



THE IFMS NEWSLETTER

VOL. 3 ISSUE 1, 2019



IFMS' UPDATES

MESSAGE FROM IFMS PRESIDENT

IFMS MAKING PROGRESS FOR STRENGTHENING HYDROMET SOCIETIES

IFMS ELECTION OF A NEW COUNCIL

GLOBAL WEATHER ENTERPRISE FORUM

FORMATION OF IFMS COMMITTEES TO IMPLEMENT ITS VALUE PROPOSITION

SELECTED ARTICLE

BIG DATA AND THE CHANGING GLOBAL WEATHER ENTERPRISE

MEMBERS' UPDATES

TANZANIAN METEOROLOGICAL SOCIETY (TMS) STRATEGIZE TO PROMOTE THE NATIONAL FRAMEWORK FOR CLIMATE SERVICES (NFCS) IN TANZANIA BY BURUHANI NYENZI

ETHIOPIAN METEOROLOGICAL SOCIETY (EtMS)'S NEWS, UPCOMING EVENTS AND PLANNED ACTIVITIES

A BRIEF REPORT ON THE ANNUAL CONFERENCE OF THE INDIAN MET SOCIETY

SOCIEDAD METEOROLÓGICA DE CUBA SOMETCUBA

AMS BEGINS CENTENNIAL YEAR WITH ITS ANNUAL MEETING IN JANUARY

THE UPCOMING ACTIVITIES OF THE AUSTRALIAN METEOROLOGICAL AND OCEANOGRAPHIC SOCIETY



MESSAGE FROM IFMS PRESIDENT

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

Welcome to this New Year 2019 edition of IFMS Newsletter. We are hoping that the New Year with the new Council will bring new vigor to our effort to strengthen IFMS.

In this Newsletter, we have also presented some information on Global Weather Enterprise (GWE) and its related Forum (GWEF) which provides a platform for consultation and to facilitate cooperation, engagement and liaison between the public, private and academic sectors for the benefit of all. As per its sponsors WMO-WBG-GFDRR, its primary focus is to build trust between the Public, Private and Academic (PPA) sectors, identify a common vision and mission in line with the societal needs for information and services provided by the GWE sectors.

We believe that the mission to strengthen IFMS is crucial for helping developing societies to become stronger, to create new societies and to start strong scientific and operational collaboration between all HydroMet Societies. We would like to see IFMS with membership from all National HydroMet Societies of the world in the same manner as WMO has membership of all National HydroMet Services. Many countries do not have HydroMet Societies and we would like to urge HydroMet Services of these countries to help us create such societies.

In order to streamline the development of IFMS, we have created 13 Committees which have been presented in this Newsletter. Smooth operation of these Committees will allow us to rapidly grow IFMS as a powerful volunteers-based organization to help WMO-WBG in fighting the effects of Global Warming.

Substantial work is required to achieve this progress. The members of the Council are doing their best to assist in making progress, however, many of them have their regular jobs. Therefore, a number of volunteers other than the Council members are required to help in these Committees. We urge members of all societies to offer their services for operation of these Committees which have been presented in this edition of our Newsletter.

In addition to volunteers, we need financial resources. We believe that as a basically volunteers-based organization, we can provide strong help to WMO and WBG in their mission of fighting Global Warming and Climate Change. Therefore, they should be our strong source of financing. With relatively small investment, they can reap great benefits. We also believe that with world-wide presence through our member societies, we should be able to do crowd-funding. Members and well-wishers of these societies can contribute financially with small donations.

We recognize that due to the mission of each society being unique in some ways, the requirements of participation of each society could be different – there might be some divergence in the ideas about developmental direction of IFMS. All societies have the choice to participate in only those activities which fit their mandate most.

We urge the National Hydro-Meteorological Societies to send their representatives to the IFMS Global Meeting #6. We also strongly request WMO and WBG to support the travel expenses of the members of the needy societies so that we can have participation of as many societies as possible.

This brings me to the famous quote of Senator John McCain which states, "Our shared values define us more than our differences. And acknowledging those shared values can see us through our challenges today if we have the wisdom to trust in them again."

Let's all make a big effort to make IFMS an important agent of change which it is capable of being.

IFMS MAKING PROGRESS FOR STRENGTHENING HYDROMET SOCIETIES

Dr. Harinder P. S. Ahluwalia/President IFMS

1 Introduction

This article presents the Status Report of IFMS as of end of 2018. It presents the present status and plans for the year 2019.

2 Progress Report for 2018

2.1 IFMS Council Elections

IFMS Council Elections were held in August 2018 which were ratified in the General Body Meeting in the IFMS Global Meeting #5 (IGM-5). The list of new elected Councilors is presented in a separate article in this Newsletter. Five Councilors from the previous Council were reelected and 6 new ones were added making the new Council a nice blend of experience and new blood. All Council Members have a defined job description which we are expecting them to fulfill.

2.2 Fifth Global Meeting of IFMS General Body

The 5th Global Meeting of IFMS General Body took place on September 5 and 6, 2018 in Budapest Hungary. The participants from over 22 countries attended this meeting. We warmly thank the attendees for taking time to attend this meeting and making it a success. We also profusely thank the President of Hungarian Meteorological Society (MMT) Dr. Zoltan Dunkel and Hungarian Meteorological Service President Dr. (Mdm.) Kornélia Radics for hosting the meeting and making all the arrangements. The Meeting was held in two parts:

- 1) The first part consisted of attending the half day meeting on Global Weather Enterprise (GWE) organized by PRIMET and ECOMET during the first half day of September 5, 2018. It was attended by a number of IFMS Global Meeting attendees. A Report of the Meeting was created and widely distributed. This Report is also available on the IFMS Website.
- 2) The second part of the meeting lasted the rest of the one and a half day. All items of the Agenda covered all aspects of IFMS. A Report of this main part of the meeting was also created and is available on IFMS Website.

2.3 IFMS Participation in WMO-WBG GWE Meeting in Met-Tech Conference in Amsterdam

IFMS President participated in a part of the WMO-WBG GWE Meeting. The summary of this meeting will be made available on the IFMS Website as soon as it is available from WMO. Some interesting presentations were made on GWE and a meeting of the GWEF also took place.

2.4 IFMS Participation in CBMET Conference of SBMET



The President of IFMS participated in the CBMET conference held in Maceió during the week of November 26, 2018, and met SBMET (Brazilian Meteorological Society) current President and incoming President.

A Power Point Presentation was prepared and shown on a big Screen in the Conference Centre. It explained what is the Value Proposition of IFMS and also made them more aware of the GWE Initiative of WMO. SBMET is not a member of IFMS yet but has agreed to become a member.



2.5 Visit to Argentinian Met Service and Met Society



The IFMS President visited the Argentinian Met Service and Met Society on December 3, 2018 and met Prof. Celeste Saulo (Director Met Service, VP WMO & members GWEF) and Mr. Alvaro Scardilli (President of Met Society (CAM)). A short presentation on IFMS and GWE was made. Then we discussed what CAM is looking for from IFMS and IFMS is looking for from CAM. CAM would like us to assist them in holding a session on GWE. It was suggested to them to hold such a session through FLISMET because there is a possibility of FLISMET having a Conference on Climate Change in 2019. FLISMET should make a request to WMO which IFMS will support and Prof Saulo, as the VP of WMO and a member of GWE Forum, should convince WMO internally. CAM has been a helpful member of IFMS and has always offered assistance. We are requesting them to assist us in finding volunteers for our Committees presented in this document.

2.6 Global Weather Enterprise (GWE) and our contribution to WMO and WBG Effort

Through reports on our Website and Newsletter, all member societies should be aware of WMO's Initiative to strengthen GWE in collaboration with the WBG (World Bank Group) and HMEI (HydroMet Equipment Industry Association). The GWE Mission is to create strong collaboration between Public, Private and Academic Sectors all of which are members of National Hydro-Meteorological Societies.

IFMS supports this Initiative and will keep our members abreast about its progress through IFMS Newsletter and GWEF (GWE Forum) Reports on our website.

2.7 InterMet Asia (IMA) 2019 Participation

In the early 2019, we will be discussing and deciding about IFMS participation in the IMA-2019.

2.8 Newsletter

We are trying to issue IFMS Newsletter on a Quarterly basis. All member and associate member societies are requested to provide us articles based on the following topics:

- Any interesting article related to your society and its future and/or recent events for example Conference, etc.
- Any Technical Article you feel will be of interest to the membership of IFMS.
- Any article about your expectations from IFMS and how your society can help IFMS.
- Private Sector is also requested to provide articles on their experience on the GWE Initiative.

2.9 Webinars:

- 1) A Webinar on Certification Accreditation Assistance was presented by Liz Bentley (RMets) and Keith Seitter (AMS)
- 2) We plan to have a Webinar on Global Weather Enterprise in early March, 2019.
- 3) We plan many Webinars, and need suggestions for the topics from the Member Societies.

