For the IJB special issue on Latin America and the Caribbean

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Received: 6 April 2018 / Accepted: 9 April 2018 / Published online: 30 April 2018
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The Cuban Meteorological Society and the International Society of Biometeorology jointly organized among 30th November to 2nd December of 2015 an international expert meeting to promote the implementation of biometeorological forecast and climate services in the region of Latin America and the Caribbean. The expert meeting was a significant contribution to the success of the 8th Cuban Congress of Meteorology, held in Havana, Cuba

Along sessions of the expert meeting, characteristics and observed impacts of actual bioclimatic and biometeorological forecasts services in the region were considered, as well as the needs, priorities, and projections of international organizations related with the broad spectrum of biometeorology in the fields of humans, animal health, and phenology (agrometeorology).

The expert meeting also contributed to the interdisciplinary interaction between experts and Cuban postgraduate students working in different areas of biometeorology, trying to make easier a common methodological approach for the application of biometeorological and bioclimatic services, to assure the validation within the user's community of the service outputs and to implement known best practices in managing efficiently and seamlessly the interaction among the international and national partners involved, meteorological services, mass media, and the general public.

The main topics under discussion were as follows:

Session A: Biometeorological forecast services for human health.

Session B: Experiences from the medical side during the application of biometeorological forecasts.

Session C: Development of climate services for human health.

Session D: Impacts of climate services on the control of transmissible and vector-borne diseases.

Session E: Impacts of agrometeorological services in the food production, plant diseases, and plagues prevention.

Each session began with an initial lecture presented by international well known experts. They gave to the participants an important update on the “state of the art” in the different fields of action of Biometeorology, as well as the user perspective on these services. The titles of lectures and the expert names were as follows:

- Development of Early Health Warning Systems in big cities of the United States, Canada and China. Larry S. Kalkstein, University of Miami, USA.
- Development of public health surveillance in the Republic of Cuba. Daniel Rodríguez Milord, National Institute of Hygiene, Epidemiology and Microbiology, Cuba.
- Climate Services for Health – Accelerating Applications for Public Health. Joy Shumake-Guillemot, WHO-WMO Climate and Health Office, World Meteorological Organization, Geneva, Switzerland. Presented by Simon Hales, WHO, Geneva, Switzerland.
- A WHO perspective on climate services for health. Simon Hales, World Health Organization, Geneva, Switzerland.
- Impacts of climate change on animal agriculture. John Gaughan, University of Queensland, Australia.
- Impact of hot climate on health and productivity of dairy cows. Nicola Lacetera, University of Viterbo, Italy.
- New perspectives for products and services in agricultural meteorology. Simone Orlandini, University of Florence, Italy.
- Strategies to improve reproduction and milk production of dairy cows during heat stress. David Wolfenson, Hebrew University, Rehovot, Israel.

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Table 1 Full list of presentations during the sessions of ISB Expert Meeting on bioclimatic and biometeorological forecast services in Havana, Cuba

