

# **BIOMETEOROLOGY**

# **BULLETIN**

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Compiled by Elena Grigorieva and Scott Sheridan

Also check out:

The ISB site

<http://www.biometeorology.org>

The Student and New Professionals' website

<http://biomet-education.net>

The Student and New Professionals' newsletter

<https://mailchi.mp/34f5554a0f76/august-late-i-know-2019-snp-newsletter?e=505996b6bb>

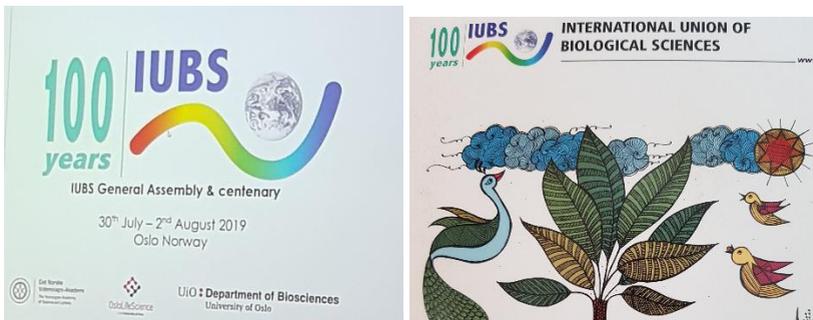
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# Report on the 100 Anniversary of the International Union of Biological Sciences (IUBS)

Pablo Fernández de Arróyabe Hernáez

The International Union of Biological Science (IUBS) has celebrated its 100 anniversary in a meeting developed in Oslo (Norway) from 30th July to 2nd August 2019. IUBS has two categories of memberships: National Members (NM) and Scientific Members (SM). ISB belongs to this second category what gives to our Society the right and the responsibility to participate in the General Assembly (GA) and vote on specific IUBS issues related to scientific matters and research programs.

The President of ISB attended the event on behalf of the Society. ISB was asked to send a brief report on its activities in the last triennium. This report will be included, with reports and letters of congratulations from other scientific members, in the final report of the IUBS meeting event.



On the first day, the commemoration of the centenary took place at the *Norwegian Academy of Science and Letters*. Different reports on the existing scientific programs at the IUBS, on the finances and on the activities developed by the IUBS in the last triennium were presented and several keynote speakers spoke on different biological issues

The main reports of the IUBS scientific programmes were related to:

- *AgroEcosystem* report by Prof. Peter Kevan
- *Biological Consequences of Global Change (BCGC)* report, offered by Prof. Zhibin Zhang
- *Unifying Biology Through Informatics (UBTI)* report, offered by Prof. Nils Chr. Stenseth
- *International Society for Conservation Biology (ICCB)* report, presented by Prof. Michelle Lawing

Presentations of the applications for the new triennium were also offered at this session consisting on the following topics:

- *open Biodiversity and Health Big Data - BHBD* (Yiming Bao)
- *Global Integrative Pastoralism Program – GIPP* (Nils Chr. Stenseth)
- *Conservation Paleobiology in Africa – CPIA* (Johannes Müller)
- *Environmental education and climate change adaptation: science of pollution-tolerant and climate resilient plants* (Vivek Pandey)
- *Governance of global taxonomic lists* (Frank Zachos)

The plenary session took place at the Norwegian Academy of Science and Letters (NASL) starting with the welcome from its president Prof. Hans Peter Grover joint with a welcome from the IUBS President, Prof. Hiroyukyu Takeda.



Several magistral talks were offered by different keynote speakers:

- *“From Charles Darwin till today: the unified biology through more than 150 years”* by Professor Nils Chr. Stenseth (Oslo, Norway)
- *“Linking taxonomy and evolution: from Linné to Darwin”* by Professor Regine Jahn (Berlin, Germany)
- *“What can comparative demography teach us about ecology and evolution?”* by Professor Dylan Childs (Sheffield, UK)
- *“Macroevolution: linking paleontology and evolution”* by Professor Matt Pennell
- *“Linking evolution and genomics”* by Professor Leif Andersson (Uppsala, Sweden)
- *“Seeing the human history through the glasses of biology”* by Associate Professor Martin Sikora (Copenhagen, Denmark)
- *“The advantages of living in groups”* by Professor Raghavendra Gadagkar (Bangalore, India)
- *“The major transitions through evolutionary history”* by Professor Eörs Szathmáry (Budapest, Hungary)
- *“Human evolution: A view from the Afar of Ethiopia”* by Professor Berhane Asfaw (Addis Abeba, Ethiopia)

Finally, a round table took place about the past present and future of the IUBS. It was chaired by Nils Chr. Stenseth.