2.10 Funding Issues

The new Council will work on Funding issues. Member societies are strongly encouraged to provide ideas for funding. They are also encouraged to recommend to their members providing donations for the IFMS development through their societies.

2.11 Promotion of IFMS Membership and Creation of New Societies

We are urging all HydroMet Societies who are not IFMS members yet to become a member – there is a strength in numbers. Brazilian Met Society has been encouraged to become IFMS member which is expected to happen very soon. We are also urging those EMS Member Societies which are not members yet to become IFMS members which will give them an opportunity to interact directly with other member societies. In addition, many developed countries have a desire to assist in capacity building in developing and least developed countries. The HydroMet Societies of such countries can partner with IFMS to achieve this objective.

There are many countries around the world where HydroMet Societies should exist but currently they do not have any such society. We are encouraging the National HydroMet Services of such countries to help us start such societies in their countries. We have prepared a list of such countries and have made a Committee in IFMS to promote membership of existing societies and help to create new ones.

2.12 Regional HydroMet Societies

Regional HydroMet Societies (RHMS) are very important players for sharing the work of strengthening National HydroMet Societies. It is important to strengthen RHMS.

Among the RHMSs, European Meteorological Society (EMS) is quite strong and IFMS and EMS can help each other through well-defined collaboration. FLISMET is trying to become stronger and will need IFMS assistance to do so. African Met Society requires a lot of assistance to re-establish itself. Although China, Japan and South Korea hold regular meetings and conferences, there is no Asian Meteorological Society.

Efforts are being made to create an Asian Met Society including ASEAN countries. One of the Committees of IFMS is to study these issues and make recommendations how best IFMS can help strengthen RHMSs which in turn can help societies in their region to facilitate the work of IFMS.

2.13 Creation of IFMS Operational Committees and need for Volunteers

IFMS has created Committees to implement the various activities presented in our Value Proposition. An article on these Committees is presented in this Newsletter. Although we have assigned the Chair and Members of each Committee from our Council, we need considerable additional help of Volunteers to implement the activities of these Committees. The list of these committees is presented in this Newsletter.

We urge all societies to read article on “Call for Volunteers” in our Newsletter #2 on pages 16 and 17 and provide volunteers who can assist IFMS to grow and become a glue between National Hydromet/Oceanographic Societies of the world which in turn have members from all sectors of the GWE – PPA and the users. Our strong push during this year will be to activate and operationalize all these committees to show demonstratable and measurable progress.

3 Conclusions

IFMS has made considerable progress in the past couple of years to strengthen its foundation. The Committees we have created to implement our Value Proposition to strengthen HydroMet Societies through communication and collaboration will help us achieve stronger progress. All HydroMet Societies can feel a part of a large family called IFMS in the same manner as all HydroMet Services feel a part of the WMO. The Regional HydroMet Societies such as EMS, FLISMET, etc. are like Regional Offices of WMO and they can help IFMS to deal with individual societies more effectively.

Through these Committees with the services of the Council Members and Volunteers, we can be a very valuable partner of WMO and WBG in fighting against Global Warming.

We urge all to support IFMS by being Volunteers and through Financial donations however small or big. Since IFMS is basically a Volunteer-based organization, it can help WMO and WBG-GFDRR greatly in their capacity building and GWE missions. Therefore, both these organizations should assist IFMS financially and through stronger cooperation.

IFMS Election of a New Council

Dr. Harinder P. S. Ahluwalia/President IFMS

The election of IFMS' new Council was held in August 2018 just before the IFMS Global Meeting #5 which was held on September 5 and 6, 2018 in Budapest, Hungary. The following is the list of Council Members who were elected:

President: Dr. Harinder Ahluwalia (CMOS)	3 Years
Vice-President Finance: Dr. Keith Seitter (AMS)	3 Years
Vice-President Administration: Dr. Buruhani Nyenzi (TMS)	3 Years
General Secretary: Dr. Yongyun Hu (CMS)	3 Years
Treasurer – Mr. Kung Yueh Camyale Chao (MSCT)	3 Years
Region 1 (Africa) Rep: Mr. Workneh Degefu (EtMS)	3 Years
Region 2 (Asia) Rep: Prof. Sushil Kumar Dash (IMS)	1 Year
Region 3 (South America) Rep: Ms. Elizabeth Castaneda (CAM)	1 Year
Region 4 (North & Central America & Caribbean) Rep: Dr. Jack Hayes (AMS)	3 Years
Region 5 (East Pacific) Rep: Dr. Michael Coughlan (AMOS)	2 Years
Region 6 (Europe) Rep: Prof. Dr. Liz Bentley (RMetS)	2 Years

The reason for electing Regional Council Members for 1, 2 and 3-year terms in the first elected Council is to maintain continuity – every year two Regional Councilors will retire and new two members will be elected. The draw to decide these terms was conducted by the Election Commission Chaired by Dr. Chungu Lu with respected members Dr. Todd Lane and Mr. Subhash Chander Bhan.

There are 6 new members of the new Elected Council and 5 members from the Old Council have been elected ensuring freshness and continuity.

The General Body of IFMS accepted these results in the IFMS Global Meeting #5. The WMO Secretary General Dr. Petteri Taalas and WBG Head of GFDRR (Global Facility for Disaster Reduction and Recovery) Mr. Vladimir Tsirkunov have already been informed about the new Council and for wider circulation we are including this article in this Newsletter #3.

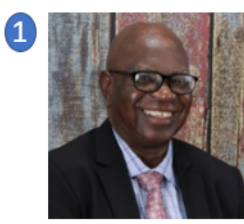
SECOND IFMS COUNCIL – 2018-2021



Dr. Harinder Ahluwalia (CMOS)
President



Dr. Keith Seitter (AMS)
Vice-President - Finance



Dr. Buruhani Nyenzi (TMS)
Vice-President - Administration



Dr. Yongyun Hu (CMS)
General Secretary



Mr. K.Y.C. Chao (MSCT)
Treasurer

3



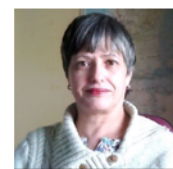
Mr. Workneh Degefu (EtMS)
Council Member Region I

4



Prof. Sushil Kumar Dash (IMS)
Council Member Region II

5



Elizabeth Castaneda (CAM)
Council Member Region III

6



Dr. John (Jack) Hayes (AMS)
Council Member Region IV



Dr. Michael Coughlan (AMOS)
Council Member Region V



Prof. Liz Bentley (RMetS)
Council Member Region VI

6 New
Members

Global Weather Enterprise Forum

Strengthening Partnerships among the Public, Private and Academic Sectors

This paper draws heavily from sources listed in References

John (Jack) Hayes /Rep IFMS Region 4



Introduction:

The Global Weather Enterprise (GWE) has existed for more than 100 years as three distinct sectors (public, private and academic). From the early beginnings to today, the three sectors have worked together in order to provide high quality weather information that promotes public safety by mitigating global risks to life and property from weather events. The Enterprise has also striven to provide information that enables weather-sensitive activities to be carried out in a more effective and efficient way.

As the world's population has increased and changes in climate have produced increasing incidents of floods, droughts and extreme weather, there is an increasing need for more accurate and reliable information to be made available quickly to as many people as possible. In this way, critical forecasts and warnings of severe weather events can reduce global risks to life and property.

To meet this requirement, the World Meteorological Organization (WMO) and the World Bank, Global Facility for Disaster Risk Reduction (WB/GFDRR), supported by the Hydro-Meteorological Equipment Industry Association (HMEI) have developed the Global Weather Enterprise Forum (GWEF). Its goal is to strengthen the GWE by creating a platform, in which the three sectors can collectively commit to increased cooperation and minimize constraints and limitations. This would, in turn, create opportunities for expansion and growth – and most importantly increase the development, uptake, use and sustainment of new science and technology to meet society's needs for more accurate, precise and advance weather forecasts and warnings.

What is the Global Weather Enterprise Forum?

The Global Weather Enterprise Forum is a platform for consultation and to facilitate cooperation, engagement and liaison between the public, private and academic sectors in the GWE for the benefit of all. Its primary focus is to build trust between the sectors, identify a common vision and mission in line with the societal needs for information and services provided by the GWE sectors. The Forum is supported by a Coordinating Group led by the WMO with members from the World Bank, HMEI and various public, private and academic sector agencies, including the International Forum for Meteorological Societies (IFMS).

GWE Forum Membership

The Forum comprises 12 leaders from the GWE – four each from the public, private and academic sectors. It is stressed that these members are not representatives of their respective sectors – rather respected experts who can contribute insights, ideas and potential solutions to issues and challenges GWE faces.