No.	Experts names	Title of presentation	Institution	City	Country
1	John Gaughan	Impacts of Climate Change on Animal Agriculture	Queensland University	Queensland	Australia
2	Luis Monteagudo Lima	Anomalies detected in hypertense patients due to the influence of meteor-tropic effects	Cardiological Center “Ernesto Che Guevara”	Santa Clara	Cuba
3	Luis B. Lecha Estela	Biometeorological forecasts for health surveillance and prevention of meteor-tropic effects	Center for Environmental Researches and Services	Santa Clara	Cuba
4	Daniel Barceló Rodríguez	Environmental health issues related to climate and human health obtained in Cuba	National Inst. of Hygiene, Epidemiology and Microbiology	Havana	Cuba
5	Daniel Rodríguez Milord	Development of public health surveillance in the Republic of Cuba	National Inst. of Hygiene, Epidemiology and Microbiology	Havana	Cuba
6	Susana Suárez Tamayo	Biometeorological forecasts: a prospective view into the health sector	National Inst. of Hygiene, Epidemiology and Microbiology	Havana	Cuba
7	Jorge L. Alonso Freyre	Integrated attention to cerebrovascular disease for prevention of meteor-tropic effects	Hospital “Mártires del 9 de Abril”	Sagua la Grande	Cuba
8	Héctor Díaz Águila	Report on heat stroke attentions at Emergencies in Sagua la Grande during the summer of 2015	Hospital “Mártires del 9 de Abril”	Sagua la Grande	Cuba
9	Alina Rivero Valencia	Design of Early Warning System for the occurrence of acute myocardial infarction	Institute of Meteorology	Havana	Cuba
10	Vladimir Guevara Arce	The offer of bioclimatic products and services from Climate Center at INSMET	Institute of Meteorology	Havana	Cuba
11	Paulo L. Ortiz Buló	A new approach for the monthly and seasonal forecast of complex bioclimatic variables	Institute of Meteorology	Havana	Cuba
12	Eugenio Mojena López	Impacts from Saharan dust on the health of Caribbean populations	Institute of Meteorology	Havana	Cuba
13	Eudimio Martínez Chapman	Tendency of UV solar radiation and its impact on skin cancer in Cuba	Institute of Meteorology	Havana	Cuba
14	Karel Durán Marrero	Ultraviolet solar radiation and its impact in the skin diseases	Institute of Meteorology	Havana	Cuba
15	Ransés J. Vázquez Montenegro	Early Alert System on Vegetation Conditions, Agricultural Drought and Forest Fires	Institute of Meteorology	Havana	Cuba
16	Susana Borroto Gutiérrez	Utility of bioclimatic information for infectious diseases forecasts	Institute of Tropical Medicine “Pedro Kouri”	Havana	Cuba
17	Odalys Valdés Ramírez	Climate information to describe seasonal behavior of respiratory Syncytial virus	Institute of Tropical Medicine “Pedro Kouri”	Havana	Cuba
18	María C. Reyes Fernández	Disaster management in public health: the Cuban experience	Ministry of Public Health	Havana	Cuba
19	Olaine R. Gray Lovio	Epidemiology of skin cancer in Cuba during the period 1990–2011	Ministry of Public Health	Havana	Cuba
20	Tatiana de la Vega Pazitková	A community intervention based on biomet. forecasts in order to prevent asthma crisis	University of Medical Sciences “Victoria de Giron”	Havana	Cuba
21	José L. Santos Dávila	ENSO Warnings: applications in Biometeorology and lessons learned in Ecuador	Escuela Superior Politécnica del Litoral (ESPOL)	Guayaquil	Ecuador
22	Pablo Fernández de Arroyabe Hemáez	Weather Derived on Human Health: the case of OXYALERT	University of Cantabria	Santander	Spain
23	David Wolfenson	Cooling strategies during summer heat stress and their impact on cows production	Hebrew University	Rehovot	Israel
24	Simone Orlandini	New perspectives for products and services in agricultural meteorology	University of Florence	Florence	Italy
25	Nicola Lacetera	Impact of hot climate on health and productivity of dairy cows	University of Viterbo	Viterbo	Italy

Table 1 (continued)

