NEWSLETTER

Commission on Climatology

Nº 19

December 2019
(Revised edition)

Dear Friends and Colleagues,

The year 2019 is coming to a close. According to the latest information by the National Oceanic and Atmospheric Addministration (NOAA), USA (https://www.ncdc.noaa.gov/sotc/global/201911), this year's global mean land and ocean temperature from January to November was the second highest since 1880. It is only behind the record in 2016. For example, we experienced severe heat waves in Europe in June and July. In September, we were attcked by severe typhoons and suffered from a number of floods in Japan. Unprecedent severe bush fires have been continued in the summertime Australia due partly to the dryer conditions. We are now facing the real "climate crisis" all over the world. We should act how to manage this big issue.

In this news letter, two memorial tributes for the big climatology giants are contributed in P3–P9. They are tremendous losses for our community. We appreciate them for their long lasting guidances toward the challenging climatology. We should creat a new roads for the further development of climatology following these giants.

In the year 2020, The 34th IGC in Istanbul, Turkey will be held in August. Our general conference in every four years will provide a wonderful opportunity to think how important our climatology is for our future. We have proposed seven fascinating sessions as introduced in P12–P15 in this news letter. The dead line for the abstract submission is approaching. Let's submit your abstract now, and join at Istanbul!

Finally, I wish all the best for the New Year, and all of your research efforts will be productive.

Best Regards,

Jun Matsumoto
(Chair of the Commission on Climatology)

Contents:

1.Membership of the CoC Steering Committee

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SENIOR MEMBERS:

A. Douguedroit (France), R. Brazdil (Czech Republic), T. Mikami (Japan),
N. Tapper (Austraria: Since August 2018).

2. Tribute Title: Professor Roger G. Barry: A Giant in Climatology (1935 – 2018)

Roger G. Barry, Physical Geographer and a legend the field of Climatology, died in Louisville, Colorado, on 19 March 2018 at the age of 82

Roger's career spanned over 60 years, from the International Geophysical Year In 1957-1958 through the fourth International Polar Year in 2007-2009 and beyond. He contributed to climatological research in areas as diverse as paleoclimatology studies in Canada to analysis of modern satellite data and models. Roger received numerous national and international fellowships and awards over his career, including Fulbright. Humboldt, and Guggenheim Fellowships, Fellow of the American Geophysical Union, and member of the Russian Academy of Environmental Sciences. Roger played central roles in major climate programs, including the World Meteorological Organization (WMO), World Climate Research Programme (WCRP) Climate and Cryosphere Project (CliC) and the Terrestrial Observation Panel for Climate (TOPC), and on the Polar Research Board of the National Academy of Sciences. Roger also actively contributed to IPCC Working Group I Reports from 1990 through 2007.

Roger began his career in England, receiving a Bachelor of Arts with honors in Geography from the University of Liverpool in 1957. After earning his degree, he conducted climatological research in Labrador, Canada before obtaining a MSc in Geography from McGill University in 1959 and a PhD in climatology at the University of Southampton in 1965. From 1963-1964 he participated in Operation Tanquary in the Canadian high Arctic as a meteorologist.

Roger filling a pilot balloon with hydrogen at Tanquary Fiord, summer 1963.

From the beginning, Roger saw observational data as the foundation for scientific progress. He was a key figure in the development of scientific data stewardship, from its first halting steps

involving the use of punched cards to its practice as a modern data center archiving petabytes of data. After earning his PhD he joined the University of Colorado Boulder (CU Boulder) as an Associate Professor in the Geography department. From 1968-1980, he was part of the Institute for Arctic and Alpine Research (INSTAAR). In 1980, he transferred to the University of Colorado Cooperative Institute for Research in Environmental Sciences (CIRES), and was there until 2018.

Roger was among the first to recognize the value of computers for processing and storing of earth science data; one of his earliest papers described the potential of punched cards for geographic data. During the 1960s, he was instrumental in bringing scaling concepts into climatology and in defining the new field of synoptic climatology, marking a transition from description to explanation in the field of climatology.