These positions are not permanent; a plan to rotate new experts onto the Forum team is being developed. The current 12 GWE members are:

Public sector –

Agnes Kijazi, Permanent Representative with WMO for Tanzania (PR); Tatsuya Kimura, Director, Public Awareness and Partnerships Division, Japanese Meteorological Agency (JMA), Japan; Celeste Saulo, PR Argentina; Michael Staudinger, PR Austria.

Private Sector –

Daisuke Abe, Chief Service Officer, Weathernews Inc. (WNI); Patrick Benichou, Chief Executive Officer, Meteo-France International; Alessandra Liberto, Business Development Manager, Campbell Scientific Inc.; Peter Platzer, Chief Executive Officer, Spire Global, Inc.

Academic sector –

Erland Kallen, Department of Meteorology, University of Stockholm; David Parsons, School of Meteorology, University of Oklahoma; Leonard Smith, Department of Mathematics, University of Oxford; Qinghong Zhang, Department of Atmospheric and Oceanic Sciences, Peking University.

Vision of the Global Weather Enterprise Forum

To be successful in increasing the benefits of weather information for all, a 21st Century GWE must improve the quality and availability of short-term through to seasonal weather information. To this end, the GWE Forum actively promotes:

1. Mutually beneficial engagement: arising from a strong relationship of trust and co-operation between the World Meteorological Organisation, National Meteorological and Hydrological Services, private industry, the academic sector, international funding institutions, and the society that they all support.
2. Long-term capacity building: stimulated by co-operation between the GWE and development partners leading to increased capabilities of the weather enterprise in low and middle-income countries. This will support sustainable development that will operate for decades and, for example, advance disaster reduction and recovery on a global scale.
3. Education and training of the next generation scientists and technologists: that leads to increased research and development, operational expertise, and the implementation of innovations that support weather and disaster readiness globally.
4. Improved access and exchange of global weather information: of high quality capable of appreciably improving the range and accuracy of weather forecasts and warnings.

The critical societal benefits gained by the GWE implementing these goals will decrease the loss of life and the cost of the impacts due to severe weather through improved readiness and resilience. Commitment to these goals will enable more rapid growth of the global economy, and create an environment for substantial growth of the Global Weather Enterprise.

GWE Objectives:

- a) Help to identify and exploit opportunities and to mitigate risks associated with the growth and development of the GWE. In doing this the GWE Forum will build upon existing capacity and capabilities across the weather enterprise to identify the potential for further development.
- b) Contribute to establishment of common understanding of the GWE landscape and related roles and responsibilities of its stakeholders. It will work on developing agreed principles of mutually-beneficial partnerships and code of ethics in the GWE context.
- c) Keep in focus the needs of the developing and the least developed countries and make proposals for solutions across three sectors (public, private and academia) to improve their sustainable capacity by providing access to, and participation and engagement in the GWE.
- d) Provide input to the WMO Executive Council, HMEI Council, and to relevant global practices and groups within the World Bank Group on matters related to the GWE.
- e) Recommend studies and evidential reports on the status and progress of the GWE.
- f) Coordinate the publication of position papers and other communication materials regarding the growth and development of the GWE.
- g) Promote a series of dialogue opportunities for the three sectors of the GWE (i.e. public, private and academic) to meet and discuss developments.
- h) Explore ways to engage and involve the community as widely as possible.

Ongoing GWEF Initiatives

The GWEF meets 2-4 times per year and is supported by a Coordinating Group which meets monthly by WebEx. There are four important tasks which have been initiated:

- **Task 1: Make all relevant information flow more freely by removing barriers and by supporting a culture that is user oriented and includes all Public, Private and Academic (PPA) sectors.**
 - o Sub-Task 1.1. Develop a Weather Data Exchange (WDX) concept for data exchange/sharing. The objective of the WDX is to make the largest amount of data available to the largest amount of people in the easiest possible way.
 - o Sub-Task 1.2. Review WMO data policy Resolutions 25, 40, 60 and identify mechanisms to update, enlarge and enforce.
 - o Sub-Task 1.3. Monitor current exchange in terms of data quality and quantity to identify and inform major deficiencies; suggest correction measures.
 - o Sub-Task 1.4. Set, revise and enforce data and information standards.

- **Task 2: Developing and maintaining workforce for the GWE.**
 - o Sub-Task 2.1. Expand training (by academia predominantly) and enhance skills and competencies in the whole global weather enterprise value chain.
- **Task 3: Strengthening application and basic research and speeding the deployment of proven applied science, especially in the areas where it strengthens the GWE.**
- **Task 4: Advance work on sustainable business models**
 - o Sub-Task 4.1. Development partners to investigate and promote implementation of business models that focus on data provision and service delivery in a long-term sustainable way.
 - o Sub-Task 4.2. Complement the above by proposal/methodology for systemic performance assessment of the service delivery and corrective actions.

What IFMS can do to support GWEF

IFMS has great potential to help strengthen the Global Weather Enterprise. In many member countries the professional meteorological society consists of members from all three sectors and facilitates meetings to discuss challenges and issues as a neutral body. For example, in the United States, after the US National Academy of Sciences completed its “Fair Weather” Report recommending stronger collaboration among the three sectors during the 1990s, the American Meteorological Society stepped forward to create the AMS Commission on the Weather, Water and Climate Enterprise which consists of members from all three sectors. The AMS supports the commission and its various committees by providing a neutral forum for meetings and it sponsors a symposium annually where papers focused on issues and ideas are presented and discussed. This strategy needs to grow internationally so that all IFMS members can benefit from the open and frank dialogue – and, by strengthening the collaboration, all member countries can strengthen their weather, water and climate services.

What IFMS member societies can and should do:

- **Become familiar with the challenges and issues that need to be addressed to improve and strengthen weather, water and climate science and services within their country**
- **Understand the issues and challenges facing our community.**
- **Provide neutral forum to discuss science and service challenges and potential solutions within their countries**
- **Understand the vision, strategy and goals of the Global Weather Enterprise Forum and keep their members informed.**
- **Be a focal point for their members’ partnership issues and ideas and communicate with IFMS leadership, which, in turn can provide to GWEF. Support GWEF sessions conducted within IFMS member regions attending and help with organizing as has been done by the AMS.**
- **Assist WMO-WBG in communicating progress and any important issues to IFMS membership which in turn should communicate these to their membership. This can be achieved through our Newsletter and Website and Webinars.**

References

Thorpe, A., and D. Rogers: The Future of the Global Weather Enterprise: Opportunities and Risks. Bulletin of the American Meteorological Society, 99, 2003-2008,

<https://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-17-0194.1>

Global Weather Enterprise Forum: Global Weather Enterprise, Goals of the Forum: 2018-2028 (draft).

Global Weather Enterprise Forum: Report of Global Weather Enterprise Forum 3rd Meeting, 2-13 October 2018 (draft).

Formation of IFMS Committees to Implement its Value Proposition

Dr. Harinder P. S. Ahluwalia/President IFMS

1. Introduction

1. With its aim to strengthen world's Meteorological Societies through S&T collaboration, sharing best practices, assisting in capacity building through Webinars and training, keeping abreast of the current developments such as GWE, etc., IFMS is meant to unite World's Meteorological Societies in a manner WMO unites Meteorological Services of various nations.



2. Since its creation on March 23, 1950, WMO has contributed a lot to the Hydro-Met Services of the world and we believe that it would like to do much more. However, with budgetary constraints, it has to stay within its means and make optimum use of the available funding resources.

3. That leads us to the need for a volunteer-based organization such as the International Forum of Meteorological Societies (IFMS) for which the limit is the availability of volunteers and some reasonable funding for a small office.

4. We believe that by properly announcing its Mission and Value Proposition, IFMS can attract enough volunteers and funding which is what we are trying to achieve.

5. The IFMS can help National Hydro-Met Societies to become stronger and help each other in various areas of their operations.

6. As a volunteer-based organization, IFMS can also assist WMO and WBG in their mission through strong cooperation and collaboration.

7. With this objective in mind, IFMS is endeavoring to achieve all its stated objectives through the work of various Committees (constituted with volunteers) which are described in this article.

8. Thirteen Committees have been defined with each Committee having a well-defined mandate and one of the Council Members (CMs) as the Chair and some of the other Council Members as Committee Members.

9. We believe that the activities of these Committees can strengthen all Hydro-Meteorological Societies greatly – especially developing, least developed and newly started societies.

10. The urgency of developing these committees as quickly as possible comes from the fact that we need to build capacity around the world to fight Global Warming which is happening relatively rapidly.

11. But this can happen only by recruiting a number of volunteers and arranging required Finances.

Therefore, we strongly request all those interested in building capacity around the world to fight Global Warming to offer their services as volunteers and donate money to IFMS through their National Hydro-Met Societies. You can participate in any of the Committees defined in the following section.

12. With the assistance of Committee Members, the Committee Chairs have been requested to prepare a Plan for the execution of activities associated with these Committees along with associated timeline, targets and indicators, etc.

