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## Introduction by Member-at-Large Dr. John Turner

It is a pleasure to write this introduction to the latest IAMAS newsletter. As many of you will know, I've had a long association with IAMAS, having been a member of the International Commission on Polar Meteorology (ICPM) since the late 1980s. I've been the President of ICPM, Deputy Secretary General of IAMAS, followed by the Vice President, President and Past President of our association. I'm now an IAMAS Member-at-Large (MaL) with responsibility, amongst other things, for the preparation of the quarterly IAMAS Newsletter, which is produced in association with the other MaL and the IAMAS Bureau.



The goal of the newsletter is to keep the IAMAS community informed of recent activities and meetings, funding opportunities and upcoming meetings planned by IAMAS and its commissions. We also welcome newsletter contributions from IAMAS members; if interested contact one of the MaL listed at <https://www.iamas.org/current-officers/>.

Professionally, I've been a meteorologist and climatologist since the early 1970s, having spent 12 years working at the UK Met Office in Bracknell, followed by 36 years at the British Antarctic Survey (BAS) in Cambridge. Over this time, I've had a wide range of jobs within the broad field of meteorology, having been involved at the Met Office in operational numerical weather prediction and satellite meteorology, along with one year spent as a weather forecaster in the Central Forecasting Office. I joined BAS in 1986 to establish a satellite meteorology group where I did research into polar lows and other high latitude weather systems, precipitation over the Antarctic, effects of the ozone hole on high southern latitudes and the impact of atmospheric conditions on sea ice. I also became interested in the challenging task of forecasting for marine and aviation activities in the Antarctic and wrote (with Steve Pendlebury) the Antarctic Weather Forecasting Handbook ([http://www.bom.gov.au/ant/handbook/handbook\\_16june04.pdf](http://www.bom.gov.au/ant/handbook/handbook_16june04.pdf)). With the realization that rapid environmental changes were taking place in Antarctica, I shifted my research focus to climate change and spent much of the last decade of

my employment investigating the impact of factors such as ENSO and other modes of climate variability on the continent. I also became interested in and published extensively on extreme weather events and the remarkable changes taking place in Southern Ocean sea ice.

Now in retirement, I am very pleased to be able to continue my long association with IAMAS through holding one of the five MaL positions and promoting our association through the newsletter and other platforms.

## **Introducing Dr. Tirusha Thambiran, Member-at-Large**

I am a Principal Researcher at the South African Council for Scientific and Industrial Research (CSIR) and an Honorary Senior Lecturer at the University of KwaZulu-Natal, South Africa. I began my career in the field of air quality, later expanding into climate change. I have a strong background in the atmospheric sciences and am experienced in compiling air pollution and greenhouse gas emission inventories for key polluting sectors and in the development of environmental related guidelines and strategies. My Ph.D. focussed on identifying opportunities for integrating climate change considerations into air quality management plans.



Over the last ten years, I have developed expertise in the fields of air quality management and climate change mitigation, with a particular interest in the synergies and trade-offs with climate adaptation actions. These synergies between climate change and air quality and the importance of integrative responses are increasingly recognised as being of relevance, particularly in Africa where existing vulnerabilities place communities at increased risk from climate change impacts. A key focus of my work is thus aimed at helping governments and society to use an improved understanding of these linkages to develop more holistic climate change policies and strategies.

My research centres around creating data, information and materials to support the development of integrative responses using innovative methodologies and interdisciplinary collaborations. One aspect of this involves examining the co-benefits of climate change mitigation, such as assessing the co-benefits of different decarbonization scenarios for achieving net zero emissions. For example, a recent project that I was a part of demonstrated the reductions in premature mortality through the air quality improvements from reaching Net Zero Carbon emissions by 2050. Another focus is on enhancing adaptive capacity in cities in developing country, aimed at simultaneously reducing air pollutants and greenhouse gas emissions. This research spans climate modelling, impact assessment, emissions inventories and land-use planning. As part of a research team, I explore current challenges facing cities, such as the urban heat island effect, to understand the factors influencing the city's response to spatial planning, environmental concerns, and socio-economic factors related to mitigating rising temperatures. The goal of such research is to identify adaptation and mitigation strategies that can reduce the extent and impacts of the urban heat island effect now under a changing climate.

