# PROGRAM OF

# THE IFMS MEETING #4

http://www.ifms.org/ifms/index.cfm/meetings/ifms-global-meeting-four/

## Sponsored by AMS and CMOS

### Location: Hilton Riverside Hotel Meeting Room Chart B & Lunch/Break Room Chart C

## New Orleans, USA

### On January 13 (Afternoon) and January 14, 2016

## CONCURRENTLY WITH

## 96th AMS CONFERENCE

http://annual.ametsoc.org/2016/

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## Day 2 Program 09:00 to 17:00

## Preamble and Welcome

In today's world where natural disasters are taking bigger and bigger toll on most nations, there is a need for a consolidated effort to create a Weather Ready Globe. In August 2014, WMO sponsored World Weather Open Science Conference (**WWOSC**) in Montreal, Canada. As respective Presidents of the Canadian Meteorological and Oceanographic Society (**CMOS**) and the American Meteorological Society (**AMS**) at that time, I and Dr. William Gail were asked to cosponsor and organize Panel discussions on "Future of the Weather Enterprise". These panels were organized by the two of us and Dr. Jack Hayes, Jim Abraham and Dr. Brian Mills and the moderators and panelists were among "who's who" of the Weather Business.

During the Panel discussions, the importance of collaboration between various sectors (Public, Private, University, NGO and Users) of the Weather Enterprise and between different nations was stressed. Noting that WMO provides a very important link between various nations through their Meteorological Services (Public Sector) and the Meteorological Societies of different nations provide a link between all five sectors mentioned above, I saw IFMS as a vehicle to achieve the above collaboration.

*"The fundamental goal of the IFMS is to foster and encourage communication and exchange of knowledge, ideas and resources among the world's more than sixty meteorological societies".* Such exchanges occur only on a bi-lateral basis or through the efforts of the following regional meteorological societies: the African Meteorological Society (**EAC**), the European Meteorological Society (**EMS**), the Latino American Federation of Meteorological Societies (**FLISMET**) and now also through the collaboration between the Meteorological Societies of China, Japan and Korea (**CJK**).

The IFMS was created to focus on advancing the goals and objectives of the world's professional and scientific societies. As per the initial plan, the IFMS was intended to be an informal mechanism that facilitates interactions among Societies and, as such, would not have any legal or official formalism. Although it is a noble idea, practically it does not work. Nobody appears to have taken initiative to further the cause of IFMS. There has to be some formal structure and follow-up mechanism. With that idea in mind, I, as then President of the CMOS approached Dr. Alexander MacDonald, the President of the American Meteorological Society (AMS) with an idea to cosponsor the 4$^{th}$ Meeting of IFMS. After consultation with our respective Councils, we decided to make it happen and hence this fourth meeting in New Orleans, Louisiana, USA concurrently with the 96$^{th}$ Conference of AMS. The objective of the meeting is to discuss and determine what we would like IFMS to be and how to achieve that.

First of all, I would like to profusely thank AMS for agreeing to cosponsor this meeting and making all the local arrangements. I would also like to thank CMOS for its support for this meeting.

We would also like to warmly welcome all delegates who have taken time out of their very busy schedule to attend this meeting and make it a great success. We hope to have fruitful discussions and make some meaningful decisions.

***Dr. Harinder Ahluwalia, Eng.***

***Convener – IFMS Meeting #4***

# Welcome Message from David Grimes, President of The World Meteorological Organization (WMO)


I would like to welcome everyone to the 4th Meeting of the International Forum of Meteorological Societies (IFMS), being held in New Orleans during the 96th Session of the American Meteorological Association. Unfortunately, due to prior commitments, I am unable to attend this meeting.

As its President, I take great pride in the WMO in its role to facilitate collective efforts of National Meteorological or Hydrometeorological Services (NMHSs) worldwide to monitor the Earth system and predict changes on all timescales. The Permanent Representatives of the 185 Member States and 6 Territories interact with other agencies, institutions and the private sector to support interdisciplinary activities, such as tsunamis and civil aviation. Regional coordination, enabled through WMO's six Regional Associations, focuses on regional or sub-regional challenges, including desertification, monsoon or freshwater resources.

Meteorological and oceanographic societies are essential partners in the global weather, climate and water enterprise. This is accomplished through building and maintaining important bridges between and amongst communities, including the private sector, the public service and academia. They help advance our efforts in meteorology, oceanography and related engineering and play a key role in developing early career and the next generation of scientists in our schools and universities. They serve an important service nationally as an advocate for science, and thus are able to influence science policy.

Having a forum such as the IFMS that brings together the world's meteorological societies can be beneficial to encourage communication and an exchange of knowledge and ideas. I wish you all a great deal of success during this 4th Session of the IFMS and at the 96th Session of AMS.

***David Grimes, President WMO***

## Welcome Message of Dr. Louis W. Uccellini, Director NWS, USA

Friends and colleagues, it is a great pleasure for me to add my welcome to you along with that of others to this 4th Meeting of the International Forum of Meteorological Societies (IFMS). As a past President of AMS, a director of a National Meteorological Service, and as a scientist with a deep regard for the role of professional societies, I endorse the objectives of the IFMS and look forward to discussions and decisions that will come from this meeting. Our professional societies provide a nexus that links the public, private, government and academic sectors of our community in a unique way. If we are to achieve a weather ready globe, those links must be strong. Our societies, and the IFMS, need to be a strong facilitator of those links.

***Dr. Louis W. Uccellini, Director National Weather Services (NWS)***

## Welcome Message of Dr. Alexander MacDonald, President AMS

We are honored to have the IFMS members join the AMS in its meeting in New Orleans, and appreciate the co-sponsorship of CMOS. The theme of the 2016 New Orleans meeting is Earth System Science in Service to Society. Certainly, the global science we need to help us in the coming years cannot be the purview of only some regions, or of some of our global scientific cohort. The 50 meteorological Societies that comprise the IFMS allow us to globalize our effects to address the great issues facing our stewardship of the world's oceans and atmosphere and their biological universe. We owe it to the future to use every tool we have to our utmost ability; we believe that the IFMS is unique and invaluable in its ability to increase global cooperation in creating a "Weather Ready Globe" and much more effective disaster management strategies for the people of the world. Thank you for your efforts and welcome to New Orleans.

***Alexander MacDonald, President AMS***

## Welcome Message of Martha Anderson, President CMOS

Welcome Colleagues

The work of meteorological societies is to advance and promote our sciences for the betterment of the local and global community. By gathering under the auspices of the International Federation of Meteorological Societies (IFMS), we can share our successes and become a stronger force in our work. In today's connected world, we should strive to formulate informal bonds between our societies that can be facilitated through ongoing electronic dialogue in the years ahead. We can assist each other in addressing our common issues, and ensure the scientific developments of our domain are put to good use for our respective populations through effective interactions between all parties working in atmospheric sciences and weather service delivery.

I would like to thank AMS for generously providing the venue and support for the IFMS Meeting #4, and my colleague Dr Harinder Ahluwalia, Past-President of CMOS for his significant efforts in preparing for this meeting.

I look forward to meeting all of you in New Orleans and learning about your national and regional efforts.

***Martha Anderson, President CMOS***

## Welcome Message of

## Prof. Elizabeth Bentley, CEO Royal Met Society, UK

The Royal Meteorological Society is pleased to be involved in the 4th meeting of the IFMS, after a successful 3rd global meeting in Reading, UK in September 2013. *The IFMS was created to foster and encourage communication and exchange of knowledge, ideas and resources among the world's meteorological societies.* This meeting will provide an opportunity to discuss the future of IFMS, develop its Terms of Reference and capture the actions societies need to take.

***Prof. Elizabeth Bentley, CEO – Royal Meteorological Society***

# PROGRAM SUMMARY OF THE IFMS MEETING #4

## Location: Hilton Riverside Hotel Meeting Room Chart B and The lunch/break is in Room Chart C

### January 12, 2016 7:00 PM: International Dinner

## DAY 1 – January 13, 2016 (Wednesday) Afternoon from 11:45 to 17:00

### 11:45 to 13:00 Lunch

### Meeting Opening, Welcome & Presentation - 13:00 to 15:00

13:00 to 13:07 Welcome & Introduction by **Dr. Harinder Ahluwalia**, Convener IFMS Meeting #4

13:08 to 13:15 Welcome and Presentation by **Dr. Alexander MacDonald** – President AMS

13:16 to 13:23 Presentation by **Dr. William Gail** - Past President AMS

13:24 to 13:31 "UK's current meteorological accreditation framework" **Prof. Elizabeth Bentley**, CEO Royal Met Society

13:32 to 13:42 Future of Weather Enterprise - Summary of WWOSC-2014 Panels - Montreal **Dr. Jack Hayes**, Senior VP Harris Corp.

