



THE IFMS NEWSLETTER

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MESSAGE FROM IFMS PRESIDENT

Dr. Harinder P. S. Ahluwalia/President of IFMS

Welcome to the 4th Newsletter of the International Forum of Meteorological Societies (IFMS). Since the last edition of our Newsletter, a lot of things have happened. IFMS has participated in four Exhibitions with its booth – IUGG-2019 (International Union of Geodesy and Geophysics) Centennial in Montreal (July 13-16, 2019), Meteorology Technology World Expo 2019 in Geneva (June 5-7, 2019), 11th Exhibition of China High-Tech Expo on Meteorological Modernization 2019 (April 10-12, 2019) in Shanghai, China and InterMET Asia 2019 (March 27 & 28, 2019) in Singapore. All these organizations supported IFMS with a free furnished booth for which we are very thankful to them.

Presentations on IFMS in the Shanghai Conference as well as in the National Taiwan University in Taipei were made. These presentations were meant to make people understand the mission of IFMS and to look for volunteers. During the visit to various Asian Pacific cities, we provided IFMS Brochures to Meteorological Departments in China (CMA-China Meteorological Administration) and Japan (JMA-Japan Meteorological Agency).

In addition, on an invitation from WMO, IFMS participated in the 18th WMO Congress (Cg-18) in Geneva held between June 3-14, 2019 in which WMO set its future direction and conducted elections for the posts of Secretary General, President and First, Second and third Vice Presidents. We have included some articles on the WMO Congress in this edition of our Newsletter.

WMO, WB and HMEI conducted workshops on Global Weather Enterprise (GWE) at the Meteorology Technology World Expo in Geneva on June 6 and 7, 2019 in which Jack Hayes and Kung-Yueh Chao participated on behalf of IFMS.

We also discussed the Global Campus Initiative for training with the Chief of Training at WMO. This Initiative has been adopted as Resolution 72 at the Cg-18 Congress mentioned above.

We believe that the Capacity Building Agenda for developing and Least Developed Countries can be best implemented by WMO, WB and IFMS working together. The first two are well funded and employee-based organizations, whereas IFMS is a volunteer-based organization. If IFMS volunteers see that their services are well utilized in cooperation with WMO and WB, we will attract many more volunteers to assist in capacity building as long as these two organizations are prepared to cover out of pocket expenses of volunteers. We will work with the Training Division of WMO and COMET's Program from the University Corporation for Atmospheric Research (UCAR) to build capacity. In the targeted countries, we will work with the National Meteorological Societies which are members of IFMS. This mode of operation can be very effective and assist developing nations in the best possible manner.

In order to achieve maximum benefit of IFMS and its member societies, we need adequate funding for which we are exploring various venues including requesting member societies to encourage their membership to donate money to IFMS along with their Annual Membership Fee. All member societies, whether they are direct members or have membership through a Regional Society such as EMS, FLISMET, etc. are requested to implement this mechanism of donations for IFMS. These donations, no matter how small or large, will go a long way in helping us provide useful services related to our Value Proposition.

AN APPEAL TO DONATE HOW TO DONATE TO THE INTERNATIONAL FORUM OF METEOROLOGICAL SOCIETIES

The International Forum of Meteorological Societies (IFMS) is meant to coordinate the efforts of the National Meteorological Societies of the World in the same manner as the World Meteorological Organizations (WMO) does for the National Meteorological Services. In addition, the Association of HydroMet Equipment Industry (HMEI) represents Industry in its dealings with WMO, World Bank (WB) and IFMS.



IFMS plans to assist WMO and the WB (World Bank) in their efforts to create capacity in developing countries through WMO's Global Campus and many other Programs and World Bank's infrastructure and capacity development programs. IFMS is also assisting all of its members to facilitate their work by sharing best practices and creating S&T collaborations between practitioners. **Both WMO and WB being employee-based organizations with defined budgets have limitations; there is a need for a Volunteers-based organization such as IFMS which can provide even larger pool of volunteers to fulfill WMO, WB and IFMS mandates.**

Although IFMS operates through the generosity of its volunteers who donate their time to fulfill its objectives, it still needs some finances for a small Secretariat, covering out-of-pocket expenses, infrastructure expenses (e.g. Web Site, Communication, etc.), Event related expenses, etc., hence the appeal for donations.

Ways to donate to IFMS

Please note that the following mechanisms for sending Contributions/Donations to IFMS can be used:

1. The Crowdfunding we have established is most useful for donations between e.g. \$5 to \$500. Larger donors should use one of the other mechanisms listed below. A Charitable Donation Receipt will be issued by the site.

Please use the following link to donate funds to IFMS through "Crowdfunding" mechanism:

<https://www.classy.org/campaign/IFMS-Funding-2019/c244490>

2. When an individual in a given country wants to make a financial contribute to IFMS, another mechanism he/she can use is to donate money to his/her National Meteorological Society clearly indicating that the donation is meant for IFMS. The local National Meteorological Society can issue its own charitable receipt to the donor and then the money so collected from all donors needs to be transferred say on a quarterly or biennial or annual basis to IFMS. An official receipt will be issued by IFMS to the Society.

3. When a Society wishes to contribute to IFMS, it should use the Bank Transfer information which has been provided to all member societies.

4. The Society can also send an international money order or cheque directly to IFMS on AMS address (45 Beacon St, Boston, MA 02108, USA) c/o Dr. Keith Seitter clearly indicating that the contribution/donation is meant for IFMS. Please remember that societies can claim such a donation as an expense and a receipt for this purpose will be issued by IFMS with its Charitable Registration Number clearly indicated on the receipt. We would greatly appreciate the contributions made by all practitioners and well wishers to assist IFMS in strengthening existing societies and creating new ones.

SUMMARY OF THE EIGHTEENTH WORLD METEOROLOGICAL CONGRESS (CG-18) OF WMO

Dr. Harinder P. S. Ahluwalia/President IFMS

The Eighteenth World Meteorological Congress (Cg-18) was held from 3 to 14 June 2019 at the International Conference Centre of Geneva (CICG), and Saturday 15 June 2019 was reserved for any outstanding items. Harinder Ahluwalia represented IFMS in this event during the first week. The summary provided in this article comes from various articles made available by WMO on their Website.

The Congress opened with a Plenary in which 193 countries including the two new members of WMO (Vanuatu and Nauru) as well as many related organizations such as IATA, ICAO, IFMS, HMEI, Primet, etc. participated.

The objective of the Congress was to discuss and approve future direction of WMO and hold election of Secretary General, President and 3 vice Presidents. In addition to plenaries, many side sessions were held some of which covered topics related to infrastructure, new initiatives, etc. The Agenda available on the following site was used:

<https://public.wmo.int/en/eighteenth-world-meteorological-congress-cg-18/provisional-agenda>

As per the Program Book, the first two days of the Congress were dedicated to in-depth discussions on key Congress resolutions with significant implications for Members. These discussions were organized for each region in parallel and supported by presidents of regional associations and the Secretariat. Topics for discussions to facilitate the plenary decision-making included:

- Constituent body reform (more extended time covering all aspects)
- Services (Global Multi-Hazard Alert System (GMAS), Multi-Hazard Early Warnings Systems (MHEWS), Hydrological Status and Outlook System (HydroSOS), and others)
- Observations (Global Basic Observing Network, World Water Data Initiative, and others)
- Public-private engagement and data policy



In addition, relevant research aspects were factored in the above topics. Reports were presented by the President of WMO, the Secretary-General, presidents of regional associations and technical commissions which highlighted progress in the implementation of the Congress decisions by constituent bodies of the Organization and the Secretariat. Congress then dealt with the recommendations of regional associations and technical commissions formulated after the last session of the Executive Council under the respective agenda items.

Congress adopted the WMO Strategic Plan and Budget for the eighteenth financial period (2020–2023). Congress did the Governance Review defining the constituent bodies for the eighteenth financial period which included the Officers of the Organization: WMO Executive Council, WMO regional associations and Establishment of WMO technical commissions and other bodies for the eighteenth financial period, including Technical Commissions, Joint WMO-IOC Advisory Board, the Research Board and the Scientific Advisory Panel.

Many Resolutions already negotiated at the Executive Council Meeting #70 held on June 20-29, 2018 were presented, discussed and adopted with the consent of the member states. These Resolutions related to Weather, climate, hydrological and related environmental services, Multi-hazard early warning systems, Climate information and services, Hydrological services and support of sustainable water management, Weather information and services, integrated weather, climate, hydrological and environmental services. The list of Resolutions is provided on the following website under Cg-18 Resolutions.docx:

<http://meetings.wmo.int/cg-18/SitePages/Session%20Information.aspx>

Many Infrastructure related issues were discussed which included WMO Integrated Global Observing System, WMO Information System, WMO Global Data Processing and Forecasting System and Earth System Research, etc.

