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Secretary-General's Message

In this issue of the IAMAS e-Newsletter, we are pleased to introduce two Members at Large who serve on the IAMAS Executive Committee: Iracema Fonseca de Albuquerque Cavalcanti (Brazil) and Mu Mu (China). We also provide a summary of the recent IRS meeting in Greece and information on the upcoming IUGG General Assembly.



The 28th IUGG General Assembly will be held 11-20 July 2023 at the Messe Berlin – City Cube, Berlin, Germany.

The assembly includes a variety of activities, including special public lectures, keynote Union lectures and a wide variety of themed sessions. The IAMAS commissions are drafting sessions for the assembly, and we will post that information on the IAMAS webpage when it is finalized.

We invite you to attend and join other participants from around the world in sharing our science and culture. More information about the Assembly is available [here](#).

IUGG is encouraging review of their Statutes and By-Laws. Adhering Bodies, including IAMAS, are invited to submit proposals for changes to the [Statutes and By-Laws](#). If you believe revisions are needed, please work through the appropriate IAMAS commission to consider requests and make appropriate recommendations. The deadline for submission of revisions to IUGG is 11 January 2023.

Adhering Bodies are also invited to submit draft resolutions for the IUGG General Assembly to consider in 2023. Resolutions should address geophysical matters of significant international impact or matters of significant policy importance for the international geodetic and geophysical community as a whole.

While we are looking forward to next year's IUGG, please note that proposals to host the IUGG General Assembly in 2027 are now being accepted. The

[requirements](#) and [guidelines](#) for the proposals are available. If you would like to submit a bid to host the next Assembly, please contact the [IUGG Secretariat](#) for more information. Bids must be received by 11 January 2023.

We are in the process of moving the IAMAS bank account from Germany to the USA, setting up IAMAS as a not-for-profit organization. IAMAS expresses its appreciation to Hans Volkert and John Burrows for their long-term support of the IAMAS account.

Introducing Iracema Fonseca de Albuquerque Cavalcanti, Member at Large



My background in science started as a student of Physics. I became a physics and chemistry teacher for four years before completing a Msc in Meteorology at the National Institute for Space Research (INPE), in Brazil. My dissertation was about Cb clouds that grow as an instability line along the Northeast coast of Brazil; Dr. Vernon E. Kousky was my supervisor. I went to UK to do a PhD in Meteorology at the University of Reading. Under the supervision of Dr. Ian N. James, my thesis was on large scale disturbances in the Southern Hemisphere troposphere circulation- model experiments and analyses of observed data.

I then worked at INPE as a researcher and teacher for 35 years, and I was head of the Modeling and Development Division at Centre of Weather Forecasting and Climate Studies (CPTEC) for two years. Now I am a voluntary researcher and teacher in the Institute's post-graduation program. I teach a course in dynamic climatology, and my main research subjects are climate variability, teleconnections, monsoon and model simulations. South America is affected by teleconnections such as the Pacific South America (PSA) and the Southern Annular Mode

(SAM). These two modes of variability influence precipitation extremes in parts of South America. Therefore, they are important subjects, as well as the South America Monsoon System, that affects large areas of South America. Studies about the ability of global and regional models to represent these features have been part of my activities, aiming to produce evidence for model confidence. I worked mainly on validation of the Brazilian Global Atmospheric Model (BAM) and Regional ETA model, but also analysing other models, including CMIP5 and CMIP6.

