

# BIOMETEOROLOGY BULLETIN

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Compiled by Jennifer Vanos and Yuliya Dzyuban  
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# A Message from the President

Scott Sheridan

Dear Colleagues,

On behalf of the Executive Board, I would like to extend my warmest greetings as we move towards the end of 2023. As you no doubt have heard, we are excited to announce that the next ICB, our 24<sup>th</sup>, will be held in 2026 in Novi Sad, Serbia. The Executive Board has already started working with our colleagues at the University of Novi Sad, and we look forward to sharing updates with you in the new year.

As you may also know, the EB is interested in getting feedback on the nature of conferences and academic societies in today's world, both from members and non-members. If you haven't yet, please do take our survey, and feel free to forward the link to any colleagues in the field, whether members or not. You can find the survey at:

**<https://bitly.ws/Zafe>**

The survey itself will be open until the end of 2023, and we will be sharing our findings with you in the next bulletin.

Kind regards

**Scott Sheridan**

President, ISB, 2023-2026.

# Message from Outgoing President

## A review of the 2020-2023 triennium

### Marie R Keatley – Past President

At our first meeting for the Triennium in August 2020 the Executive Board discussed what we would like to deliver for our members and the Society. Several themes emerged – benefits to members, working towards a more diverse and inclusive Society, increasing membership and governance.

The benefits for the members were a focus and hence an annual funding round has been established. Its purpose is to support members to attend workshops or conferences that provide a benefit both to the member and to ISB. For our International Congress in Arizona in 2023, we supported 17 members.

We also signed memoranda of understanding with the American Meteorological Society, European Meteorological Society (EMS), and the Tromp Foundation. The MoUs with EMS and the Tromp Foundation have direct benefits for members. ISB members will pay the same registration fee as the EMS members to attend the EMS annual meeting. The Tromp Foundation has been a strong supporter of the ISB – they will continue to financially support the Student and New Professional Group. Additionally, the Tromp award for Best Scientific Paper will be selected from ISB members. The award will provide the recipient with €1,000 plus the registration fee for our International Congress and reimbursement of travel costs (economy air ticket plus CO<sub>2</sub>-compensation).

The themes of a more diverse Society and governance overlapped. The Statutes were amended to enable a tiered membership fee structure based on World Bank categories. It is hoped that membership dues are now more aligned with an individual's capacity-to-pay and in doing so further enhance

membership of the Society from Biometeorologists world-wide. Additionally, a Diversity and Inclusion Statement detailing the Society's commitment to diversity, equity and inclusion across our membership, was developed by members of the Executive Board and then approved by the members. The Statement also includes a set of principles for members of the Society.

In raising the profile of the Society, Executive Board members have represented the Society at several meetings of the World Meteorological Organization.

The Society's Journal – the International Journal of Biometeorology has been so expertly led by Scott Sheridan that over this triennium additional Editors-in-Chief have been appointed.

Over the next triennium I know that the Society will be ably led by our new President, Scott Sheridan, and well-supported by the new Executive Board.

I would like to thank my colleagues on the Executive Board for their support and hard work over the 2020-2023 triennium. Finally, my thanks to you the members.

Sincerely,

***Marie R. Keatley***

Past President, 2020–2023

# 23rd International Congress of Biometeorology

Information provided by: Jennifer Vanos, Arizona State University



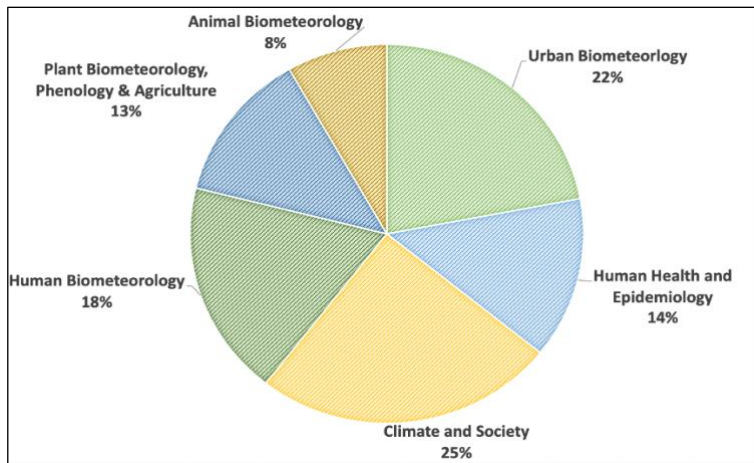
The 23rd 2023 International Congress of Biometeorology, was held at Arizona State University in Tempe, AZ, USA in May 2023! Attendees were excited to be back in person and enjoyed the Tempe weather, Desert Botanical Garden, and many lively discussions. Important conversations around cross-sectoral heat management, user-tailored heat services, and heatwave ranking were held during key sessions and are expected to feed into international research and governance activities.