Other early work focused on water vapor fluxes over the Arctic, which he later extended to the global hydrological cycle. Scientists recognized the implications of this research on understanding late-Pleistocene glaciation and Roger and colleagues at the National Center for Atmospheric Research (NCAR) were the first to apply a global climate model to simulate ice age climate. Roger also later worked extensively on mountain climates from the Colorado Rockies to the Venezuelan Andes, including modeling the spatial distribution of solar radiation and precipitation at high elevations.

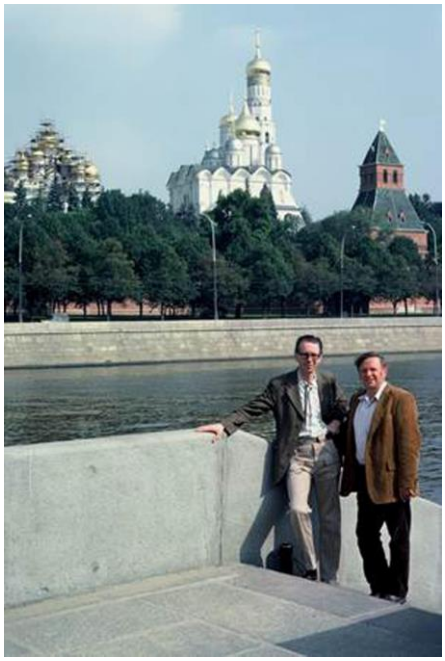
Roger Barry on Pico Espejo (4,880m), Merida Venezuela 1990.

His travels for work took him with extended stays around the world, where he enjoyed conversing with fellow researchers in fluent Russian, German, and French, as well as passable Chinese, Spanish and Italian.

Bringing Cryospheric Data to and from the World

Dr. Barry served as the founding director of the National Snow and Ice Data Center (NSIDC) from 1982 until 2008. NSIDC's roots were the World Data Center A for Glaciology, which under Roger's leadership moved to CU Boulder in 1976/77. NSIDC subsequently grew to a multi-million-dollar center archiving and distributing petabytes of multifaceted cryospheric data sets and data products. A major step in this evolution came in 1993 when NSIDC became the location of the

National Aeronautic and Space Administration (NASA) Snow and Ice Distributed Active Archive Center (DAAC), charged with archiving and distributing cryosphere-related remote sensing data collected during NASA's Earth Observing System (EOS) missions. Even before the EOS missions, Roger had the vision to recognize the importance of earlier satellite passive microwave data. This data series, which continues to this day, is the source of key time series of sea ice and snow cover, and ice sheet surface melt that are key indicators of climate change. Early in his career, Dr. Barry began learning Russian through a BBC radio program. This was indicative of his broad interest in international research and collaboration. From the mid-1980s to the mid-2000s, NSIDC and the WDC hosted several Russian scientists and his numerous visits to Russia during the 1990s paved the way for several data exchange projects. A visit to China helped establish the WDC for Glaciology in Lanzhou.



Roger and Soviet glaciologist Igor Zotikov near the Kremlin, Moscow, September 1979

Teaching the Next Generation of Scientists (and the Next…)

One of the most important duties of a scientist is to help develop the next generation of researchers. On this score, Dr. Barry's record is hard to match. Over his career, he was an advisor to more than 50 graduate students (36 of whom received PhDs) and post-doctoral research scientists covering diverse aspects of the climate system. Many have gone on to distinguished careers themselves. All of his students and colleagues have benefitted from Roger's encyclopaedic knowledge and insistence on good grammar. Roger was an ardent supporter of gender equality in science supervising his very first honours dissertation student, Ruth Morris Chambers (University of Southampton), in 1963, mentoring diverse grad students and post-docs throughout his career, and always ensuring a welcoming and respectful environment in his research and data teams.