The meeting moved the second day to the Science Library of University of Oslo where the rest of parallel sessions took place. A brief introduction about the different topics considered for the parallel sessions and their links to IUBS was done by the different chairs of the sessions, being the proposed topics:

- *Science Forum* (Lily Rodriguez)
- *Big Data* (Yiming Bao)
- *Climate Change* (Zhibin Zhang)
- *Biological Consequences of Global Change* (Yvon Le Maho)
- *TROP ICSU* (LS Shashidhara)
- *Nomenclature and the governance of taxonomic lists* (Regine Jahn)

A general forum took place on “Cooperation among the Scientific Unions within the International Science Council (ISC) - (former ICSU)”. This round table was chaired by Lucilla Spini (Figure below) and John Buckeridge. There were interesting points where ISB and its corresponding Commissions could participate in the future with other Scientific Societies in the frame of IUBS.



Each mentioned topic was developed extensively in their respective parallel sessions during the days of the meeting. Some projects are almost close from a funding point of view but it can be used to take it to other communities based on further fund raising in the near future.

A representative from ISC announced the interest on developing joint proposals among International Scientific Unions and Scientific Societies in the future under the new structure of ISC. ISB showed its interest in joining future initiatives under the umbrella of IUBS and ISC and with other Scientific Societies and indicated that ISB is focused on the study of atmospheric processes and climate change impacts on living organisms (plants animals and humans) health and wellbeing.

A proposal in which IUBS is working nowadays is the organizations, with other International Unions and Scientific Societies, is the International Year for Basic Science (2022). ISB could also join it in the future if it is considered useful for ISB.

There was time to contact Chairs and Presidents of other Scientific Societies that are members of the IUBS in order to promote future joint scientific proposals and collaborations such as Dr. Peter Kevan, President of the International Society for Plant Pollinator Relationship (ICPPR) who showed an special interest of future collaboration with ISB.

On Thursday, specific presentations took place on different parallel sessions:

- Climate change biological consequences of global change.

This presentation was mainly focused on the Three Pole initiative (from China) with the Society of Conservation Biology (SCB-iCCB), the World Climate Research Program (WCRP) and the World Meteorological Organization (WMO) involved on it. This program related to climate change and Zoology and it has been run for the last ten 10 years. It started in 2009 in South Africa and it can be interesting for the ISB Commission on Animal Biometeorology to develop link of collaboration with this initiative for future joint actions.

Prof. Zhibin Zhang, President of the International Society of Zoological Sciences (ISZS) and member of the Institute of Zoology, (Chinese Academy of Science) offered a presentation titled “Integrating large and small scale

studies to reveal the impacts of climate change on population dynamics of animals”

A second topic presented in the parallel sessions was related to the study of biological consequences of climate change on different types of epidemics.

### Big Data

The session on Big Data could not be follow due to be the sessions simultaneous in different rooms. Later, the chair of the Big Data session was contacted and informed that the initiative is relate mainly to Genomics and it is being led by India.

Last day, the General Assembly (GA) took place and internal issues of the IUBS-EC were presented. From a scientific point of view, the *Ad Hoc Committee* reported on the proposals received at IUBS and presented their recommendations for each one. These recommendations and the approval or rejection of the proposal was finally submitted for voting at the GA.

#### 1. Title: Global Integrative Pastoralism Program (GIP)

There is no Scientific Members organization involved and the different recommendations received by ISC about linking it with CGIAR System.

#### 2. Title: Open Biodiversity and Health Big Data (BHBD)

There is no Scientific Members involved. Links with international programs or networks no reported. It must be revised and reshaped for final approval

#### 3. Title: Conservation paleobiology in Africa (CPIA)

USA, UK, Kenya Ethiopia are members involved in this proposal. It is not clear how African members are involved in this program. It is related to Conservation ecology, Spatial ecology, Biodiversity analysis, Paleocology and it was criticized for being too local. The suggestion was to reshape the proposal and review it before submitting it again.

4. Title: Environmental education and climate change adaptation: science and pollution-tolerant and climate resilient plants.

This project convenes good science but has no clear directions. It sounds quite technological but it is not clearly indicated the process to follow in the development. It is recommended to reject and to reshape and resubmit

5. Title: Governance of global taxonomic list

Finally, candidates for the new Executive Board of IUBS presented publicly their ideas and voting took place. IUBS new EC members are presented in figure below. More information about names and positions of members of the new IUBS-EB can be found at the IUBS website.



