iCACGP Quadrennial Symposium & 17th IGAC Science Conference which will hopefully take place in Manchester 2022 and commenced for the IUGG conference in Berlin 2023; iCACGP has proposed a session

“Atmospheric Chemistry in the Anthropocene: from the urban to global scales” which has been accepted for inclusion in the program and will be convened by Mark Lawrence.

## **ICAE (<http://www.icae-iamas.org>)**

### *Activities in 2021*

- Maintenance of the website for ICAE (<http://www.icae-iamas.org>).
- Online publication of two newsletter issues in 2021. Both newsletters were distributed to the ICAE mailing list.
- Preparation of the 17<sup>th</sup> ICAE General Assembly (ICAE2022). Applied and obtained financial support for ICAE2022 from IAMAS.
- Provided suggestions for IUGG in Berlin 2023.
- The ICAE mailing list has been updated.

### *Plans for 2022*

- Prepare and convene the 17<sup>th</sup> ICAE General Assembly (ICAE2022).
- Issue two newsletters, one in spring and one in the fall.
- Maintain the website for ICAE.
- Update the ICAE colleague mailing list as needed.

## **ICCL (<http://www.iccl-iamas.net/>)**

### *Activities in 2021*

- Organization at EGU 2021 (April 19-30, 2021) of the session: “The global monsoons in current, future and palaeoclimates and their role in extreme weather and climate events.”
- Organization at the 4th Congress of China Geodesy and Geophysics (CCGG) (17-18 July 2021) at Qingdao JS03: Atmosphere-Ocean-Cryosphere coupling and anthropogenic forcing/climate feedback.
- Organization of the biennial meeting (virtual) of the ICCL members (22 July 2021).
- Organization of two Special Issues: “Earth’s climate response to astronomical forcing” in Atmosphere, and “Global monsoonal systems during the last glacial-interglacial cycle” in Quaternary Science Reviews.
- Preparation of 10 symposium proposals for the 28th IUGG2023 in Berlin.

### *Plans in 2022:*

- Organization at EGU 2022 (April 3-8, 2022) of two sessions: “Interglacial diversity” and “Monsoon systems in a changing climate: past, present and future.”
- Organization of a virtual international workshop on “Asian Monsoon variability and dynamics from astronomical time scale to decadal time scale” in June 2022.
- Nomination of new ICCL members.

### *Awards 2021:*

- Prof. Ayako Abe-Ouch was awarded the Milutin Milankovitch Medal at EGU 2021.
- Dr. Emilie Capron was awarded the AXA Award 2021 for Climate Science from the AXA Research Fund.

## ICCP (<https://www.iamas.org/iccp/>)

The major activity of 2021 was conducting the ICCP conference, held virtually from the Indian Institute of Tropical Meteorology (IITM) in Pune, India between 2 and 6 August 2021. Dr. Thara Prabhakaran served as the conference chair. The conference was hosted on a virtual platform with real world like interactions between the participants at the following link: [https://gather.town/invite?token=MkhqX2l02r1KffWc89S91B2ERv\\_njnVW](https://gather.town/invite?token=MkhqX2l02r1KffWc89S91B2ERv_njnVW). The conference hosted 639 authors contributing to the conference from 32 countries. There were over 200 oral presentations in the 40 sessions of the conference. Over 400 posters were presented in an interactive mode. There were three monsoon sessions and a dedicated poster session for the topic of monsoon clouds and precipitation. Details of the conference are available at [https://www.tropmet.res.in/201-event\\_details](https://www.tropmet.res.in/201-event_details)

Each day of the conference started with a plenary lecture delivered by the following experts:

- Dr. Ravi Nanjundiah “IITM research and initiatives”;
- Prof. Andrea Flossmann “Memorial to the lost Legends in cloud physics”;
- Prof. William Cotton “A review of my career associated with aerosol impacts on deep convection”;
- Prof. Zamin A. Kanji “Has Diversity, Equity, and Inclusion influenced science and research in the cloud physics community?”; and
- Dr. Alexei Korolev on “Future of Lab Studies.”