Beyond his students and post-docs, Roger influenced many more researchers through his numerous textbooks on climate and climatic analyses. They begin with his first book, *Atmosphere, Weather, and Climate* published with co-author Richard Chorley in 1968, now in its 9th edition and one of the most widely-used climatology textbooks in the world. Other textbooks he

coauthored include *Mountain Weather and Climate*, *Synoptic and Dynamic Climatology*, *Microclimate and Local Climate, The Arctic Climate System* and, *The Global Cryosphere: Past, Present and Future*.

Late Career

Following his official retirement as a Distinguished Professor at the University of Colorado, Director of NSIDC, and a CIRES Fellow, Dr. Barry remained active, teaching, writing papers and books, traveling, and contributing to the scientific community. He taught a course on mountain weather and climate in Lanzhou, China. He continued to attend scientific meetings, often using his deep knowledge of the field to bring relevant references and alternative perspectives to the presenter's attention, something for which Roger was well known.

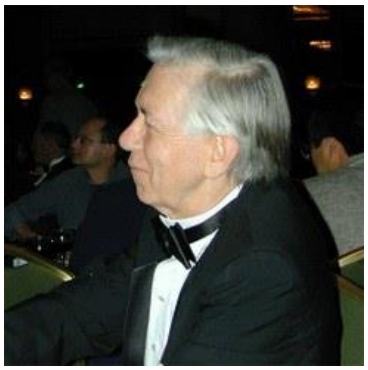
Roger Barry at the American Geophysical Union San Francisco 2004

From August 2012 to March 2014, He served as Director of the WCRP International CLIVAR project office in Southampton, UK, where some 52 years earlier, he had begun his career.

In his final days, he was still working, finalizing proofs of his new book, *Polar Environments and Global Change* (2018). In one of his last papers (Barry, 2015), based on a Symposium in his honor, Roger reflected on his over half century in climate science.

At the “Roger Barry Symposium: A Chronicle of Distinction: From the Arctic to the Andes” University of Colorado, 10 August 2004

In the closing words of that paper, he gave advice to the “third-generation” students: “persevere with what you consider to be important; continually retool your techniques; and, know who is doing what, not only in the English-speaking world, but internationally;” He further noted that “As geographers, we know that most things on Earth are interrelated and these interconnections merit our attention.” Dr. Roger Graham Barry: an exceptionally kind and gracious individual, a teacher to the end, and a giant on whose shoulders current and future climatologists stand.



Reference

Barry, R.G., 2015. The shaping of climate science: half a century in personal perspective, *Hist. Geo Space Sci.*, 6, 87-105, doi:10.5194/hgss-6-87-2015.

This tribute is submitted by Roger S. Pulwarty (NOAA, IGU/CoC Member) and developed with Ron Weaver, F. Fetterer, M. Meier, E. LeDrew, E. Hall-McKim, K. Steffen, M. Serreze, M. Parsons, A. Carleton, and J. Ives

3. Tribute Title: Professor Arieh Bitan (1935-2019)

Prof. Arieh Bitan was born in 1935 in Berlin and immigrated to Israel with his parents and two sisters in 1938. In 1957 enrolled at the Hebrew University in Jerusalem in the Department of Geography and the Department of Meteorology and Climatology. In 1960 he received his bachelor's degree cum laude and continued as a master's degree student in the Department of Geography, graduating with honors in 1963. As a doctoral student in that department he served as a teaching assistant and counselor, earning his doctorate in 1969. After advanced studies at the German Meteorology Service in urban climatology and topo-climatology he became a lecturer in the Department of Geography of the Hebrew University.
In 1977 Prof. Bitan joined the Department of Geography and the Human Environment at Tel Aviv University and established the Unit for Urban and Applied Climatology and Environmental Aspects.

Prof. Arieh Bitan receiving the Luke Howard Award (2006) from the Faculty Dean at Tel Aviv, University, the head of the Geography Department and Hadas Saaroni.

Prof. Bitan studied at many foreign research institutes, among them, Karlsruhe and Essen Universities and the Free University of Berlin, University of Arizona, University of New Mexico and San Jose State University of California. He has been an invited speaker to innumerable universities, research institutes and international conferences.