# Phenology Commission Report

Marie Keatley, Jennifer Fitchett, Iñaki Garcia de Cortazar-Atauri, Trevor Keen and Patrícia Morellato

## ICB 22 One Earth, One Life, Brasil, Jaboticabal – Phenology Sessions and General Meeting of the Commission

At ICB next year in Brazil, 20 talks have been allocated to Phenology, across four sessions. Additionally, there is a poster session. Hence there are multiple ways to present your research – we look forward to receiving the abstracts.

There will also be a General Meeting of the Phenology Commission so if there are any items you would like to have on the Agenda feel free to send them to Marie Keatley (mrkatunimelb.edu.au).

## EGU General Assembly 2019 – Phenology Session

Members of the Phenology Commission convened by Iñaki Garcia de Cortazar-Atauri organised a session *Phenology and seasonality in climate change* (<https://meetingorganizer.copernicus.org/EGU2019/session/31723>) at European Geophysical Union's General Assembly meeting in Vienna in April.

The session was well subscribed with 42 abstracts being accepted: 14 oral and 28 posters. Each session attracted approximately 100 delegates.

The Society also supported the attendance of Eike Luedeling, Head of Department, Department of Horticultural Sciences, University of Bonn who spoke on *Dormancy Model for Warming Orchards* (<https://meetingorganizer.copernicus.org/EGU2019/EGU2019-10835.pdf>)



## **ISB-PC and WMO-CAGM Working Group: a globally concerted effort for phenological monitoring**

A meeting with Roger Stone, President, Commission for Agricultural Meteorology and Vice President, Commission for Services Applications has resulted in the first steps in this collaboration. Members of the ISB-PC Working Group (Katharine Abernathy, Xiaoqiu Chen, Marie Keatley, Patrícia Morellato Mark D Schwartz, and Raul Zurita-Milla) will be assisting the CAGM's Expert Team 1.3 on the *Revision of guidance material on the use of phenology for climate monitoring and crop phenology for agrometeorological monitoring and assessments*.

### **Phenology 2021: *Phenology at the crossroads***

The Conference will be held in Avignon France. The local Organising Committee recently held its first meeting. Broad details are provided below.

Organisers: Dr Iñaki Garcia de Cortazar-Atauri (INRA US1116 AGROCLIM – Avignon, France) and Dr Isabelle Chuine (CEFE-CNRS – Montpellier, France)

Climate change is modifying the phenological cycle of many species, directly affecting agroecosystem functioning, species distributions and biosphere's feedback to the atmosphere. Phenology has become an important subject for many societal and economic issues. Therefore, the community working on phenology greatly enlarged during the past 20 years, integrating other actors than scientists thanks to participatory research action programs. Phenology also gained interest from an increasing range of scientific disciplines (functional and evolutionary ecology, physiology, agronomy, genetics, climatology, remote sensing, aerobiology...). For these reasons, we want to emphasize during this conference the fact that phenology is now at the crossroads of many different disciplines and actors, all working together in the same direction: adapting to climate change.

#### Session themes

1. Phenological communities and networks
2. Phenological data : standards and protocols for collecting, processing and sharing
3. Phenology as a bio-indicator of climate change
4. Ecophysiological and genetics determinism of phenology
5. Impacts of phenology on organisms' ecophysiology and life history traits
6. Remote sensing and alternative technics to monitor phenology
7. Phenology modelling
8. Impacts of phenological match and mismatch

#### Recent Publications

Trevor F. Keenan, Andrew D. Richardson and Koen Hufkens (2019) On quantifying the apparent temperature sensitivity of plant phenology. *New Phytologist* <https://doi.org/10.1111/nph.16114>

## Snippets

At the Jubilee Students Conference of the Society of South African Geographers in Johannesburg 2019, the award for the best Honours Physical Geography presentation went to a phenology project. Ms Kestrel Raik is exploring 'Climate change induced shifts in the flowering of *Jacaranda mimosifolia* in Gauteng Province, South Africa over the past century'.

## Open Letter to Animal Commission Members

Angela Lees

Recently Dan Vecelio and Michael Allen from the Human Health Commission published an article regarding the publishing trends of the commission (<https://link.springer.com/article/10.1007/s00484-019-01695-0>). Given the diversity of our commission Sheila Nascimento, Emad Samara and myself under the guidance of John Gaughan and Sejian Veerasamy would like to prepare an article showing the diversity of our members and the research that we are involved in. It is our intention to disseminate aspects and trends of our commission, in which we'll simultaneously highlight our diversity and provide a systematic overview of what and where animal biometeorology research is being published. In addition to this and given the diversity of our commission members we thought that the generation of a special edition of our Journal would be an ideal opportunity to exhibit the capability and diversity of our commission members. To suggest and prepare a special edition we need to consider a guest editor and develop a proposal. If you have a suggestion for a guest editor or suggestions for our article please let me ([angela.lees@une.edu.au](mailto:angela.lees@une.edu.au)) know.