The following sites presented the Word Documents and the Videos (and Power Point Presentations). Many Infrastructure related issues were discussed which included WMO Integrated Global Observing System, WMO Information System WMO Global Data Processing and Forecasting System Earth system research.

WORD DOCUMENTS

[http://meetings.wmo.int/EC-71/English/Forms/AllItems.aspx?](http://meetings.wmo.int/EC-71/English/Forms/AllItems.aspx?RootFolder=%2FEC%2D71%2FEnglish%2F3%2E%20SESSION%20ARCHIVE&FolderCTID=0x012000F131526F946C06419F69929ECC1D2BEF&View=%7BBB738452%2D7560%2D4F97%2DB39A%2D44A41ACDE666%7D)

[RootFolder=%2FEC%2D71%2FEnglish%2F3%2E%20SESSION%20ARCHIVE&FolderCTID=0x012000F131526F946C06419F69929ECC1D2BEF&View=%7BBB738452%2D7560%2D4F97%2DB39A%2D44A41ACDE666%7D](http://meetings.wmo.int/EC-71/English/Forms/AllItems.aspx?RootFolder=%2FEC%2D71%2FEnglish%2F3%2E%20SESSION%20ARCHIVE&FolderCTID=0x012000F131526F946C06419F69929ECC1D2BEF&View=%7BBB738452%2D7560%2D4F97%2DB39A%2D44A41ACDE666%7D)

VIDEOS

<http://meetings.wmo.int/cg-18/SitePages/Presentations%20and%20Videos.aspx>

The following topics were covered in parallel sessions. In order to factor in specific needs of each different Region, five sessions were held for each of the following topics over a period of 2 days:

1. Reform (Rob Masters)
<https://public.wmo.int/en/governance-reform>
2. Services (J. Cullman)
3. Infrastructure (L. P. Rishojgaard)
4. New Initiatives and Needs (Assistant Secretary-General: Wenjian Zhang)
5. PPE (Public Private Engagement) and CD (D. Ivanov and M. Power)

In addition to the above, two afternoon sessions were held on GWE at the Meteorology Technology Exhibition site at the PALExp by WMO, WB and HMEI. HMEI held its elections and elected its new President, James Anderson from Earth Networks. The outgoing President Brian Day was profusely praised for his outstanding lead during a transition period in which HMEI has started working very closely with WMO and WB on the PPP (Public Private Partnership) Initiative.

Finally, Elections and appointments for the following posts were completed and the outcome of elections and appointments will be recorded in a Resolution.

- Appointment of the Secretary-General
- Election of the President and Vice-Presidents of the Organization
- Election of members of the Executive Council
- Election of presidents and vice presidents of technical commissions [to be decided by Congress]

The Secretary General Prof. Petteri Taalas and First Vice President Prof. Dr. Celeste Saulo were re-elected. The outcomes of elections and appointments will be recorded in a Resolution.



Re-elected Secretary General of WMO
Prof. Dr. Petteri Taalas



Elected President of WMO
Prof. Dr. Gerhard Adrian, President
Deutscher Wetterdienst



Re-elected First Vice-President
Prof. Dr. Celeste Saulo, Director,
National Meteorological Service
Argentina



Elected 2nd Vice-President
Dr. Albert Martis, Director,
Meteorological Department
Curaçao



Elected 3rd Vice President
Dr. Agnes Lawrence Kijazi, DG
Meteorological Agency
Tanzania

WMO Council approves new strategic plan

Geneva, 3 July 2018 - A new Strategic Plan to guide the future direction of the World Meteorological Organization has been approved by its Executive Council, aiming at a more integrated Earth system approach to meet the inter-connected challenges of the 21st century.

“By 2030, we see a world where all nations, especially the most vulnerable, are more resilient to the socioeconomic consequences of extreme weather, climate, water and other environmental events; and underpin their sustainable development through the best possible services, whether over land, at sea or in the air,” it says.



In addition to the long-term vision, it sets out long term goals and strategic objectives with specific focus for 2020-2023. These are in support of the international agenda on sustainable development, disaster risk reduction and climate change and the unprecedented demand for actionable, accessible and authoritative science-based information.

The strategic plan was driven by the need for an integrated approach to address increasing threats of extreme weather and climate, freshwater and ocean stress, air quality and environmental degradation. Science needs to be transformed into services to strengthen resilience, mitigation and adaptation.

"High-impact weather, water and climate extremes have devastating consequences for the safety of people, national economies, urban and rural environments, and food and water security. Extreme hydro-meteorological events currently account for more than 80% of the world's natural disasters," it says. These are expected to occur with greater frequency and intensity as greenhouse gas concentrations continue to rise. Sea level rise, also linked to climate change, will further increase the threat to more than half of the world's population who are living in coastal regions.

Society's exposure and vulnerabilities to these hazards will be exacerbated due to population growth, reaching more than 9 billion by 2050, further urbanization and growth of mega cities worldwide, particularly in flood plains and coastal zones.

The strategic plan has three overarching priorities to meet the challenges:

- Enhancing preparedness and reducing losses of life and property from hydro-meteorological extremes;
- Supporting climate-smart decision making to build resilience and adaptation to climate risk;
- Enhancing socioeconomic value of weather, climate, hydrological and related environmental services.

The World Meteorological Congress, the top decision-making authority, will approve the strategic plan at its quadrennial session in 2019. The Executive Council took place from 20-29 June, 2018.

Public-private engagement and partnerships

Executive Council also considered how to reform the structure of WMO to engage the best technical and scientific expertise and leverage the resources necessary to improve the provision of cross-cutting weather, climate, water and environmental-related services.

It agreed on a framework for public-private engagement in the Global Weather Enterprise to ensure that WMO remains fit-for-purpose in face of the growing role of the private sector, technological advances, big data, crowdsourcing and artificial intelligence.

"Trends like "big data", "crowd sourcing" and "open system", the appearance of commercial observing networks, data and service providers, the affordability of digital technology, the introduction of artificial intelligence and cognitive computing to rapidly extract useful information from "big data" all are game changers," it said.

The public-private engagement policy with its "People First" principle will be closely coordinated with efforts to forge new partnerships with development finance institutions to help close the capacity gap between developed and developing countries. Helping developing countries through a new multi-sector and service-oriented development philosophy will bring sustainable solutions for providing essential weather, climate and hydrological information to vulnerable communities.

Executive Council also discussed proposals for a new global multi-hazard alert system, as well as the need to provide impact-based forecasts to partners within the United Nations and the humanitarian sector. It backed plans for cross-cutting health and urban services and reinforced its policy on Polar and high mountain issues. Observations, satellites and data exchange featured high on the agenda. There was a special one-day dialogue on water. Council gave the go-ahead to the further development of an Integrated Global Greenhouse Gas Information System.

"The role of WMO will remain to support the activities of its Member States in understanding the past, monitoring the present and predicting the future state and interactions of the atmosphere, the hydrosphere and other vital elements of our planet, enabling adequate and effective preparedness, adaptation and response to related natural extremes," said the strategic plan.

"This will require further enhancement of coordinated and interoperable networks and systems for data collection and processing, improvement of predictive skill through advanced science and computational technologies, and finally highly innovative approaches of service delivery that will ensure that accurate, fit-for-purpose information will reach its users on time for making their weather-, water- and climate-informed decisions."

WMO President David Grimes (Canada) presided over the session, supported by a Vice-President Celeste Saulo (Argentina). The presidents of WMO's six regional associations, and 27 directors of National Meteorological and Hydrological Services also sit on the Council.

Note: This article is extracted from WMO website and is meant to provide important information on WMOs Strategic Plan and Public, Private Engagement and Partnership to IFMS Newsletter readers. These plans were discussed and approved by WMO CG-18 Congress in June 2019.

A Note on Public, Private & Academic (PPA) Collaboration



John (Jack) Hayes /Rep IFMS Region 4

For over two years, WMO has been working to improve its engagement with the private and academic sectors as part of its strategy to address the growing impact of weather and climate and the increasing gap between services provided by developed and developing countries. In November 2017, WMO joined the World Bank in launching the Global Weather Enterprise Forum (GWEF) designed to create an open dialogue among the world's public, private, and academic sectors of the Global Weather Enterprise.

This past Spring, WMO decided to create an Open Consultative Platform (OCP) to advise the WMO Secretary General and its Executive Council on a range of strategic matters which include science and technology, capacity building and cross-sector collaboration. At the 18th WMO Congress, WMO Members engaged leaders from the international academic and private sectors, and approved the formation of the OCP as well as a declaration supporting increased collaboration between WMO NMHSs and members of the private and academic sectors. OCP Meetings at least once per year are planned and OCP focus will be increased dialogue leading to improved weather and climate services to society.