Prof. Bitan was one of the leading urban climatology researchers worldwide and among the founders of the International Association of Urban Climatology (IAUC). He has been a member of its Board ever since its inception in 2002 until 2006. From 1982 until 1995 he served as Head of the Expert Committee for Urban Climatology and Building Climatology of the International Federation for Housing and Planning (IFHP). In the years 1991-1995 he was member of the steering committee of the Tropical Urban Climate Experiment (TRUCE) of the World Meteorological Organization (WMO) -and in the years 1991-1993 he was Vice Chairman of the International program Committee of the Technical Conference on Tropical Urban Climatology, Dhaka, Bangladesh,1993, organized by WMO, IFHP, CIB, IGU. In 2005 he was invited to join the international research group of the World Health Organization (WHO) for improving public health responses to extreme weather (EuroHEAT).

In 1980 and 1983 he initiated two international conferences in Israel on urban climatology and climatic related planning and chaired its organizing committee. These conferences were the foundation for establishing a regularly scheduled triennial congresses on these topics held in different venues globally. Nowadays they are organized under the auspices of IAUC. Prof. Bitan has been a member of the organization or of the Scientific Committees for all the conferences that have been held since then. In addition, Prof. Bitan initiated and organized two international summer schools in 1992 and 1993 in the Department of Geography and the Human Environment of Tel Aviv University on the subject of Urban and climatic related planning and building.

Prof. Bitan was among the leading climate researchers of Israel and was the first to conduct regional topo-climatic studies in several regions in Israel, as well as to investigate the climatic conditions of the interior lakes of Israel (Dead Sea and Lake Kinneret-Sea of Galilee). Their data were the basis and an important source of information when he served as the consultant for location and climatic related buildings of new cities and rural settlements in Israel. Prof. Arieh Bitan was among the first researchers and a leader in the study of urban climatology in Israel and climatic related urban planning – from the overall urban level to the single house level. He was the climatology advisor for the Ministry of Housing and Construction and the Ministry of National Infrastructure, as well as to the Israel Defense Forces Construction Center and many other planning and building bodies.

Prof. Bitan has published dozens of articles in top-ranking international journals, and more than 90 research and consultation reports. In the years 1981, 1984, 1988 and 1991 he edited a series of four books on urban climatology and climatic related planning published by Elsevier Publishing and has been supervisor to about 30 master and doctoral students.

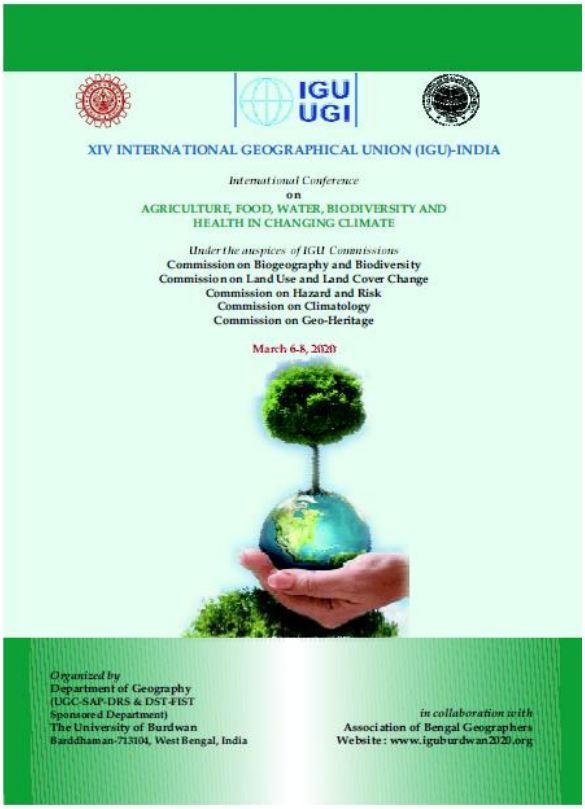
Prof. Bitan was twice the Head of the Department of Geography and the Human Environment in Tel Aviv University, in the years 1982-1987 and 1995-1998.

