



Issue 1: January, 2024

NEWSLETTER

African Meteorological Society



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AfMS-NL-01 – January 2024



NEWSLETTER

African Meteorological Society

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BOARD CHAIRMAN



My dear Colleagues, it is my great honour to note that AfMS is making rapid progress and we are now producing our first Newsletter since we established it early last year. We have gone through several difficulties which we solved sometimes through the support of our mentor societies such as the IFMS, AMS, RMetS, and others. The African Diaspora especially those from the USA and some from the UK have been very supportive in this process of building our Society to the level that we have reached so far. There is also the group called Friends of Africa (FOA) which includes volunteer scientists from the USA, UK, India, and other countries who have all been very helpful in implementing our activities. Our process of operationalizing the society has

continued well with the creation of ten committees that are making good progress, under their committee chairpersons, in implementing their respective activities according to their respective defined terms of reference (TOR). The process of internationalizing it has also continued through engaging the African diaspora and Friends of Africa (D-FOA) from various developed countries including the USA, the UK, and India as well as by involving IFMS (which made the creation of AfMS possible), AMS, RMetS EMS, and others. It has taken a long time to get the Finance Committee functional due to the lack of the Chairperson. However, this problem has now been resolved, and this committee has also commenced its operation starting with its first meeting on November 23, 2023.

It is important to stress that the functioning and success of AfMS are very much dependent on the participation of the African resident volunteers. I, therefore, implore my fellow African scientists to come forward as volunteers to support the activities of this very important Society. Our African Diaspora and Friend of Africa (D-FOA) scientists are helping us very much. However, it is the resident Africans who need to ensure that AfMS grows fast and is sustainable. The scientists from outside Africa will support us better if they feel that we the resident scientists are working hard and thus appreciate their support to us. In this respect, I urge countries that have not yet established their National Meteorological Society to establish one, because it unites the professionals in your country and becomes one of the pillars of AfMS.

The Society was formally inaugurated on November 30, 2022. The Inauguration function was held virtually and was attended by many participants. Now we are planning to hold our first in-person Conference at the end of 2024 with the capability for virtual participation. We would like to have this event well attended with good scientific presentations. I urge all our scientists to start preparing for this conference.

Dr. Buruhani Nyenzi
AfMS BOARD CHAIRMAN

MESSAGE FROM THE PRESIDENT IFMS



I would like to congratulate the African Meteorological Society (AfMS) for its creation and for issuing the first Newsletter. With a population of approximately 18.15% of the world, the continent of Africa is responsible for only 3.8% of greenhouse gas (GHG) emissions – the bare minimum for survival. However, because of the insufficient knowledge base and infrastructure, Africa will face great hardships unless we take serious action right away. In addition to the National Meteorological and Hydrological Services (NMHSs) which have the primary role in their country for capacity building, the following organizations also play an important role: the World Meteorological Organization (WMO) which sets the standards, defines, and coordinates new requirements and also assist in building the knowledge base through Global Campus, and the World Bank Group (WBG) or the development of the infrastructure through loans and grants.

In addition, a large number of active and retired professionals, researchers, and administrators, are available as volunteers from within and outside Africa. As Victor Hugo said, “No army can stop an idea whose time has come”. We (the IFMS) believed that the time for the idea of creating the AfMS to unite the available resources and reduce duplication had come and we decided to create the AfMS with the very kind assistance of our African Council Members of the IFMS.

It has been observed that countries that have created their National Meteorological Societies (NMSocs) which are reasonably well funded are reaping the benefit of involving volunteers who could be active or retired professionals. Having membership from the Public, Academic, and Private sectors, NMSocs provide an important forum for professionals to interact and collaborate for capacity building. In addition, a continental society such as the AfMS provides an opportunity for professionals from diverse countries to collaborate, and finally, an International Society such as the International Forum of Meteorological Societies (IFMS) provides an opportunity for all professionals around the world to collaborate.

There is a lot of goodwill for Africa around the world and there are a large number of professionals including the African Diaspora and Friends of Africa (non-Africans) who are prepared to volunteer their services for capacity building in Africa. All these people were looking for some organization that could help them to participate in the capacity-building exercise for Africa. The impetus to create the AfMS also came from the fact that such a Central Organization will provide an opportunity for all of us to work together. Having created this venerable society, we now have to strengthen it by offering our services and participating in its activities seriously.