For 17 years, I was the editor of a monthly Bulletin of Climate: CLIMANÁLISE, which analyzed and discussed the atmospheric features and synoptic systems that occurred in Brazil. I organized the book *Tempo e Clima no Brasil* (Weather and Climate in Brazil) together with three other researchers; we updated the information in two books: *Clima do Brasil e variabilidade climática* (Climate of Brazil and climate variability) and *Sistemas Meteorológicos atuantes no Brasil* (Meteorological systems that affect Brazil). I participated in many international projects, such as CLARIS-LPB; PULSE- Platform for understanding Long-term Sustainability of Ecosystems and Health; IAI/Prosur/CRN055 (Mercosul countries)-Climate variability in the Southern-southeastern region of South America; CLIMAX- Climate Services Through Knowledge Co-Production: A Euro-South American

Initiative For Strengthening Societal Adaptation Response to Extreme Events; and other national projects. I was a member of MESA/VAMOS/CLIVAR and EXTREMES/VAMOS/CLIVAR in the WCRP/WMO, and participated in many conferences, where I met many international researchers. I also participated in IPCC- AR5: 2010-2013, for which I was one of the lead authors of the CHAPTER 14 Working Group WG1.

Like Lisa Alexander, I also attended Perugia IUGG in 2007 and travelled from Assisi, every day, by train, although I did not know her at that time. I was invited to be an IAMAS Member at Large in 2015, and contributed to the Cape Town IUGG in 2017 as a co-convener of a session on Sub-seasonal to Seasonal Predictions. In 2019, at the Montreal IUGG, I was a co-convener of the following sessions: Advances and Frontier Challenges in Global Monsoon Studies: Dynamics, Convection and Interactions with Hydrological and Land Surface Processes, and Ocean-Atmosphere mechanisms of climate variability, change and predictability. It is a pleasure to be part of IUGG/IAMAS and I will continue my contribution to these two sessions at the next IUGG. I have attended IAMAS meetings during IUGG General Assemblies, where I can see the research activities and progress, and then I disseminate this information to the South America climate community. greatest progress will be made when a wide range of research voices are heard.

Introducing Mu Mu, Member at Large

I am currently a distinguished professor of the Department of Atmospheric and Oceanic Sciences, and Institute of Atmospheric Sciences, Fudan University. I am mainly interested in the study of the predictability and the nonlinear stability-instability of the atmosphere-ocean systems, as well as their related data assimilation, ensemble forecasting and targeted observations.

One of the essential problems in atmospheric and oceanic studies is what kind of initial perturbation will develop. Answers to this question usually can be applied to provide the mechanism for the onset of weather or climate events. In addition, such perturbations also give scientific supports for ensemble prediction, targeted observation, etc. That is why researchers have developed normal mode, singular vector, Lyapunov vector, etc. to answer this question.

Before this new century, I have focused on nonlinear stability and instability studies in geophysical fluid dynamics and established several nonlinear stability criteria for geophysical fluid motions. In the year 2003, I and my colleagues proposed the conditional nonlinear optimal perturbation (CNOP) with initial conditions, which overcome the limitation of linear assumptions of a singular vector. Subsequently my group has extended this approach to consider the uncertainties in parameters in the models, external forcings and boundary conditions on the predictions.

In the past 20 years, my group applied the CNOP approach to study the spring predictability barrier of the El Niño, Indian ocean dipole predictability, the mesoscale predictability of heavy precipitation events, the



sensitivity and stability of the ocean's thermohaline circulation to finite amplitude perturbations, the precursors of blockings, north Atlantic oscillation, MJO, Kuroshio path variations and Kuroshio extension state transition, etc. In addition, we also devote our efforts to apply the CNOP approach to targeted observation and ensemble forecast studies. It is our great pleasure that in tropical cyclones targeted observation field experiments, CNOP approaches have been applied to select the sensitivity area for China FY4A satellite in 2020 and 2021, and for flight dropsondes in the China south sea in 2020. I also would like to mention that CNOP approaches have been employed to the ensemble forecast experiments and model parameter sensitivity analyses.

I received my bachelor's and master's degrees from Anhui University in 1978 and 1981 respectively, and my Ph.D. degree from Fudan University in 1985, all in mathematics. From March 1987 to April 2009, I stayed at the Institute of Atmospheric Physics, Chinese Academy of Sciences, working as a postdoctor, research associate, and senior research scientist. I was elected as a member of the Chinese Academy of Sciences in 2007, and a member of the Academy of Sciences for the Developing World in 2008. From May 2009-April 2016, I worked as senior research scientist in the Institute of Oceanology, Chinese Academy of Sciences. In March 2006 I moved to Fudan University, working with my colleagues, devoting my energy to the establishment of the Institute of Atmospheric Sciences and the Department of Atmospheric and Oceanic Sciences.