He won the Luke Howard Award in 2006.

He will be sadly missed.

This tribute is submitted by Hadas Saaroni (Tel Aviv University) and developed with Hana, the wife of Prof. Bitan.

4.Upcoming Conference 1: The XIV International Geographical Union (IGU)-INDIA



International Conference on AGRICULTURE, FOOD, WATER, BIODIVERSITY AND HEALTH IN CHANGING CLIMATE

The XIV International Geographical Union (IGU)-INDIA which will be held at The University of Burdwan in Barddhaman between 6th – 8th March 2020.
(https://iguburdwan2020.org/)

The conference is under the auspices of IGU Commissions:
Commission on Biogeography and Biodiversity
Commission on Land Use and Land Cover Change
Commission on Hazard and Risk
Commission on Climatology
Commission on Geo-Heritage

FOCAL THEME
Agriculture, Food, Water, Biodiversity and Health in Changing Climate

SUB THEMES
Land Use/Land Cover Change and Biodiversity
Land Use/Land Cover and Climate Change
Extreme Events (Cloud Burst, Earthquakes, Landslides, Cyclones and Others)
Ecosystem Management, Monitoring and Modeling
Sustainable Natural Resource Management and Development
Challenges and Strategies to Climate Resilient Livelihoods
Disaster Risk Reduction

Tourism Potential of Geo-heritage sites in South Asia
Environmental Sustainability and Developmental Concerns
Environment, Human Health and Wellbeing
Governance and Policies: Land Use, Climate and Disasters
Earth and Climate Change Issues
Globalization, Industrialization and Environmental Issues
Climate Change and Biodiversity Conservation
Disaster Resilience
Development and Sustainability
Population Pressure, Natural Resource Use and Climate Change
Urbanization and Environmental Issues
Water Resource Management
Development and Geopolitics
Sustainable Development Goals and Policies
Agricultural Development, Forestry and Biotechnology
Role of GIS Technology

SPECIAL SESSIONS

Disaster Risk Reduction and Resilience
Implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030: South Asian Perspectives
Urban Health and Social Wellbeing in Changing Climate
Making City Resilient: Indian Perspective
Sustainable Development Goals in South Asia
Future Earth Initiatives for South Asia
Tourism Potential of Geo-Heritage Sites

IMPORTANT DATES:

Submission of Abstract : October 1 - December 7, 2019
Intimation of Acceptance : November 15 - December 15, 2019
Registration : November 30 - December 31, 2019
Submission of Full Paper : January 15, 2020
Conference Dates : March 6 - 8, 2020

5. Upcoming Conference 2: The 34th IGC in Istanbul, Turkey

The 34th IGC will be held in Istanbul, Turkey

By Prof. Dr. Barbaros Gönençgil,
Chair of the Organizing Committee, the 34th International Geographical Congress;
Vice President of the International Geographical Union;
Vice President of Turkish Geographical Society

The 34th International Geographical Congress which will be held in for the first time in Istanbul, where the continents meets, between 17th – 21st August 2020.
(http://www.igc2020.org/en/default.asp)
As widely known, Istanbul is the only city in the world which is bridging two continents, Asia with Europe.

Istanbul also represents the unique feature of Turkey for serving as a bridge between different cultures. No doubt that this meeting will be valuable opportunity to be a part of scientifically enriched environment as well as perfect harmony with all historical beauties of magnificent Istanbul and Turkish hospitality and guaranteed to leave you with unforgettable memories. İstanbul will mobilize the necessary experience, expertise and support for one of the most successful events in the history of the IGU.

Main Theme of the congress is "**Geography: Bridging the Continents**"

Geography is the science of relationship between the earth and human. This is the basic definition of Geography. But Geography is not only a science of relationship. Geography also has meaning of evaluation, interpretation, awareness and analysis. With all this meaning Geography is the "Queen of the all sciences".