In addition to creating a Learning Portal, we are also working on creating capacity in Africa through its schools, colleges, and universities. We consider this to be a foundational action to create capacity in Africa.

We have created committees that are supposed to implement the value proposition of AfMS. Please offer your services and let’s all work very hard together to strengthen AfMS so that it can serve the continent of Africa in creating dearly needed capacity. To show progress, we have set three very important milestones – the first one is issuing the first Newsletter which is being completed with this newsletter, the next one is to issue the first journal by mid-2024 and the third one is to have the first in-person conference towards the end of the this year.

Based on the message of President Kennedy when he got elected, I would like to say, that now is the time to ask yourself “what you can do for AfMS and not what AfMS can do for you”. If we follow that message, we will see the AfMS will do a lot for us very shortly.

The NMHSs, WMO, and WBG are requested to support AfMS and help in strengthening it both morally, operationally, and financially. IFMS will always endeavor to make AfMS a strong catalyst in creating capacity in Africa.

Finally, I would like to state that the success of AfMS is dependent upon the strong participation of professionals who are African residents. Only then the help of the Diaspora and Friends of Africa will come.

Dr. Harinder Ahluwalia

WMO REGIONAL OFFICE FOR AFRICA MESSAGE ON AFRICAN MET SOCIETY NEWSLETTER LAUNCH, 2023.



DR. AGNES LAWRENCE KIJAZI, DIRECTOR, WMO REGIONAL OFFICE FOR AFRICA

The World Meteorological Organization Regional Office for Africa is glad to be associated with the African Meteorological Society on its launch of this newsletter. We are thankful to the African Meteorological Society for starting the publication of the Newsletter.

The publication comes at a time when there are significant initiatives on the continent to strengthen the provision of hydrometeorology services in Africa. At WMO, we are a specialized agency of the United Nations, that supports international cooperation for the development of meteorology, climatology, operational hydrology, and related environmental services as well as their applications, in technology transfer, training, and research with a membership of 193 Member states and Territories, 53 of whom are from Africa. We have been working very closely with the African Meteorological Society and developed a joint Memorandum of Understanding that will see us work very closely.

Considering the main objective of the African Meteorological Society is to advance meteorology and related sciences, at the continental level, its activities feed into the work of WMO and its Member States to promote public welfare through science and technology. We intend to work together in the areas of a) organizing joint scientific conferences, seminars, and workshops, b) exchanging relevant scientific materials such as journals, newsletters, technical reports, and expertise, and c) jointly facilitating the establishment and strengthening of national meteorological societies.

I mentioned some initiatives ongoing on the continent, one such initiative is the EW4All, started by the UN SG Antonio Guterres. The initiative is an ambitious program that seeks to have all persons on the planet covered by Early Warning by 2027. In Africa, 13 Countries are part of the first bunch of countries to benefit from this initiative, and activities are being developed in these countries. African Meteorological Society is encouraged to contribute to this initiative, especially on knowledge management and the creation of scientific repositories and documentation on the steps taken and results achieved through publications, technical notes, and review conferences.

Furthermore, the African Meteorological Society is expected to play a key role in assisting the Members to form and operationalize National Meteorological Societies. Thank you.

Dr. Agnes Kijazi

MESSAGE SUPPORTED BY PERMANENT REPRESENTATIVES OF AFRICA IN WMO**MESSAGE OF CONGRATULATIONS - MESSAGE OF SOLIDARITY**

We, the Permanent Representatives in WMO of our respective countries, would like to congratulate the African Meteorological Society (AfMS) on its creation and issuing its first Newsletter. We believe that an organization that brings active, retired, diaspora, and non-African friends of Africa together can generate a lot of value for creating the knowledge base and providing advice for building the badly needed infrastructure in Africa. True to the African saying “If you want to go fast, go alone, if you want to go far, go together”. Let’s all work together to strengthen our resolve to enhance capacity in Africa.