13. We have also constituted an “IFMS Meetings and Conferences Committee” to help us plan and organize our IFMS Global Meetings and Conferences. We believe that from time to time International Conferences of the type of WWOSC-2014 (World Weather Open Science Conference of WMO held in Montreal in 2014) are a great way of exchanging information and ideas between scientists as well as administrators. Such conferences should be held every 2 to 4 years. But 4 years have passed since WWOSC-2014 and there is no sign of another Global Conference. IFMS could help WMO in organizing such Conferences and so should World Bank Group (WBG), HMEI, etc. The objective of this Committee is to study the possibility of cooperating with WMO and other strong societies to make it happen.

14. In this article we have used the words Regional Societies and Associate Member Societies:

- a. "Regional Societies" means EMS (European Met Society), FLISMET (Latin American and Iberian Federation of Meteorological Societies), AfMS (African Meteorological Society), etc.
- b. Associate Member Societies are those which are doing work which uses meteorological information. These societies are: International Society of Biometeorology, American Geophysical Union, National Council of Industrial Meteorologists, International Association for Urban Climate, International Association of Broadcast Meteorology and International Association of Meteorology and Atmospheric Sciences.

2. Description of Committees

As already stated, we have defined the following 13 Committees to achieve our mission:

Committee #1 (Communications). Since Communication is vital for exchange of information, we are paying strong attention to this aspect which include IFMS Website, Newsletter and Social Media, etc. In addition to the Committee Members identified in the Committees document, we need many volunteers which will be the first activity.

Committee #2 (Cooperation with Regional Met Societies and holding Local Forums). The objective of this Committee is to work with Regional Met Societies such as EMS, FLISMET, AfMS (African Met Society) and future AsMS (Asian Meteorological Society including ASEAN (Association of Southeast Asian Nations)). EMS is fully operational, while others are at different stage of development and need IFMS assistance for their development.

Committee #3 (Value Proposition Implementation):

This Committee has two tasks: Task 3.1: Collaboration on Joint Activities and Task 3.2: Membership promotion and creation of new societies.

The Task 3.1: (Collaboration): As a part of this task, we will promote benefits of Collaboration and arrange partnership between interested parties.

The Task 3.2 (Membership Promotion and Creation of new Societies). It is being handled by Council Member for each Region with one of them as Chair. The task is to promote membership and create societies in those countries where none exists.

Committee #4 – Collaboration with WMO and WBG. Initial work is required to build relationship with WMO and WBG and also the list of areas of Collaboration. Subsequent work will depend on the items in the above list and availability of resources with IFMS.

Committee #5 – Financing Committee – This is a very important committee to organize finances from various sources which we have identified. We believe that the activities of IFMS are in line with WMO and WBG. Therefore, these organizations will be net beneficiaries of our activities, hence we hope that they will support us financially.

Committee #6 – ACT (Accreditation/Certification/Training) Committee is to develop guidelines for implementation of Accreditation and Certification (AC) in various societies. It will develop Best Practices for AC and promote them as well as provide training in AC when required.

Committee #7 – Best Practices (BP) Committee will identify the list of Best Practices already available with member societies and the work required to finalize them. New BPs will be defined as required. Once created, we will make these Best Practices available on our Website.

Committee #8 – Webinars and Training Committee will prepare a list of Webinars and related presenters. We expect 4 Webinars in the year 2019. Two Webinar are already planned – one on GWE and another one on Air Quality. The two additional topics are needed to be decided and speakers found. Publicity will be done through Member Societies, IFMS Website and Newsletter. Presentation will be coordinated with AMS office.

Committee #9 – It is important to recognize the contribution of individuals to get more participation. Therefore, "Individual Contribution Recognition Committee" will develop list of Awards and Criteria for selection of individuals. It would be nice to have the first one in our IFMS Global Meeting #6 (IGM 6) in Boston.

Committee #10 – GWE Monitoring Committee is supposed to keep IFMS abreast about WMO-WBG Initiative and the work of GWEF. This committee will consider any requests coming from WMO-WBG for any IFMS assistance which will be committed based on available manpower and financial resources.

Committee #11 – Industry Committee - to be looked at late in 2019.

Committee #12 – Promotion of Climate Change Issues Committee will promote issues related to Global Warming with the Governments and the Public. This Committee will work in the background to plan actions and how to implement them. This is one of the activities to be done jointly with WMO and WBG.

Committee #13 – IFMS Meetings and Conferences Committee will assist in planning IFMS Global Meetings (the detailed work will be done by the host country) and in organizing any future Conferences IFMS. We believe that conferences such as World Weather Open Science Conference (WWOSC) held in Montreal in 2014 should be held every 2 to 4 years. IFMS would be pleased to assist WMO-WBG-HMEI in organizing such meetings. In order to execute such projects special Conference Committee will be created at the time partners decide to organize such a Conference.

3. Conclusion

IFMS has made considerable progress in the past couple of years. In order to make stronger progress and be very useful partner of organizations like WMO, WBG and HMEI, we have constituted committees discussed in this article to handle all aspects of our development. It is an ambitious task but something which is required to be done to consolidate all National and Regional Meteorological Societies of the world under one banner as WMO has done for National Meteorological Services.

This will strengthen a volunteer-based organization to assist WMO and WBG in fighting Global Warming.

We urge all readers from various societies and related organizations to offer their services to staff these Committees so that we can develop this very useful organization as quickly as possible. We also request individuals and organizations to help us in doing "Crowd Funding" of IFMS. Through your generosity and financial assistance, we can strengthen IFMS to contribute strongly to the society in general.

Summary of Committees to implement Value Propositions

#	Committee	Chairperson	Committee Members
1.	Committee 1: Access to Communications Channels	Cam Chao	Liz Bentley, Harinder Ahluwalia, Buruhani Nyenzi & Sushil Dash
2	Committee 2: Task 1: Cooperation with Regional Met Societies	Liz Bentley	Elizabeth Castañeda, Workneh Degefu, Yongyun Hu
	Task 2: Regional Weather Enterprise Forums	Elizabeth Castañeda	Michael Coughlan, Liz Bentley and Workneh Degefu Elizabeth has also requested some help from CAM for volunteers.
3.	Committee 3: Value Proposition Implementation Committee	Buruhani Nyenzi	Yongyun Hu and Workneh Degefu
3.1	Task 3.1: Collaboration on joint activities	Yongyun Hu	Buruhani Nyenzi, Jack Hayes and Harinder Ahluwalia
3.2	Task 3.2: Membership Promotion & Outreach to developing Societies	Workneh Degefu	Sushil Dash, Elizabeth Castañeda, Jack Hayes, Michael Coughlan and Liz Bentley,



CALL FOR VOLUNTEERS

- IFMS needs Volunteers for various Committees defined in this Newsletter
- Please offer your service by sending an email to the following address:

ifms.collaboration@gmail.com

THE IFMS NEWSLETTER

IFMS' UPDATES

4	COMMITTEE 4 Collaboration between IFMS and WMO, etc.	Harinder Ahluwalia	Jack Hayes, Keith Seitter, Michael Coughlan, Workneh Degefu
	Task 4.1: Gain support from WMO, WBG and HMEI, etc.		
	Task 4.2: Assist WMO/WBG to promote PPA Sector Partnerships		
	Task 4.3: Aligning IFMS Plans with WMO strategic plans/ priorities to increase cooperation		
5.	Committee 5 Task 5.1 Financing Committee:	Keith Seitter	Harinder Ahluwalia, Jack Hayes, Liz Bentley, Yongyun Hu and Cam Chao
	Task 5.2: Individual Funding through Member Societies	Cam Chao	Workneh Degefu, Sushil Dash, Elizabeth Castañeda, Jack Hayes, Michael Coughlan and Liz Bentley
6	Committee 6: ACT Committee	Liz Bentley	Keith Seitter, Cam Chao and Harinder Ahluwalia
7	Committee 7: Best Practices Coordination Committee	Michael Coughlan	Elizabeth Castañeda, Keith Seitter
8	Committee 8: Webinar & Training	Sushil Dash	Michael Coughlan, Buruhani Nyenzi and Liz Bentley (especially for T part of ACT)
9.	Committee 9: Recognition of Individual Contribution	Buruhani Nyenzi	Sushil Dash, E. Castaneda, Yongyun Hu and Liz Bentley
10.	COMMITTEE 10: GWE Monitoring Committee:	Jack Hayes	Keith Seitter and Harinder Ahluwalia
11.	Committee 11: Industry Committee	pending	To be planned after mid-2019
12.	Committee 12 Promotion of Climate Change Issues with Governments & Public	Harinder Ahluwalia	All Council Members
13	Committee 13: Meetings and Conference Committee	Keith Seitter	Harinder Ahluwalia, Buruhani Nyenzi



Announcement for GWE Webinar in the first week of March, 2019

- Please show your interest in participating in a Webinar on Global Weather Enterprise (GWE) and GWE Forum - activities and Progress
- Send an email with subject “GWE Webinar” on the following email address: ifms.collaboration@gmail.com
- The exact date of the Webinar will be announced shortly on the IFMS Website and by sending email to those who show their interest by sending email on the above email address.