**164 delegates from 33 countries** participated in the congress, with over 170 presentations under the theme of '[Urban to Global Sustainability](#)'. The conference was led by David Hondula (City of Phoenix Director of Heat Response and Mitigation) and Jennifer Vanos (ASU Global Futures Laboratory).



The conference included 117 Oral Presentations, 55 posters, and 9 side meetings. 57 students were lead authors of the poster or oral presentations presented. The breakdown of the types of talks and posters is provided below.



### Keynotes speakers were honored for sharing their insights:



**Dr. Jason Lee** (left), Director of the Heat Resilience and Performance Centre at the National University of Singapore delivered a keynote on *“Heat Resilience – a whole-of-society challenge and approach”*, calling on attendees to turn the climate emergency into an opportunity by working collectively across disciplines to ensure humans continue to thrive in a warming world.



**Dr. Teresa Crimmons** (right), Director of the USA National Phenology Network and a Professor in Phenology at the University of Arizona, delivered a keynote on *“The early bird and the worm: what can we learn from very early springs?”* discussing key temporal and spatial changes in vegetation timing and types across the United States.



**Dr. Sejian Veerasamey** of the, Rajiv Gandhi Institute of Veterinary Education and Research in India delivered a keynote on *“Climate Change and Livestock Production: Current Scenario & Way Forward”* discussing critical issues around the methodology and research in Animal Biometeorology connected to health, wellbeing, and animal productivity across a range of climates globally.

We are extremely grateful to have had these keynote speakers attend ICB23!

- [View full conference program and abstract booklets](#)
- Click [this link](#) to access all photos from ICB23!

Finally, **thank you** to the local organizing committee, the Global Futures Laboratory Events staff, the Scientific Committee, and sponsors for ICB23:



## 24<sup>th</sup> ICB: Mark your calendars!

The **24<sup>th</sup> International Congress of Biometeorology** is scheduled for 2026 and will take place at the University of Novi Sad in Serbia. More details to come.



## Updates from ISB Commissions

### Students & New Professionals Group

Submitted by: Peter Crank, SNP Chair

The Students and New Professionals Group is under new management! We want to thank **Angela Lees**, **Dan Vecellio**, and **Yuliya Dzyuban** for their work and dedication to the group through the pandemic. We (**Peter Crank** - Chair, **Ariel Prinsloo** - Secretary, and **Claire Gallacher** - Communications) would not be in these positions without their commitment. The new committee for SNP is just getting started, but we are excited about the prospects of supporting students and new professionals in developing professional development skills

and networking opportunities both virtually and in person. We are excited by the momentum built at ICB23 in Arizona as we now have a WhatsApp group of SNP with nearly 40 members who attended ICB23 and participated in SNP events. Our newsletters will be returning with highlights of the work by SNP as well as opportunities for more engagement.

## Climate & Health Commission

*Submitted by: Adam Kalkstein, Climate & Health Commission Chair*

The Climate-Health Commission and its dozens of members continue to conduct vital research as part of its mission to uncover linkages between weather/climate and human health across the globe. Over the past couple years, the Commission helped sponsor a special issue of the *International Journal of Biometeorology* examining indoor biometeorology (vol. 65, issue 3) and has created a searchable database of nearly 50 international researchers. This database, which includes information such as research concentrations and available datasets, will help foster collaborative research for years to come. Currently, while Commission members continue to uncover important climate-health relationships across a spectrum of research topics, over the upcoming years, there will be a renewed emphasis on education and service. Throughout the successful 23<sup>rd</sup> International Congress of Biometeorology in Tempe, AZ, Commission members consistently highlighted the need for additional resources covering both education and service, topics which have historically been underemphasized as a group. More specifically, the Commission hopes to develop additional resources for teaching and education, highlight members' willingness for guest lectures, and advertise availability to serve on graduate or promotion committees. We are excited about these new initiatives as we look ahead to the 24<sup>th</sup> ICB in Novi Sad, Serbia.