13:43 to 13:53 Report on the first Asian Conference on Meteorology **Dr. Teruyuki Nakajima**

13:54 to 14:04 "EMS – an IFMS on the European scale: – Experiences and recommendations": Dr. Martina Junge, Executive Secretary, EMS

14:05 to 14:15 Enhancing In Enhancing International collaborations and Domestic Outreaches by Chinese Meteorological Society (CMS) **Dr. Yongyun Hu – VP - CMS**

14:16 to 14:26 "Meteorological Cooperation at the East African Community" by **John Mungai**

14:27 to 14:37 "About Hungarian Meteorological Society" - **Professor Judit Bartholy**, MMT

14:38 to 15:00 "Presentation on the Planning the Future o IFMS" by **Dr. Harinder Ahluwalia** and Q&A for clarification

### HEALTH BREAK – 15 Minutes

15:15 to 15:30 "World Bank's Experience in Strengthening Weather, Climate, and Hydrological Service in Developing Countries" - **Dr. Makoto Suwa**, World Bank

### PANEL 1: Objectives of IFMS – 15:30 TO 17:00

Moderator: **Mary Voice**

Panelists: **Liz Bentley, Yongyun Hu and Fei Chen**

### AMS Banquet (those with Congress Registration or Banquet Tickets)

## DAY 2 – January 14, 2016 (Thursday) Starting at 9:00 TO 17:00

## DAY 2: Morning Session 9:00 to 12:00

### OPENING & Presentations – 75 Minutes

9:00 to 9:05 Welcome by AMS Executive Director **Keith Seitter**

9:06 to 9:11 Presentation by **Dr. Fred Carr,** AMS President-Elect

9:12 to 9:22 "Cooperation with Societies of other Disciplines" by **Martha Anderson,** President CMOS

9:23 to 9:33 "The Role of Sudanese Meteorological Society on Disaster Risk Reduction": by **Dr. Noureldin Ahmed Abdalla** of Sudan

9:34 to 9:44 "Current status of IUGG/IAMAS initiatives" by **Dr. Teruyuki Nakajima,** SG IAMAS

9:45 to 9:55 "ISB-IFMS: Opportunities for interaction and mutually beneficial activities" by **Dr. Mark D. Schwartz,** ISB President

9:55 to 10:04 "Recent Activities of the AMOS and their relevance to Southern Hemisphere Meteorology and to IFMS Discussions" by **Mary Voice,** VP AMOS

**10:05 to 10:15 Keynote Speech by Dr. Louis Uccellini, Director NWS, USA**

**Health Break at 10:15 for 15 Minutes**

**PANEL 2: Implementation of IFMS - Duration 90 Minutes – 10:30 to 12:00**

Moderator: **Liz Bentley**

**Panelists: Noureldin Ahmed Abdalla, K.J. Ramesh (tbc) and Tafesse Regassa Gurmu**

**LUNCH from 12:00 to 13:30**

## DAY 2: Afternoon Session 13:30 to 17:00

**PANEL 3: involvement of IFMS in "Future Weather Enterprise" – 13:30 to 15:00**

Moderator: **Jack Hayes**

Panelists: **Michel Jean, Martha Anderson and Mary Glackin**

**Health Break at 15:00 – 15 Minutes**

**15:15 to 16:45 ELECTION/NOMINATION**

Discussion and then Election/Selection of the New Executive and Council of IFMS and decision on IFMS Office.

**16:45 to 17:00**

**Wrap Up and Conclusion**

## OPENING Remarks: Dr. Harinder Ahluwalia, Convener of IFMS Meeting #4

The attendees will be welcome and the objective and the proceedings of the Meeting and Panels will be summarized. Special thanks to AMS for wonderful collaboration and financial support for IFMS Meeting #4. Thanks is also due to CMOS for its cosponsoring this Meeting.

**Dr. Harinder Ahluwalia** received his Bachelor and Master of Technology from India's premier institute, IIT Delhi. He earned his Doctorate degree in Electromagnetic from the University of Manitoba in Winnipeg. Dr. Ahluwalia did his Post-doctorate Fellowship at McGill University in Montreal. In 2001, on the recommendation of the Prime Minister of Canada, Dr. Ahluwalia was appointed to the National Round Table on the Environment and the Economy. He has received many different honors from prestigious organizations. His current passions are strengthening the Knowledge-based Economy in Canada and helping in creating a Weather Ready Globe.

Dr. Ahluwalia is also a member of the Order of Engineers of Quebec and the India Canada Commercial Council. He has written a number of papers in reputed journals in the Field of Electrical Engineering and Meteorology. His company Info-Electronics Systems (IES) - founded by Dr. Ahluwalia in 1981 is a hi-tech company with its head-office in Montreal and an additional office in New Delhi, India.

## Opening Remarks of Dr. Alexander MacDonald, President AMS

### Abstract:

We are honored to have the IFMS members join the AMS in its meeting in New Orleans. We are particularly grateful to the CMOS and Harinder Ahluwalia for his hard work and tireless dedication to making this meeting a success. He has nearly single-handedly organized the program before us and put great thought into how best to revitalize and sustain this organization.

The theme of the 2016 New Orleans meeting is *Earth System Science in Service to Society*. Certainly, the global science we need to help us in the coming years cannot be the purview of only some regions, or of some of our global scientific cohort. The 50 meteorological societies that comprise the IFMS allow us to globalize our effects to address the great issues facing our stewardship of the world's oceans and atmosphere and their biological universe. We owe it to the future to use every tool we have to our utmost ability; we believe that the IFMS is unique and invaluable in its ability to increase global cooperation in creating a "Weather Ready Globe" and much more effective disaster management strategies for the people of the world.

A hearty welcome to all; especially to those who have overcome challenges related to attending the meeting. I hope you are able to take advantage of the incredible presentations, sessions, keynotes, and networking that this Annual AMS meeting has to offer and return with the energy and commitment we need to sustain the IFMS. Thank you.

**Dr. Alexander E. "Sandy" MacDonald,** current President of the American Meteorological Society. He served as Chief Science Advisor for the National Oceanic and Atmospheric Administration's (NOAA) Office of Oceanic & Atmospheric Research (OAR) and concurrently as Director of NOAA's largest research facility, the OAR/Earth System Research Laboratory in Boulder, CO until January 3, 2016 when he retired.

Dr. MacDonald earned a Ph.D. in meteorology from the University of Utah, served in the U.S. Air Force after receiving a B.S. in Math and Physics from Montana State University, and has led a distinguished career as an atmospheric scientist modeling weather and climate for almost 40 years. His contributions include the development of a high-performance computing system, a unique mesoscale weather prediction model, and the diagnosis of atmospheric water vapor distributions using global positioning systems. In addition, he worked in the White House with Vice President Al Gore to initiate the Globe program for which he received one of his four Presidential Rank Awards. His invention, Science On a Sphere®, a luminous animated globe, educates thousands about Earth system science and other planets and is installed in more than 120 museums around the world.

## Opening Remarks of Dr. William Gail, President AMS

**ABSTRACT:**

Scientific and professional societies play a critical role in the weather and climate enterprise. They provide foundation services ranging from publications to meetings, acting as a sort of "glue" to bring together the academic, government, and commercial sectors. As we expand the global connectivity of our enterprise, collaboration among societies is increasingly important.

**Dr. William B. Gail** is co-founder and Chief Technology Officer of Global Weather Corporation, a provider of precision forecasts for weather-sensitive business sectors, and is the current Past-President of the American Meteorological Society. He was previously a Director in the Startup Business Group at Microsoft, Vice President of mapping products at Vexcel Corporation, and Director of Earth science programs at Ball Aerospace. Dr. Gail received his undergraduate degree in Physics and his PhD in Electrical Engineering from Stanford University, where his research focused on physics of the Earth's magnetosphere. During this period, he spent a year as cosmic ray field scientist at South Pole Station.

Dr. Gail is a Fellow of the American Meteorological Society and a lifetime Associate of the US National Academy of Science's research council. He is currently a member of their Board on Atmospheric Sciences and Climate, and has participated on many prior Academy committees, including the 2012 review of the National Weather Service and the 2007 Earth Sciences Decadal Survey. He is a member of the US Commerce Data Advisory Council and serves or has served on a variety of other editorial, corporate, and organizational boards. His book Climate Conundrums: What the "Climate Debate Reveals about Us" was published in 2014.

## UK's current meteorological accreditation framework and the importance of professional accreditation to individuals, organisations and the meteorological community.

### Prof. Elizabeth Bentley, CEO Royal Met. Society

The Royal Meteorological Society is the UK's Learned and Professional Society for weather and climate. Professional accreditation in meteorology is one of our key priorities. This talk with cover the UK's current meteorological accreditation framework and the importance of professional accreditation to individuals, organisations and the meteorological community.

**Prof. Liz Bentley** joined the Royal Meteorological Society as Head of Communications in 2008 and in 2010 I took on the new role as Head of the Weather Club – which is the public outreach arm of the Royal Meteorological Society. In 2013, she became Chief Executive at the Society and in July 2014 was granted the title 'Professor' from the University of Reading.

She completed her PhD in mathematics at the University of Manchester and applied for job with the UK Met Office, starting work with them in 1993. She has been a research scientist, weather forecaster, forecasting instructor and Chief Instructor at the Met Office College in 1999. In 2002, she jumped at the opportunity to manage the BBC Weather Centre in London. In 2006, she started work at the Ministry of Defence looking after their environmental research programme - covering everything from the seabed out into space.

## Future of Weather Enterprise - Summary of WWOSC-2014 Panels - Montreal

## Dr. Jack Hayes, Senior Vice President, Harris Corporation

The World Meteorological Organization (WMO) conducted the first World Weather Open Science Conference (OSC) in Montreal, Canada, August 16-21, 2014. The Conference brought together the entire weather science and user communities (over 1000 attendees) for the first time to review the state-of-the-art and map out the scientific frontiers for the next decade and more. A two-day special session was held to focus on enhancing collaboration across the weather enterprise (public, private and academic sectors) to benefit societies worldwide. At a time when the impacts of weather and climate are growing dramatically, the interaction among these three enterprise sectors is increasingly important. The session was designed to enhance the dialogue and collaboration across the global weather community and to identify areas where greater collaboration among the enterprise's three sectors could significantly benefit people worldwide. Three panels (Weather Services, Weather Services Supporting Infrastructure, and Strategies to Improve Collaboration) were addressed by 18 panelists who are recognized leaders within the Weather community – these included the Deputy Secretary General of the WMO, the Director of the National Weather Service, the CEOs from AccuWeather and the Weather Company, and the President of the University Corporation for Atmospheric Research. Presentation will summarize key observations and conclusions of the three panels.