The GWEF will continue under World Bank leadership with a focus on global disaster risk reduction and WMO will continue its participation.

Announcement for IFMS Global Meeting #6 (IGM-6)

We are pleased to announce that the IFMS Global Meeting #6 (IGM-06) will be held on January 14 & 15, 2020 (Tuesday and Wednesday) in Boston, Massachusetts, USA.

This meeting is being hosted by AMS concurrently with the AMS Centennial Conference which takes place from January 12 to 16, 2020 (Sunday to Thursday).

The current IFMS Members and would be Members are requested to start planning their participation in this meeting as soon as possible.

Those requiring financial assistance for travel are advised to go to WMO and the World Bank or any other relevant funding agency through their National Meteorological Service/Agency.

If you require a sponsorship letter for your Visa to the USA, please send an email to IFMS at the following email address: ifms.collaboration@gmail.com.

If you wish to make a presentation at the IGM-06, please let us know your topic and provide your abstract by September 15, 2019 along with a very short biography and photograph of the Presenter.

Representatives from those countries which do not have a National Meteorological Society are warmly welcome to attend IGM-06. There will be a presentation and discussions on "How to start a National Meteorological Society".

There will also be a discussion on what type of IFMS services our members value most and what type of training will be most valuable for them. We will discuss WMO's Global Campus and potential services which can be provided by COMET (Training Wing of UCAR-USA).

We will present the current status (at the time of IGM-06) of IFMS and discuss our future direction as to how we can make IFMS a unifying force between all National Meteorological Societies of the World and leverage each other's strengths to elevate developing societies.

Financing a Benevolent Society is a key to the development of such a society and its services. We are currently investigating this topic and will provide a summary of our experience in IGM-06. All societies are requested to provide their input on this topic.

Various other topics of interest to our members will be discussed and we request all members to provide an input to what they would like to see in the Agenda so that we start preparing the topics to be discussed in IGM-06.

Making IFMS more visible ...

Dr. Harinder P. S. Ahluwalia

Many people are still not familiar with IFMS; we need to make every attempt to familiarize them with IFMS. All members of IFMS are requested to take every opportunity to speak about IFMS and its Value Proposition. We are thankful to Workneh Degefu for participating in the WMO's Region 1 Conference last year and for making a presentation to the attendees to convince those societies which exist but are not members of IFMS to become members and to encourage those countries which don't currently have National Meteorological Society to create one. We would also like to thank Jack Hayes who has represented IFMS in various WMO meetings and the GWE (Global Weather Enterprise) Forum. Others are encouraged to do the same whenever they get an opportunity.

On my part, at the end of last year, I made a trip to Brazil and displayed IFMS Posters in their Conference Exhibition in Maceio. We also had the IFMS presentation playing on a large TV Screen. An informal presentation was also made to the Director of Argentinian Meteorological Service Dr. Celeste Saulo who was re-elected the First Vice-President of WMO in the CG-18 Congress of WMO in June 2019. She promised to help carry IFMS message to WMO.

During the period of March and April, 2019, I visited India and Asia Pacific and promoted IFMS activities in those countries which could arrange meetings.

Visiting India Meteorology Society

The first meeting was organized by India Meteorological Society (IMS) President Prof. S. K. Dash in New Delhi India 26 March 2019 in which a number of Committee members including Prof S. K. Dash, AVM Ajit Tyagi, Anand Sharma, R. K. Giri, D. R. Pattanaik, etc. participated.



We discussed the cooperation activities between IMS and IFMS. Two main issues were discussed: Training Young Students and Accreditation / Certification. For Training of young students, IMS is trying to organize 15 Automated Weather Stations (AWSs) and would like cooperation with WMO and COMET (Training Division of UCAR) with assistance from IFMS.

I stated that I will try to help by speaking with both COMET and WMO whenever IMS is ready. I feel that it is a great initiative and once implemented, it will become a model for other societies to implement for educating young students about meteorology.

We also spoke about Accreditation. IMD is interested in implementing Accreditation Program and IMS has large enough membership to make it successful. IFMS will be pleased to help IMS to implement Accreditation/Certification Program.

Visit to the Japanese Meteorological Agency (JMA)

The next meeting was in JMA with their Director General for International Relations and three members of the JMA Research Wing where a short presentation on IFMS was made and we discussed the Value Proposition of IFMS. JMA made a presentation on their organization and operations as well as showed us their Forecasting Centre.

Presentation in the Shanghai High-Tech Meteorological Expo

China High-Tech Expo on Meteorological Modernization 2019 was held in Shanghai on April 10-12, 2019. I was invited as the guest of honour and I assisted in the Conference Opening Ceremonies.



We thank the Conference organizers for giving IFMS a free fully furnished booth with a large monitor on which we played our IFMS Power Point presentation constantly. CMS (Chinese Meteorological Society) helped us in finalizing the translation of Posters in Chinese language which is highly appreciated. A presentation on IFMS was made to the attendees in a Conference Room with my Chinese colleague providing simultaneous translation in Chinese which was well received by the audience. The presentation also included information on the Global Weather Enterprise which is a new idea in Asia Pacific countries. Although the Chinese Government believes in the importance of Meteorology and is supporting its Meteorological Sector including equipment manufacturers with substantial investments, it is reluctant to let the Private Sector companies be involved in weather forecasting. Like in most countries, GWE and PPA (Public, Private and Academy) collaboration concepts will need to be promoted strongly for which WMO and WB (World Bank) must realize that IFMS and its members are their crucial partners.

Presentation in Taipei, Taiwan

Thanks to Kung-Yueh Chao (Cam), who helped organize a presentation on IFMS and GWE at the National Taiwan University (NTU) and CWB (Central Weather Bureau). The presentation at NTU was organized on behalf of the Meteorological Society of Chinese Taipei (MSCT). It was attended by a number of people and it became evident that the GWE message is taking root. Many participants wanted more information on how they can implement GWE - collaboration between PPA (Public, Private and Academic) sectors. More work is required to be done by WMO and WB in spreading the message and clearly define the objective of GWE and how countries can implement it.

Participation in Meteorology Technology Show in Geneva

The Meteorology Technology Show was held in Geneva concurrently with WMO's Congress cg18 in June 2019. The organizers of the Show were kind enough to provide a free furnished booth to IFMS. We distributed IFMS Brochures and explained the IFMS Value Proposition to those who visited the booth.



WMO and WB held a two-day workshop on Global Weather Enterprise (GWE) in which a large number of people participated.

Participation in International Union of Geodesy and Geophysics (IUGG) Conference and Exhibition
IFMS was also able to organize a free booth at the Centennial Conference of the International Union of Geodesy and Geophysics.

The IUGG consists of eight semi-autonomous associations:



- International Association of Cryospheric Sciences (IACS)
- International Association of Geodesy (IAG)
- International Association of Geomagnetism and Aeronomy (IAGA)
- International Association of Hydrological Sciences (IAHS)
- International Association of Meteorology and Atmospheric Sciences (IAMAS) - IAMAS is also IFMS' Associate Member
- International Association for the Physical Sciences of the Oceans (IAPSO)
- International Association of Seismology and Physics of the Earth's Interior (IASPEI)
- International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI)

IUGG has also established following six commissions to promote interdisciplinary problems:

- (1) Climatic and Environmental Changes (CCEC)
- (2) Mathematical Geophysics (CMG)
- (3) Geophysical Risk and Sustainability (GRC)
- (4) Study of the Earth's Deep Interior (SEDI)
- (5) Data and Information (UCDI)
- (6) Planetary Sciences (UCPS)

Because of the presence of members of so many different associations, they had approximately 4000 registrants. The Centennial Conference of IUGG in Montreal this year was sponsored by the Canadian Geophysical Union (CGU) and the Canadian Meteorological and Oceanographic Society (CMOS).

Meeting the Challenge of Financing a Benevolent Organization like IFMS

Dr. Harinder P. S. Ahluwalia/President IFMS

With the world facing the challenge of Climate Change and Global warming, organizations related to meteorology, hydrology and oceanography have the responsibility to educate the government and the public in understanding the causes and the ways to mitigate the effect of these global changes. This requires the following actions:

1. Strengthening of collaboration between countries
2. Strengthening of collaboration between the Public, Private and Academic sectors
3. Development of capacity in terms of infrastructure and knowledge in those countries where there is a lack of it.
4. Strengthening of collaboration between existing International organizations, WMO (World Meteorological Organization), WB (World Bank), HMEI (Hydro-Met Equipment Industry) and IFMS (International Forum of Meteorological Societies).
5. Coordination between many donor organizations (e.g. WB, WMO, International Development Agencies of various countries, etc.) involved in capacity building in developing countries to avoid duplication and implement synergetic development.