In my previous role as the theme conveyer for air quality and climate change in South Africa's Risk and Vulnerability Atlas, as well as a contributor to the Climate Risk and Vulnerability Handbook for Southern Africa,

I cultivated a strong interest in enhancing the communication and accessibility to climate change and air quality information across the region. In doing so, I have also developed a strong network of researchers, government officials and others involved in climate change and air quality work.

One of my key passions is to build capacity and capabilities in air quality management and climate change mitigation through the supervision of post-graduate students and mentoring of junior researchers within our research group at the CSIR.

Collaborating and communicating air quality and climate change data are essential for building resilience, protecting public health, and fostering sustainable development. Through my role as a Member-at-Large (MaL) I am therefore seeking to leverage the commissions of IAMAS in promoting collaboration and accelerating innovation in this space. I am further keen to promote the work of IAMAS within my own networks, as well as supporting and promoting opportunities for early career researchers and other scientists based in Africa to better engage with the work of IAMAS.

## **Report on the workshop and school ‘Molecular Understanding of Atmospheric Aerosols’**

**Cargèse, Corsica, France, 1-4 April 2024**

Environmental quality and climate change are major global challenges facing society, both today and in the foreseeable future. A fundamental understanding of atmospheric processes is needed to interpret and predict climate at both short and long-time scales. Atmospheric aerosols are key players that influence these processes. Over the past years it has become evident that there are barriers to our molecular level understanding of aerosols in a broad range of applied disciplines, that can only be addressed through fundamental laboratory, theoretical, and modelling studies in chemistry and physics. In particular, challenges exist in understanding the formation of aerosol particles from gaseous precursors and the initial growth of these particles, the internal structure of aerosols, aerosol phase behaviour, heterogeneous and multiphase (photo)chemistry, gas-surface interactions, the ability of aerosols to initiate ice and cloud nucleation, the evolution of aerosol optical properties, and the role of bioaerosols in the atmosphere.

The Molecular Understanding of Atmospheric Aerosols (in short MUOAA) event brought together 88 attendees from all over the world to address such issues. The symposium was interdisciplinary and attracted attendees from atmospheric science, chemistry, chemical engineering, physics i.e., colleagues who do not normally meet at conferences related to their specific subfield. It also attracted a large fraction (~40%) of early career scientists, who had the opportunity to learn and extensively discuss research ideas and career options with leading scientists in their respective field of science.

The program was packed, with only a single session track, with each session containing a mixture of 15-35 minutes talks followed by a brief discussion, with a synergistic, open discussion period at the end of each session. Each day started with feedback by Ph.D. students of the science they were exposed to during the previous sessions. This triggered many discussions and interplay between the various generations of scientists attending MUOAA. The discussions continued during the 20 minute coffee breaks, 90 minute lunch, and in the evenings, facilitated by having all participants housed in close proximity to each other.

Various research topics were presented and discussed during MUOAA, such as the properties and impacts (air quality, climate and health) of aerosols emitted by combustion, with a clear focus on biomass burning organic aerosol (BBOA) and its molecular characterization using advanced methods of high-resolution mass spectrometry.

Particles in the air are interacting quite dynamically with their bath gas – the air we breathe – with water probably being the most abundant atmospheric trace gas affecting aerosol chemistry (both at their interface with air or in the bulk, often highly non-ideal mixtures), phase and growth (up to cloud droplets). All these aspects were discussed with a focus on processes involving surfaces and interfaces and the large range of compounds, from simple to quite complex organic molecules. Liquid atmospheric particles are now regarded as confined spaces, where unexpected chemistry and/or accelerated processes may occur, for various reasons including inhomogeneous light distribution when it comes to photochemical transformations. In addition, new approaches for both the organic chemical and the toxicological characterization of aerosols were presented and discussed.