**Dr. John L. (Jack) Hayes** is the Vice President & Senior Executive Account Manager for Environmental Solutions, Harris Space and Intelligence Systems Business Segment. The S&IS Segment develops, produces, integrates, and supports advanced communications and information systems that address mission-critical challenges of its defense, national intelligence, and civil agency customers. Dr. Hayes is responsible for coordination of cross-business weather and climate solutions for domestic civil, military, and international customers. The primary focus areas of the Environment Solutions business unit are environmental intelligence products and services, state-of-the-art weather and climate sensors, and high-performance data processing. Before joining Harris, Dr. Hayes was the director of the National Weather Service, responsible for weather forecasts and warnings for the United States and its territories. In this position, he also served as permanent representative of the United States with the UN's World Meteorological Organization (WMO), a specialized agency dedicated to advancing weather, water, and climate forecast and warning services worldwide. Prior to that assignment, Dr. Hayes served as director of the World Weather Watch Department for the WMO in Geneva, Switzerland. He has also previously served as deputy director of NOAA's National Ocean Service and Office of Oceanic and Atmospheric Research. Dr. Hayes culminated a distinguished U.S. Air Force career in the 1990s as the Commander of the Air Force Weather Agency. Dr. Hayes has received several awards, including Presidential Rank Award and recognition, in 2003, as one of the Top 100 IT Executives in the Federal Government. Dr. Hayes holds a Ph.D. and a master of science degree in meteorology from the Naval Postgraduate School in Monterey, California, and a bachelor's of science in mathematics from Bowling Green State University. Harris is an international communications and information technology company serving government and commercial markets in more than 125 countries. Harris is dedicated to developing best-in-class *assured communications*® products, systems, and services.

# Report on the first Asian Conference on Meteorology

## Prof. Teruyuki Nakajima

Presented by Prof, Teruyuki Nakajima, JAXA EORC, member of the executive board of the Meteorological Society of Japan, on the behalf of the 1st ACM Conference Bureau

Chinese Meteorological Society (CMS), Korean Meteorological Society (KMS) and the Meteorological Society of Japan (MSJ), have been organizing joint conference on meteorology since 2005. The purpose of the joint conference is to enhance the development of atmospheric science, promote international academic exchange, organize regional activities in the field of meteorology and create an academic exchange platform for meteorological societies of China, Korea and Japan. It is also intended to enhance the friendship among the meteorologists of the three countries.

After the sixth conference held in Nanjing, China in 2013, the three societies have been discussing the future of this conference, especially how to make the conference more scientifically attractive and international. Recognizing that the conferences have provided good opportunities to young scientists among the three countries and that the benefit will be expanded in the future, the representatives of the three societies agreed to organize joint conference among the three countries for every two years in each country by turns with a title of the Asian Conference on Meteorology. The first of this conference was held in Kyoto, Japan in October 2015.

Prof. Nakajima would like to overview the conference status and outcomes.

**Prof. Teruyuki Nakajima,** is currently the director, Earth Observation Research Center (EORC), Japan Aerospace Exploration Agency (JAXA). Serving as the secretary general of ICSU/International Association of Meteorology and Atmospheric Sciences (IAMAS); associate member of Science Council of Japan; president of Atmospheric and Hydrospheric Sciences Section/Japan Geoscience Union; executive member of Japan Meteorological Society. Contributing to research for radiative transfer of the atmosphere and ocean, remote sensing of aerosol and cloud microphysics, and modeling study of anthropogenic aerosol effects to the earth's climate.

# EMS – an IFMS on the European scale: – Experiences and recommendations - Martina Junge

**Abstract:**

The EMS is an association of associations, with no individual members; through its Member Societies it represents 10 000 individuals in Europe. It is further supported by currently 32 Associate Members (organisations). 60% of the income is through Membership fees by Member Societies and Associate Members; there is a stable membership of Member Societies and Associate Members, but little scope for growth in Membership due to the concept and regional reach of the EMS membership.

The EMS is steered by a Council (biannual meetings, representatives elected at annual General Assemblies) and the EMS Bureau (elected by Council); it has a small secretariat (1.2 staff). It consequently depends on individuals partly supported by Member Societies and Associate Members to implement any new major initiatives.

Mission: Promote professional standards and best practice across European meteorological service providers and practitioners, raise the profile of Member Societies, establish collaborative activities and share experience, be an umbrella organisation for the entire European meteorological community.

Key activity is the annual conference, attended by 450 – 700 participants from all sectors and areas of meteorology, mainly in Europe but also beyond, serving as a forum and umbrella for the entire meteorological community. The success of the EMS Annual Meetings is vital for the EMS in fulfilling its mission. The EMS has a well-established and expanding Awards program which serves the promotion of best practice and professional standards as well as support for early career scientists.

The EMS has no mandate to act as a European voice on policy matters. Continued effort is required to encourage the sharing of information and experiences that are of benefit to the membership. There is a need to put increasing emphasis on highlighting the role of the EMS and the benefits of membership.

Any association of associations will face the same issues: dependence on the work of individuals that are already active in their association and whose time for additional initiatives on an international level is limited. A functional umbrella organisation will require adequate funding which may be difficult to come by.

**Dr. Martina Junge** has been appointed EMS Executive Secretary in January 2006. She is involved in all aspects of the Society's programmes and activities. She works with the Council and Bureau on the development and implementation of its programmes. The Executive Secretary also plays an important role for the work of the EMS committees and project teams.

Before joining EMS Martina Junge has been affiliated with the Max Planck Institute for Meteorology in Hamburg, the Physics Department at Oxford University, the Meteorology Department at Reading University, the National Institute of Geophysics and Volcanology in Bologna and the Meteorology Department at the University in Hamburg. Her research areas included the predictability of ENSO, decadal variability in mid-latitudes, the use of adjoint models, the interplay of storm tracks and European climate variability, the role of Greenland's topography on stationary waves and storm tracks and oceanic teleconnections in the North Atlantic.

She graduated in math and holds a PhD in physical oceanography.

# Enhancing International collaborations and Domestic Outreaches by Chinese Meteorological Society (CMS)

## Dr. Yongyun Hu – VP - CMS

**Abstract:**

In line with the developments in science and technology in China, academic societies are entrusted to play more important roles that were previously undertaken by the government. With this opportunity, the Chinese Meteorological Society (CMS) aims at enhancing international collaborations and domestic outreaches. In this presentation, we will introduce CMS's strategies of international collaborations and outreaches in China, evolution of society publications, membership service, academic exchanges, and domestic outreach. These issues, activity, and solutions presented herein constitutes persistent efforts of the CMS in promoting sustainable development of the weather, climate, and environment enterprises of China.

**Dr. Yongyun Hu** is a professor of the Department of Atmospheric and Oceanic Sciences, School of Physics, Peking University. He received his BS in atmospheric sciences in 1986 from Sun-Yat Sun Yat-Sen University, his MS in atmospheric sciences in 1996 from Texas A&M University, and his PhD in Atmospheric Sciences in 2000 from the University of Chicago.

He was a postdoctoral research associate at the University of Washington (2000-2002) and at NASA/GISS and Columbia University (2002-2004) before joining the faculty of the Dept. of Atmospheric and Oceanic Sciences of Peking University. He serves as the Dept. Chair (2000-present) and Vice Dean of the School of Physics (2015-present). He also serves as the Vice President of the Chinese Meteorological Society (2010-present), Vice Chair of WCRP-China, Vice Director of Atmospheric Science Educational Steering Committee of the Ministry of Education of China, and many other scientific committees. He was a leading author of IPCC-AR5 (Chapter 10, Detection and Attribution) (WG1).

His research covers three major directions: 1) climate dynamics and modern climate change, including widening of the Hadley circulation and tropospheric-stratospheric interaction and the ozone layer; 2) Precambrian climate, including Snowball Earth and the Boring Billion; 3） planetary atmosphere and climate, including solar and extra-solar planetary climate and habitability. He published about 90 peer-reviewed papers and book chapters.

He received many awards for his research and scientific leadership, including among others, the Founder Award of Distinguished Professor of Peking University (2012), the National Outstanding Young Scientists (2010), the Zhao Jiuzhang Award for Outstanding Young Scientists (2009), Outstanding Young Scientists for the 21st Century of the Ministry of Education of China (2005).

# Meteorological Cooperation at the East African Community

## John Mungai


### Abstract

The East African Community (EAC) is the regional intergovernmental organisation of the Republics of Burundi, Kenya, Rwanda, the United Republic of Tanzania, and the Republic of Uganda, with its headquarters in Arusha, Tanzania. It is one of the eight regional economic cooperation (RECs) groupings in Africa. The Vision of EAC is a prosperous, competitive, secure, stable and politically united East Africa; and the Mission is to widen and deepen Economic, Political, Social and Culture integration in order to improve the quality of life of the people of East Africa through increased competitiveness, value added production, trade and investments.

Meteorology has been recognized as one of the enablers of economic development in East Africa. The EAC Region is affected by a range of weather and climate related hazards that often translate into natural disasters – principally arising from drought, severe storms and floods. These and other weather and climate related disasters account for over 80% of the natural disasters affecting the region. Meteorology is also recognised as a cross cutting sub sector that impacts on activities in civil aviation, construction, agriculture, food security, peace and security, disaster management and water management , among others.


**John Mungai** received his B.Sc. and M.Sc. in Meteorology from the University of Nairobi in 1992 and 2006, respectively.

From 1994 – 2006, he was a Meteorologist with Kenya Meteorological Department performing mainly weather forecasting /climate Prediction and customer service.