The World Bank (WB) is cooperating with WMO to develop capacity in many developing countries through various international programs and loans.

Since WMO and WB have limited financial resources and all of their employees are paid, their manpower resources are limited which in turn limits the number of activities they can handle at a given time. They require all the help they can get from benevolent organizations like IFMS and its member societies which are present in each country where such societies exist and IFMS is helping create new societies where none exist today. There arises the importance and need of a volunteer-based organization such as IFMS which can be a great asset to assist these major organizations – WMO and WB.

By virtue of having membership of Public, Private and Academic sectors as well as users, National Meteorological Societies provide an important component of the Global Weather Enterprise. There are many retired, motivated and capable professionals in our field who are prepared to help developing countries in their capacity building (knowledge and infrastructure) efforts if they have a feeling that their assistance will be worthwhile and their out of pocket expenses will be paid. They can help WMO and WB in implementing Training Programs and validating the Requirements Documents for infrastructure. IFMS is already in discussion with WMO and COMET (UCAR-USA) for this.

National Meteorological Societies have the knowledge of the local conditions. Therefore, capacity building is best done by involving local expertise for the success of the projects being implemented in developing countries.

IFMS has a Memorandum of Understanding (MOU) with WMO and is planning for one with the WB. Under these MOUs, IFMS can help in many different ways which include:

1. Assisting WMO and WB in the provision of training for those nations which need to build capacity through education.
2. Reviewing and certifying the specifications of equipment and systems to ensure that the systems are not over-specified which normally causes over-blown budgets and failure of projects.
3. Providing advice and assistance in implementing projects in developing countries.

In addition to the collaboration with WMO and WB, IFMS has a powerful value proposition which consists of connecting scientists for collaboration in R&D, strengthening existing Hydromet Societies through mentoring and Best Practices, creating new societies in countries where none exist, creating collaboration between the Public, Private and Academic Sectors, etc.

In order to function optimally, IFMS needs some funding to take care of its basic expenses which include the cost of Secretariat staff, travel costs of IFMS management, as well as travel costs of members of those societies which cannot afford such expenses. We believe that with the capability of IFMS and its members to be able to provide WMO and WB with so much assistance, both these organizations should provide some finances to IFMS. Every dollar provided will bear a multiple dollar return.

Some funding will also be generated by IFMS member societies through personal and society-based donations. In addition, International Development Agencies of developed countries as well as philanthropic organizations should also contribute to strengthening the hand of IFMS so that it can provide optimal contribution to the Global Weather Enterprise with the help of volunteers. Since our Value Proposition for the public at large is quite strong, we are also looking into "Crowdfunding".

IFMS has made considerable progress up to now. However, with adequate finances, we can make a much bigger contribution to the society at large. We request all potential donors to meet this challenge and help IFMS financially to strengthen itself and become a powerful contributor in facing the challenge of Global Warming and Climate Change.

In addition, IFMS is as strong as its members which are the National Meteorological Societies. We believe that the National Meteorological Societies which are also run by volunteers, need financial assistance from their Governments to fund their activities adequately so that they can make a much bigger contribution to their nations and the world (through IFMS) in withstanding the adverse effects of Global Warming.

Ethiopian Experience in creating Ethiopian Meteorological Societies (EtMS)

Workneh Degefu, Manager & Executive Secretary of EtMS



This article was published in a previous Newsletter and is being repeated with this preamble because of its importance for those countries which are interested in starting a National Meteorological Society. We are also creating a “Guide to Create a National Meteorological Society”. However, the following real life experience of the EtMS would be helpful for those who are looking for some guidance in starting such a Society.

We request other societies to provide IFMS with their experiences and let us know how they meet the two major challenges described in the following article. Sharing experiences and Best Practices is one of the important activities of IFMS. We believe that the National Meteorological Societies provide invaluable service using volunteers. Therefore, they should be financially assisted by their National Governments which can also ask them to do some important studies for establishing policy. The Ethiopian Meteorological Society was established in 2007. The founding members were 7. There are now about 200 members. It was the effort of a few individuals who came together and drafted the constitution and submitted it to the Government Agency which is responsible for regulating the affairs of professional Societies and NGOs. It did not take long to get the Society established and get going.

The Ethiopian National Meteorological Agency provided the Society with office space, furniture and used computers to start with. The office started to function with 2 individuals, a Manager and an Accountant. Few dedicated members provided seed money to get the Society going. Recruitment of members was carried out very aggressively. The Society entered an agreement with the Ethiopian National Meteorological Agency to deduct member dues from their monthly salary and hand it over to the Society. This has been very helpful since this was a regular flow of income to run the operational work of the Society. However, member dues are so small that they cannot cover all the financial needs of the Society. Therefore, income generation became one of the focus of the Society. We strengthened the Society’s event organizing capacity in order to obtain payment for its services. The Society also organizes its own seminars and conferences and obtains some funds from sponsors. So far we were able to generate income to run the Society’s activities at a minimum level.

The Society also approaches donors and international organizations to provide us with used computers, furniture and other office equipment. So far this has been very successful. Like all benevolent societies, EtMS also has two major challenges. The obvious one is lack of financial resources and the second is to demonstrate the benefit of membership.

On the first one, the Society is making every effort to generate funds through cooperation and collaboration with NGOs, international organizations, research institutions and various universities by holding joint seminars, conferences and research activities.

On the second challenge the Society has tried to award fellowships in support of graduate students completing their research work, publish the research work of members on the Society’s Journal free of charge, provide letter of recommendation and support for employment purposes or for scholarship applications. This has helped to make the young professionals interested in the work of the Society. For the older and retired professionals, the Society organizes excursions to various historical, research and other sites of interest at least once a year. This has made the older generation interested in the activities of the Society.

The Ethiopian Meteorological Society is ready to share its experience and mentor countries in the African region which intend to establish a National Meteorological Society. EtMS is also playing an important role in re-energizing the African Meteorological Society.

News from EtMS

-- EtMS was invited and attended several events held by government and international institutions in 2018.

1. EtMS awarded its 2018 Scholarship to three students who have completed their Masters degree research work
2. EtMS organized a one day excursion trip for 15 of its members on 23 November 2018. The trip took participants to the Ethiopian Innovation and Technology Ministry's Information Technology Center and the Ethiopian Space Science Institute.
3. A new proclamation known as the Ethiopian Civil Society Proclamation was issued on 13 March 2019. It governs the activities of NGOs and professional Societies such as EtMS. This proclamation gives a lot of latitude for civil society organizations to operate in conducive environment for professional societies to run their activities.
4. EtMS (Mr. Workneh Degefu) as IFMS Council Member participated in the WMO Regional Association I (AFRICA) Session which took place from 18-23 February 2019 in Cairo, Egypt

Forth coming events.

1. EtMS General Assembly will be held in the 4th quarter of 2019
2. The Conference on Meteorology and the Construction Industry is now moved to the 4th quarter of 2019



الجمعية السودانية للأرصاد الجوية

Sudanese Meteorological Society =

SUMS



Recent Activities of the Sudanese Meteorological Society:

- 1- The Sudanese Meteorological Society (SUMS) managed to establish its first branch in Wad Medani city capital of Gezira State in Sudan on the 15th of July 2019. The branch consists of 10 members . It started its activities by scientific forums planned to discuss forestry, rain-fed agriculture, water resources and wheat yield.
- 2- The Sudanese meteorological Society is planning to for a scientific trip in collaboration with the Sudan Meteorological Authority (SMA) to the State of Northern Kordofan. This state suffers from severe consequences of climate change. The overall objectives of the trip are to foster relations between SUMS, SMA and local educational institutions. Experts will deliver lectures and give training on climate change issues.
- 3- SUMS has drafted a booklet titled: The Meteorologist's Career in Sudan, its Past, , Recent Developments and Potential Progress.

MEMBERS' UPDATES (REGION II)

A BRIEF REPORT ON BRAIN STORMING WORKSHOP

"CLIMATE SERVICES: STAKE HOLDER PERSPECTIVES"

Sushil Kumar Dash, President, Indian Meteorological Society
and D.R.Pattanaik, Secretary, Indian Meteorological Society

Increasing scientific evidence confirms the fact that anthropogenic activities have led to changes in global climate system which includes warmer temperatures, rising sea levels, and potentially more frequent and severe extreme weather events such as tropical storms, monsoonal heavy rainfall, flood, drought, etc. These pose significant risks to public safety and natural resources particularly for a country like India which has diverse climatic systems and economic strata of the people. Thus, there is an urgent need to enable better management of the risks arising out of climate variability and change by linking weather and climate services with the national development strategies.

Climate services framework is basically proposed to enable better management of the risks arising due to climate variability and change and appropriate adaptation strategy to climate change. This can happen with the incorporation of climate information and prediction into planning, policy and practice on country level.