Discussions on all these topics were initiated by the invited speakers:

- Jonathan Abbatt – University of Toronto (Canada)
- Markus Ammann – Paul Scherrer Institute (Switzerland)
- Theo Kurten – University of Helsinki (Finland)
- Anne Monod - Aix-Marseille Université
- Alexander Laskin - Purdue University
- Nonne Prisle – University of Oulu (Finland)
- Yinon Rudich – Weizmann Institute (Israel)
- Ruth Signorell – ETH Zurich (Switzerland)
- Ralf Zimmermann – University of Rostock and Helmholtz Centre at Munich (Germany)

In conclusion, MUOAA was a successful event, thanks to the support offered by IAMAS. It created an interdisciplinary forum where cutting-edge science was presented and many follow-up actions discussed.

## **The 2025 IAMAS/IACS/IAPSO Scientific Assembly BACO-25**

The planning for our next Scientific Assembly (BACO-25) is going well with close cooperation and communication between the three associations involved (IAMAS, IAPSO and IACS) and the Local Organising Committee (LOC). The event will take place in Busan, South Korea during 20-25 July 2025 and the website ([http://www.baco-25.org/2025/english/main/index\\_en.asp](http://www.baco-25.org/2025/english/main/index_en.asp)) is already online. The IAMAS commissions have submitted their suggestions for possible symposia and the Secretary Generals of the three associations will be meeting in July with the LOC to finalise the programme via physical and virtual site visits.

It is planned that the list of symposia for BACO-25 will be available on the conference web site in late 2024, along with information on registration, accommodation, abstract submission and options for applying for travel/subsistence grants.

## Obituary - Professor Richard P. Wayne M.A. Ph.D. F.R.S.C.

With profound sadness IAMAS announces the passing of Richard Peer Wayne. Richard was born on the 5th of December 1938 in Worthing, UK and died at his home in Oxford, aged 85, on the 18th of December 2023. He was an outstanding student at Worthing Grammar School winning a scholarship to read the natural sciences tripos at Trinity College, University of Cambridge from 1957 to 1960. After a postdoctoral fellowship at the Inorganic, Physical and Industrial Chemistry Department of Liverpool University, Richard moved to Christ Church and the University of Oxford. He became the Dr Lee's Reader in Chemistry in 1973 and was awarded the title of Professor of the University of Oxford in 1996.

Richard made pioneering contributions to our understanding of atmospheric sciences. He was one of the outstanding kineticists of his generation, playing a key role in the evolution of our understanding of the gas phase photochemical and chemical reactions of atmospheric importance. Together with heterogenous or multiphase reactions, these reactions determine i) the amount and vertical extent of the ozone layer in the stratosphere and mesosphere, ii) the rate of formation of air pollution and smog in the troposphere and thus air quality, and iii) the lifetimes of greenhouse gases and short-lived climate pollutants and thereby impact on climate change.

In a long and fruitful research career Richard published over 200 peer reviewed manuscripts and two highly cited reviews about the physics and chemistry of the nitrate radical and the halogen oxide free radicals. His textbooks on photochemistry and atmospheric chemistry remain popular and well read. As a key member of the IAMAS community and its Commission on Atmospheric Chemistry and Global Pollution (ICACGP), Richard is well remembered for leading the local organisation committee for the "milestone" Symposium on Tropospheric Chemistry with Emphasis on Sulphur and Nitrogen Cycles and the Chemistry of Clouds, which took place in Christ Church and at the University of Oxford in September 1983. Richard was a colossus, well known and liked by his peers and the three generations of students, whom he educated and, who have become successful academics, leaders of industry, teachers, government and NGO advisors.

Richard retired in 2006 but remained active in research and teaching as well as pursuing his hobbies, which included music and photography. An extended version of this obituary is available on the IAMAS website at <https://www.iamas.org/blog/2024/03/22/obituary-professor-richard-p-wayne-m-a-ph-d-f-r-s-c/>.

Rest in peace Richard and thank you for making life and science fun.

John P. Burrows  
Bremen  
15th March 2024



## Report on the meeting ‘The 12th International Workshop on Long-Term Changes and Trends in the Atmosphere’

Ourense, Spain, 6-10 May 2024

The 12th International Workshop on Long-Term Changes and Trends in the Atmosphere successfully took place at Ourense, Galicia, Spain, with the participation of 75 scientists from around the globe. The workshop aimed to share insights, foster collaborations, and address challenging issues regarding long-term changes and trends in the Earth’s atmosphere. Notably, generous co-sponsorship from IAMAS and other agencies extended to scientists from countries typically underrepresented in such international forums ensured diverse perspectives and enriched discussions. The organizers extend their heartfelt gratitude to the sponsoring agencies whose support made this workshop a great success.