Big Data and the Changing Global Weather Enterprise

David B. Parsons/Co-Chair of the Global Weather Enterprise Forum
School of Meteorology
University of Oklahoma

Background:

This invited article briefly summarizes some of the main points in my keynote presentation made at InterMET Asia 2018's Special Session on the "The Global Weather Enterprise – Meeting the Needs of People and Society". The session began with opening remarks by Jyoti Shukla, Director of the World Bank Office of Singapore followed by welcoming talks by Brian Day of Campbell Scientific, in his role as Chair of the Hydro-Meteorological Equipment Industry, and by Petteri Taalas, the Secretary-General of the World Meteorological Organization. Since a primary goal of this special session was to introduce the participants of InterMET Asia to the Global Weather Enterprise Forum (GWEF), Michael Staudinger, the Director General of Austria's Central Institute for Meteorology and Geodynamics and a co-chair of the GWE then gave a presentation on the GWE and the intent and activities of the Forum. Within the context, the GWE can be thought of as a value chain that spans from observations to the generation of analysis and forecast products that are necessary to save lives, protect infrastructure, and enhance economic well-being. Success in this endeavor requires scientific research, technological advances, observations, modelling, forecasting, and forecast products in order to provide accurate and reliable weather information and services.^{1,2} Coordination between these diverse activities, in turn, requires cooperation between the public, private, and academic sectors. The keynote presentation that followed focused on data within the GWE including new challenges arising from the changing roles of these sectors within the enterprise.

Current situation:

The talk began by stressing that the concept of data within the enterprise is broad. While data includes both observations made solely for local applications and measurements designed to be a part of the global observing system, data is not just limited to observations. Data also includes the output from numerical modeling systems across weather to climate time-scales, analyses created from combining observations and modeling approaches (i.e., data assimilation), and user-driven products that are being created at each step in the value chain. The nature of this data means that the GWE is truly a big data enterprise. In terms of observations, satellite remote sensing alone accounts for 40 million observations that are assimilated each day in order to obtain the initial conditions for global forecasts.³ In regard to data from numerical weather prediction (NWP), meteorology has always been a big data enterprise as the atmospheric science has historically been the leading civilian consumer of supercomputer power.⁴ That trend has continued in NWP, as Bauer et al.⁵ states "*As a computational problem, global weather prediction is comparable to the simulation of the human brain and of the evolution of the early Universe, and it is performed every day at major operational centres across the world.*"

The volume from the combination of weather-related observations and the output from NWP is staggering as, for example, at the start of 2018, the ECMWF meteorological data archive contained more than 400 billion meteorological fields comprising around 200 petabytes of operational and research data, with about 200 terabytes being added daily+. The ability of the public, private, and academic sectors to access and contribute to the creation, improvement, and utilization of the GWE's big data enterprise should be one of the world's top priorities for global cooperation, since the Global Risk Report⁶ published by the World Economic Forum to coincide with the Davos 2018 Summit listed extreme weather as the most likely global risk with the biggest impact in the next 10 years. In addition, the GWE-related risks of natural disasters, failure of climate change mitigation and adaptation, and water crises comprised three of the four remaining risks within the top five. The importance of international cooperation and a successful GWE is also evident in that twelve of the 17 Sustainable Development Goals of the United Nations 2030 Agenda⁷ are weather and climate sensitive++.

+ From the ECMWF web site.

++ WMO web site at <https://public.wmo.int/en/our-mandate/what-we-do/wmo-contributing-sustainable-development-goals-sdgs>

Challenges:

Clearly, the importance of GWE data to society and the tremendous size and complexity of these data sets pose significant challenges. One challenge is simply the access, storage, and transfer of these large data sets. The interpretation of this vast amount of data and distilling and communicating the necessary information to society and specific users is another challenge. Changes in the GWE and the roles of the three sectors has also brought additional challenges. A few of the challenges that were highlighted in this talk include:

The quality and quantity of observations being incorporated into the global observing network: Observations that would benefit global weather prediction are sometimes simply not submitted to the Global Telecommunication System (GTS) and thus are not reaching the global modeling centers. Quality observations are not being submitted for numerous reasons (e.g., inability to transmit the data in near real-time, perceived value of “keeping” the data proprietary, unwillingness to share data with competitors). Another threat is data of poor quality reaching the global observing system. Unfortunately, there is little incentive to improve data quality and increase data availability. Providing greater incentives for data sharing in the face of growing nationalism is critical, since the global observing system is the foundation of accurate numerical weather prediction from global to local scales as fine-scale models often utilize lateral boundary conditions provided by global modeling systems.

New business models for the providers of observations: At the risk of oversimplification, and with some exceptions, the general model for observations within the global observing system has been that the private sector builds instrumentation for deployment by the public sector for utilization in their modeling and forecast centers. In many nations, the public sector subsequently often makes their data available in some form to the public, to researchers, and in varying degrees back to the private sector. With time, this business model is changing as the private sector has been increasingly involved in all segments of the value chain for weather forecasting. The private sector is now taking a wide range of measurements that even includes observations from constellations of small space-based satellites. This new business model opens up a wide range of new concerns ranging from how businesses can be compensated for use of their observations by public sector NWP centers to obtaining access of the research community to this data. Since these measurements are often potentially important in the goal of saving lives and reducing property loss, such data access is often critical and questions of access are particularly important for the low-income nations of the world (e.g., can they afford these observations). While these new business models can potentially create barriers, these changes should not be looked upon negatively as the answers to these questions represents new opportunities for improvement of the GWE and through innovation and access to new streams of capital.

Dramatic increase in data quantity: The bulk of the presentation focused on the rapid growth in the complexity and size of data in the GWE. For example, it is tempting to consider that data is growing at the rate of Moore’s law applied to NWP in that increased computational abilities will lead to more data from simulations with higher spatial resolution and an increase in the number of ensembles. While that view is true, it is only a part of the story. Consider that, for example, scientific advancements lead to improved model physics, advanced dynamical cores, and better data assimilation schemes, which all can lead to increases in forecast accuracy. In turn, greater accuracy means that data streams grow with usable predictions out to increasingly longer lead times and an increasing reliance on ensemble systems. These changes alone will also increase the size of the usable data within the GWE. The addition of data streams from the private sector are also pushing the rate of data growth beyond Moore’s law applied to NWP output. The biggest increase in data size is likely coming from new and novel data streams. For example, social media itself is now a data source that will become much larger than even our stream of satellite data. A wide variety of uses of social media are being explored including, but not limited to, the detection of severe weather, characterizing hail size, distinguishing hydrometeor-type for winter storms (snow, sleet, freezing rain or rain), and understanding how to effectively communicate weather information. Another frontier adding to the size of the GWE data is observations taken by hand-held and mobile platforms that can sense pressure, temperature, estimate road conditions, other parameters. Other novel observations are being considered and/or implemented ranging from small UAVs to rainfall estimations based on attenuation from cellular telecommunication networks⁹, which is well suited for use in lower income nations. Clearly we are in the midst of an data revolution in an already big data intensive field!

A growing gap between the rich and poor nations of the world in terms of access to weather information: Weather forecasts are steadily improving in accuracy and lead time.⁵ Access to and the utilization of state-of-the-art weather products can dramatically reduce the impacts of weather disasters⁸ and provide numerous other benefits to public safety, health, quality of life, and economic well-being. However, these ever-improving products are simply not reaching billions of people in low- and middle-income nations. Given the size of these data sets, distilling and communicating information is not trivial. Given the improvements in forecast quality, unless we strive to increase the world's access to state-of-the-art weather products, the differences in our ability to mitigate the impacts weather extremes will grow between those people with and without access to these state-of-the-art products. This difference will magnify the growing gap in poverty between higher and lower income nations and exacerbate a situation where the poor already disproportionately suffer from weather disasters.⁸ Improved and broad access to these increasingly large and complex data sets and advancing our ability to distill this information and communicate it to users is a major challenge for the GWE. Thus, it is not simply a matter of more observations in these lower income nations, but also their access to and ability to interpret and effectively communicate state-of-the-art weather products.

Finally, I hope that this summary conveys the broad ideas and the challenges and opportunities associated with changes in data in our evolving GWE. As a researcher, I can say that these challenges are exciting, while as an educator it is clear that the size, complexity, and revolution of data in the GWE dictates changes in how we educate students for careers in the atmospheric sciences. Big data skills, such as coding, machine learning, and artificial intelligence, are becoming increasingly important in the GWE.