In 2007 – present he is a Senior Meteorologist working for East African Community. His duties include:

1. To coordinate the execution of projects and programmes in the Meteorology sub-sector in EAC
2. Promote and facilitate the development and harmonisation of policies in the provision of meteorological services in the EAC region
3. Facilitate meetings of Directors, Experts and Task Forces in the sub-sector
4. Liaise with Heads of Meteorological Institutions and Departments in the Partner States
5. Coordinate the Implementation of Council decisions related to the meteorology sub – sector

# PRESENTATION ON HUNGARIAN METEOROLOGICAL SOCIETY & INVITATION FOR IFMS MEETING #5 *PROPOSAL* FROM HUNGARIAN METEOROLOGICAL SOCIETY

This presentation will provide information about the Hungarian Meteorological Society (**MMT**) and its history. MMT would like to hold Meeting #5 of the IFMS in Budapest. Prof. Bartholy will make a presentation on that Proposal and will answer the questions the audience might have.

**Prof. Dr. habil. Judit BARTHOLY is the** Head of the Meteorology Department at the Eötvös Loràn University

## Education:

- M.S. Meteorology and Mathematics University, Budapest, 1976
- Ph.D. Time Series Analysis, Eötvös Loránd University, Budapest, 1978
- Ph.D. EOF/Cluster Analysis, Hungarian Academy of Science, Budapest, 1988
- Dr. Habil. Eötvös Loránd University, Department of Meteorology, Budapest, 1996
- DSc in Geosciences, Hungarian Academy of Sciences, 2006

## Areas of interest:

Statistical climatology, climate change methodology, climate change modeling, urban climatology, applied climatology, time series analysis, orthogonal time series expansions, long-range forecasting, renewable energy resources, wind energy usage.

### Languages

- English, German, Italian, Russian, Hungarian (native language)

# Presentation on the IFMS Meeting #4 Discussion Paper

## Dr. Harinder Ahluwalia, Eng.

**Abstract**

The purpose of this presentation is to outline to all moderators and panelists as well as attendees the objectives and the ideas on the implementation and the future course of IFMS. It will also explain the importance of IFMS from the point of view of the author.

This presentation will outline the purpose of the meeting and definition of the three panels, their objectives, intended discussions and potential outcomes.

The three Panels and their respective outlines are:

**Panel 1**: Will discuss the objectives of IFMS and the activities it should undertake to create cooperation among the Meteorological Societies of the world and capacity building of all societies – especially those of the developing countries. It will also explore how IFMS can help in defining ways of strengthening infrastructure in those countries where there is very little infrastructure.

**Panel 2**: Will determine the optimum structure and implementation strategy of IFMS to be able to deal with the activities defined above: The IFMS infrastructure and its manpower and staffing requirements, etc. will be discussed. Ways to finance the activities of IFMS will be explored.

**Panel 3**: Role of IFMS in "Future Weather Enterprise" will be discussed. The idea here is to determine what new activities IFMS can undertake after implementing the basic activities.

# World Bank's Experience in Strengthening Weather, Climate, and Hydrological Service in Developing Countries

Dr. Makoto Suwa, World Bank

## Abstract

Hydro-meteorological hazards—such as storms, floods, droughts, heat and cold waves—are responsible for the greatest proportion of losses from adverse natural events, causing nearly 80 percent of disasters and over 50 percent of disaster-related deaths between 1980 and 2011 around the world. In recent decades damage incurred by hydromet hazards has shown a growing trend and as climate changes such events may become even more costly.

In these circumstances, strengthening weather, climate and hydrology services will be a key aspect of promoting sustainable development, including cost-effective adaptation to weather and climate extremes. Weather, climate and hydrology forecasts and other information products help to minimize risks in all sectors, and are used for decision-making in agriculture, water resources management and irrigation, energy, transport, public health, and environmental management, among other sectors.

In most countries, National Meteorological and Hydrological Services (NMHSs) are responsible for collecting, analyzing and providing weather, climate and hydrological data, forecasts and information services and issuing early warning, but their capacity in many developing countries is limited and not adequate to fully meet user requirements. The 2013 publication by the GFDRR Hydromet team entitled "Weather and Climate Resilience – Effective Preparedness through National Meteorological and Hydrological Services" highlighted the importance of an integrated approach and long term support to address challenges which NMHSs are facing. Also, a globally and regionally integrated approach by leveraging global and regional resources in weather, climate and hydrological services has been proven to be an important contribution to improving hydromet services delivery at the national level. The presentation will discuss the WB/GFDRR's recent work in this domain highlighting challenges and opportunities.

**Dr. Makoto Suwa** is a Senior Disaster Risk Management Specialist at the World Bank's Global Facility for Disaster Reduction and Recovery (GFDRR) where he has been leading and supporting a wide range of WB/GFDRR activities and projects aiming at strengthening weather, climate and hydrological services in developing countries. Prior to joining the World Bank, Makoto worked for the World Meteorological Organization (WMO), both at its headquarters in Geneva and Regional Office for Eastern and Southern Africa in Nairobi, where he mainly managed weather and climate services projects, supported capacity development activities and developed partnerships. He also taught both at Kigali Institute of Science and Technology (currently the University of Rwanda) and Lycée de Kigali in Rwanda, and briefly worked for the Office for Climate Change of Japan International Cooperation Agency (JICA) in Tokyo. Makoto holds a Ph.D. and a M.A. in Geosciences (Climate Science) from Princeton University, a Master of Environmental Management degree from Duke University in addition to an undergraduate degree from the University of Tokyo.

# PANEL 1: Objectives of IFMS

Moderator: Mary Voice

Panelists: Liz Bentley, Yongyun Hu and Fei Chen

## Moderator: Mary Voice

The mission of professional meteorological (and oceanographic) societies is similar around the world. Their

educational, information provision and standard setting role is carried on through publications, professional development, public information and education, awards, codes of conduct, etc. Our disciplines have always been global in nature, but perhaps are becoming more multi-disciplinary as well. The short and near-term objectives for IFMS could therefore be:

1. Supporting the individual meteorological Societies to foster multidisciplinary activities within their nations according to their needs;
2. Supporting the member societies in their professional standards and advocacy roles;
3. Fostering greater information exchange between a wider number of societies.

The Australian Meteorological and Oceanographic Society (AMOS) would like to suggest that one mechanism to create higher visibility for IFMS in the short term, would be to find a way to host an annual global lecture relevant to meteorological (and related) societies, that could be posted on a relevant high-profile website, as well as the IFMS website.

In terms of fostering greater information exchange between a wider number of societies, and noting that resources are tight in many regions of the world, it might be worth considering whether partnering with the Regional Associations of the WMO might allow some preliminary discussion sessions to occur at the regional level (particularly in parts of the globe where no federations of meteorological societies currently exist).

## Panelist 1.1: Liz Bentley

Panel 1 will draw out the objectives of the IFMS and, in doing so, will need to consider the requirements

and relevance of the IFMS. The IFMS aims to foster and encourage communication and exchange of knowledge, ideas and resources between meteorological societies. Particular areas of common interest between meteorological societies are: education; professional qualifications and accreditation frameworks; training resources; policy engagement; and communicating climate change: the science, impacts and solutions.

## Panelist 1.2: Yongyun Hu

Academic exchanges, collaborations, and outreaches are the key theme of IFMS. In this opening remark, I will briefly introduce three aspects of progresses CMS has made in recent years: 1) exchanges and collaborations between CMS and AMS in journal publications and society membership and joint conferences by Meteorological Societies of China, Korea, and Japan (the Asian Conference of Meteorology); 2) how CMS helps establish atmospheric science programs in several universities; and 3) increases in research funding and paper publications. Details of these progresses will be presented in my later talk.

### Panelist 1.3: Fei Chen

The International Association for Urban Climate (IAUC) is an international, non-governmental organization. It has more than 1,000 individual members worldwide representing scientists and experts from academia, government, and industry. It serves the scientific, scholarly and technical communities and is recognized as a respectable and valuable source of advice and guidance on the scientific basis of urban modification of weather and climate. To support its mission of representing the urban climatological and meteorological community internationally, the IAUC organizes triennia meetings (International Conference on Urban Climatology, ICUC), often jointly with AMS and other organizations, and publishes a quarterly newsletter and provides online discussion groups to foster communications in the community. Those activities, along with the free membership cost, the meturbclim mailing list, and the willingness of working with low/no resources, allow IAUC to reasonably succeed in international outreach. There are common issues that the IAUC and IFMS are facing. For instance, how can different sectors work together to establish weather monitoring and prediction system at the spatiotemporal scales relevant to urban policy makes? How to communicate scientific results regarding urban risks in the context of changing climate and rapid population growth (and therefore greater population exposure) to public and various stakeholders? What would be effective and sustainable pathways for IAUC, IFMS, and other organizations to collaborate?

**Dr. Fei Chen** is a Senior Scientist and Deputy Director, Hydro-meteorology Applications Program, Research Applications Laboratory, National Center for Atmospheric Research (NCAR), Boulder, CO, USA. He received his Bachelor's Degree in Meteorology from the Nanjing Institute of Meteorology (China) in 1984, and Ph.D. Degrees in Atmospheric Sciences from Blaise Pascal University (France) in 1990. He is past Chair of the American Meteorological Society (AMS) Board on the Urban Environment, elected Fellow of the AMS, and elected Board Member of the International Association for Urban Climate (IAUC). He serves on numerous national and international advisory panels and committees. His main research interests include the study of impacts of land-atmospheric interactions on boundary layer and summer precipitation processes, and the examination of influences of urbanization on regional weather, climate, water resources, and air quality. He led high-impact field programs to advance the understanding of the joint role of soil moisture and vegetation in controlling surface fluxes and boundary layer processes. He has led international efforts to develop advanced land-surface/hydrology models for community numerical weather prediction and regional climate models. He has published more than 120 refereed journal articles and 5 book chapters. He organized workshops and special sessions, chaired sessions, and gave invited presentations at AMS, American Geophysical Union (AGU), International Association of Meteorology and Atmospheric Sciences (IAMAS), Global Energy and Water Experiment (GEWEX), and European Geophysical Union (EGU) conferences.