Providing better climate services by sharing climate information, climate prediction, knowledge and best practices for the risks management will support stakeholders at all levels by providing policy and management guidance that increase resilience to the impacts of climate variability and climate change in these priority areas. Thus, there is a need to deliver climate services which includes the production, translation, transfer, and use of climate information purposefully designed to enable policymakers and decision-makers to address significant problems and create solutions.

Indian Meteorological Society (IMS) with the joint support of Ministry of Earth Sciences (MoES), Department of Science and Technology (DST) and India Meteorological Department (IMD), Government of India organised a two-day Brain storming workshop on, "Climate Services Workshop: Stake Holder Perspectives" during 22-23 March, 2019 in the Mahika Hall, Prithvi Bhawan, MoES, Lodhi Road, New Delhi. These two days have been identified for holding the workshop on this important theme because of the fact that 22nd March has been observed as the World Water Day and 23rd March is observed the world over as World Meteorological Day

The following five priority areas those are vulnerable to climate change are discussed during this workshop:

- i) Agriculture and Food Security**
- ii) Disaster Risk management**
- iii) Energy availability and use**
- iv) Human Health Impacts and**
- v) Water availability and use.**

The two-day brainstorming workshop was held to address the above issues and efforts were made to bring together climate change scientists, local government bodies, disaster managers and stakeholders from all the above five priority areas to deliberate on this important issue. The meeting was inaugurated by Secretary MoES, Dr. M. N. Rajeevan in the presence of president IMS, Prof. S. K. Dash; Director General IMD, Dr. K. J. Ramesh, Adviser DST, Dr. Akhilesh Gupta and Secretary, IMS Dr. D. R. Pattanaik. On this occasion a booklet containing Discussion Papers on Climate Services and current issue of IMS journal were released. Eminent scientists from DST, MoES Institutions such as IMD and Indian Institute of Tropical Meteorology (IITM), National Centre for Medium Range Weather Forecasting (NCMRWF) and the distinguished Fellows of IMS were invited to participate in the workshop. In addition, organisations such as Indian Council of Medical Research (ICMR), Indian Institute of Public Health (IIPH), Indian Council of Agricultural Research (ICAR), Indian Red Cross Society, National Research Development Corporation (NRDC), Central Water Commission (CWC), Representatives from various state Governments, IITs and interested private companies engaged in this science including GIZ and Earthwatch joined the workshop on invitation and put forth their concerns. In total, 150 delegates including members of IMS, senior scientists, experts, academicians, disaster managers and stake holders from all the sectors participated in this brain storming workshop.

MEMBERS' UPDATES (REGION II)



Release of a booklet on “Discussion Papers” of Climate Services Workshop by the Chief Guest Dr. M. N. Rajeevan (in the middle), Secretary, MoES.

In total, there were seven technical sessions where experts elaborated on different issues of climate services. The first technical session was held on the Overview of Global and Regional Frameworks for Climate Services followed by five sessions on five priorities areas of Climate services viz., Agriculture and Food Security, Disaster Risk management, Energy availability and use, Human Health Impacts and Water availability and use. Since 23rd March was the World Meteorological Day, a special talk was arranged on the Advancement and Immediate Priorities of the Earth System Modelling in India.

Another special session was also arranged to discuss the Capacity Building and Public Awareness and the role of institutions and NGOs for better climate services in the country. Mr. Raghuvansh Saxena, CEO, Earthwatch, India and Mr. Himanshu Verma, GIZ-India expressed their ideas on how they can work along with IMS and contribute to several aspects of Climate Services in India. Finally, there was a panel discussion moderated by Prof. S. K. Dash, president IMS. The panel consisted of Dr. K. J. Ramesh, Director General, IMD; Dr. Akhilesh Gupta, Adviser & Head, Climate Change Programme, DST; Dr. P. Vijay Kumar, CRIDA; Mr. K.V.S. Baba, CMD, POSOCO and Ms. Swati Sulagna from NDMA.



Release of the current issue of IMS journal “VayuMandal”



Participants and invited speakers during the workshop

Very interesting recommendations emerged from this workshop so as to chalk out the future course of action in climate services in India. There was unanimity in the fact that for the last mile connectivity of the climate services in India, all concerned central government departments, state governments, scientific societies and other agencies outside the arena of the government should work together in collaborative mode. Climate variability, especially the actionable weather and climate parameters at the regional level should be identified to start with and necessary steps be taken to keep early warning systems in place in key areas as soon as possible. It was decided that the full report consisting of the recommendations will be drafted and submitted to IMD for possible future course of action.

CONCLUSIONS OF THE XIII ARGENTINE CONFERENCE ON METEOROLOGY (CONGREGMET XIII), OCTOBER 2018, ROSARIO CITY, ARGENTINA.

The CONGREGMET XIII was organized by the Argentine Meteorological Society (CAM) from October 16th, to 19th 2018, held in Rosario, Argentina. The CONGREGMET gathers researchers and professionals in Meteorology and related sciences from Argentina and other neighboring countries every three years, counting on the participation of international exhibitors and keynote speakers.

The goal of CONGREGMET XIII was to disseminate the scope of the atmospheric and ocean sciences and their effects on daily life, under the slogan "Extreme weather and climate events: integration of knowledge for risk management". Being a regional meeting, there were participants not only from Argentina, but also from Peru, Brazil, Chile, Uruguay and Cuba. There were about 230 presentations including posters and 33 talks as well as 3 round tables. The main invited conferences were in charge of Dr. Carlos Morales (Sao Paulo University), Dr. Celeste Saulo (Argentine National Weather Service) and Dr. Maximiliano Viale (IANIGLA - CONICET).

The Congress began with a traditional opening ceremony, followed by the first invited lecture by Dr. Carlos Morales entitled "Using lightning measurements to diagnose and predict severe thunderstorms". The session of oral presentations of the area "Characterization and processes of the Atmosphere and the Ocean" was held, and then a round table entitled "The role of information in disaster risk management" was held.

The second day began with the session of oral presentations of the area and the invited conference "The provision of meteorological and climate services for decision making: a form of adaptation", presented by Dr. Celeste Saulo. Then, in a broad session of posters, a round table entitled "Global Weather Enterprise: Integration of the academic, public and private sectors for the generation of more precise and reliable forecasts" was held.

The third day had two sessions of oral presentations framed in the themes: "Insertion of Meteorology and Oceanography in Society" and "Observation Systems". Later, were held a poster session and the round table entitled "Disaster Risk Reduction: How do you act in the face of a phenomenon that threatens a vulnerable society? "

On the last day, Dr. Maximiliano Viale spoke at the invited conference "Mountain Meteorology: a specialty to develop in Argentina". The sessions of oral presentations dealt with "Characterization and Processes of the Atmosphere and the Ocean". The meeting ended with a traditional closing ceremony.

GWE was considered one of the main aspects to address during the Congress, as it is a new theme in the meteorological community. During the round table, were represented the different actors: Public by the National Weather Service, Academic by the Buenos Aires University and Private by FRONTEC (provider of services) and CAMMESA (Energy Company).

In recent years, the increase in the occurrence of extreme weather and climate events has led to an increase in the vulnerability of the human being, as well as in the infrastructure of the countries, especially those that are in the process of development. That is why the most accurate and reliable forecasting requirements by society, companies, and governments of these countries have grown rapidly

At the global level, the PPA sectors have understood that they cannot survive on their own, but need joint work to obtain better results. The existence of private capital and innovations in observations and computational technology are allowing the private sector of the GWE to grow rapidly. Even the operational forecast is also seen as an objective of this sector, although it could not be satisfactory without the investment of the public sector in research and development in the atmospheric sciences and in the observation system. Therefore, a constructive dialogue between the leaders of the three sectors is necessary to coordinate these advances and thus benefit the GWE. The urgency of achieving this goal comes from the need to obtain more accurate and reliable forecasts and thus be more effective in saving human lives and protecting infrastructure, while increasing vulnerability to climate threats in an environment that is changing.

Although in Argentina there is a collaboration between these three actors, it is still not entirely efficient and is not given within the framework of the GWE. It is for this reason that this round table has as main objective to make known the concept of GWE to increase the interaction between the sectors involved and thus generate better products for users.

The Congress received more than 300 researchers, students, professionals, teachers and public from Argentina, Peru, Brazil, Chile, Uruguay and Cuba. In particular, participants from the Argentine provinces of Buenos Aires, Mendoza, Chubut, Córdoba, Corrientes, Entre Ríos and Santa Fe attended.

MEMBERS' UPDATES (REGION III&VI)



1st RMetS Climate Change Forum



The Royal Meteorological Society's 1st Climate Change Forum took place at Coin Street Conference Centre, London on the 4th June 2019. It ran under the theme "Risks and Resilience: Emerging challenges in a post Paris world". This event brought together climate scientists from many UK centres. The buzz and positive feedback from the meeting makes us expect that it will be even more popular next year.