References:

1. Thorpe, A. and D. Rogers, 2018: The Future of the Global Weather Enterprise: Opportunities and Risks, *Bull. Amer. Met. Soc.*, in press, on-line.
2. Staudinger, M., P. Benichou, D.B. Parsons, A. Thorpe, D. Rogers, V. Tsirkunov, M. Suwa, A.-M. Bogdanova, B. Day, B. Ford, D. Ivanov, and J. Hirst, 2018: United front, *Met. Tech. International*, Sept. Issue, 14-19.
3. Brown, A., 2018: ECMWF Strategy 2016-2025: From the presentation "The Strength of a common goal", *Technical Conference for Commission for Basic Services of the World Meteorological Organization*.
4. Edwards, P.N., *A Vast Machine: Computer models, climate data, and the politics of global warming*. MIT Press, 518.
5. Bauer, P., A. Thorpe and G. Brunet, 2015: The quiet revolution of numerical weather prediction, *Nature*, **525**, 47-55.
6. World Economic Forum, 2018: The Global Risks Report 2018: 13th edition, available at http://www3.weforum.org/docs/WEF_GRR18_Report.pdf.
7. United Nations. 2015. Transforming Our World: The 2030 Agenda for Sustainable Development (A/Res/70/1) available at <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
8. Hallegatte, Stephane, Adrien Vogt-Schilb, Mook Bangalore, and Julie Rozenberg. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*. Climate Change and Development. Washington, DC: World Bank.
9. Doumounia, A.; M. Gossett, F. Cazenave, M. Kacou and F. Zougmore, 2014: Rainfall monitoring based on microwave links from cellular telecommunication networks: First results from a West African test bed, *Geophys. Res. Lett.*, **41**, 6016-6022.

TANZANIAN METEOROLOGICAL SOCIETY(TMS) STRATEGIZE TO PROMOTE THE NATIONAL FRAMEWORK FOR CLIMATE SERVICES (NFCS) IN TANZANIA

Tanzania Meteorological Agency (TMA), organized a workshop for its members and other stakeholders to promote the implementation of the National Framework for Climate Services (NFCS) in Tanzania (Plate 1). The workshop was officiated by the Director General of Tanzania Meteorological Agency (TMA) and the Permanent representative of Tanzania with the World Meteorological Organization (WMO), Dr. Agnes Kijazi. In her speech, Dr. Kijazi congratulated TMS for its determination on promoting NFCS, and for developing a strategic plan that will govern the functions of TMS in line with the NFCS.



Plate 1: TMS members who participated in the workshop on promoting the implementation of the NFCS

The workshop was held under the auspice of the Global Framework for Climate Services-Adaptation Programme (GFCS-APA) in Africa Phase II project, with financial support from the Government of Norway through WMO.

Dr. Buruhani Nyenzi, the president of TMS, informed the participants that one of the notable outputs during the implementation of the phase I of the GFCS project was the development of the NFCS, of which, TMS has decided to sensitize to its members on promoting the NFCS and climate services application in sectoral planning, advocacy and socio-economic development through the implementation of GFCS - APA phase II.

The Tanzanian Meteorological Society (TMS), also held its 6th General Meeting on 21st November 2018, in Dar es Salaam, whereby the presentation of TMS Academic Excellency Awards for 2018 was among the agenda. The Awards were presented for the overall best student in B.Sc. Meteorology, and best student in Research Project at the University of Dar es Salaam (UDSM) as part of a strategy to promote the science of Meteorology in the Country and Region, and encourage and inspire professional excellence among the students and graduates (Plate 2). The overall best students in BSc Meteorology in 2018 was awarded to Ms. Aisha Nasoro (middle), and the best student in research project was awarded to Mr. Elly Kekazuly (third from left) and Ms. Leila Muhoma (third from right) .

Furthermore, during its 6th General Meeting, TMS Secretariat presented to members the draft TMS five-year strategic plan for review and consideration. Few comments were provided for further improvement of the plan, and the revised plan is expected to be approved by the upcoming General Meeting next year.

MEMBERS' UPDATES (REGION I)



Plate 2. Students who received the TMS Academic Excellency Award posing for a photo with the TMS Executive Board Members (The President of TMS, Dr. Buruhani Nyenzi – left, TMS – Secretary, Dr. Ladislaus Chang'a – right, and Vice President of TMS, Prof. Clavery Tungaraza - second from right) and the Director General of TMA, Dr. Agnes Kijazi.

EtMS's NEWS, UPCOMING EVENTS AND PLANNED ACTIVITIES

NEWS

- The EtMS 11th Regular Annual General Assembly (GA) was held on 23 June 2018 in Addis Ababa, Ethiopia. **A Seminar on " The Drivers and Trends of Hydrometeorological Extremes (Flooding and Drought Events) and their Sensitivities to the Changing Climate and the Resulting Impacts on Selected Economic Sectors in Ethiopia"** was held in conjunction with the 11th GA. Several papers were presented by young EtMS member researchers related to the theme of the Seminar

- EtMS Journal no.3 was issued in June 2018

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

- EtMS participated in the IFMS GM5 held on 5 & 6 September 2018 in Budapest, Hungary

UPCOMING EVENTS AND PLANNED ACTIVITIES

- EtMS plans to award its 2018 Scholarship to members completing their post graduate research work. This is a very modest financial support to assist them in preparing their documents.

- The 6th EtMS members' excursion trip is planned for 22 November 2018. The visit will be around Addis Ababa, Ethiopia area, including the Ethiopian Ministry of Technology and Innovation and the Ethiopian Space Science Institute.

- EtMS, in collaboration with the National Meteorological Agency of Ethiopia plans to hold a conference/seminar on meteorology and the Construction Industry in Addis Ababa, Ethiopia, tentatively in the first quarter of 2019. The objective of the conference/seminar is to create awareness on the value of weather and climate information to the users in the construction industry. It is expected that those government and private institutions in the industry will sponsor and participate in the conference/seminar.

- The EtMS Annual Regular General Assembly will take place in Addis Ababa, Ethiopia, during the first quarter of 2019.

- EtMS plans to participate in the WMO African regional (RAI) events to be held in Cairo, Egypt, from 19 to 24 February 2019. This is to represent IFMS in its capacity as IFMS's Council Member for Africa region.

A BRIEF REPORT ON THE ANNUAL CONFERENCE OF THE INDIAN MET SOCIETY

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

The Indian Meteorological Society (IMS) has been annually organizing National Symposia on Tropical Meteorology known as TROPMET in its different chapters across the country since 1992. In 2018, the event was organized in the Banaras Hindu University (BHU), Varanasi during 24th to 27th October jointly by the Indian Meteorological Society-Varanasi Chapter and BHU. Various government organizations such as the Ministry of Earth Sciences (MoES), the India Meteorological Department (IMD), the Department of Science and Technology, Oil and Natural Gas Commission (ONGC) and several other public sector agencies and banks supported this annual event of IMS.

The main theme of this year's TROPMET was "Understanding Weather and Climate Variability: Research for Society". Considering the importance of Research and Development in providing better weather forecasting and climate services to the user communities, the theme of this year's TROPMET was aptly chosen. With improvements in the accuracy of observational tools, data assimilations techniques in numerical models, physical parameterization schemes in numerical models and above all availability of high computing systems, both the research community and operational weather forecasters have shown significant progress in their activities. Such overall progress has been benefitting the society in several different ways.

TROPMET2018 was inaugurated by Dr. K. J. Ramesh, Director General, IMD. Prof. N. P. Singh, Head Dept. of Geophysics who is also the chairman of the Local Organising Committee (LoC) welcomed the participants and the invited guests. Dr. D. R. Pattanaik, the Secretary IMS & Coordinator of TROPMET2018 gave the overview of the symposium. Prof. S. K. Dash, President, IMS and the Chairman of the National Organising Committee delivered the presidential address on this occasion. Prof. Naveen Kumar, Director, Institute of Science, BHU also addressed the audience in the inaugural function. Finally, the formal vote of thanks was given by Prof. R. Bhatla, Department of Geophysics & Convener, LoC.



Prof. S.K.Dash, President IMS; Dr. K.J.Ramesh, Director General IMD & Dr. D.R.Pattanaik , Secretary IMS delivering speeches in the inaugural function.

TROPMET2018 was based on the following eight sub-themes:

- Observations in Climate Variability and Changes.
- Weather/Climate Modelling at Regional & Global Scales.
- Impact of Climate Variability/Change on Agriculture, Water, and Energy& Health sectors.
- Weather and Climatic Extreme Events.
- Weather Forecasting Services at Different Time Scales.
- Aerosols, Atmospheric Chemistry and Weather/Climate.
- Seismological Research for Society.
- Socio-Economic Impacts of Climate Variability and Change.