The workshop attendees represented countries spanning several continents. Among the attendees were scientists from Brazil, Spain, India, the United Kingdom, Ethiopia, the United States, Canada, Argentina, China, Germany, Finland, Egypt, South Korea, the Czech Republic, Nigeria, Russia, Switzerland, Bulgaria, Peru, Japan, Kenya, Malaysia, Iran, and Turkey. This global representation underscored the universality and urgency of addressing long-term changes in the atmosphere.

Throughout the workshop, participants engaged in robust discussions on various topics related to long-term changes and trends in the atmosphere. Key themes included: long-term variations and trends in the middle atmosphere, the ionosphere and the thermosphere; dynamic, physical, chemical, solar, and radiative mechanisms of long-term variations and trends; changes in the middle and upper atmosphere and links to satellite navigation and debris; and miscellaneous topics relevant to long-term changes in the atmosphere.

To disseminate the insights and outcomes of the workshop to a broader audience, we are organizing a special issue of *Annales Geophysicae*, ensuring maximum impact and visibility within the scientific community and beyond.

Juan A. Añel, Chair of the Local Organizing Committee and Co-Chair of the Scientific Organizing Committee. (j.anel@uvigo.gal)

Liyang Qian, Chair of the Scientific Organizing Committee. (lqian@ucar.edu)

## Towards an International Commission on Tropical Meteorology

For some time there have been discussions within IAMAS over the possibility of establishing a new commission that dealt with the important topic of tropical meteorology. For many years the subject has been well represented in the symposia held at our assemblies and it was felt that a new commission would provide a good focus for the tropical meteorology community within the association. Towards this end, Dr Thara Prabhakaran of the Indian Institute of Tropical Meteorology has been in discussions with leading meteorologists working in the field to define the role of such a commission. At the moment, the possible objectives are seen as:

- To enhance research in tropical meteorology by organizing thematic conferences, workshops and symposia;

- To advance the understanding of tropical circulation systems using observations and models;
- To stimulate the exchange of scientific ideas and international collaborations in tropical meteorology;
- To facilitate support for students and scientists to attend relevant conferences organized by the commission;
- To establish working groups and committees, and joint committees with other commissions of IUGG;
- To organize joint meetings of the IUGG/IAMAS commissions during major international conferences; and
- To report on commission work to IUGG through IAMAS.

The commission will focus on a wide range of topics relevant to tropical meteorology including moist convection, parameterization of sub-grid physical processes, organization of convection, tropical storms, disturbances, and extreme weather, the Madden-Julian oscillation in theory, observations, and prediction models, tropical sub-seasonal variability and its effects on the extratropics, monsoons and the teleconnections, ENSO, IOD, MJO, PDO, equatorial waves and instabilities, climate modes and their impact on tropical weather and climate, modelling climate sensitivity and climate change in the tropics, anthropogenic effects on tropical weather and climate. The commission will also act as a platform for developing coordinated field campaigns and numerical model experiments from the tropics.

Preparatory commission planning meetings will be held in a hybrid mode along with a workshop. A formal proposal to establish the commission will be presented to the IAMAS National Delegates at the BACO-25 assembly in Busan, Korea in July 2025.

If you are interested in getting involved with the International Commission on Tropical Meteorology please contact Thara at [thara@tropmet.res.in](mailto:thara@tropmet.res.in).

## Survey on researchers' expectations of conferences

We have received the following from Ariane Wenger at ETH Zurich:

Are you a researcher planning to attend scientific conferences?

Please consider participating in and distributing this survey on researchers' expectations of conferences that I am conducting as part of my dissertation on changing research exchange practices. The short (10 minutes) online survey is aimed at researchers in all scientific disciplines and career stages who are planning to attend scientific conferences. In particular, opinions and views of researchers from all around the world are appreciated. Participation in the survey will not only enrich this study but will also help to identify avenues for enhancing current conference practices, benefiting the wider academic community. The survey can be accessed here: <https://ww3.unipark.de/uc/cexp1/>. Thank you very much for your contribution!