The interactive format of the day consisted of keynote lectures in the morning, an extended poster and networking session over lunch and interactive round table discussions in the afternoon. The event provided an excellent round-up of the latest state of science and policy for researchers, students and enthusiasts. Speakers in the morning from government, parliament and advisory bodies explained recent challenges of the UK society and government. The poster session featured highlights in climate change research including natural, social sciences and interdisciplinary research approaches. Climate actions from the private and public sector were included as well as science communication and the science-policy dialogue. This session provides an opportunity for exchanging knowledge from within the UK climate research community in interdisciplinary ways. The round table discussions in the afternoon looked forward to scientific challenges for future research and society.

Materials from the event can be downloaded from the RMetS website at

<https://www.rmets.org/event/1st-rmets-climate-change-forum>

Weather Protection

by Rebecca Leonardi, Wx Risk Global LLC

“The difficulty lies, not in the new ideas, but in escaping the old ones.”

–John Maynard Keynes (1883–1946)

In the past, there has been reluctance to consider disaster risk management as a tool to offset the financial impacts of adverse weather events and compensate for economic suffering in developing countries. There is a clear link between the transpiring weather markets and the solutions to the problems created by climate-based natural disasters. If we subdivide and overlap weather risk markets, there are numerous opportunities for risk to be amassed and shared globally.

The natural disasters that account for loss of life also cause severe economic problems in developing nations, which are financially incapable of dealing with these events. Adverse weather events slow economic growth, especially in economies driven primarily by agriculture. In many cases, catastrophes can negatively affect the real GDP growth of entire nations for years. Weather derivatives can provide financial protection at the critical juncture when weather events strike, before famine and crop devastation have taken hold (Filho, 2013). These countries have a low asset base and are financially incapable of dealing with these weather events, the result being, negative implications, for both social and economic development.

There is extremely low insurance usage throughout the developing world, and this is one reason these countries suffer disproportionately from natural disasters. In addition, most governments in these countries have not been interested in hedging risk against weather-related disasters until after a major event has occurred. This is due in part because of a perception that these disasters are infrequent. Furthermore, wealthy developed nations have offered free post-disaster funding which also discourages developing nations from being proactive (Kunreuther, 1996). The World Bank alone has dispersed US\$38 billion of post-disaster funding and reconstructive loans over the last 20 years (World Bank Annual Report, Washington D.C.). However, such intervention can be highly political and serious inequalities, in the division of funds, are common.

Weather Risk Markets are among the most innovative tools for transferring risk. First, the weather event must be identified. Secondly, the time period when losses will occur is established. Finally, the duration and the intensity of the weather event are determined. Once these relationships are acknowledged, weather derivatives become a successful instrument in mitigating risk. These weather index-based products can be purchased within 20 days of the risk period and can span 3 days to several years, depending on the need.

An additional advantage of providing disaster assistance based on weather indexes is transparency. If the criteria for triggering natural disaster assistance takes place before the event occurs, decision makers may find it more difficult to use the assistance in regional areas they deem “most favorable”. Furthermore, governments can combine disaster risk across an entire nation, allowing for diversification and lessening the exposure for all regions. Several possible structures are available when overlapping and transferring risk. Weather risk markets are more efficient when they are closer to the mean of the probability distribution. However, reinsurance markets are more adequate at providing protection for extreme events. The liquidity of these markets vastly improves the pricing efficiency.

Once the index has been established for a particular weather event, there are many potential options to offset that risk. The index could be used to establish weather-based parametric triggers for government disaster assistance, provide weather-based insurance directly to economic agents at risk, or allow collective assistance groups to transfer their exposure to this risk to outside investors (Dischel 2002). This risk needs to be transferred when, for example, the weather event affects an entire village and they cannot assist each other because everyone has experienced loss.

Improving the ability of developing countries to access funds immediately following a weather-related disaster diminishes the need for post-disaster funding, as well as helping speed economic recovery. Post-loss funding should not be used to replace lost assets but invested in projects that create the highest social and economic value. Joining the funding efforts of donor countries, global weather risk markets, capital markets, and banks, would enable developing countries to address their economic losses in the event of a weather-related disaster.

References

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Contribution by RMetS

Journal: Meteorological Applications

Flip-Flop Index: Quantifying revision stability for fixed-event forecasts

Abstract

The degree to which a forecast changes from one issue time to the next is an interesting aspect of a forecast system. Weather forecasters report that they are reluctant to change a forecast if they judge there is a risk of it being changed back again. They believe such instability detracts from the message being delivered and are reluctant to use automated guidance which they perceive as having lack of stability. A Flip-Flop Index was developed to quantify this characteristic of revisions of fixed-event forecasts. The index retains physically meaningful units, has a simple definition and does not penalize a sequence of forecasts that show a trend, which is important when assessing forecasts where a trend can be interpreted as a forecast becoming more confident with a shorter lead time. The Flip-Flop Index was used to compare the stability of sequences of automated guidance with the official Australian Bureau of Meteorology forecasts, which are prepared manually. The results show that the forecasts for chance of rain from the automated guidance are often more stable than the official, manual forecasts. However, the official forecasts for maximum temperature are more stable than those based on automated guidance. The Flip-Flop Index is independent of observations and does not measure skill, but it can play a complementary role in characterizing and evaluating a forecasting system.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/met.1732>

An objective verification system for thunderstorm risk forecasts

Abstract

An objective verification system for the Met Office's 5-day thunderstorm and cumulonimbus (CB) risk forecasts is described. The forecasts are designed specifically to forecast the impact of CB on aviation in the London Terminal Manoeuvring Area, known as the London TMA, and are produced by meteorologists at the Met Office. Challenges faced in developing the verification system resulting from the subjective nature of the forecasts themselves and the limitations of the data (from the UK Air Navigation Service Provider [UK ANSP]) available to assess the true impact on aviation are discussed. The forecasts include the likelihood of medium impact events as well as the likelihood of high impact events resulting from thunderstorms. A unique approach has been taken to verifying these forecasts which has involved working closely with the primary user, the UK ANSP. An objective verification system has been developed to assess the forecast accuracy across all lead times for high and medium impact events. This system provides the tools necessary for routine, year-on-year evaluation of the forecast performance.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/met.1748>

Journal: International Journal of Climatology

Impact of atmospheric heat and moisture transport on the Arctic warming

Abstract

The effect of the meridional atmospheric heat and moisture transport on the Arctic warming is estimated using the ERA-Interim reanalysis over 1979–2015. Major influx of sensible and latent heat into the Arctic occurs through the Atlantic sector 0°–80°E between the surface and the 750 hPa level. This influx explains more than 50% of the average temperature variability in the area 70°–90°N in winter with almost equal contribution of both fluxes. Calculations using MPI-ESM-MR Earth System model from the Coupled Model Intercomparison Project Phase 5 (CMIP5) ensemble showed the similar effect of the meridional atmospheric heat and moisture transport and its increase by the end of the century. Mean summer transport in the low troposphere is directed from the Arctic and transfers out the moisture produced by summer melting of sea ice. The major drivers of summer warming are the radiation processes especially downwards longwave radiation.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/joc.6040>

Contribution of snowfall from diverse synoptic conditions in the Catskill/Delaware Watershed of New York State

Abstract

Snowfall in the six basins of the Catskill/Delaware Watershed in south-central New York State historically contributes roughly 20–30% of the water resources derived from the watershed for use in the New York City water supply. The watershed regularly experiences snowfall from three distinctive weather patterns: coastal mid-latitude cyclones, overrunning systems, and lake-effect or Great Lakes enhanced storms. Using synoptic weather classification techniques, these distinct regional atmospheric patterns impacting the watershed are isolated and analysed in conjunction with daily snowfall observations from 1960 to 2009 to allow the influence of each synoptic weather pattern on snowfall to be evaluated independently.

Results indicate that snowfall-producing events occur on average approximately 63 days/year, or once every 4 days during the October–May season, leading to an average of 213 cm/year of snowfall within the watershed. Snowfall from Great Lakes enhanced storms and overrunning systems contribute nearly equally to seasonal totals, representing 38 and 39%, respectively. Coastal mid-latitude cyclones, while producing the highest amount of snowfall per event on average, contribute only 16% to the watershed average total snowfall. Predicted climate change is expected to impact snowfall differently depending on the specific atmospheric pattern producing the snow. As such, quantifying the contribution of snowfall to the watershed by synoptic pattern can inform future water management and reservoir operation practices for the New York City Water Supply Management System.