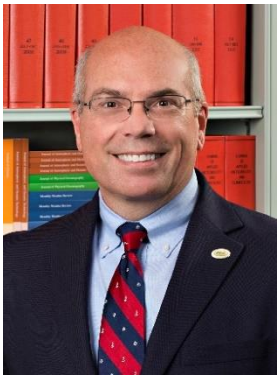
## 10 Minutes Wrap-up and summary of the next day

# DAY 2 – January 14, 2016 (Thursday) - Morning Session

## PRESENTATION BY AMS Executive Director Dr. Keith Seitter

### Abstract:

The AMS is extremely pleased to have been able to partner with CMOS in the planning and execution of the Fourth Global Meeting of IFMS. This welcome message will offer a very brief reminder of the origins of IFMS, as well as a look to the future.



**Dr. Keith L. Seitter** was named Executive Director of the American Meteorological Society in September 2004, after having served on the AMS staff in other capacities since 1991. Before joining the AMS, Seitter was on the faculty at the University of Massachusetts at Lowell. He earned his undergraduate degree in meteorology at the Pennsylvania State University and a doctorate in geophysical sciences at the University of Chicago.

## PRESENTATION BY AMS President-Elect Fred Carr

### Abstract

The AMS has developed a number of close partnerships with International Meteorological Societies, which we hope to strengthen. We also look forward to developing new relationships with additional nations. Plans for the 2017 AMS Annual Meeting, whose theme is "Observations Lead the Way", will be outlined, and it is hoped that we can attract a strong international presence at this meeting to discuss how our shared goal of maintaining and increasing our global observing infrastructure can strengthen the bonds among us.

**Dr. Frederick H. Carr** is the McCasland Foundation Presidential Professor of Meteorology at the University of Oklahoma. He received his Ph.D. degree in Meteorology from Florida State University, and had a post-doctoral appointment at The University of Albany at the State University of New York. He has been a professor in the School of Meteorology at University of Oklahoma since 1979, and served as Director of the School from 1996 to 2010. His research interests include synoptic, tropical and mesoscale meteorology, numerical weather prediction, data assimilation and new observing systems.

Dr. Carr is a Fellow of the American Meteorological Society and served as a member of the AMS Council, editor of *Monthly Weather Review* and subject matter expert for the *Bulletin of the AMS*. He has served on many committees and panels for AMS, NSF, NOAA and NCAR, and recently completed a 6-year term on the UCAR Board of Trustees. He served on the National Research Council committee that authored "*Observing Weather and Climate from the Ground Up: A Nationwide Network of Networks",* and co-chairs the UCAR Modeling Advisory Committee (for NCEP). ***He currently is the President-Elect of the AMS***.

## Cooperation with Societies of other Disciplines

## Presentation by CMOS Martha Anderson

In addition to the obvious benefits of National Meteorological Societies working together, there are benefits to be gained from working with societies of other domains as well. This talk will present some Canadian examples of cross-cutting and multi-discipline activities that have helped CMOS achieve our goals.

**Martha Anderson** is from Cornwall, Ontario and attended McGill University in Montreal, receiving a B. Sc. in Meteorology in 1984. After the Environment Canada Meteorologist Operational Course in Downsview, Mrs. Anderson was posted to the MetOc Centre at CFB Halifax, as a secondee from Environment Canada (EC) to the Department of National Defence (DND). She spent 10 years in the Halifax area, filling various operational posts at the public and military forecast offices. Her last position in the area was Wing Meteorological Officer at 12 Wing Shearwater.

In 1995, Mrs. Anderson went to 8 Wing Trenton, to take a seconded post as Shift Supervisor. In 1998, she moved to Ottawa to serve as DND Account Manager within EC. In 2003 she had a one-year assignment at the Department of Fisheries and Oceans before coming to DND to fill the post of Senior Planner, Meteorology and Oceanography. Mrs. Anderson became Director of Meteorology and Oceanography at DND in Aug 2006.

Mrs. Anderson is married and has two adult daughters, Christine and Emily.

# The Role of Sudanese Meteorological Society on Disaster Risk Reduction

## Noureldin Ahmed Abdalla of Sudan

Sudan is a disaster borne country suffering from frequent and historical climatic related disasters.

Climate change impacts upon key socio-economic sectors exacerbated the bad situation by increasing the frequency of floods/droughts cycling, duration, degree and the intensity of the disasters and extreme climatic events.

Sudan government concerns increased after the chocks of 1988 flood and the frequent floods/droughts during the nineteen's.

Sudanese meteorological Society (SUMS) is an NGO's Society; it is a leading society in the fields of climate related hazard, climate change observations and climate change research. The society plays a vital role on Disaster Risk Reduction and Management in Sudan

The main objectives of (SUMS) are to encourage the scientific research in meteorology and related sciences and their applications. Organize seminars, workshops and studies in collaboration with the local, national and international societies and institutions similar to (SUMS). Initiation and contribution in the formulation of projects in the fields of economic development, humanitarian, adaptation to climate change and environmental conservation activities. The society work in close collaboration with SMA in issuing and disseminating scientific reports, journals, documents to raise the awareness of the public, scientific community and decision makers on how to maximize and make use of meteorological data and services. The society is planning to open new windows at national regional and international levels to Initiate and design development projects for the benefit of the end users of meteorological services.

**Dr. Noureldin Ahmed Abdalla** is the National Project Manager of Climate Risk Finance Project for Sudan. This project is funded by the Global Environmental Facility (GEF) and implemented through the United Nation Development Program (UNDP) in Sudan. Dr. Noureldin completed his B.Sc. in Physics from El Azhar University, Egypt in 1986 and got PhD in Physics from Sudan University of Science and Technology in 2009.

Dr. Noureldin joined Practical Action Organisation in 2007 which is a UK based international organisation (NGO working in Sudan, Kenya, Peru, Nepal, Bangladesh and other countries) as an Advisor for Climate Change and Indigenous Knowledge. He also took the responsibility as the Programme Manager and National Coordinator in Sudan for Prolinnova, which is a NGO-initiated international multi-stakeholder platform to promote local innovation processes in ecologically oriented agriculture and National Resource Management. www.prolinnova.net

After working for various NGO programs Dr. Noureldin in 2010 joined back SMA as Head of Agro-Meteorological Division. He held various senior positions with SMA like Director of Planning & Marketing, Director of General Administration of Observation & Forecast and became the Director General of SMA in 2014. He also has keen interest in academics and has nearly 2 decades of teaching experience. He currently supervises PhD Researchers at Khartoum University and Sudan Academic for Science and Technology.

## Current status of IUGG/IAMAS initiatives

**Dr. Teruyuki Nakajima, SG IAMAS**

**Abstract**

The International Association of Meteorology and Atmospheric Sciences (IAMAS), one of the eight Scientific Associations of the International Union of Geodesy and Geophysics (IUGG) under the International Council for Science (ICSU), has for many years been providing the scientific community with platforms to present, discuss and promote the newest achievements in meteorology, atmospheric science and related fields. IAMAS also facilitates and coordinates research that requires international cooperation, especially through its ten commissions and one committee. All the commissions, and IAMAS as a whole, play a leading role in the global communication and discussion of the latest research results. The future direction of IAMAS is agreed at its General Assemblies, composed of National Delegates of the Adhering Countries. Through this mechanism IAMAS is strongly related to and collaborates with the world's meteorological and atmospheric science societies.

I will give an overview of the current status of IAMAS and discuss future prospects.

**Prof. Teruyuki Nakajima** is currently the director, Earth Observation Research Center (EORC), Japan Aerospace Exploration Agency (JAXA). Serving as the secretary general of ICSU/International Association of Meteorology and Atmospheric Sciences (IAMAS); associate member of Science Council of Japan; president of Atmospheric and Hydrospheric Sciences Section/Japan Geoscience Union; executive member of Japan Meteorological Society. Contributing to research for radiative transfer of the atmosphere and ocean, remote sensing of aerosol and cloud microphysics, and modeling study of anthropogenic aerosol effects to the earth's climate.

## ISB and IFMS: Opportunities for interaction and mutually beneficial activities

### Dr. Mark D. Schwartz

Biometeorology is an interdisciplinary science studying the interactions between atmospheric processes and living organisms—plants, animals and humans. The most important question that biometeorology answers is: How does weather and climate impact the well-being of all living creatures? The International Society of Biometeorology (ISB) provides an international forum for the promotion of interdisciplinary collaboration between meteorologists, health professionals, biologists, climatologists, ecologists and other scientists. The Society, as a community of scientists with similar interests, fulfils an important role in providing information, expertise and advice to organizations requesting this assistance worldwide. The ISB represents the most comprehensive organization to bring together people with expertise in these areas. The International Forum of Meteorological Societies (IFMS) was formed to foster and encourage communication and exchange of knowledge, ideas and resources among the world's more than sixty meteorological societies. Given that the impacts of climate change on organisms are a crucial issue in global change research, there are many opportunities for the activities and expertise of the ISB and its members to interact and support meteorological societies participating in the IFMS. The areas that seem most self-evident are: 1) information exchange on climate change impacts; 2) possible joint society membership agreements; and 3) opportunities for co-sponsorships of professional conferences.