The fact that Istanbul is located at the junction of the continents constitutes the most important point of this great meaning. The 34th International Geographical Congress, will host the most accurate way of realizing this historical meaning of the Geography. Thus, all colleagues in all continents will meet in Istanbul.

Other key topics of the congress are;

- **Globalization vs Localization**
- **Climate Change**
- **Migration and Conflicts**
- **Earth and Disasters**
- **Eurasia and Middle East Studies**
- **Anthropocene**

(Istanbul from the conference web-page: http://www.igc2020.org/en/default.asp)

Istanbul, the hosting city, is the commercial and financial center of modern Turkey, the former capital of the Byzantine and Ottoman Empires and has been the European Capital of Culture in 2010. Istanbul, herself provides enchanting historical sites, and modern attractions and sceneries to the visitors. You will also spare some time to discover the City and replenish your souls within the mysterious silhouettes of the old Genoese Tower, churches, palaces, minarets, and ancient city walls. You will feel like at home, enjoying the world-famous Turkish hospitality (and cuisine!) and discovering the special magic of this magnificent city.

On behalf of the Organizing Committee and the Turkish Geographical Society, we look forward to have the pleasure and excitement of welcoming you to Istanbul.
Let's meet in İstanbul in between 17th – 21st August 2020!

In the conference, the Commission on Climatology calls for abstract for the following seven sessions:

ANTHROPOSPHERE
Chair: Jun Matsumoto
Co-chair: Barbaros Gönençgil
Description
Anthroposphere which is formed by the coming together of the two words; Anthropocene and Atmosphere. We all know that human are affecting the atmosphere negatively. It affects the natural mixture of the atmosphere. We call the age that we are in, anthropocene as human age. In this age, we can open a session using this link to describe changing atmosphere conditions related with human activities. Air pollution, climate change, atmospheric disasters, extreme meteorological events, and all related topics which in some sense related with human activity can be included in this session. Climate change adaptation will also be included in this session.

CLIMATE VARIABILITY AND CHANGE-FROM GLOBAL TO LOCAL SCALES
Chair: Babatunde Abiodun
Co-chair: Yoshihiro Iijima
Description
The earth's climate system is highly variable, both in space and in time. It operates in a wide spectrum of spatial scales, ranging from thousands of kilometres to a handful of meters. Over the past several decades, regions across the globe have experienced substantial climate variability and change, such as warming surface temperature, prolonged droughts, and increased frequency

of floods. The variability and change have had profound impacts on the human, ecological, and physical systems. How the ongoing global warming might influence future climate variability at different scales remains unclear because of the associated complex feedbacks. However, reliable understanding of past climate variability and dependable future climate projections on extreme events are crucial for establishing hazard mitigations plans. This session welcomes contributions that improve quantification, understanding and prediction of earth's climate variability across space and time scales through observation data analysis, case studies, and climate modelling studies that provide insights into past, present and future climate variability and change on global to local scale, and synoptic to orbital timescales.

HYDROCLIMATIC EXTREME EVENTS: RISKS, VULNERABILITIES AND MANAGEMENT

Chair: Francisco Mendonça

Co-chair: Guillaume Fortin

Description

Hydroclimatic extreme events are those most affecting communities at local and regional scales. Climate variability and the occurrence of extreme events knowledge is still limited but a growing interest was observed in the recent years. The study of hydroclimatic extreme events is necessary to better understand them dynamics and impacts notably in the context to climate changes. Associated risks and vulnerabilities to hydroclimatic extreme events are in the center of goals in the climate variability analysis. Regarding applied climatology this kind of study can be helpful to improve management by local decision makers and to adopt best and adapted government policies.

MEDITERRANEAN CLIMATE

Chair: Hadas Saaroni

Co-chair: Zahide Acar Deniz

Description

The Mediterranean region located between the subtropics and mid-latitudes, exhibits large climate diversity together with a great social and environmental difference. This region has emerged as the hot spot of global climate change. The session will address questions on the climate of the Mediterranean region, its dynamics, variability, change, and studies of climate related impacts on societies and ecosystems. The session considers different time scales, from paleoclimate to future model projections as well as connections between the Mediterranean and global climate and highlights of sub-regional hotspots and climate processes.