<https://onlinelibrary.wiley.com/doi/10.1002/joc.6043>

Journal: WIREs Climate Change

How should we ask questions about the social status of climate change knowledge?

Conclusion

To conclude, this domain seeks to contribute to a better understanding of the complex relations between climate change and social change by providing solid reviews on the social status of climate change knowledges in the plural, embedded in a broad understanding of the coevolutions of science and society.

<https://onlinelibrary.wiley.com/doi/10.1002/wcc.584>

Challenges to the sustainability of climate services in Europe

Abstract

Climate services have emerged as a research and operational field in recent years. This development has been underpinned and supported by significant research, funding and agenda-setting efforts such as the Global Framework for Climate Services internationally and the Roadmap for Climate Services and the Copernicus Climate Change Service in Europe. The fast pace at which this field is developing raises a number of key challenges that need to be critically examined and addressed to ensure the future development and sustainability of climate services in Europe. This opinion piece highlights a number of challenges currently threatening the viability of climate services including the complexity of the concept of climate services; the complex landscape of complementary research and development areas relevant to climate services; existing rights to freely access and use climate services; current limitations to funding structures and mechanisms and how that impacts on the development of climate services; the emphasis on co-production as a precondition to climate services development; and the limited role of the social sciences in the research and operational field of climate services. Effectively addressing these challenges will require a commitment from the scientific and practitioner communities to engage in critical and reflective debates around the future conceptualization and operationalization of climate services in Europe. This paper aims to provide critical input to stimulate a necessary and overdue debate around the sustainability and future of climate services in Europe.

<https://onlinelibrary.wiley.com/doi/10.1002/wcc.587>

Journal: Weather

A note from the new Editors of Weather

Weather has been published for over 70 years – we recognise that it is a veritable institution, and as the new Editors of Weather, we will strive to make sure that it continues to occupy its unique place amongst learned publications. In a new departure for the Society, the role of Editor-in-Chief of Weather will be shared between the two of us. This will enable us to explore new directions whilst at the same time retaining all the things that make Weather special. In this endeavour, we are delighted to be supported by a hugely experienced and knowledgeable editorial board team, and we hope that our complimentary skills in meteorological observation, research and teaching (Eddy), and in operational meteorology, met training and project management (Gavin) will bring a comprehensive mix to the leadership of the board.

Of course, the weather has always been a talking point, but over recent weeks and months it seems like the climate and climate change have reached the public and political consciousness like never before. We are also going through an inescapable revolution in scientific and digital technology. These changes bring us opportunities, amateurs and professionals alike, to further our knowledge. They will also enable us to continue to communicate weather knowledge and world-class climate science to communities and decision makers, with perspectives from past and present, as well as looking towards the future.

Weather sits at the intersection between those having a general passion for the weather and those with a more professional interest, as well as between meteorologists themselves and others working in related sciences. Since its very inception in 1946, there has been some colour content in Weather in every issue. Since 2004 it has been a full-colour enterprise – allowing us to enjoy the beautiful aesthetics of our atmosphere, and at the same time improve our scientific knowledge.

Together with the Society, we look forward to implementing the results of the recent readers' survey, and to continue to satisfy the wishes of the traditional readership of Weather, as well as a growing international one. We welcome correspondence on any topic in relation to the weather and climate. As a member of the Society or simply a reader, Weather is your publication, so please consider submitting something, whether it be a short article, a photograph or a letter. We are constantly on the lookout for 'back to basics' style articles and case studies of notable weather events. We greatly look forward to working with readers, the Editorial Team, the Society and Wiley, to realise these opportunities.

Edward (Eddy) Graham and Gavin Huggett

May 2019

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/wea.3530>

How important are aerosol–fog interactions for the successful modelling of nocturnal radiation fog?

Abstract

Forecasting and modelling fog formation, development, and dissipation is a significant challenge. Fog dynamics involve subtle interactions between small-scale turbulence, radiative transfer and microphysics. Recent studies have highlighted the role of aerosol and related cloud microphysical properties in the evolution of fog. In this article, we investigate this role using very high-resolution large eddy simulations coupled with a newly developed multi-moment cloud microphysics scheme (CASIM), which has been designed to model aerosol–cloud interactions. The simulation results demonstrate the sensitivity of the fog structure to the properties of the aerosol population (e.g. number concentration). This study also demonstrates the importance of the treatment of aerosol activation in fog formation and discusses future work required to improve the representation of aerosol–fog interactions for simulations of fog.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/wea.3503>

Journal: Geoscience Data Journal

Editorial from new Editor-in-Chief

Linden Ashcroft

We live in a world of increasing data; in all facets of life, information is being produced at an unprecedented rate. While this represents a concern in areas such as personal security, the explosion of data in the geosciences opens up myriad possibilities for improving our understanding of the planet. This improved understanding can then inform leaders and communities around the globe making critical and costly decisions. The need for searchable, accessible and long-lasting geoscience data is clear, and growing. There are a large number of online repositories where datasets can now be stored, given identifiers, and set free in the world for others to use. Funding bodies increasingly require data produced during a project to be made freely accessible. All of these developments are largely positive. But given the power of data to aid in decision-making, and the specialised nature of much geoscience, simply letting a dataset loose without an explanation of its development or initial purpose may result in unintentional misuse, causing data growth to become a concern in our community as well. Documenting the strengths, limitations and applications of a dataset to ensure informed reuse is one reason why Geoscience Data Journal exists. But it's not the only reason. You and your team deserve to be credited for the hard work put into building a dataset that is valuable to the research community. Making your scientific research traceable, even reproducible, is much easier with a dedicated data description paper. Finally, the data you have contributed is much more useful if it is easy to find, access and share, not only now but in the future. Sharing geoscience data in particular enables collaborations across research disciplines to address global challenges. Climate change, for example, touches almost all aspects of our lives now, and only the combination of geoscience information with knowledge from the social and economic sectors will enable us to work towards sustainable solutions. Sharing and communicating our prized tools—our data and methods for analysis—is a valuable part of this interdisciplinary work.

THE CHANGING FACE OF GEOSCIENCE DATA JOURNAL

It has been one year since I took over as Editor-In-Chief of Geoscience Data Journal, bringing my background in historical climate, data quality and science communication to the role. During this time I have overseen some changes to the journal that we hope will make it easier to reach our aims.

1. Enhanced geographic and topic-based representation on the Editorial Board. Thanks to the excellent work of the original Editorial Board, we have been able to attract new experts in geology, palaeobiology, upper atmosphere observations, dataset development and spatial modelling to the team. I am proud to have gender parity in our Editorial Board, and to welcome Associate Editors from Brazil, China and Germany to our largely native-English speaking Board.
2. The addition of a data services article type. The vast majority of submissions we receive for Geoscience Data Journal are data papers i.e. articles describing the development and potential uses of a new dataset that is now publicly available. But what if you have developed a tool to aid with the analysis of geoscience data, or have some best practise guidelines on data preparation, visualisation or publishing that could improve collaboration within your community?

With the new data services article type we hope to promote the sharing and documentation of these services. Data stores and toolboxes are an increasingly common component of regional and global research initiatives. These efforts too need to be citable and searchable, with their architecture shared for the benefit of future efforts. It is exciting to see several data services publications already in the field of climate data rescue.

3. Focus on open access. Geoscience Data Journal was always designed to be Open Access, ensuring that the articles will be freely available for all. The same applies to the datasets being described. In 2018 we broadened our guidelines on data repositories to include any that allow free access and have a long-term provenance strategy. This means that as technology changes, the data described in our articles will remain accessible. We have also partnered with the Centre for Open Science to award Open Data and Open Material badges for our data and data services papers.
4. Streamlined reviewing process. One of the most challenging aspects of a data journal is the review of a data paper, as many of the questions and criteria used to assess the quality of a traditional scientific manuscript simply do not apply. To assist with this, we have revised the reviewer guidelines available online and made some changes to the reviewing process. Our goal is to make it easier for reviewers to quickly and clearly assess the quality of an article and the value of the associated dataset.

A FEW WORDS OF THANKS

These developments are only possible thanks to the dedication of the original Editorial Board. The outgoing Editor-in-Chief Dr Rob Allan is an indefatigable champion for data availability, and has done an applaudable job in setting Geoscience Data Journal on a good path. I would like to sincerely thank him, the Wiley team, and the current Editorial Board members for their patience and guidance as I transitioned into the role.

Many thanks also to the outgoing Associate Editors for their tireless efforts: Drs Manola Brunet, Peter Fox, Inge Auer, Isaac Moradi and Sarah Callaghan. Sitting on the Editorial Board of a journal is a voluntary undertaking and I am very grateful for the time donated by these global experts.