## Phenology Commission

*Submitted by: Marie R Keatley, Phenology Commission Chair*

### **Phenology 2025: Towards a global phenology science, Sao Pedro, Brazil, July 25th to August 2<sup>nd</sup>**

An expression of interest (EoI) was held for the Phenology conference – Phenology 2025. Two strong EoIs were received. The Selection Committee (Alison Donnelly, Iñaki García de Cortázar-Atauri, Marie Keatley, Mark D Schwartz and Xiaoqiu Chen) awarded the Conference to Prof Patricia Morellato and colleagues.

The conference venue will be at the Hotel Colina Verde . More details and webpage will be provided soon.

### **2020-2023**

#### **Phenology 2022**



A very successful Phenology Conference - Phenology 2022: Phenology at the Crossroads was held in Avignon, France 20<sup>th</sup> -25<sup>th</sup> of June. The success was down to:

1. The hard work done by the Local Organising Committee ably lead by Iñaki Garcia de Cortazar Atauri and Isabelle Chuine <https://pheno-2022.colloque.inrae.fr/organizing-committee>.
2. The quality of the submissions and the work of the 32 member Scientific Committee <https://pheno-2022.colloque.inrae.fr/scientific-committee>
3. The delegates!

Along with the sponsorship of the ISB, there were eight other Sponsors and partners: INRAE, CNRS, Avignon University, Network Tempo, Agropolis Fondation, AOC Ventoux, Oreme and Digitag.

The Conference was opened by M Jean Philippe Nabot, President of the INRAE Research Centre in Avignon and Prof. Georges Linares, Vice-president of Avignon University. There were 145 delegates from 28 countries. This included 15 delegates who were able to participate remotely.

There were six keynote speakers (<https://pheno-2022.colloque.inrae.fr/keynote-speakers> ) and eight sessions over the course of the Conference.

1. Phenology communities and networks
2. Phenology data: standards and protocols for collecting, processing and sharing
3. Phenology as a bio-indicator of climate change
4. Impacts of phenology on organism performance, ecosystem functioning and community dynamics
5. Ecophysiological and genetic determinism of phenology
6. Remote sensing and alternative techniques of phenology monitoring
7. Phenology modelling
8. Impacts of phenological match and mismatch

During the Conference there was a meeting of the Phenology Commission attended by fourteen Commission members (including two remotely) and four interested delegates.

There were two excellent field trips: the Scientific visit of Mount Ventoux's forest and the visit to Piolenc experimental vineyard. These were followed by a Buffet Dinner in the gardens of Château Pesquié. The Conference also overlapped with the Festival of Music which enabled delegates to freely enjoy all types of music around the streets of Avignon during the evening of the summer solstice. The Gala dinner at Espace Jeanne Laurent was preceded by cocktails at Avignon Town Hall.

### **23<sup>rd</sup> International Congress of Biometeorology**

There were three Phenology sessions at the Congress and nine Posters. A meeting of attending Phenology Commission members decided that a perspective on the value Phenology should be written. More information on this will be circulated to Commission members in the new year.

### **European Geosciences Union**

The Commission also assisted with the organisation of Phenology Session at the annual meeting of the European Geosciences Union in Austria. Over the 2020-2023, the number of presentations has ranged from 17 to 27.

The phenology session at the EGU General Assembly aligns with the PEP725 (Pan European Phenology) Management Committee Meeting and the PEP725 Symposium. Both events are held a day before or after the phenology session at the EGU. There is a large overlap between Phenology Commission members and PEP725 staff and users.

### **Chair Election:**

Two calls were made for self-nominations for a new Chair of the Phenology Commission. There were no nominations received so Marie Keatley remains as Chair. The two co-Chairs Mark D Schwartz and Xiaoqiu Chen also remain in their positions.