THE IFMS NEWSLETTER

MEMBERS' UPDATES (REGION II)

About 300 registered participants from about 25 organisations from India and abroad took part in this symposium. More than 500 contributory papers were received for oral as well as posters presentations in 27 different technical sessions. There were 12 Invited talks by distinguished senior scientists and domain experts spread across 4 Plenary Sessions at the beginning of each day. Each technical session had a Lead Talk to start with. In order to encourage young researchers carrying out their PhD in different organisations in the field of Atmospheric and Oceanic Sciences, a special Pre-PhD session was held where 56 students presented their latest important results.

The current Bulletin of the Indian Met Society named VayuMandal was released in the inaugural function. A book containing the abstracts of all the papers was also released. Further, the souvenir of the conference was also released.

During the inaugural function of TROPMET 2018, the following eminent scientists were presented with IMS Honorary Fellowship and IMS Fellowship.

- *Er. Avinash Chand Tyagi (IMS Honorary Fellowship)*
- *Dr. Upendra Narayan Singh (IMS Honorary Fellowship in absentia)*
- *Prof. B Padmanabha Murty (IMS Fellowship in absentia)*
- *Prof. Ravi Shankar Nanjundiah (IMS Fellowship)*

IMS young scientist award for the year 2017 was awarded to Dr. (Ms) Gayatri Kulkarni, IITM, Pune for being the first author of the research paper entitled "Aerosol-Cloud Interaction in Deep Convective Clouds over the Indian Peninsula Using Spectral (Bin) Microphysics" published in the Journal of Atmospheric Sciences (2017) [Vol No 74, Page No 3145-3166].

In addition to the inauguration and follow up paper presentations in 31 different sessions, three more important meetings were held; (1) the Annual General Body (GB) meeting of IMS to discuss its normal administrative and financial activities, (2) a special meeting of the distinguished Fellows of IMS, National Council members and the Chairmen and Secretaries of the Local Chapters to discuss ways to make IMS more effective and vibrant and (3) valedictory panel discussion on the theme 'Vision of Indian Meteorology'.



Left: Dr.S.K.Dash discussing in the GB meeting. Middle: Release of VayuMandal, the Bulletin of IMS
Right: Dr.Akhilesh Gupta giving the Valedictory lecture on 'Vision of Indian Meteorology in 2030'.

Following are the salient features of the discussions held during TROPMET2018 at several stages. In order to have increasing participation of the youth in IMS activities, it is decided to institute Student Ambassadors in Local Chapters as well as at the National level to assist various events. With a view to encourage early career scientists in research, IMS will award Associated Fellowships in addition to its existing Fellowships. IMS will make efforts to sign MoUs with other similar societies and interact with Met Societies of the neighboring countries. Where necessary, IMS will encourage and assist in forming Met Societies in the nearby countries where none exists at present. IMS will enhance its involvement with IFMS activities and will contribute to international cause to the fullest extent.



SOCIEDAD METEOROLÓGICA DE CUBA SOMETCUBA

The Cuba Meteorological Society was created at 1992

OBJETIVE

OBJETIVE: to contribute to the development and application of national policy in the field of scientific research; as well as, training and dissemination of the meteorology in the community.

The Society is open to all those people who develop their activity at meteorology field, in any of its aspects and related subjects, professionals and laymen to this science.

The Society is a non profit, national and scientific association, with legal personality and own patrimony.



COMMUNITY PROJECT: EDUCATIONAL SCIENTIFIC CENTER METEOROLOGY AND THE ENVIRONMENT "DR. MARIO E. RODRÍGUEZ RAMÍREZ"

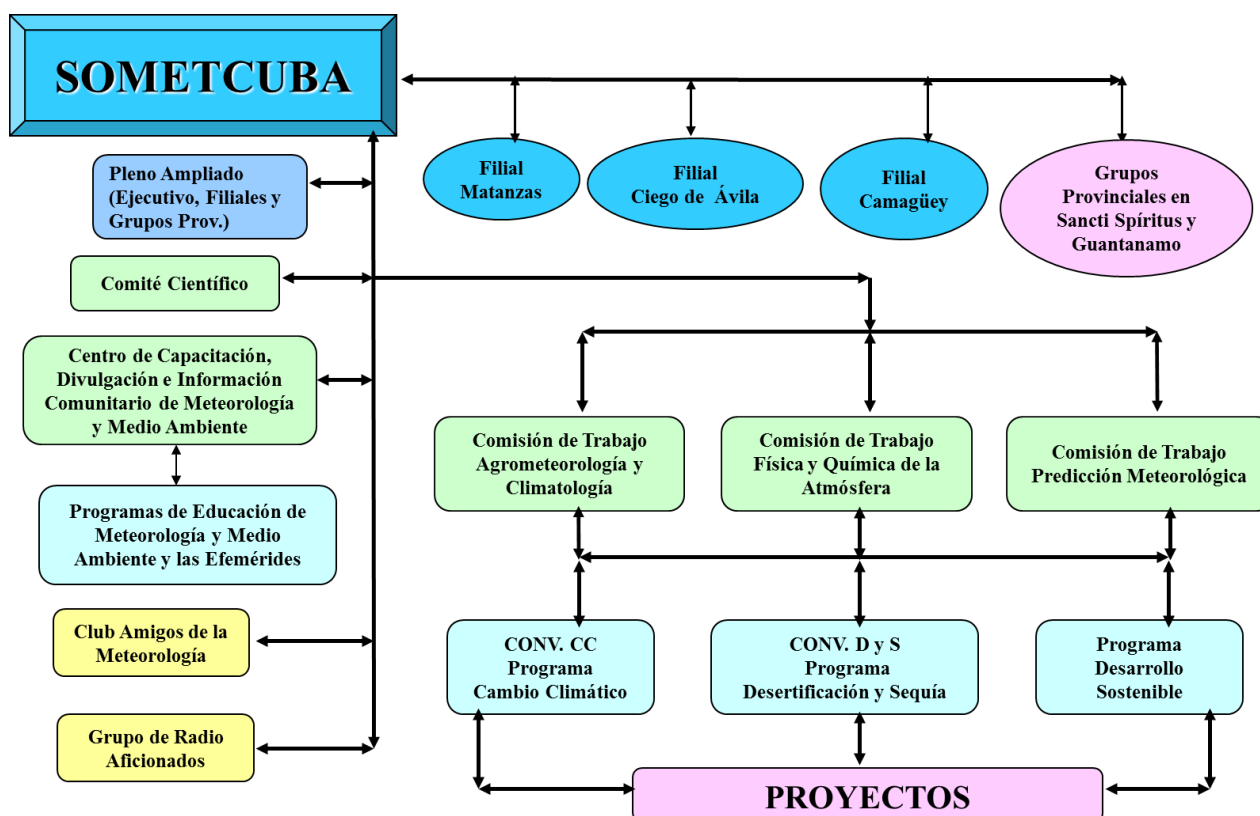
Dr. Rodríguez Ramírez performed his fundamental work in Cuban Meteorology

Main Activities of the Society

In collaboration with INSMET and Cuban NGOs, Seminars, Courses, Workshops, etc. are held. on Meteorology and its applications; as well as the Environment

Promotion and dissemination of meteorological and environmental issues and their impacts on social and economic life; to the entire population in order to raise the meteorological culture and can be prepared for the effects of extreme weather events

Multimedia and audivisuales.



COLLABORATION WITH NGOs, National and International INSTITUTIONS

The Meteorological Society maintains working relations and collaboration Institute of Meteorology
Cuban Association of the United Nations (Collective member)

Cuban Association of Animal Production

CUBASOLAR

Cuban Society of Veterinary Medicine and Disasters

Community Library "El Canal"

National Directorate of the Young Computer Club

Conventions: Desertification and Drought and CChange FLISMET

IFMS

X CONGRESO DE METEOROLOGÍA 2019

We have the pleasure to invite the IFMS and all its associates at the 500th Anniversary of La Havana, during December 2 to 6, 2019 the X Cuban Meteorology Congress, the III Seminar-Workshop of Pollution of the Atmosphere and the II Climatology Seminar

Estos eventos son convocados con el auspicio del Instituto de Meteorología y la Oficina del Historiador de la ciudad de La Habana.

Página Web: <http://sometcuba.cubava.cu/>

REQUEST FOR DONATIONS



- **IFMS - a volunteer-based organization - is meant to foster and encourage communication and exchange of knowledge, ideas and resources among world's Meteorological Societies.**
- **Its major objective is to strengthen S&T in Meteorology and Hydrology around the world by strengthening related Societies and providing assistance to Societies in Developing and Least Developed Countries as well as creating new Societies in those countries where none exists.**
- **In order to achieve our objectives, we need donations from all well wishers of IFMS.**
- **Please make donations through your local society and send us a message via: ifms.collaboration@gmail.com.**

AMS Begins Centennial Year with Its Annual Meeting in January

The American Meteorological Society was established in 1919, and therefore reaches its 100th anniversary in 2019. The AMS kicked off its centennial year celebration at the 99th AMS Annual Meeting in January 2019, in Phoenix, Arizona. (More information about this meeting is available at <https://annual.ametsoc.org/index.cfm/2019/>). This will begin a year-long celebration during which the major accomplishments of the atmospheric and related sciences community over the past century will be highlighted, as well as initiatives that look forward to the next century.