Finally, I would like to thank the many reviewers and authors who have contributed—and continue to contribute—to Geoscience Data Journal. We are a relatively new journal, but part of an old stable; the Royal Meteorological Society has always had a culture of sharing knowledge between professional and amateur scientists alike. I would like to think that, thanks to your input, Geoscience Data Journal is continuing that tradition.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/gdj3.66>

From books to bytes: A new data rescue tool

Abstract

Historical data provides observational information crucial to our understanding of the evolution of geophysical processes. However, there is a gap between predigital age observations, which are typically handwritten, and data that is discoverable and analysable. The data rescue protocols here address this gap, covering the information lifecycle from handwritten register pages to transcription-ready content, describing the historical data, the database design for the data rescue, and the development of an application design to transcribe the meteorological information directly from an image file to the database. The preparatory steps necessary to organize, curate, image, and structure the meteorological information, prior to transcribing the historical data, are outlined here in an integrated methodology. The initial organization, the development of an image file nomenclature to link the rescued data to the original source, and the description of a metadata schema to optimize the transcription application are all vital to the process of ensuring traceability and transparency in the data rescue process. Taken together, these steps describe best practices guidelines for similar projects. Although we designed the methodology and application to be used in any data rescue context, our particular concern was to accommodate the needs of citizen scientists. We thus focused on making our application easily maintained, flexible, direct to database, clear, and simple to use.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/gdj3.62>

Journal: Atmospheric Science Letters

A new video-camera-based visiometer system

Abstract

We provide a novel design of atmosphere visibility measurement system with the contrast principle used in the naked eye visibility observation. The new digital photography visiometer system (DPVS), composed of a CCD camera and two identical targets, utilizes the contrast of dual targets to measure the visibility. Two operational modes are designed to enable the DPVS to accommodate the lighting conditions of the day and night. Two passive targets, black bodies, are employed for daytime visibility measurement, and two active lights, LED panels, are utilized for nighttime. The mathematical models of the dual targets for both daytime and nighttime are developed, and the sensitivity analysis shows the requirements of the hardware to achieve desired accuracy. The design of the target including the blackbody and the LED panel is briefly discussed, and the temperature dependence and stability of the LED panels are measured experimentally. Finally, the DPVS is compared with two commercial visibility devices, a forward scatter meter and a transmission meter for field validation. A 5-day comparative experiment shows that the measurements of the DPVS generally well agree with those of the transmissometer and the forward scatter meter for visibility up to 15 km, and the relative bias of 87% of the DPVS measurements lies between -0.2 and 0.2 .

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/asl.925>

Collecting and utilising crowdsourced data for numerical weather prediction: Propositions from the meeting held in Copenhagen, 4–5 December 2018

Abstract

In December 2018, the Danish Meteorological Institute organised an international meeting on the subject of crowdsourced data in numerical weather prediction (NWP) and weather forecasting. The meeting, spanning 2 days, gathered experts on crowdsourced data from both meteorological institutes and universities from Europe and the United States. Scientific presentations highlighted a vast array of possibilities and progress being made globally. Subjects include data from vehicles, smartphones, and private weather stations. Two groups were created to discuss open questions regarding the collection and use of crowdsourced data from different observing platforms. Common challenges were identified and potential solutions were discussed. While most of the work presented was preliminary, the results shared suggested that crowdsourced observations have the potential to enhance NWP. A common platform for sharing expertise, data, and results would help crowdsourced data realise this potential. <https://rmets.onlinelibrary.wiley.com/doi/10.1002/asl.921>

Convective initiation and storm life cycles in convection-permitting simulations of the Met Office Unified Model over South Africa

Abstract

Convective initiation is a challenge for convection-permitting models due to its sensitivity to sub-km processes. We evaluate the representation of convective storms and their initiation over South Africa during four summer months in Met Office Unified Model simulations at a 1.5-km horizontal grid length. Storm size distributions from the model compare well with radar observations, but rainfall in the model is predominantly produced by large storms (50 km in diameter or larger) in the evening, whereas radar observations show that most rainfall occurs throughout the afternoon, from storms 10–50 km in diameter. In all months, the modelled maximum number of storm initiations occurs at least 2 hr prior to the radar-observed maximum. However, the diurnal cycle of rainfall between the model and observations compares well, suggesting that the numerous storm initiations in the simulations do not produce much rainfall. Modelled storms are generally less intense than those in radar observations, especially in early summer. In February, when tropical influences dominate, the simulated storms are of similar intensity to observed storms. Simulated storms tend to reach their peak intensity in the first 15 min after initiation, then gradually become less intense as they grow. In radar observations, storms reach their peak intensity 15 min into their life cycle, stay intense as they grow larger, then gradually weaken after they have reached their maximum diameter. Two November case studies of severe convection are analysed in detail. A higher resolution grid length initiates convection slightly earlier (300 m as opposed to 1.5 km) with the same scientific settings. Two 1.5 km simulations that apply more subgrid mixing have delayed convective initiation. Analysis of soundings indicates little difference in the convective indices, suggesting that differences in convection may be attributed to the choice of subgrid mixing parameters.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/qj.3487>

Estimates of entrainment in closed cellular marine stratocumulus clouds from the MAGIC field campaign

Abstract

Entrainment of warm, dry air from above the boundary layer into the cloud layer has a significant impact on stratocumulus clouds in the marine boundary layer. During the MAGIC field campaign, the Atmospheric Radiation Measurement (ARM) mobile facility was deployed aboard a container ship that made regular transects between Los Angeles, California and Honolulu, Hawaii. Observations made during MAGIC transects were collocated with observations from the Geostationary Operational Environmental Satellite (GOES-15) and European Centre for Medium-range Weather Forecasting (ECMWF) reanalysis model. From these data, hourly estimates of entrainment velocities in closed cellular stratocumulus cloud conditions were calculated from the mixed-layer mass budget equation, modified to accommodate observations sampled from a moving platform. The technique is demonstrated using observations collected during Leg 15A (46 h) and then extended to 178 h of data. The average entrainment velocity was 7.83 ± 5.23 mm/s, and the average large-scale vertical air motion at cloud top (obtained from reanalysis) was -2.56 ± 3.31 mm/s. The vertical air motion at cloud top was positive (upward) during 36 h (~20%) with a mean of 2.68 mm/s. Entrainment velocity is highly variable and on average the MAGIC observations show no dependence of entrainment velocity on longitude or any pronounced diurnal cycle. When binned by inversion strength, the mean entrainment velocity and mean large-scale vertical air motion mirrored each other, with both exhibiting substantial variability. Collectively, our results suggest a mean entrainment-velocity behaviour associated with the background state, with large changes in entrainment velocity forced by strong variability in internal boundary-layer properties like turbulence, radiation, and inversion strength. This cautions against using climatological mean estimates of entrainment velocities or neglecting instances with upward large-scale vertical air motion.

<https://rmets.onlinelibrary.wiley.com/doi/10.1002/qj.3514>



International Exhibition & Forum WEATHER • CLIMATE • WATER / EARTH OBSERVATIONS / GREEN ECONOMY 2019 will take place in St. Petersburg, Russian Federation, on 09-10 October 2019.

Forum & Exhibition, taking place every two years, is one of the world's most significant events in the field of hydrometeorology, hydrology, environmental monitoring, Earth observations and green economy. World's leading hydro-meteorological instruments manufacturers take part in the exhibition, including Baron, Campbell Scientific, Leonardo, Microstep-MIS, Vaisala and etc., as well as all local manufacturers and suppliers.

In 2019, Forum & Exhibition are timed to the Annual Session of the Intergovernmental Council on Hydrometeorology of CIS (Commonwealth of Independent States). This annual meeting is attended by delegations of national hydrometeorological services of the CIS countries: Azerbaijan, Armenia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan, Turkmenistan, Uzbekistan, Ukraine. Other forum programme features include international conferences, dedicated to 185 anniversary of the national hydrometeorological service of Russia (Roshydromet) and 100 anniversary of the State Hydrological Institute, events by the newly formed Russian Hydrometeorological Society, scientific and business conferences and seminars, which are yet to be announced.

This year's exhibition will be focused on hydro-meteorological services for the Arctic region and Northern Sea Route. The new system of hydrometeorological servicing of the Northern Sea Route will feature massive modernization of observation network in the Arctic region. One of the most important objectives of Forum & Exhibition is to showcase hydrometeorological and communication technologies for modernization of hydrometeorological infrastructure of the Arctic region and Northern Sea Route.

Forum & Exhibition brings together professionals and decision makers in the field of hydrometeorology, hydrology and environmental monitoring from Russia and CIS, Europe, Middle East and Asia, as well as consumers of hydrometeorological information in all of the weather dependent sectors of economy and related governmental agencies of Russia and CIS: transportation, industry, agriculture, energy, construction, forestry, ecology, natural resources, emergency services, military and law enforcement, municipalities, public health, tourism, and etc.

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