**Dist. Prof. Mark D. Schwartz**, Phenoclimatologist, Department of Geography, UW-Milwaukee

Mark D. Schwartz is a phenoclimatologist and distinguished professor of Geography at the University of Wisconsin-Milwaukee. He is the current President of the International Society of Biometeorology. His research interests are focused on plant phenology-lower atmosphere interactions during the onsets of spring and autumn in mid-latitudes, detecting climatic change, and assessing vegetation condition with remote sensing imagery. His scholarship includes over eighty peer-reviewed publications, mostly in journals, and a 2nd edition of the edited book Phenology: An Integrative Environmental Science. Prof. Schwartz received his Ph.D. from the University of Kansas in 1985.

# Recent activities of the AMOS and their relevance to Southern Hemisphere Meteorology and to IFMS Discussions.

**Mary Voice – Vice President AMOS**

Our disciplines are even more exciting now than they were 20-30 years ago – to all of young students, existing scientists and the interested (amateur) public. One only needs to consider satellite observing advances, the prospects for cube-sats, the capacity for data analysis, visual display for both professionals and the general public, and the prospects for citizen science projects.

Australian Meteorological & Oceanographic Society (**AMOS**) is hoping to be more active in presenting these ideas to the public in the near future, and would welcome information sharing with other meteorological societies under the IFMS umbrella.

Recent activities by AMOS that might be of interest to other societies are:

1. An annual weather tipping competition that coincides with the football season whereby anyone can compete with the official forecasts.
2. Participation in an annual Science meets Parliament programme co-ordinated by Science and Technology Australia (STA).
3. Participation in an annual Science meets Business programme, again coordinated by STA.
4. Efforts to improve equity and diversity in our Society - while we have fairly recently put some effort into this area, we will pose the question: should this also be a broader IFMS priority?
5. Since Australia is located both in an ocean-dominated hemisphere, and also at the western edge of the huge Pacific Ocean, AMOS makes considerable effort to include oceanography in its annual conference.

**Mary Voice** studied meteorology at Melbourne University before embarking on a career in climatology, climate services and international cooperation in climate through the World Meteorological Organization (WMO).

In the 1990s, Mary headed a team in the National Climate Centre (NCC) responsible for monitoring Australian climate, and for providing climate analyses, national seasonal climate outlooks, etc. She then led the NCC, with responsibilities for the national climate data archive and Australian climate services, and contribution to the Assessment Reports of the IPCC.

Internationally, Mary was:

- a member of the WMO Advisory Working Group for the Commission for Climatology;
- chair of the WMO Working Group on Climate Matters for the SW Pacific;
- Task Team chair for a WMO project for an internationally compiled book: "Climate: Into the 21st century".

She now runs her own consulting business (climate and climate education). She is involved in developing and delivering climate-related subjects at universities.

Mary was elected Vice-President of AMOS in 2014, and a Fellow of the Society in 2015.

# Keynote Address: Perspective on Professional Societies as a Nexus between Sectors of the Meteorological Community

## Dr. Louis W. Uccellini

Dr. Uccellini will provide perspective on professional societies as a nexus between sectors of the meteorological community and how that engenders responsibility. He will explore how that responsibility extends beyond national borders, and how international cooperation is not simply a nicety but essential to achieve a weather ready globe. Dr. Uccellini will link discussion at the World Weather Open Science Conference (WWOSC) -2014 to the potential contributions from the International Forum of Meteorological Societies (IFMS). He will be a provocateur for following discussion on the Future Weather Enterprise and the role of the IFMS.

**Dr. Louis W. Uccellini** is Director of the National Weather Service. In this role, Dr. Uccellini is responsible for the day-to-day civilian weather operations for the United States, its territories, adjacent waters, and ocean areas. Previously, he held positions that include the Director of the National Centers for Environmental Prediction, the Director of the National Weather Service's Office of Meteorology and Senior Research Scientist at NASA's Goddard Space Flight Center.

Dr. Uccellini is a prolific author of more than 60 scientific articles on severe convective storms, snowstorms, and the use of satellite data in numerical forecast models. He also co-authored the widely acclaimed two-volume American Meteorological Society (AMS) monograph entitled *Northeast Snowstorms.*

Throughout his career, which spans more than 40 years, Dr. Uccellini has made major contributions to advancing the understanding of weather systems and has contributed to the foundational transformation of the forecast process that is now based on numerical forecast models and accurately predicts extreme weather events out to a week in advance.

As the 16th Director in the 135-year history of the National Weather Service, Dr. Uccellini has led the agency through a series of upgrades to its powerful supercomputers, which run increasingly sophisticated numerical models to forecast extreme weather, water and climate events. This huge leap in technology will permit even more accurate forecasts and warnings that are now used to make life-saving decisions.

In 2001, Dr. Uccellini received the U.S. Presidential Meritorious Executive Rank Award, and in 2006 he received the U.S. Presidential Distinguished Rank Award. In January 2012, he was elected the President of the American Meteorological Society and served from 2012 to 2013.

# PANEL 2: Implementation of IFMS

Moderator: Liz Bentley

Panelists: Noureldin Ahmed Abdalla, K.J. Ramesh and Tafesse Regassa Gurmu

## Moderator: Liz Bentley

Panel 2 will focus on the Implementation of IFMS. Once we agree the overarching objectives of the IFMS discussed in the Panel 1 session, we must consider how best to implement related actions to achieve these objectives. Panel 2 will review the objectives captured during the Panel 1 discussions and consider the business model required to deliver each objective. The business model will focus on the structure, co-operation and financial arrangements of the IFMS.

## Panelist 2.1: Noureldin Ahmed Abdalla

IFMS is a voluntary organization requiring volunteers. Currently, it has no financial means and has limited other resources. Bearing in mind these factors, Implementation of IFMS is a difficult task; however, it is definitely not an impossible task.

It is high time to discuss our constraints seriously and try to find effective solutions and, hopefully, implement them with genuine determination. Otherwise, this meeting will end up in just a social gathering. The big questions to answer are what our current situation is, where we want to be and how we can get there?

In this regard, I will highlight some key points such as without enhancing our research, we cannot generate financial resources, human resources in science must be motivated, trained and must get exposure to the international science arena. We need to translate our meetings into actions and contribution to the scientific knowledge. We must explore the potential opportunities that can make difference (national, regional and global) in fund raising and capacity building and technology transfer. Sharing data, knowledge and good practices will strengthen our implementation modality.

I believe that this is a good opportunity for IFMS to take lead and to make history.

## Panelist 2.2: K.J. Ramesh

We all agree that relatively less critical research on applied and commercial meteorology is carried out globally so far compared to that on academic research and weather forecasting. However, commercial meteorology and industrial climatology have become increasingly prominent today as emerging number of corporations exploring, for example, air pollution, likely emergencies following multi-hazards incidence and business interruption issues. Governments around the world have in the recent past started supporting the development of an explicitly commercial meteorological sector, while consolidating their core efforts of in collecting meteorological data and producing emergency forecasts.

Even so, the economic implications of weather and climate were never far from public interest, enhanced media reportage after 'extreme' weather events alone calls for significant value addition and sectoral customization of the weather and climate forecasts.

Demand of the day is to provide guidance for managing the perspective local risks from a changing climate as every part of our society is thinking about building its own resilience. Hence, we all must take steps to build the professional wisdom to address the emerging multi-hazard safety needs of the industry, citizens and consumers under the IFMS umbrella beyond the NHMS services in respect of

1. Characteristics of hazardous weather
2. Impacts on society
3. Rapidly growing demand for tailored climate information and data with advice for adverse impact minimization actions
4. Energy sector network resilience
5. Climate science relevant to operational risk pricing (Insurance/ reinsurance) decisions
6. Climate Risk Management Partnerships for Adaptation guidance and action
7. Climate and Hazard Resilient Smart Cities

Hence, NMHSs and IFMS can definitely ensure that industry and corporate have the information needed to take action in an easy-to-use format.

Accrual of Benefits of Reducing Risk can enhance decision - making support to both minimize socioeconomic risks (reduce negative impacts of extreme weather) and maximize potential opportunities.

**Dr K.J. Ramesh**, is a senior Executive in the Ministry of Earth Sciences, India and General Secretary of India Meteorological Society (**IMS**). He did his Ph.D. from Indian Institute of Technology, India's premier institute.

**Academic and Research Achievements:**

He has over 50 Reviewed Research Publications to the credit. He did Research on Monsoon Dynamics with IIT working as Group Head, Department of Science & Technology, NCMRWF. He has done extensive work on Monsoon Prediction, Diagnostics and Performance Evaluation. He was also Technical Head, Disaster Management Unit, Govt. of Andhra Pradesh. He also worked on Cyclone and Flood Hazard Mitigation (World Bank Funded Activity); Disaster Management Cell, Department of Science & Technology, Multi Hazard Mitigation Framework Development; Disaster Management Guidelines for Cyclones; Floods; Urban Floods; Adviser and Scientist-'G'. Currently with Ministry of Earth Sciences he is working on Program Development & Implementation of Atmospheric and Climate Science & Services.

**Other achievements include**: Served as Member, National Disaster Management Authority (NDMA) Core Groups for the Development of Guidelines in respect of Cyclones; Floods; Urban Floods;

Disaster Communication. He is Joint Research Supervisor for Ph D/M Tech Projects in IIT Delhi; Indra Prastha University; Andhra University.