SUPPORTED BY PRS OF THE FOLLOWING COUNTRIES

#	Country	PR's Name	#	Country	PR's Name
1	Algeria	Mr Brahim IHADADENE	2	Benin	Mr Dakpanon Félicien CHEDE
3	Botswana	Ms. Chandapiwa P. Sebeela	4	Burkina Faso	Mr. Joël Zoungana
5	Cameroon	Mr. Simplicie Tchinda Tazo	6	Comoros	Mr. Mchami IBRAHIM
7	Djibouti	Mr Mohamed Ismael NOUR	8	Egypt	Major Gen. Hesham Tahoun
9	Eswatini	Mr. Duduzile Nhlengethwa-Masina	10	Gambia	Mr. Lamin Mai Touray
11	Ghana	Mr. Eric Asuman	12	GUINEA	Mr. Rene Tato LOUA
13	Guinea Bissau	Dr. João Lona TCHEDNÁ	14	Kenya	Mr. David Gikungu, Ph.D.
15	Liberia	Mr. Arthur Gar-Glahn	16	Lesotho	Mr. Mokoena France
17	Libya	Mr. Ali M. Juhaydir	18	Madagascar	Ms Nirivololona RAHOLIJAO
19	Malawi	Lucy Mtilatila, Ph.D.	20	Mali	Mr. Djibrilla A MAIGA
21	Niger	Mr. Katiellou Gaptia Lawan	22	Sao Tome & Principe	Anselmo Xavier Fernandes
23	Tanzania	Ladislaus Chang'a, Ph.D.	24	Togo	Mr. Latifou ISSAOU, Ph.D.
25	Uganda	Bob Ogwang, Ph.D.	26	Zimbabwe	Rebecca (Becky) Manzou

MESSAGE FROM FLISMET PRESIDENT



Montevideo, November 3, 2023,

Executive Council African Meteorological Society
Pte

The Executive Council of the Latin American and Iberian Federation of Meteorological Societies (FLISMET) would like to convey to the African Meteorological Society its congratulations for the path undertaken for the activation and collaboration of colleagues who are specialists in meteorological sciences in Africa.

We hope that this association, in a very short period of time, can consolidate its objective of unification and coordination in the field of professional meteorology of its continent, being a reference in the field of meteorological sciences and the unity of its professionals.

Jose Luis SANCHEZ
PRESIDENT PRO TEMPORE

MESSAGE SUPPORTED BY PERMANENT REPRESENTATIVES OF AFRICA IN WMO

MESSAGE DE FÉLICITATIONS - MESSAGE DE SOLIDARITÉ

Nous, représentants permanents auprès de l'OMM de nos pays respectifs, souhaitons féliciter la Société météorologique africaine (AfMS) pour sa création et la publication de son premier bulletin d'information. Nous pensons qu'une organisation qui rassemble des membres actifs, retraités, de la diaspora et non-africains amis de l'Afrique peut engendrer d'énormes bénéfices en créant une base de connaissances et en apportant des conseils pour bâtir des infrastructures indispensables en Afrique. Fidèle au dicton africain « Si tu veux aller vite, marche seul mais si tu veux aller loin, marchons ensemble », travaillons tous

MESSAGE FROM THE AMERICAN METEOROLOGICAL SOCIETY



Building capacity in the meteorological and related sciences in the African continent is paramount for several reasons. Firstly, Africa is experiencing a wide range of extreme weather events such as droughts, floods, and storms, exacerbated more so by climate change. Enhancing meteorological capabilities in the region will lead to accurate forecasting, which is in turn crucial for the development of early warning systems. Such systems save lives and minimize property losses, thereby reducing the human and socio-economic impact of disasters. Understanding local weather patterns and climate variability is essential for sustainable agriculture, water resource management, and disaster

risk reduction. Additionally, improved meteorological capacity fosters scientific research and innovation, driving economic growth and resilience. Lastly, reliable weather information is essential for worldwide aviation, shipping, and various industries. Africa's participation in meteorology and related sciences and technology is thus a key factor in regional and international cooperation.



The one-year mark of the establishment of the African Meteorological Society (AfMS) serves as a poignant reminder of the significant contributions meteorological societies make in education, dispelling misinformation, and advocating for sustainable solutions for both current and future generations. As a fellow member of the IFMS, the AMS eagerly looks forward to the successful evolution of its AfMS. We look forward to celebrating the AfMS achievements at its inaugural meeting soon.

Sincerely,

Dr. Brad Colman, AMS President

Dr. Stella Kafka, AMS Executive Director & CEO

HAPPY NEW YEAR

The African Meteorological Society wishes you a happy new year filled with joy, laughter, and endless possibilities.

 www.africanmetsociety.org

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The graphic features a dark blue background with a city skyline at night. Large, 3D gold numbers '2024' are the central focus, with a white gift box and a gold ribbon tied around the '0'. A white and gold striped Christmas ball hangs from the top right. A small white Christmas tree is on the left, and a larger one is on the right. Confetti is scattered throughout.