No.	Experts names	Title of presentation	Institution	City	Country
26	Elena Cíomina de Carvajal	Biomet. forecast services to facilitate adaptation of long distance travelers	Russian State Hydrometeorological University	Saint Petersburg	Russia
27	Joy Shumake-Guillemot	Climate Services for Health—Accelerating Applications for Public Health	World Meteorological Organization, WMO	Geneva	Switzerland
28	Simon Hales and Joy Shumake-Guillemot	Climate services for health: a World Health Organization perspective	World Health Organization, WHO	Geneva	Switzerland
29	Simon Hales	Modelling climate sensitive diseases: application to early warning systems	World Health Organization, WHO	Geneva	Switzerland
30	Michael Allen	Spatial and Temporal Variability of Temperature Impacts	Old Dominion University	Norfolk, Virginia	USA
31	Laurence S. Kalkstein	Excessive Weather Impacts: Warnings, Interventions and Improvements	Florida International University	Miami	USA
32	John Uldrich	Med-Weather Health Forecasting	Globien Inc.	Minneapolis	USA
33	Noel J. Petit	Nowcasting of Human Health Hazards from Terrestrial and Space Weather	Ausburg College	Minneapolis	USA
34	Paul Grady Dixon	Expanding the analysis of suicide frequency during anomalously warm temperatures	Fort Hays University	Fort Hays	USA
35	Pablo A. Méndez Lázaro	Adaptation strategies facing heat mortality in the urban area of San Juan, Puerto Rico	School of Public Health, University of Puerto Rico	San Juan, Puerto Rico	USA
36	Scott Sheridan	Biometeorological warnings: perceptions and response	Kent University	Cleveland	USA
No.	Postgraduate student names	Title of Presentation	Institution	City	Country
37	Carolina C. Nagib Nascimento	Evaluation of respiratory function and gas exchange in small ruminants	Sao Paulo State University	Sao Paulo	Brazil
38	Cintia C. de Melo Costa	Thermal balance of Nelore cattle	Sao Paulo State University	Sao Paulo	Brazil
39	Yazenia Linares Vega	Fundaments for seasonal prediction of syncytial respiratory virus	Institute of Meteorology	Havana	Cuba
40	Alberth Rodríguez	Evaluation of cows discomfort and early alerts of Cuban agrometeorological system	Provincial Meteorological Center in Camaguey, INSMET	Camaguey	Cuba
41	Dayasmin H. Rodríguez Caboverde	Products and services for monitoring and forecast of forest fires in Cuba	Institute of Meteorology	Havana	Cuba
42	Dayron Chang Domínguez	The Hysplit model to forecast transport of biological agents through the air	Institute of Meteorology	Havana	Cuba
43	Dilianis Rodríguez Peña	Application of Hysplit model for the early detection of plagues and air-borne diseases	Institute of Meteorology	Havana	Cuba
44	Ingrid R. Suárez Angarica	Structure and operation of the Cuban Phenological Observation System at INSMET	Institute of Meteorology	Havana	Cuba
45	Ismabel M. Domínguez Hurtado	Integration of weather forecast models with biometeorological monitoring in Cuba	Provincial Meteorological Center in Villa Clara, INSMET	Santa Clara	Cuba
46	Loima Sánchez Rodríguez	Agrometeorological services from the Cuban National Center of Agrometeorology	Institute of Meteorology	Havana	Cuba
47	Antonia León Lee	Pediatric urgencies by bronchial asthma and local climate variability in Havana, Cuba	Institute of Meteorology	Havana	Cuba

During the expert meeting four Round Tables were organized with an initial presentation followed by a fruitful discussion. The topics under analysis were as follows:

- Impacts of biometeorological forecast services on health surveillance and the prevention of health crisis due to some chronic diseases. Chair: Susana Suárez Toledo, National Institute of Hygiene, Epidemiology and Microbiology, Cuba.
- Impacts of climate services on human health. Chair: Paulo L. Ortiz Bultó, National Climate Center, Institute of Meteorology, Cuba.
- Agrometeorological services for food production and prevention of plagues and diseases occurrence in Cuba. Chair: Eva Mejías Sedeño, National Center for Agrometeorology, Institute of Meteorology, Cuba.
- Effects of UV radiation on skin cancer occurrence and other diseases in Cuba. Chair: Eudimio Martínez Chapman, Air Pollution Monitoring Center, Institute of Meteorology, Cuba.

The full list of presentations is given in Table 1, referring author's names, titles, institutions and countries. A selection of full papers and abstracts from this expert meeting is included in this Special Issue. This is the first printed reference of ISB regional activities, following the recommendations from the last XXI ISB congress in Durham, where the participants addressed the importance to enhance visibility of ISB regional development. Moreover, the publication of this IJB Special Issue is coincident with WMO priorities, when this year put the world attention on the motto of the Meteorological Day: "weather-ready, climate-smart." This may be the way for next contributions from ISB regional members to this necessary approach, facing potential impacts of climate and weather variability on human society.

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