## Some Recent Urban Climate Articles and News

Ariane Middel

Kaylee Colter, Ariane Middel, Chris A. Martin. (2019). Effects of natural and artificial shade on human thermal comfort in Phoenix, Arizona, USA, *Urban Forestry and Urban Greening*, 44:126429. <https://doi.org/10.1016/j.ufug.2019.126429>

Ariane Middel, E. Scott Krayenhoff. (2019). Micrometeorological determinants of pedestrian thermal exposure during record-breaking heat in Tempe, Arizona: Introducing the MaRTy observational platform, *Science of the Total Environment*, 687:137–151. <https://doi.org/10.1016/j.scitotenv.2019.06.085>

Mehdi Aminipouri, David Rayner, Fredrik Lindberg, Sofia Thorsson, Anders Jensen Knudby, Kirsten Zickfeld, Ariane Middel, E. Scott Krayenhoff. (2019). Urban tree planting to maintain outdoor thermal comfort under climate change: The case of Vancouver's local climate zones. *Building and Environment*, 158, 226–236. <https://doi.org/10.1016/j.buildenv.2019.05.022>

Mehdi Aminipouri, Anders Jensen Knudby, E. Scott Krayenhoff, Kirsten Zickfeld, Ariane Middel. (2019). Modelling the impact of increased street tree cover on mean radiant temperature across Vancouver's local climate zones. *Urban Forestry and Urban Greening*, 39:9–17. <https://doi.org/10.1016/j.ufug.2019.01.016>

NPR Here & Now (September 2019): Phoenix Residents Will Need To Adapt To An Even Hotter Climate  
<https://www.wbur.org/hereandnow/2019/09/18/phoenix-arizona-hotter-climate-change>

New York Times (August 2019): As Phoenix Heats Up, the Night Comes Alive  
<https://www.nytimes.com/interactive/2019/climate/phoenix-heat.html>

## New Book, *Biometeorological Forecasts*

Luis Lecha Estela

*Biometeorological Forecasts* was written in Spanish and published in eBook format early this year 2019. It is available for worldwide distribution through the website: [www.libreriavirtualcuba.com](http://www.libreriavirtualcuba.com). The interested readers should register in the website and to pay eight (8) USD for download the file. The file size is near 64 Megabytes. The book reviews main results of biometeorological researches made in Cuba during the last recent years. The content is distributed along the preface, an introduction and six chapters, with the following matters:

1. Weather and human health: the classification of weather types, the effects of local weather variability on human health, the use of station meteorogram as main practical tool to follow the occurrence of meteor-tropic effects.
2. The circulation of the atmosphere and human health: the global impact of atmospheric circulation on human health, main elementary circulation mechanisms, the types of circulation affecting Cuba, the classification and effects of synoptic situations on human health, their multiannual, seasonal and interdaily variability, the influence of synoptic situations on the daily increase of morbidity and mortality of some chronic diseases.
3. The thermal regime and the adaptation of local population: the classification of thermal regime based on extreme daily air temperatures, structure and variability of the Cuban thermal regime, adaptation patterns of local population to the thermal regime variability, climatology of extreme thermal sensations in Cuba.
4. The use of complex indexes and the heat balance of human body: complex indexes to evaluate human thermal sensations, models for evaluation of heat stress level, characteristics of the Aizenshtat model and its results for Cuba.
5. Biometeorological forecasts: characteristics of the Cuban model PronBiomet, effectiveness of Cuban biometeorological forecasts,

results of PronBiomet model applications in different countries and sanitary environments, perspectives of biometeorological forecasts.

6. The global monitoring of meteor-tropic effects: results for North America and the Caribbean, results for Europe, results for South America, future projection of monitoring process.

Soon, the book will be available also in the classic printed format, and it will be distributed by Milenio Editorial, Cuba.

## Upcoming Conferences

### 22<sup>nd</sup> International Congress on Biometeorology

**Jaboticabal, Brazil, 19 to 22 July 2019**

<https://inobio-manera.fcav.unesp.br/index.php/events/22-icb/>

The INOBIO-MANERA (Innovation in Biometeorology and Animal Welfare Group), together with the International Society of Biometeorology and the Brazilian Society of Biometeorology, Ambience and Animal Welfare (SBBiomet), invites all professionals, researchers, and students to the 22<sup>nd</sup> International Congress of Biometeorology and the VIII Brazilian Congress of Biometeorology, Ambience and Welfare. The event will feature nationally and internationally renowned participants in the areas of human, plant and animal biometeorology, with the theme “One Earth One Life”.