MESSAGE FROM RMETS & EMS

ROYAL METEOROLOGICAL SOCIETY (RMETS) – SESQUICENTENNIAL (150) ANNIVERSARY:



The Royal Meteorological Society (RMets) has had a long association with met societies around the world and recognises the invaluable work that learned and professional bodies can provide. Working together to strengthen the science and raise awareness of the importance of weather and climate, supporting meteorological professionals and inspiring enthusiasts. The RMets plays an important role internationally as one of the world's largest meteorological societies. Its programmes of work are broad and diverse, including delivering a portfolio of eight international journals, hosting over 50 events each year, and overseeing professional accreditation in meteorology.

As a not-for-profit organisation, RMets delivers an active education programme for teachers, schools, and education bodies. It also aims to enthuse and educate through its public engagement activities, media, and climate change communication training. Despite RMets being a UK organisation, many of these activities support those working and studying around the world. In 2022, the RMets led a task team to develop the weather and climate learning portal for the African nations launched at COP27 in Egypt <https://ifms.org/index.cfm/ifms/afms-learning-portal/>. This portal collated over 70 learning resources each designed for different audiences whether that be school children, members of the general public, scientists, or professionals to learn more about weather and climate across the African continent.

The Royal Meteorological Society proudly celebrated the 150th anniversary of its Quarterly Journal in 2023 at the Imperial College London.

Prof. Elizabeth (Liz) Bentley – CEO of RMets and President of EMS

EUROPEAN METEOROLOGICAL SOCIETY (EMS):

As a regional met society, the European Meteorological Society understands the strength of unity of bringing together met societies for a common good.

The EMS will celebrate its 25th anniversary in 2024 and has been hosting annual meetings in different countries around Europe since 2001. The history of the EMS tells us that the concept of a regional met society in Europe was discussed in 1993, some 6 years before it was established on 14th September 1999. There are many people to thank for having the foresight and enthusiasm to make this happen and those of us associated with the EMS today are extremely grateful.

The aim of the EMS in those early days is similar to today – to promote the advancement of the science, profession, and application of meteorology and related sciences within Europe for the benefit of the whole population. The strategy is built around four pillars which focus on bringing communities together to share their science and its applications and promote each other's activities. The EMS not only works to support its 38 member societies but also collaborates with key partners from around Europe and beyond – including 30 Associate Members and organizations such as the International Forum of Meteorological Societies and the African Meteorological Society (AfMS).

The lessons learned over the last 25 years are being shared with the AfMS so that it can grow and develop to achieve its own aims and objectives.

Prof. Liz Bentley

NEED FOR EARLY WARNING SYSTEMS IN ALL COUNTRIES

Dr. Harinder Ahluwalia

1. INTRODUCTION

Due to Global Warming and resulting Climate Change, we expect disasters caused by weather-related events to intensify. To protect the lives and property of people, we must develop an Early Warning System to warn them about each impending disaster.

The United Nations Secretary-General, António Guterres, in 2022 called for a global effort to ensure that Early Warning Systems (EWS) protect everyone on Earth by 2027. WMO, through which these systems will be implemented, has announced 30 priority countries for which these systems will be implemented very soon.

2. COMPLETE WEATHER FORECASTING AND EARLY WARNING SYSTEM

To understand the overall end-to-end EWS, it is important to know all the different stages the collected raw data goes through before it gets to the impact-based forecasting and EWS.

The overall system consists of the following important parts:

1. Objective Weather Forecasting on various Scales (Global, Meso-scale, and Micro-scale)
2. Subjective Forecasting
3. Early Warning System



3. OBJECTIVE WEATHER FORECASTING ON VARIOUS SCALES

Objective Weather Forecasting is done at three levels:

1. Global
2. Meso Scale
3. Micro Scale.

3.1 GLOBAL FORECAST MODELS



Global Level Forecasting has to solve very large matrices and hence requires super-computers. Therefore, Global Forecasting is done by large centers such as NOAA, UKMet Office, ECMWF, etc. at a moderate resolution. The model output provides a forecast for temperature, pressure, wind speed & direction, rainfall, and humidity and some models (e.g., GFS of NCEP-USA) also provide atmospheric ozone concentration. Global weather forecast models can provide a resolution of 9×9 km and more with a forecast period of 10–1

5 days (long-range models provide weather information for more than one month). The current top global forecasting models, the European (ECMWF) model, and the U.S. GFS model subdivide the global atmosphere into grid boxes that average 9 kilometers and 13 kilometers on a side, respectively, then solve the mathematical equations of atmospheric flow to generate a forecast for each of those grid cells. IBM claims to have the world's highest-resolution global weather forecasting model – the IBM Global High-Resolution Atmospheric Forecasting System (GRAF). The GRAF model employs a variable-resolution grid, resembling a honeycomb, that can be configured with higher resolution over areas of particular interest. Over land areas, the GRAF grid elements will have average resolutions of 3 km, which is about 3 – 4 times greater than the European and GFS models. The model will be the first hourly-updating weather model that can predict something as small as a thunderstorm virtually anywhere on the planet.