# Updates from ISB Regional Councillors

## Africa

*Submitted by: Jennifer Fitchett, African Councillor*

There has been a considerable increase in membership of the ISB from the African continent over recent years, and Africa is now the region with the largest proportion of ISB SNP members! This membership largely comprises of biometeorologists from southern Africa and Nigeria, and continued efforts to increase regional representation are a key focus. The first **African Special Issue of the International Journal of Biometeorology** is currently underway, with nine scheduled submissions on studies spanning the key research areas of animal, plant and human biometeorology, and representation from a number of African countries. Anyone working in or on topics of African Biometeorology are still welcome to contribute to this special issue. Papers are due early 2024.

## North America

*Submitted by: Daniel Vecellio, North American Councillor*

North American site Arizona State University was a great host of the 23<sup>rd</sup> International Congress on Biometeorology in May 2023 on campus in Tempe, AZ. Many North American members were able to attend and present their research “close to home” and we are looking forward to heading to Novi Sad in 2026!

If you are attending the American Meteorological Society’s Annual Meeting in Baltimore, MD, USA in January/February 2024, be on the lookout for an announcement of an informal ISB get-together and be sure to check out Environment and Health and Urban Climate sessions while you are there!

Upcoming conferences with North American members attending:

**American Geophysical Union Fall Meeting** (with GeoHealth sessions), San Francisco, CA – December 2023

**American Meteorological Society Annual Meeting** (sessions in Environment and Health and Urban Climate), Baltimore, MD – January/February 2024

**American Association of Geographers Annual Meeting**, Honolulu, HI – April 2024

## Asia

*Submitted by: Shreya Banerjee, Asian Councillor*

### **Taking up role as Asia Councillor and previous involvements in ISB**

I have been holding the position of Asia Councillor since May 2023, post the International Congress of Biometeorology in Tempe, Arizona. Around this time, I was a postdoctoral fellow in the “Cooling Singapore 2.0” project in Singapore. I have recently joined as an Assistant Professor of Sustainable Urban Planning in the Indian Institute of Technology Jodhpur in India. My experience of working in different countries, climatic regions and contexts in Asia enables me to expand my professional network in this region. I aim to utilize such networks to raise biometeorology research related awareness in the region. Previously, for SNP skill building virtual sessions, I delivered talks on various topics pertaining to data analysis and microclimate simulation models. I also delivered an invited talk in a session themed around urban climate and human health in Asia during ICB virtual congress in 2021. For this talk, I presented my research on human biometeorology for the informal workers in Indian cities. I further delivered an invited talk in the First Virtual Asia Biometeorology Colloquium 2023.

### **Future Plans – events, member recruitment plans**

My involvement with ISB in various capacities so far provided me insights about the present situation of biometeorology research in Asia. Although relevant research is taking place in Asia in the fields of human, plant, or animal biometeorology, a lack of awareness prevails as to whether that



research falls under biometeorology domain. Majority of the biometeorology researchers in Asia are also not aware of the existence of the ISB. Present Asian members belong to only a handful of the countries in the region. Keeping these factors in consideration, I seek to explore following outreach activities in 2024:

- Jan- Mar (Q1) 2024: Virtual panel discussion on biometeorology
- Apr- Jun (Q2), 2024: Virtual skill building session/webinar for Asia SNPs
- Jul- Sep (Q3), 2024: One interview/podcast with any prominent biometeorologist in Asia
- Oct- Nov (Q4), 2024: One virtual Asia Colloquium

The panel discussion can serve as a kickstarter for all other upcoming events in the Asia region. Some potential topics for discussion could be - 1) What types of research are part of bio-met research? 2) What is the present state of the art of bio-met research in Asia as well as globally? 3) How relevant will this domain become by next decade? 4) What are some of the prominent universities/ research clusters in Asia who do cutting edge bio-met research? 5) What is ISB and what do they do? etc etc. The skill building webinar can also be utilised for promotion of the society, requesting attendees to take up membership and elucidating them about the benefits of the membership. The podcast can have a discussion on research, funding opportunities, publications, etc. during Q3, 2024. This podcast can be uploaded in the YouTube channel and shared via social media handles. Additionally, I plan to publicize any ISB related events using my social media handles. I plan to organize events for 2025 at subsequent stages after checking the responses for each of these virtual events of 2024.