Another unique aspect of ICCP 2021 was the conduct of events after the daily poster sessions that stimulated discussions on various topics. Panel discussions were conducted on the following specific topics:

- 1) Cloud physics observations,
- 2) Numerical model improvements,
- 3) Diversity and women in cloud physics,
- 4) Cloud physics in the future and
- 5) Needs of Laboratory studies.

All these discussions are available on YouTube.

The ICCP commission meeting took place through Zoom on 1 August 2021, with several members retiring and new members selected. The new officers of ICCP are

Prof. Greg McFarquhar (President),  
Dr. Heike Wex (Vice-President) and  
Dr. Martina Krämer (Secretary/Treasurer).

New members elected are the following: Ali Abshaev, Orit Altaratz, Eldo Avila, Henrique Barbosa, Jiwen Fan, Yi Huang, Zamin Kanji, Mahen Konwar, Luis Ladino, Yanluan Lin, Jason Milbrandt, David Noone, Akinola Oluseyi, Odran Sourdeval, and Peter Spichtinger.

Members who finished their terms on the commission are as follows: Paul Field, Charmaine Franklin, Ismail Gultepe, Ilan Koren, Ottmar Mohler, Victor Petrov, Thara Prabhakaran, Bob Rauber, Rob Wood, and Huiwen Xue.

Other important events from the ICCP conference include the awarding of Prof. Bill Cotton as an ICCP Honorary Member, and the announcement of the location of the next ICCP conference in Jeju, Korea, 14 to 19 July 2024 with Prof. Seong Soo Yum as the Chair of the Organizing Committee.

There were some meetings associated with the ICCP Conference. **The International cloud modelling workshop (26-30 July 2021)**, held virtually by IITM, was attended by over 120 participants from around the world. Pi-Chamber, CAIPEEX, Congestus and COPE cloud modelling cases were represented. Proceedings of the four cases are available

<https://iccp2020.tropmet.res.in/Cloud-Modeling-Workshop-2020>. There was also a session on weather modification on the last day of the workshop and case studies from CAIPEEX seeding in embedded convection in the monsoon, and SNOWIE case and numerical simulation of seeding (DNS and bin microphysics) were discussed.

After the conference, the **ICCP short course on radar** was conducted on 7th Aug 2021 to introduce the principles of Doppler and polarimetric radar and its application to observing cloud microphysical processes. The instructors for this course were Prof. V. Chandrasekar, Colorado State University, USA, and Dr. Renzo Bechini, Radar Scientist, Regional Meteorological Service, Italy. The course was attended by nearly 160 participants from around the world. More information is available at [https://iccp2020.tropmet.res.in/fnd/assets/Radar\\_course\\_flyer.pdf](https://iccp2020.tropmet.res.in/fnd/assets/Radar_course_flyer.pdf).

In the fall of 2021, IITM followed up with a virtual lecture series on cloud and precipitation physics that received considerable interest and lots of attendees. All lectures are available through the following link: [https://www.tropmet.res.in/static\\_pages.php?page\\_id=3056](https://www.tropmet.res.in/static_pages.php?page_id=3056).

The ICCP is planning to sponsor several sessions at the 2023 IUGG/IAMAS meeting in Berlin. The proposed sessions are as follows:

- cloud and precipitation studies, including separate sessions on tropical and high latitude clouds;
- cloud-radiative interactions;
- weather and climate extremes: understanding, modelling, prediction and impacts;
- dynamics and microphysics of moist convection; cloud nucleation studies;
- weather modification and small-scale geoengineering: theory, practice and technology.

Several of these sessions are joint with other commissions. Before the IUGG/IAMAS meeting, Drs. Kraemer and Spichtinger are planning a workshop entitled “Discussions on clouds containing ice” to be held in Mainz.