**His awards and honors includes:** Elected Fellow, Andhra Pradesh Academy of Sciences (FAPAS); Elected Member, National Academy of Sciences, Allahabad; Member of the Indian Delegation for UNFCCC Negotiations on climate change; IPCC AR5 Summaries for Policy Makers (SPMs)

### Panelist 2.3: Tafesse Regassa Gurmu

The realization and the effectiveness of the goal of IFMS goal should not only rely on efforts of the African Meteorological Society, the European Meteorological Society (EMS), and the Latino American Federation of Meteorological Societies (FLISMET).The participation and involvement of additional meteorological societies at national and regional levels is vital. The presentation highlights the distribution of meteorological societies in WMO member states and their communication with IFMS and how these societies can play a role under the umbrella of IFMS. Short summary about the Ethiopian Meteorological society (EtMS) and its achievements so far, problems and constraints managing EtMS will be mentioned. Finally importance of cooperation of meteorological societies especially from the developing countries through IFMS will be discussed and the need for a strong and we'll structured IFMS that is transformed from the current loose arrangements to a more robust and well-structured institution with a stable secretariat and mode at financial means.

**Tafesse Regassa Gurmu** is working at National Meteorological Agency of Federal Democratic Republic of Ethiopia for last 35 years at various carriers.

Currently, he is Director, Aviation Meteorology Service Directorate.

Alternate: Esperanza Cayanan or Harinder Ahluwalia (If Mr. Gurmu does not make it to the meeting.)

## PANEL 3: Involvement of IFMS in "Future Weather Enterprise"

Moderator: Jack Hayes

Panelists: Michel Jean, Martha Anderson, Mary Glackin

**Moderator: Jack Hayes**

One of the conclusions of the WWOSC was that increased partnership among the public, private and academic sectors could increase the benefit of timely, accurate forecasts and warnings delivered to societies, worldwide. However, the conference also noted that even in countries, where there have been notable successes, challenges remain – for example, addressing the perception of a private-sector threat to government meteorological services and impediments to academic sector contribution to operational services. The objective of this panel discussion is review the role ***National Meteorological Societies (NMS)*** could play to help advance collaboration and cooperation among the three sectors. Panelists will be asked to comment on a select set (2-3) of questions designed to stimulate discussion and produce actionable recommendations that can be pursued to advance collaboration – and yield measurable improvements in products and services.

## Panelist 3.1: Michel Jean

We live in a time of brilliant technologies and the rhythm of innovation is increasing at an unprecedented pace. We are flooded by earth observations, social media provides access to contextual information and unprecedented dissemination mechanisms and high performance computing platform allow us to tackle previously unsolvable problems. Not only is this forcing us to rethink our business models, our recruitment and training strategies and our partnership strategies, it also forces to reflect on how our professional societies can play a facilitating role in this.

**Michel Jean** is currently the Director General of the Canadian Centre for Meteorological and Environmental Prediction, whose objective is to provide Canada with the best human, science and technology infrastructure to analyze and predict atmospheric, ocean and ice conditions for decision making

He graduated from the Université du Québec à Montréal (UQAM) in Physics in 1982 and obtained his Master's degree in Meteorology from McGill University in 1987 after working within the Atmospheric Environment Service (AES) as an operational forecaster in various locations in Canada.

Over the years, he has led the development of 'man-machine' interaction systems, including automated translation systems. M. Jean is the senior executive responsible for the entire weather and environmental prediction system in Canada, the long term High Performance Computing strategy and the development and implementation of the next generation integrated forecaster workstation.

He is currently coordinator to the WMO CBS Management Group on the Disaster Risk Reduction program and the chair of an inter-commission task team on Meteorological, Hydrological and Climate

Services for Improved Humanitarian Planning and Response and co-chair of a CBS ad-hoc working group on the evolution of the Global Data Processing and Forecasting System (GDPFS).

Mr. Jean is the recipient of several citations and awards within the Public Service of Canada. He is also the 2002 recipient of the Andrew Thompson prize in applied meteorology from the Canadian Meteorological and Oceanographic Society.

## Panelist 3.2: Martha Anderson

The Future requires 21st Century Collaboration Methods.

In the financially constrained situation most national meteorological societies find ourselves, I recommend we look to our younger members and take lessons from how they collaborate and connect in their global community. In our nations, we can foster interactions between the key players (government, academia, private sector, users) via Internet-based collaborations and social media, along with traditional face-to-face interactions. Amongst IFMS nations, we can share our best practices for accomplishing this, again using online collaborative methods.

It is my belief that the core role of a financially constrained national meteorological society in fostering a shared responsibility for optimizing the weather enterprise is to enhance collaborations within our own borders, and with our regional neighbours. This is where our limited resources should be focused. Full global engagement and assistance to developing nations will be best accomplished by the WMO, and national meteorological societies can best connect to the WMO efforts through our national weather service representatives.

## Panelist 3.3: Mary Glackin

Delivering accurate and timely weather information and warnings often involves the public, private and academic weather sectors playing active and ideally complementary roles. Yet experience shows evolving science, new technologies and societal needs pose challenges in communication among the sectors. Lessons learned by the American Meteorological Society over the past 10 years to support this communication and coordination in the U.S. will be highlighted.

**Mary Glackin** is the senior vice president for public-private partnerships for The Weather Company.

She oversees the company's relationships with members of the weather enterprise, which includes national and international government agencies, academia and other private sector weather providers, to enable initiatives that depend on partners in the U.S. and globally. The world's leading forecaster, The Weather Company consists of consumer brands The Weather Channel (weather.com) and Weather Underground (wunderground.com) and professional brand WSI.

Mary currently serves as commissioner of weather, water and climate enterprise for the American Meteorological Society (AMS), where she leads efforts to educate user communities on the value of weather and climate information and foster communication among public, private and academic institutions. She also serves on the visiting committee of the NASA Goddard Space Flight Center and on the executive committee of the Weather Coalition, an advocacy group that urges Congress and the Executive Branch to take on, promote and support programs to enhance environmental observations and weather forecasting capabilities.

Mary has had a long and distinguished career in public service, including a five-year tenure as deputy under Secretary of Commerce for NOAA operations in Washington, D.C, a $4.8 billion/year agency with 12,000 people. She is a Fellow of the AMS and the National Academy of Public Administration, as well as a member of the National Weather Association and of the American Geophysical Union.

## CONCLUSION AND ELECTION/NOMINATION

First of all the Summary of the three Panels will be provided.

The Terms of Reference will be drafted.

The constitution of the Council and Executive of the IFMS will be discussed: How many members, from which areas, the length of their term, etc.

Decision on IFMS Office

New Executive and Council of IFMS and decision on IFMS Office.

Proposal from the Hungarian Meteorological Society for IFMS Meeting #5 in Budapest will be discussed and finalized.

# Wrap Up and Conclusion.

# ANNEX A: Description of IFMS Meeting Panels

Three panels have been constituted for discussing various aspects of IFMS:

**Panel 1**: Objectives of IFMS – what should be the activities of IFMS

**Panel 2**: Implementation of IFMS: Sustainability of IFMS - infrastructure requirements, staffing requirements, etc.

**Panel 3**: Role of IFMS in "Future Weather Enterprise".

## PANEL 1: Objectives of IFMS

As per the information on the IFMS Website, "the fundamental goal of the IFMS is very basic; it is to foster and encourage communication and exchange of knowledge, ideas and resources among the world's more than sixty meteorological societies"

***In order to achieve that, it is important that Terms of Reference or Charter for the organization be created in Meeting #4.***

A few examples of topics of common concern to IFMS members that were identified at the original planning meeting include:

### Weather Related Issues

The role of meteorological societies:

- In global climate change: from education and communication to policy;
- In coping with the impacts of severe natural weather hazards: education, planning, adaptation, and response;
- In promoting sustainable development education, planning and adaptation.

### Society Operation Related Issues

- Entraining professionals in affiliated hard and soft sciences;
- Coping with the rapid evolution of society publications, electronic publishing, and increasing costs of print journals;
- Trends in society membership;
- Sector trends: academia, government, industry;
- Retention of student members after graduation.

### Other Issues

- Domestic outreach—the role of the meteorological society in informing and educating professionals and the general public;
- Reconciling the needs of professional and scientific members;

- International outreach—missed opportunities?
- In addition, the issue of certification and uniformity of certification of meteorological professionals should be discussed.

What needs to be discussed and concluded at Meeting #4 is what actions societies need to take and what role can IFMS play.

## PANEL 2: Implementation of IFMS

A need for a global view and strong will among NMS' to cooperate and help each other is a pre-requisite for success of this mission.

1. A business case is required which we do have and is stated in previous sections.
2. A dedicated "Champion" who can take the ball and make it happen. His/her involvement is necessary for at least a couple of years to make sure that the agreed to plan is implemented.

   We should discuss this in the Meeting #4 and select one.
3. A Council consisting of volunteers who are prepared to work for the cause.

   The council should consist of President, Vice President and members from each region: Asia, Africa, Europe, North America and South America, Australia/New Zealand. We should limit the Council to 10 members which should change every two years. It is possible to reelect those members who have played an important role and are willing to continue serving IFMS.
4. It is proposed that we establish an office in a country where the cost of personnel and office space is affordable and English language proficiency is not an issue. In addition, the local Meteorological Society could help IFMS office. New Delhi India could be a good candidate. If others feel that there is another place which meets that criteria, we would like to hear your suggestions.
5. The IFMS needs to have an Office with a minimum of three persons: Executive Director (**ED**), Secretary, as well as a Program Coordinator who assists ED and the Council to implement the programs agreed to by the Council. A part time Webmaster and an editor of the IFMS Newsletter are also required.
6. From the mandate of the IFMS agreed to by the members at the bi-annual meeting, ED should suggest topics and once approved must help implement them.
7. The Council can normally communicate through electronic media like Email, Twitter, Facebook, Skype, etc. The same media can be used by members too.
8. In addition to the overarching statements of cooperation, it is important to have Well Defined Activities and a description of how to achieve them - a clear Agenda containing list of activities, responsible organization(s)/person(s) with due dates to meet overarching objectives.