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## Brief report on the IAMAS Bureau meeting in Paris, France, May 2024

The IAMAS Bureau holds monthly Zoom sessions to discuss and manage the day-to-day activities of the association and plan future meetings, such as upcoming assemblies. In addition, the Bureau has held occasional face-to-face meetings to discuss longer-term strategic issues, consider the future development of the association and links with other organisations. The latest in this series was held at the École Normale Supérieure in Paris over 21-23 May 2024, with the local organisation being arranged by Pierre Briole, the French IUGG representative and IAMAS President Andrea Flossmann.

Wide-ranging discussions were held over the three days, with topics considered including the Scientific Assembly to be held in Busan, South Korea in July 2025, the IAMAS assembly in 2029, the IAMAS Strategic Plan and Operations Manual, possible changes to the statutes and the formation of a new International Commission on Tropical Meteorology. There were also extensive discussions on how early career scientists working in the atmospheric sciences could engage with the association and join our various groups.

We are grateful to Pierre and Andrea for organising such a successful, enjoyable and productive meeting.



Participants at the Paris IAMAS Bureau meeting, May 2024.



## Upcoming meetings

Meetings partially supported by IUGG are marked with an asterisk.

### 2024

Quadrennial International Radiation Symposium 2024, Hangzhou, China, 17-21 June 2024.\* (IRC). The conference web site is <http://www.irs2024.org/irs2024/?time=1713804049218>

International Atmospheric Rivers Conference 2024, La Jolla CA, USA, 24-27 June 2024.\* (ICPM)

9th GEWEX Open Science Conference (Sapporo, Japan) 7-12 July 2024. (ICCL)

45th Scientific Assembly of COSPAR. July 13 - 21, 2024, at BEXCO, Busan, Republic of Korea.

The 19th International Conference on Clouds and Precipitation (ICCP) will be held in Jeju, Republic of Korea during 14 to 19 July 2024. Associated meetings will be cloud chamber and cloud probe workshops before the conference during 13 to 14 July 2024.\* Also the International Cloud Modelling Workshop will take place during 8 to 12 July at Yonsei University.\* (ICCP). The conference web site is <https://iccp2024.kr/>

The next Quadrennial Ozone Assessment organized by the International Ozone Commission will take place in Boulder, Colorado, USA during July 15-19, 2024. The meeting will be held in-person with a hybrid option. Further details of the meeting will be put on the IOC web site (<https://www.io3c.org/>) as they emerge.\* (IOC3)

The Scientific Committee on Antarctic Research (SCAR) Open Science Conference 2024 'Antarctic Science: Crossroads for a New Hope'. Pucon, Chile 19-23 August 2024. For more details: <https://scar.org/scar-events/osc2024>

Sessions at Europlanet Science Congress (Berlin, Germany) 9-14 September 2024. (ICPAE)

The 16th International Commission on Atmospheric Chemistry and Global Pollution (iCACGP) Symposium and 18th International Global Atmospheric Chemistry (IGAC) Science Conference (iCACGP-IGAC Conference 2024) is scheduled to take place at the World Trade Centre Kuala Lumpur (WTC KL) in Kuala Lumpur, Malaysia, from 9th to 13th September 2024. More details are available at <https://icacgp-igac2024.com/> (ICACGP)

Linking Weather and Climate Dynamics Across Scales. Nanjing University International Conference Center, Nanjing, China. 13-19 October 2024. For more details see <https://icdm2024.nju.edu.cn/#/>. (ICDM)

9th SOLAS Open Science Conference (Goa, India) 10-14 November 2024. (ICACGP)

### 2025

The IAMAS/IACS/IAPSO Joint Scientific Assembly BACO-25 ([http://baco-25.org/2025/english/main/index\\_en.asp](http://baco-25.org/2025/english/main/index_en.asp)) 20-25 July 2025 Busan, Republic of Korea.

### 2027

The 29th IUGG General Assembly. This will be held in Incheon, Republic of Korea in the Boreal summer of 2027. The exact dates will be announced soon.