A special monograph chronicling 100 years of progress in all aspects of the sciences covered by AMS is being produced as one of the centennial initiatives. Each chapter covers a different subdisciplinary area of the science, with recognized experts in that subdiscipline covering the major advances of the past century. This monograph is provided as an open access publication, with chapters posted online as they are completed. Several chapters are already available (see: <https://journals.ametsoc.org/toc/amsm/current>).

In January 2020, the AMS will hold its 100th Annual Meeting in Boston, MA, home of the AMS Headquarters location. The 100th Annual Meeting will include many celebratory events as part of concluding the centennial year, but will also include a collection of scientific conferences and symposia that cover the broad spectrum of the science and service of the community.

AMS is very proud to host the 6th Global Meeting of IFMS under the umbrella of the 100th Annual Meeting in 2020 and looks forward to welcoming representatives of IFMS member societies for this event.



The upcoming activities of the Australian Meteorological and Oceanographic Society (AMOS)

January 29–February 2.	ENSO Science Symposium. Hobart.
February 7.	Australian National University (ANU) Climate Update 2019. Canberra.
April 1–2.	2019 National Sustainability Conference. Brisbane.
June 11–15.	AMOS Conference and International Conference on Tropical Meteorology and Oceanography. Darwin.
August 12–13.	12th liveable cities conference. Adelaide.
September 1–6.	International Conference on Paleoceanography. Sydney.
November 10–15.	2nd International workshop on waves, storm surges and coastal hazards. Melbourne.

MEMBERS' UPDATES (REGION VI)

The Royal Meteorological Society (RMetS)

The Royal Meteorological Society (RMetS) in association with AccuWeather have announced the winners of Weather Photographer of the Year 2018 competition. After an extremely competitive year with over 4,000 photographs entered, the winners were selected from an impressive group of finalists. The winners and their categories were:

- The Public's Favourite: Ellie Cloud by Kathryn Parent
- Winner – under 16 category: Fog Wave by Hoang Viet Nguyen Phung
- 3rd place – 17 and over: Gettin' the messages by Neil Barr
- 2nd place – 17 and over: Two times one train station by Nikolay Schegolev
- 1st place – 17 and over: Dan Matthewman - Royal Met Society Weather (c) Dan Matthewman (March 2018) (6)
- Overall Weather Photographer of the Year 2018: Electric Blackpool by Stephen Cheatley



Overall Weather Photographer of the Year 2018: Electric Blackpool by Stephen Cheatley

The search for the Weather Photographer of the Year began in spring 2018 with a call for the best photographs depicting weather from around the world. The submission system was set up and run with help from the Royal Photographic Society. Entries in two categories – under-16s and 17 and older - range from weather phenomena such as clouds, lightning, rain, fog or snow through to the impact of weather on humans, cities and the natural landscape.

Almost 4,000 photographs were submitted, creating a challenging task for the selectors to narrow down the best images to be awarded prizes and be part of the Weather Photographer of the Year exhibition. The selectors included:

- Liz Bentley; Chief Executive of the Royal Meteorological Society
- Trish Mikita; Vice President Digital Strategy AccuWeather
- Adrian Theze; Professional Photographer and winner of WPOTY 2017
- Paul Kingston; Photographer and Camera Op at North News and Pictures
- Matt Clark; photo editor of RMetS Weather magazine

MEMBERS' UPDATES (REGION VI)

Commenting on the short-listed images Trish Mikita, Vice President of Accuweather, said *"It was an honor to be a selector in this year's competition and to see the images that people from around the world submitted, representing their unique observations and perceptions of weather," she said. "The best photographs can so vividly capture both the grand majesty of weather events and their profound impact on our lives."*



David Warrillow, President of RMetS, presents the overall Weather Photographer of the Year 2018 - Stephen Cheatley.



**Join us for
A Two-Day IFMS Global Meeting #6 (IGM6)
In Boston, USA
Concurrently with AMS Centennial Celebration
During January 12–16, 2020**

Those needing Financial Assistance for Travel should start working on it right now.

Any Recommendations to Make IGM6 More Useful Are Welcome

EVENT INTRODUCTION

Asia Climate Week



25-29 March 2019 | Suntec, Singapore

YOU KNOW THE IMPORTANCE OF ACCURATE WEATHER INFORMATION ...

.... NOW YOU CAN FIND OUT FIRST HAND WHAT IS HAPPENING AT THE CUTTING EDGE OF INNOVATION ACROSS THE GLOBAL WEATHER ENTERPRISE

At Asia Climate Week you can meet in one place many of the leading scientists, technology companies and providers of forecasting services – plus many weather affected businesses – that make up the Global Weather Enterprise.

The Week will bring together three events:

- The 6th InterMET Asia Conference & Exhibition is the largest event for Asia, Africa and the Pacific Islands dedicated to the use of weather information in routine and extreme forecasting and warning applications.
- The 2nd InterFLOOD Asia Conference & Exhibition focused on flood management & mitigation
- The debut InterAIR Asia, focused on air quality monitoring, measurement and improvement.

It will mark Asia's biggest ever gathering of expertise in managing, mitigating and building resilience to the impact of increasing weather extremes & climate change.

We offer IFMS members preferential prices:

- 10% saving on exhibition space prices for past exhibitors and 20% discount for new exhibitors.
- 15% saving on conference delegate tickets.
- FREE entrance to the conference & exhibition programme on 27 and 28 March

If you are interested in exhibition or sponsorship opportunities, contact Tony Stephenson at tony@mediageneration.co.uk. For conference registration and full event information, visit www.intermet.asia.

NOTE: To claim your conference discount or to register for the FREE part of the programme, visit the Registration section of our website, tick IFMS when prompted, and the discount will be applied automatically.

Visit: www.intermet.asia



INVITATION

China High-Tech Expo on Meteorological Modernization 2019

The 11th China Exhibition on Technology of Meteorology Science 2019

The 11th China hydrological technology and equipment exhibition 2019

The 13th Lightning Protection Technology & Productions Exhibition China 2019

10th -12th April, 2019

Shanghai Convention & Exhibition Center of International Sourcing

No.2739 West Guangfu Road, Putuo District ,Shanghai, China

Guided by:

Chinese Meteorological Administration (CMA) / China Association for Science and Technology (CAST)

Hosted by:

Chinese Meteorological Society (CMS)

Supported by:

National Meteorological Center / China Meteorological Information Center

Co-Hosted by:

Relevant Disciplines (Work) Committees and affiliates of the Chinese Meteorological Society

CMA Meteorological Observation Centre / HMEI

China Meteorological Society Artificial Weather Influencing Committee

Chinese Meteorological Society Radar Meteorology Committee

Shanghai Meteorological Society / Jiangsu Meteorological Society / Hebei Meteorological Society

Shanghai Lightning Protection Association / Zhejiang Meteorological Society

Shanghai Lightning Protection Center Lightning Protection Product Test Center

China Academy of Meteorological Sciences / Yueqing Lightning Protection Association

Anhui Meteorological Society / Jiangxi Meteorological Society/ Qinghai Meteorological Society

Dongguan Lightning Protection safety association / Zhejiang Lightning Protection Association

Henan Lightning Protection Association / Hubei Lightning Protection Association

Committee on Satellite Meteorology / Shenzhen Lightning Protection Association

Guangdong Meteorological Disaster prevention and reduction association

Shanxi Lightning Protection and disaster reduction association

Shaanxi Lightning Protection and disaster reduction association

Jiangsu Lightning Protection and disaster reduction association

Organized by:

Minsheng Exhibition (Shanghai) Co.,Ltd

Media Partner:

Global Weather

Korean Partner:

Kintex Inc.

THE IFMS NEWSLETTER
The List of Publisher



PUBLISHER: HARINDER P. S. AHLUWALIA

CHIEF EDITOR: KUNG-YUEH CAMYALE CHAO

**EDITORIAL COMMITTEE: KEITH SEITTER, JOHN (JACK) HAYES, LIZ BENTLEY, BURUHANI
NYENZI, YONGYUN HU, WORKNEH DEGEFU, SUSHIL KUMAR DASH, ELIZABETH CASTANEDA,
MICHAEL COUGHLAN, GABRIELA MÜLLER, GRACIELA SALABERRI, KATHY ALLEN
TECHNICAL EDITOR: HAN-WEI CHANG**

Contact email address: IFMS.website@gmail.com

www.ifms.org

Published on January 31, 2019