SCIENCE-AND-OBSERVATIONS-IN-SUPPORT-OF-CLIMATE-SERVICES

Chair: Roger Pulwarty

Co-chair: Abdullah Ceylan

Description

The Earth's climate has never been constant; a wide range of variations and changes in space and time, often leading to extremes, is its fundamental characteristic. There is now conclusive evidence of anthropogenic warming over the past century occurring at an unprecedented pace. Its implication – in the increased frequency and intensity of extreme events when combined with existing variability– has elevated concerns about the exposure of both developed and developing communities, economies and ecosystems to climate risk. The resilience of society to increased climate risk depends on our ability to improve and integrate the physical and social science underpinning systems that monitor, research, and issue impact-oriented weather and climate services and the uptake of knowledge into decision-making processes. The Global Framework for Climate Services identifies water, agriculture and food security, health, energy and disaster risk

reduction as priority sectors in need of improved climate services at global, regional, national and local scales. The priorities cross the goals of the World Meteorological Organization new reorganization along science, observations and services continuum, the UN Disaster Risk Reduction Sendai Framework and the Sustainable Development Goals. Recognizing these urgent needs, this session will elicit papers on the following topics as linked to the priority sectors above:

· Advancing scientific research for impact-based seamless services climate extremes, variability and change
· Enhancing information management, coordination, and communication across international, national and local scales
· Enhancing capacity (including training) for scientific research and observations along the climate science and services supply chain
· Promoting uptake of science-based climate services in planning, decision-making and policy processes

The session will highlight advances and new opportunities in climatology and geographical research for informing the development and implementation of effective and sustained climate services in a changing environment. While special emphasis will be placed on engaging researchers and practitioners in the Mediterranean Basin, Southern Europe and the Near-East, all relevant papers, especially those drawing lessons from other parts of the world for the region are welcomed.

SYNOPTIC CLIMATOLOGY
Chair: Agnieszka Wypych
Description
Atmospheric circulation is unquestionably listed among the fundamental causes of weather and climate. The session is dedicated to all aspects of relationships between large-scale atmospheric circulation and surface climate and environmental variables. Contributions concerning theoretical aspects of circulation classifications development and their application in various tasks (climatological, meteorological, and environmental) and different scales are particularly welcome as well as submissions on recent climate variability and change studied by tools of synoptic climatology.

URBAN CLIMATE
Chair: Jennifer Salmond
Description
Urban areas are growing exponentially both in terms of physical area and population density. More than 70% of the global population is expected to live in urban areas by 2050. As a result, understanding and predicting the unique interactions between urban areas and the atmosphere, at a variety of scales, is critical to ensuring sustainable growth of cities. This is especially true in an era of anthropogenically induced climate changes which maybe both caused by, and enhanced by, urbanization. Such changes have the potential to have a disproportionate impact on urban areas, infrastructure and populations. We therefore invite papers on all aspects of urban climate including (but not limited to): urban air pollution, impacts of extreme weather on cities, urban heat islands and their mitigation, heat stress and urban bio-meteorology, urban design, smart cities and urban energy balances. Papers based on original research from a variety of perspectives (including conceptual, empirical, experimental, theoretical or modelling studies) are welcome.

6. Others

Corresponding Members

We kindly remind and ask every Commission on Climatology Full Member to prepare the potential list of Corresponding Members: people who are interested in cooperating in the frame of CoC, who find the CoC activities important and have the possibility and – what's more important – desire to sustain the international research cooperation and studies on the field of climatology, encourage the exchange of relevant documents and information and organize conferences or meetings. We would try to involve all the people to meet together in the Istanbul IGC to discuss further perspectives and plans for CoC activities.

CoC Website

http://www.klimat.geo.uj.edu.pl/CoC.htm

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