9. FINANCES to run the organization without which not much can be achieved. The finances are required for:
   a) Operate the Central Office
   b) Organizing Bi-annual Conference
   c) Finances for those societies which cannot afford to send representative to the IFMS Bi-annual Meeting.
   d) In addition to WMO, we should approach the World Bank and Aid Agencies of Developed Nations to provide Financial Assistance under their Capacity Building Program.
10. An effective Website which must have important information and must be kept up-to-date.

## PANEL 3: involvement of IFMS in "Future Weather Enterprise"

Based on Section 2 of this document, the point of discussion for the future role of ***National Meteorological Societies (NMS)*** is how they can help in the following areas:

1) How can NMSs encourage the Public, Private, University and NGO Sectors as well as users to work together? All these five sectors subscribe to NMS which is a neutral body, hence these Societies can act as a glue as well as arbiter of any conflicts between the five sectors.
2) How can NMSs act as a bridge between different nations to encourage collaboration between them?
3) Global models require data from all parts of the world. Currently, many countries do not have adequate infrastructure, capacity and knowledge. Hence, it is important that assistance be provided to less developed countries for their capacity building. How can NMSs help in connecting those who can help in capacity building with those who need assistance?
4) In order to build capacity and cooperation between scientists and relevant organizations from developed nations and less developed nations, NMSs can play a very important role. How can this be achieved?
5) How NMSs through IFMS can assist five sectors of each nation to interconnect?
6) Achieving membership at WMO Table.

# ANNEX B:
# Registered Representatives of Meteorological Societies at IFMS Meeting #4

| # | First Name | Family Name | Country | Society | Title if known | Page # |
|---|---|---|---|---|---|---|
| 1 | Noureldin (Dr.) | Abdalla | Sudan | SMS | Acting-Director General | 28 |
| 2 | Eduardo | Agosta | Argentina | CAM | Representative | |
| 3 | Harinder (Dr.) | Ahluwalia | Canada | CMOS | Convener IFMS Meeting | 4,12, 22 |
| 4 | Martha (Ms.) | Anderson | Canada | CMOS | President | 8, 27, 37 |
| 5 | Elizabeth (Dr.) | Bentley (Ms) | UK | RMetS | CEO | 9, 15, 24, 33 |
| 6 | Judit | Bartholy | Hungary | MMT | Representative | 21 |
| 7 | Fred (Dr.) | Carr | USA | AMS | Incoming President | 26 |
| 8 | Mario | Caffera | South America | Flismet | Representative | |
| 9 | Esperanza | Cayanan (Ms) | Philippines | PMS | President | |
| 10 | Shuyi (Dr.) | Chen | USA | AGU | Representative | |
| 11 | Tai-Jen George | Chen | Taiwan Region | MSCT | Representative | |
| 12 | Fei (Dr.) | Chan | International | IAUC | Representative | 25 |
| 13 | Walter | Dabberdt | USA | Vaisala | Corp. Science Advisor | |
| 14 | Bill (Dr.) | Gail | USA | AMS | Past President | 14 |
| 15 | Mary | Glackin | USA | WC | Senior Vice Preisdent | 37 |
| 16 | Jack (Dr.) | Hayes | USA | Harris | Senior Vice President | 16, 36 |
| 17 | Shaoping (Dr.) | Hu | China | CMS | Representative | |
| 18 | Yongyun (Dr.) | Hu | China | CMS | Vice-President | 19, 24 |
| 19 | Lord Julian (Dr.) | Hunt | UK | UCL | Professor | |
| 20 | Michel | Jean | Canada | EC-MSC | Director General | 36 |
| 21 | Martina (Dr.) | Jeung (Ms) | Europe | EMS | Executive Secretary | 18 |
| 22 | Alexander (Dr.) | MacDonald | USA | AMS | President | 7, 13 |
| 23 | John | Mungai | East Africa | EAC | President | 20 |
| 24 | Teruyuki (Dr.) | Nakajima | Japan | IAMAS | Secretary General | 17, 29 |
| 25 | KJ (Dr.) | Ramesh | India | IMS | General Secretary | 33, 34 |
| 26 | Mark (Dr.) | Schwartz | International | ISB | President | 30 |
| 27 | Keith (Dr.) | Seitter | USA | AMS | Executive Director | 26 |
| 28 | Makoto (Dr.) | Suwa | International | WB | Representative | 23 |
| 29 | Mary | Voice | Australia | AMOS | Vice-President | 24, 31 |
| 30 | Lan (Dr.) | Yi (Ms) | China | CMS | Managing Editor JMR | |
| 31 | Kung-Yueh Camyale | Chao | Taiwan Region | MSCT | Executive Director | |

# ANNEX C: CURRENT IFMS MEMBERS

1. American Geophysical Union
2. American Meteorological Society
3. Australian Meteorological and Oceanographic Society
4. Canadian Meteorological and Oceanographic Society
5. Centro Argentino de Meteorólogos
6. Chinese Meteorological Society
7. Czech Meteorological Society
8. East African Meteorological Society
9. Ethiopian Meteorological Society
10. European Meteorological Society
11. Finnish Meteorological Society
12. Hong Kong Meteorological Society
13. Hungarian Meteorological Society
14. Indian Meteorological Society
15. International Association of Broadcast Meteorology
16. International Association of Meteorology and Atmospheric Sciences
17. International Association of Urban Climate
18. International Society of Biometeorology
19. Kenya Meteorological Society
20. Korean Meteorological Society
21. Latino American Federation Meteorological Societies
22. Meteorological Society of Chinese Taipei
23. Meteorological Society of Japan
24. Meteorological Society of New Zealand
25. Mexican Organization of Meteorologists
26. National Council of Industrial Meteorologists
27. Philippine Meteorological Society
28. Portuguese Association of Meteorology and Geophysics
29. Royal Meteorological Society
30. South African Society for Atmospheric Sciences
31. Sudanese Meteorological Society
32. Tanzanian Meteorological Society
33. World Meteorological Organization

# ANNEX D: National Meteorological Societies of the World

**Note:** Those societies which are not yet members of IFMS are shown in this color.

## RA I (Africa)

1. Mauritius Meteorological Society
2. Ethiopian Meteorological Society
3. South African Society for Atmospheric Sciences
4. Kenya Meteorological Society
5. Nigerian Meteorological Society
6. Sudanese Meteorological Society
7. Ugandan Meteorological Society

## RA II (Asia)

8. Chinese Meteorological Society
9. India Meteorological Society
10. Iranian Meteorological Society
11. Meteorological Society of Japan
12. Korean Meteorological Society (Republic of Korea)
13. Hong Kong Meteorological Society (Hong Kong, China)

## RA III/IV (South America/North America, Central America and the Caribbean)

14. American Meteorological Society
15. Argentina Meteorological Society
16. Brazilian Meteorological Society
17. Canadian Meteorological and Oceanographic Society
18. Colombia Meteorological Society
19. Costa Rica Meteorological Society
20. Cuban Meteorological Society
21. Ecuador Meteorological Society
22. Peru Meteorological Society

## RA V (South-West Pacific)

23. Australian Meteorological and Oceanographic Society
24. Meteorological Society of New Zealand
25. Philippine Meteorological Society

## RA VI (Europe)

| | | |
|---|---|---|
| 26. | Andorra | Asociació de Meteorología i Ciences de l'Atmosfera d'Andorra |
| 27. | Austria | Österreichische Gesellschaft für Meteorologie |
| 28. | Belgium | Société Royale Belge d'Astronomie, de Météorologie et de Physique du Globe |
| 29. | Bulgaria | Aviometeorological Club of Bulgaria (AMC) |
| 30. | Croatia | Hrvatsko Meteorolosko Drustvo |
| 31. | Cyprus | Cyprus Meteorological Association (CY.MET.A) |
| 32. | Czech Republic | Ceska Meteorologicka Spolecnost |
| 33. | Denmark | Dansk Meteorologisk Selskab |
| 34. | Finland | Geofyysikkojen liitto (Finnish Association of Geophysics) Geofysiikan Seura (Geophysical Society of Finland) |
| 35. | France | Société Météorologique de France |
| 36. | FYROM Former | Meteo Mak Yugoslav Republic of Macedonia |
| 37. | Germany | Deutsche Meteorologische Gesellschaft |
| 38. | Greece | Elliniki Meteorologiki Etaireia |
| 39. | Hungary | Magyar Meteorológiai Társaság |
| 40. | Iceland | Félag Íslenskra Veðurfræðinga |
| 41. | Ireland | Irish Meteorological Society |
| 42. | Italy | Societá Italiana di Meteorologia Applicata (Italian Society for Applied Meteorology, Information page in English), Societá Meteorologica Italiana, Associazione Italiana die AgroMeteorologia, Associazione Geofisica Italiana, Unione Meteorologica del Friuli Venezia Giulia |
| 43. | The Netherlands | Nederlandse Vereniging voor Beroeps Meteorologen |
| 44. | Norway | Forskerforbundets meteorologiforening |
| 45. | Poland | Polskie Towarzystwo Geofizyczne– Meteorological Section |
| 46. | Portugal | Associacão Portuguesa de Meteorologia e Geofisica |
| 47. | Romania | Societatea Meteorologica Romana |
| 48. | Serbia | Meteorolosko drustvo Srbija |
| 49. | Slovakia | Slovenska Meteorologicka Spolocnost |
| 50. | Slovenia | Slovensko Meteorolosko Drustvo |
| 51. | Spain | Asociación Meteorologica Española Asociación Española de Biometeología |
| 52. | Sweden | Svenska Meteorologiska Sällskapet |
| 53. | Switzerland | Schweizerische Meteorologische Gesellschaft |
| 54. | United Kingdom | Royal Meteorological Society |