In the fall of 2021, a subgroup within ICCP led by Heike Wex with contributions from several others developed a “Statement on the Role of Clouds and Precipitation in Climate Change” appended below. This statement complements an earlier statement that ICCP released stating that ICCP does not support the implementation of climate engineering through artificial cloud modification to solve the global warming problem (found at <https://tinyurl.com/bkhd3z98>). The statement on the role of clouds and precipitation in climate change has now been approved by the ICCP Executive and will be added on the ICCP web page in the near future. It is also included at the end of this page.

The ICCP is happy to recognize that Luis Ladino recently received the very prestigious Marcos Moshinsky award for young scientists to support a project that he proposed. This award is usually given to someone working in a more classical branch of physics so it is of special significance that Luis received this recognition.

### **ICDM (<https://www.iamas.org/icdm/>)**

In 2021, the leadership of ICDM initiated the process of new elections that will be conducted online in early 2022 so that the new members can contribute to the upcoming IUGG General Assembly in Berlin in 2023.

ICDM developed ten symposia descriptions jointly with another IAMAS commission and three with another association (IAPSO) for the IUGG General Assembly in Berlin in 2023.

## **ICMA (<http://icma.iaa.es/>)**

### *Assembly symposia*

ICMA proposed the “Middle Atmosphere Science Symposium” as an IAMAS event for the 2023 IUGG assembly in Berlin.

### *Business meetings / Internal affairs*

ICMA held its business meeting (online) on 14 September 2021 with participation of the EC, members and ECS representative. The ICMA website has been restructured and is currently being moved to the new IAMAS website. ICMA nominated the successful candidate Dr. Marta Abalos (Spain) for the IAMAS ECS Medal Award 2021.

### *ICMA sponsored workshops*

The ICMA sponsored 1st VolMIP workshop has been postponed to 2022. Similarly, the 11th International Workshop on Long-Term Changes and Trends in the Atmosphere has been postponed to 30 May - 2 June 2022. ICMA is sponsoring the upcoming 44th COSPAR assembly in Athens, Greece, 16 - 24 July 2022.

## **IO3C (<https://www.io3c.org/>)**

The Quadrennial Ozone Symposium QOS2020 was held online on 3 - 9 October 2021. It had a total of 341 registered participants and up to 230 virtual participants at the oral sessions. Dobson and Farman's awards were presented to Dr. William Ball and the SBUV-MOD team (NASA). The meeting featured 7 keynote talks by Ulrike Langematz, Neil Harris, Sunyoung Park, Yuanhang Zhang, Amanda Maycock, Natalya Kramarova, and Jason West, and included 68 oral talks and 199 posters. See more information at <http://qos2021.yonsei.ac.kr/>

Following the QOS, a joint special issue between the journal Atmospheric Chemistry and Physics and Atmospheric Measurement Techniques opened on December 1st, 2021: “Atmospheric ozone and related species in the early 2020s: latest results and trends.” The special issue is open to all submissions within its scope until December 31st, 2022.  
[https://acp.copernicus.org/articles/special\\_issue1194.html](https://acp.copernicus.org/articles/special_issue1194.html)  
[https://amt.copernicus.org/articles/special\\_issue10\\_1194.html](https://amt.copernicus.org/articles/special_issue10_1194.html)

The IO3C held its Annual Meeting in November 2021 to discuss accomplishments, the WMO GAW plan for the Dobson and Brewer data reprocessing to update ozone cross-sections and include temperature corrections. A call for proposals to hold the next Quadrennial Ozone Symposium in 2024 was discussed.

Press Release: The International Ozone Commission, on the 34th anniversary of the Montreal Protocol, reports successes and remaining challenges for understanding ozone layer recovery <http://www.io3c.org/press-release-international-ozone-commission-34th-anniversary- montreal-protocol-reports-successes>

IO3C co-sponsored the ASOPOS 2.0 report on the Assessment of Standard Operating Procedures for Ozonesondes was recently published:  
[https://www.gruan.org/gruan/editor/documents/meetings/icm-12/pres/pres\\_204\\_Smit\\_ASOPOS-20.pdf](https://www.gruan.org/gruan/editor/documents/meetings/icm-12/pres/pres_204_Smit_ASOPOS-20.pdf)