## Notable events from European Councillor

*Submitted by: Thanos Damialis, European Councillor*

The ISB supported the inclusion of bioaerosols in the EU/WHO Directives of “One Health in all policies Approach Addressing the Allergy and Asthma Epidemic” within EU Parliament talks this June (see below).

See [webpage here](#), which contains videos and the [joint statement](#). Also see information on the World Aerobiology conference below.



## Research Highlight

### **Ranking Heat Events based upon Human Health Outcomes to Improve Messaging and Response**

Larry Kalkstein, Chief Heat Science Advisor, Arsht Rockefeller Foundation

Scott Sheridan, Department of Geography, Kent State University

Michael Allen, Department of Geography and Environmental Planning, Towson University

Elizabeth Berg, Nick Mailloux, Sara Pabich, Becky Rose, Research Associates, University of Wisconsin, Madison

The Synoptic Climatology Laboratory has been tasked by the Adrienne Arsht Rockefeller Foundation Resilience Center to develop a heat wave ranking system based upon human health outcomes. Over the past 3 years, a number of such systems have been developed and implemented on password-protected websites, including 7 pilot projects for U.S. cities, an operational system for Seville, Spain, and a nationalized operational system for the entire country of Greece.

Using a number of meteorological measures, as well as daily mortality data for each locale, heat/health relationships were developed for each area and the associated models were then utilized to estimate heat-related mortality for a five-day forecast period. There are four heat wave rankings: the lowest level includes days that are above the 95<sup>th</sup> percentile in mean daily apparent temperature and the next three ascending levels are determined by ranges in heat-related mortality forecasted by the algorithms. So, for example in Seville (Figure 1 below), a level 1 heat event has an estimated mortality between 10-19% above the mean seasonal baseline, a level 2 event ranges from 20-29% over baseline levels, and the most extreme, level 3, events exceed 30% increases in expected mortality.

The utility of the system is to provide increased guidance in developing the proper responses to the heat event and to make messaging clearer to the public. Much like hurricane rankings, a level 1 heat event requires lesser intensive intervention than a level 3 event.



Initial evaluations of the system indicate that they are more sensitive in detecting heat events that are associated

with negative health outcomes than meteorologically-based heat warning systems. In addition, since the systems have been specifically developed for each urban area, the ability to distinguish differing responses between areas is greatly enhanced. There are plans to expand the system to other locales in summer 2024, and we will keep the ISB informed on our progress as we move forward.

## Upcoming Conferences

The International Society of Biometeorology (ISB), in collaboration with Thompson Rivers University, cordially welcomes scholars and practitioners from all around the world to share their most recently completed and ongoing research at the [Eighth International Conference on Climate, Tourism and Recreation – CCTR 2024](#), **April 22-26, 2024**.

*Abstract Submission Deadline is **November 30, 2023** at [www.cctr2024.ca](http://www.cctr2024.ca),*

Presentation topics include, but are not limited to:

- Climate services and communications in tourism and recreation
- Indigenous knowledge, tourism and climate change
- Last chance tourism from a climate change perspective
- Touristic and recreational footprints and climate change mitigation
- Tourism and recreation destinations' vulnerability and resilience to climate change
- Degrowth in tourism and recreational area limits in climate change affected regions

### **European Geophysical Union - EGU24 (Vienna, Austria | 14–19 April 2024)**

Note related events: the "[Extreme events and health](#)" organized by Dr. DiNapoli, and "[Urban climate, urban biometeorology, and science tools for cities](#)" session, likely of interest. The abstract submission is now open: (abstract deadline on 10 January 2024, 13:00 CET).



The [AAG Annual Meeting will be held April 16-20, 2024](#) in Honolulu, Hawaii. (abstract deadline on 16 November 2023).



The **AOGS Annual Meeting will be held** from June 23 to 28, 2024 in Pyeongchang, Gangwon-do, South Korea. Note the Special Session **AS91**, titled: "[Cities and Weather/Climate Extremes](#)". The submission deadline is **January 2, 2024**.