3.2 MESOSCALE WEATHER FORECASTING MODELS

To get better resolution forecasts, Mesoscale weather models focus on specific regions such as entire nations or large regions at a higher resolution compared to global models. They are particularly useful for predicting localized weather phenomena and severe weather events. Some examples of such models are the American Mesoscale Forecast System (NAM) which is developed by the National Centers for Environmental Prediction (NCEP) in the United States. It offers high-resolution forecasts for North America, including detailed predictions of temperature, wind, precipitation, and atmospheric instability. The NAM model plays a vital role in predicting severe thunderstorms, winter storms, and other mesoscale weather features.

The High-Resolution Rapid Refresh (HRRR) model is another mesoscale model widely used in weather forecasting. It provides short-term forecasts with very high temporal and spatial resolution, making it valuable for predicting rapidly evolving weather phenomena, such as thunderstorms, convective systems, and fog. The HRRR model leverages advanced assimilation techniques and radar data to enhance its forecast

4. SUBJECTIVE FORECASTING

Objective Forecasting obtained from the model then undergoes Subjective Forecasting in which the experience of the Forecaster working in this area is very important. They use Forecasting Work Stations for subjective forecasting. The input for the workstation is received in the form of model output (e.g., in GRIB format), Alphanumeric OPMET data, Satellite Imagery, Radar Imagery, Radiosonde data, and any other available data (e.g., lightning data, Microwave Radiometer Data, Wind Profiler data, etc.).

The functionality of these systems includes the display of the above data, the capability to animate, overlay products, show vertical and horizontal cross-sections, and a calculator to calculate a combination of various fields. Some systems even provide the capability to see all types of products in 3D.

5. EARLY WARNING SYSTEM

The Multi-Hazard Early Warning System (MH-EWS) is used to warn the population about weather conditions, and their impact on their lives and property. One such system is A4EU or ANYWHERE for Europe. The principal objective of this system is "to enable society as a whole, and the main civil protection agencies to respond more rapidly than today to extreme climate and weather events, and to better cope with the high social, environmental, and economic impacts related to these extremes".

This Project is expected to establish a pan-European platform on extreme climate risks that will enable users to identify, in several geographic regions, critical situations that could lead to loss of life and economic damages. Such early warning should enable to improvement of protection measures and, in the case of catastrophic situations, ameliorate the coordination of rescue operations.

As stated at the beginning of this article, the mission of the United Nations is to ensure that each country of the world has such a system that will serve as a decision-making tool for various authorities in situations of crisis and will provide state-of-the-art early warning systems to help exposed populations save lives and property.

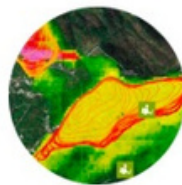
Starting with the output of the subjective forecast, such systems do impact-based forecasting and generate alerts and warnings for various assets. The operational platforms have been developed according to the needs of the different Pilot Sites: Catalonia (Spain), Genoa / Liguria region (Italy-France), South Savo (Finland), Bern Canton-Alps (Switzerland), Rogaland (Norway) and Corsica (France) at the regional level. Each country is expected to make its own National, Regional, and Municipal level system. Many countries (Spain, Ireland, and Andorra, etc.) have already done so. All these systems are based on "Impact-based Forecasting Technology".



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Extreme and high-impact weather events, interacting with exposed and vulnerable human and natural systems, can lead to disasters. Experts agree that these phenomena (flash-floods, storm surges, heatwaves, forest fires, droughts, convective storms or snowfall) have increased in frequency or magnitude, resulting in more devastating potential impacts for people and goods.