The 11<sup>th</sup> Ozone Research Managers (ORM11) meeting was held in July 2021 and addressed the current needs for continuous monitoring of ozone and ODS. IO3C members participated in the discussion and contributed to the report. The ORM11 report provides



recommendations on the regional tracking of ODS illegal production. Report of the eleventh meeting of the Ozone Research Managers of the Parties to the Vienna Convention (ORM11) can be found at: <https://ozone.unep.org/meetings/thirty-third-meeting-parties/presentations>

#### **ICPAE (<https://www.iamas.org/icpae>)**

- ICPAE launched a new website, hosted by IAMAS.
- ICPAE submitted a session proposal for IUGG2023, led by Ann C. Vandaele.
- An ICPAE proposal for a webinar plan in 2022 was selected to receive IAMAS support.
- Feng Tian and Ann C. Vandaele supported organizing the webinar team. The team members are Yeon Joo Lee, Daniel Yiu Wah Lo, Tao Cai, and Maarten Roos-Serote. The team prepared the webinar mailing list, webinar page & poster, and webinar channels in YouTube and Bilibili, and invites speakers. The first webinar will be on Jan 17th 2022, and details can be found at <https://www.iamas.org/icpae/webinar/>.
- ICPAE supported the ECS webinar activity by inviting a speaker (Xi Zhang) among the ICPAE members (<https://www.iamas.org/ecs/2021/09/09/iamas-early-career-scientist-webinar-series-3-september-21st-2021/>). Yeon Joo Lee is representing ICPAE in the IAMAS ECS Committee.

#### **ICPM (<https://www.iamas.org/icpm/>)**

The International Commission on Polar Meteorology (ICPM) over the past year has worked on several activities coming out of the pandemic. The ICPM-endorsed 16<sup>th</sup> Workshop on Antarctic Meteorology and Climate was hosted online by the Byrd Polar Climate and Research Center at The Ohio State University <https://byrd.osu.edu/events/wamc>. The event hosted a record 140 attendees from 15 countries and is summarized in the associated journal of IAMAS, Advances in Atmospheric Sciences. Presentations can be found here: [http://polarmet.osu.edu/WAMC\\_2021/program.php](http://polarmet.osu.edu/WAMC_2021/program.php)

An additional initiative that has been undertaken in the past year is the ICPM Webinar series. This effort brings polar atmospheric science to the community, especially to students and early career scientists. Presentations are made by both senior scientists and early career researchers. Topics have included the recent Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC) expedition and the Year of Polar Prediction – Southern Hemisphere (YOPP-SH). The presentations have been recorded and can be found here on the ICPM Web site: <https://www.iamas.org/icpm/resources/>

The first ever ICPM virtual business meeting was held in conjunction with the Virtual Atmosphere-Cryosphere-Ocean seminar series (VACO-21). This opens the door for future business meetings to be held on an annual basis.

ICPM continues its involvement with the IAMAS early career initiatives having a representative on the IAMAS Early Career Scientist committee (Lee Welhouse). The ICPM members have also elected two new roles to our committee to help us increase our engagement with our members: Jonathan Wille (ICPM ECR) and Amelie Kirchgassner (social media/comms).

ICPM has concluded the planning for sessions at the 28<sup>th</sup> IUGG assembly in Berlin and will be hosting/co-hosting several sessions. The ICPM-endorsed 17<sup>th</sup> WAMC will be a hybrid meeting hosted by the University of Wisconsin-Madison, August 4 and 5, 2022 just before the Collective Madison Meeting which includes the 17<sup>th</sup> Conference on Polar Meteorology and Oceanography.

## **IRC (<http://www.irc-iamas.org/>)**

The International Radiation Commission quadrennial symposium (IRS) has now been twice delayed. IRS 2020 was originally scheduled for 6-10 July 2020 at the Thessaloniki Concert Hall Convention and Cultural Center, in Thessaloniki, Greece. Over 550 authors submitted over 600 abstracts. It was rescheduled for 14–18 June 2021 due to the global pandemic, then again rescheduled for 4-8 July 2022 in Thessaloniki. Please see <https://www.irs2022.org/> for additional updates.