#### **The Venue**

ICB2020 will be held at São Paulo State University, located in the City of Jaboticabal in São Paulo State – Brazil. Jaboticabal is a country city, the name of which came from a native tree, called Jaboticabeiras. It is 370 km from São Paulo and 53 km from Ribeirão Preto. It has an area of 707 km<sup>2</sup> and population of 73,084. During July Jaboticabal has a temperature range of approximately 10 to 20°C. The economy of the area is based on agriculture, and has an influence of Portuguese, Spanish, Japanese and Arab culture.

The following links will take you to information about Jaboticabal city and São Paulo State University – Jaboticabal Campus:

<http://www.jaboticabal.sp.gov.br/2010/index.php/conteudo/listar/22/historia>

<https://www.fcav.unesp.br>

### **Congress Programme**

The Congress will run between July 19<sup>th</sup> and July 22<sup>nd</sup>, 2020.

**July 19<sup>th</sup>:** Registration will be from 17:00 hour, and a Welcome Reception with Hors d'oeuvre (coffee break) will take place at the Central Building Hall 19:00 – 22:00 hour.

**July 20<sup>th</sup> – 22<sup>nd</sup>:** The complete Congress programme is available at:

<https://inobio-manera.fcav.unesp.br/index.php/events/22-icb/>

**July 22<sup>nd</sup> (evening):** Closing Ceremony – Cultural presentations, awards, show and icebreaker.

### **Call for papers**

Instructions for papers and General Guidelines for oral and poster presentations at 22<sup>nd</sup> International Congress of Biometeorology and VIII Brazilian Congress of Biometeorology, Ambience and Welfare are available at:

<https://inobio-manera.fcav.unesp.br/index.php/events/22-icb/22-icb-call-for-papers/>

### **Important Dates**

**October 1<sup>st</sup> to December 15<sup>th</sup> 2019:** Abstract submission.

**February 15<sup>th</sup> 2020:** Notification of acceptance or non-acceptance of papers and posters.

### **Registration**

**October 1<sup>st</sup> 2019 – April 31<sup>st</sup> 2020:** Early Registration.

**May 1<sup>st</sup> 2020 – June 18<sup>th</sup> 2020:** Registration.

**June 19<sup>th</sup> – July 20<sup>th</sup> 2020:** Late Registration.

<https://inobio-manera.fcav.unesp.br/index.php/shop/>



# ONE EARTH ONE LIFE



# 20 20

## 22ND INTERNATIONAL CONGRESS OF BIOMETEOROLOGY

JULY 19 TO 22, 2020  
SÃO PAULO STATE UNIVERSITY, JABOTICABAL/SP, BRAZIL  
[INOPIO-MANERA.FCAV.UNESP.BR/WORDPRESS](http://INOPIO-MANERA.FCAV.UNESP.BR/WORDPRESS)

# 11<sup>th</sup> International Conference on Urban Climate

**Sydney, Australia, 30 August to 3 September 2021**

The **next International Conference on Urban Climate (ICUC-11)** will take place in Sydney, Australia from **August 30 to September 3, 2021**. The Board of the International Association for Urban Climate (IAUC) selected the team in Sydney with its proposal “Cities as Living Labs: Climate, Vulnerability, and Multidisciplinary Solutions”.

The University of New South Wales (UNSW) who will host ICUC-11 has also received support from the American Meteorological Society (AMS) Board on the Urban Environment (BUE) to run ICUC-11 together with the Symposium on the Urban Environment (AMS-BUE). UNSW will collaborate with other Australian Universities and Research Institutes in hosting this conference.

Dr. Negin Nazarian, who leads the organising committee, welcomes the ISB community to Sydney: “We truly believe that Sydney is an ideal venue for bringing in the diverse and international urban climate and biometeorology community, and look forward to welcoming all members in Sydney, Australia, for the 11th International Conference on Urban Climate (ICUC-11) in 2021.”

ICUC-11 is excited to engage with the ISB community in the development of biometeorology focussed sessions at the conference.

If you have any questions about ICUC-11 please contact the conference co-chairs- Negin Nazarian [n.nazarian@unsw.edu.au](mailto:n.nazarian@unsw.edu.au) and Melissa Hart [melissa.hart@unsw.edu.au](mailto:melissa.hart@unsw.edu.au)