I am now the chairman of the Chinese National Committee for IAMAS, and the director of the Academic Committee, State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics, Chinese Academy of Sciences. I also serve as deputy editor-in-chief for "Science China: Earth Sciences" and "Climatic and Environmental Research" and editor-in-chief for "Advances in Atmospheric Sciences."

I served as a member of the International Commission for Dynamical Meteorology (ICDM) from 2003-2013, and a member of the International Commission for Planetary Atmospheres and Their Evolution (ICPAE) from 2001-2009. I worked as an associate editor of QJRM from 2007 to 2012, and an associate editor for Monthly Weather Review in 2008.

Over the years, I have received several awards, including the Ho Leung Ho Lee Foundation for Science and Technology Progress Award and the First-Class Prize of Nature Scientific Award of Chinese Academy of Sciences, as well as Awardee of the Graduate School of Chinese Academy of Sciences Award for Excellence in Teaching, Advising and Mentoring, etc.

Upcoming Meetings

IUGG General Assembly: 11-20 July 2023, Berlin, Germany

Early October 2022

Online registration and abstract submission opens

Online accommodation reservations open

Travel grant applications open

14 February 2023

Closing of abstract submission

Closing of grant application submission

More details at <https://www.iugg2023berlin.org/>



The Quadrennial Symposium of the International Radiation Commission

After two postponements due to the COVID-19 pandemic, the quadrennial International Radiation Symposium (IRS 2022) was held in Thessaloniki, Greece, from 4-8 July 2022. By all accounts, it was a major success. IRS 2022 was organized by the Laboratory of Atmospheric Physics of the Aristotle University of Thessaloniki in partnership with the International Radiation Commission (IRC) of the International Association of Meteorology and Atmospheric Sciences (IAMAS). IRS 2022 was held at the Thessaloniki Concert Hall Convention and Cultural Center. Over 360 scientists from 29 countries participated in the fully in-person symposium, with over 250 oral and 150 poster presentations.



IRS 2022 provided a comprehensive international forum for presenting and discussing recent research achievements and technological developments in atmospheric radiation and related disciplines in the following ten sessions: Topical Union Session: Current Problems in Atmospheric Radiation; Radiative Transfer Theory and Modeling; Particle Radiative Properties; General Remote Sensing; Ground-based Measurements and Field Observations; Radiation Budget and Forcing; Weather, Climate and Environment Applications; Solar UV Radiation; Ocean Optics; and Climate Change in the Mediterranean and Radiative Impacts of a Changing Environment. Internationally recognized senior scientists, young scientists, and students had a unique opportunity to discuss the most current scientific issues, exchange new ideas and establish far-reaching collaborations.

The first three days of IRS 2022 kicked off with keynote addresses presented in the topical union session. On Thursday, the topical union addresses were given by Gold Medal Award recipient Bill Smith (Professor Emeritus, University of Wisconsin-Madison) and Young Scientist Award recipient, Seung-Hee Ham (NASA Langley Research Center). Professor Smith and Dr. Ham were presented their awards at the IRS 2022 Banquet held the previous evening.

Participants of IRS 2022 had the opportunity to visit historical monuments and cultural establishments in Thessaloniki and in other locations in Northern Greece, to enjoy short escapes for swimming at the magnificent beaches of Halkidiki and to taste the local gastronomy and wines at the numerous small taverns in the city. For many, IRS 2022 marked the first in-person event they had attended since the start of the pandemic in 2020. The enthusiasm and gratitude from all participants to be finally meeting in person again was proof of the success of the symposium.

Alkis Bais, IRS 2022 Chair
Peter Pilewskie, IRC President