The IRC 2021 annual business meeting was held virtually on 10 September 2021. Eleven new commissioners who started their first terms in January were welcomed. The current IRC geographical representation is: Europe, 49%; North America, 31%; Asia, 18%; South America, 2%. Additional activities at the business meeting included reports from the 10 active IRC Working Groups. A new working group on Total and Spectral Solar Irradiance was proposed and unanimously approved by the commission. Finally, Prof. Ping Yang presented an In Memoriam for Kuo-Nan Liou (1943-2021). A tribute to Prof. Liou can be found at <https://www.iamas.org/irc/kuo-nan-liou-1943-2021/>.

In October 2021 the IRC opened bidding for proposals for IRS2024. Proposals will be due by May 2022. A selection will be determined at the 2022 Business Meeting in Thessaloniki in July 2022. Interested bidders should refer to the Resources page on the IRC website, <https://www.iamas.org/irc/resources/>, for guidance on proposing. Bids from Asia and North America will be most welcome but all bids will be considered.

## IAMAS EXECUTIVE COMMITTEE 2019-2023

President:	Joyce E. Penner	USA
Vice-Presidents:	John P. Burrows	Germany
	Mary Scholes	South Africa
Past President:	John Turner	UK
Secretary General:	Steven Ackerman	USA
Early Career Scientist:	Jing Li	China
Members at large:	Lisa Alexander	Australia
	Keith Alverson	USA / Japan
	Iracema Cavalcanti	Brazil
	Mu Mu	China
	Michiel R. van den Broeke	Netherlands

## IAMAS COMMISSIONS

Atmospheric Chemistry and Global Pollution (iCACGP) [www.icacgp.org](http://www.icacgp.org)

President:	Melita Keywood	Australia
Vice-President:	Mary Barth	USA
	Christian George	France
	Stuart Piketh	South Africa
	Tong Zhu	China

Atmospheric Electricity (ICAE) <http://www.icae-iamas.org>

President:	Xiushu Qie	China
Secretary:	Weitao Lyu	China

Climate (ICCL) <http://www.iccl-iamas.net/>

President:	Jianping Li	China
Secretary:	Qiuzhen Yin	Belgium

Clouds and Precipitation (ICCP) [www.iccp-iamas.org](http://www.iccp-iamas.org)

President:	Greg McFarquhar	USA
Vice-President:	Heike Wex	USA
Secretary/Treasurer:	Martina Kraemer	Mexico

Committee on Nucleation and Atmospheric Aerosols (ICNPAA) [www.icnaa.org](http://www.icnaa.org)

Chair:	Markku Kulmala	Finland
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Dynamic Meteorology (ICDM) <https://www.iamas.org/icdm/>

President:	Thomas Spengler	Norway
Secretary:	Craig Bishop	Australia

Middle Atmosphere (ICMA) [www.icma-iamas.org](http://www.icma-iamas.org)

President:	Bernd Funke	Spain
Vice-President:	Natalia Calvo	Spain

Ozone (IO3C) <http://www.io3c.org/>

President:	Sophie Godin-Beekmann	France
Vice-President:	Paul A. Newman	USA
Secretary:	Irina Petropavlovskikh	USA

Planetary Atmospheres and their Evolution (ICPAE) <http://icpae.iaps.inaf.it/>

President:	Feng Tian	China
Vice-President:	Ann Carine Vandaele	Belgium
Secretary:	Yeon Joo Lee	Germany

Polar Meteorology (ICPM) [www.icpm-iamas.aq](http://www.icpm-iamas.aq)

President:	Matthew Lazzara	USA
Secretary:	Tracy Moffat-Griffin	UK

Radiation (IRC) [www.irc-iamas.org](http://www.irc-iamas.org)

President:	Peter Pilewskie	USA
Vice-President:	Manfred Wendisch	Germany
Secretary:	Hajime Okamoto	Japan