 <p>Meteorological Forecasts</p> <p>Extreme meteorological events can have a very important impact on population, natural resources and infrastructures.</p> <p>MORE INFO</p>	 <p>Floods, flash-floods, debris flow and landslides</p> <p>Heavy precipitations can cause floods in large rivers or torrential phenomena such as flash-floods, landslides and debris flows.</p> <p>MORE INFO</p>	 <p>Weather-induced forest fires</p> <p>Forest fires causes enormous environmental damages and economic losses and which continue to present a major risk in many countries.</p> <p>MORE INFO</p>	 <p>Droughts</p> <p>Droughts and water scarcity are important issues in many regions of the Earth and pose a significant risk to the environment, society and the economy.</p> <p>MORE INFO</p>
 <p>Heatwaves and weather-induced health impacts</p> <p>Extreme hot temperatures experienced during a heatwave and air pollution represent a danger to human health.</p> <p>MORE INFO</p>	 <p>Convective storms, severe winds</p> <p>Convective storms may cause lightning, hail, wind gusts, and flooding, which can have a large impact on local safety and infrastructure.</p> <p>MORE INFO</p>	 <p>Storm surges</p> <p>Storm surges produce an anomalous rise in water level, with subsequent flooding of coastal areas that causes high social, economic and environmental impacts.</p> <p>MORE INFO</p>	 <p>Snowfall</p> <p>Blackouts, fallen trees, roads closed, railways interrupted... Heavy snowfall can cause a lot of high-impacts events, especially in regions where the occurrence of snow is less regular.</p> <p>MORE INFO</p>

FIGURE SHOWING TYPES OF HAZARDS ANYWHERE CAN HANDLE

“The Ultimate Guide to Weather Forecast Models 2024” by ClimaVision. – a lot of information has been extracted from this reference.

The A4EU Website: [Services – Multi-hazard early warning platforms – A4EU – ANYWHERE \(anywhere-h2020.eu\)](https://www.a4eu.eu/services/multi-hazard-early-warning-platforms)

AFRICA TAKES STEPS TO ROLL OUT EARLY WARNING FOR ALL INITIATIVES

ZABLON W. SHILENJE, WMO REGIONAL OFFICE FOR AFRICA



Africa has a vast majority of its land vulnerable to the adverse impacts of climate change and most exposed to natural hazards, especially riverine and flash flooding, droughts, tropical cyclones, and marine-related hazards (high waves and storm surges). Capacities to better manage and avoid hazardous events are needed to protect and grow the well-being and resilience of vulnerable and exposed individuals and communities. Multi-hazard early warning systems linked to early actions are key to the continent's efforts to manage risks, enhance adaptation, and build community resilience.

In Africa, data from WMO indicate close to 60 percent of the population lacks multi-hazard early warning systems. Gaps are most significant in small islands, developing states, and least developed countries. Recognizing this, in 2022, on World Meteorological Day, the United Nations Secretary-General (UN SG) called for everyone on the planet to be protected by early warning services by the end of 2027. This call led to the "Early Warning for All" (EW4All) initiative, launched at the 27th Conference of the Parties (COP-27), in Sharm el-Sheikh, Egypt. EW4All aims to enhance the capacity of countries to provide timely and effective early warning information, particularly to their most vulnerable populations. As each country has its unique challenges and opportunities, there is much flexibility for individual countries to set their own implementation pathways.

At the global level as well as the African continent level, the World Meteorological Organization (WMO) and United Nations Office for Disaster Risk Reduction (UNDRR) co-lead the EW4All initiative, with support from the International Telecommunications Union and International Federation of the Red Cross/ Red Crescent and Member States as the key implementing entities.

Effective early warning systems must be people-centred and integrate the following four major key elements:

- Disaster Risk Knowledge:** Risk assessment provides essential information to set priorities for mitigation and prevention strategies and designing early warning systems.
- Detection, Observations, Monitoring, and Forecasting:** Systems with monitoring and predicting capabilities to provide timely forecasts of the potential risks faced by communities, economies, and the environment.
- Dissemination and communication of information:** Communication systems are needed to deliver warning messages to the potentially affected locations to alert local and regional governmental agencies and at-risk local communities. The messages must be reliable, systematic, and simple to be understood by authorities and the public.
- Preparedness to respond:** Early action coordination, good governance, and appropriate early actions to mitigate the negative impacts of the forecasted event. This should be supported by a solid commitment to allocate adequate and earmarked finance for the implementation of early actions. Likewise, public awareness and education are critical aspects of disaster mitigation measures.



Four pillars of the EW4All

RECOMMENDED STEPS FOR COUNTRY ROLL-OUT AND IMPLEMENTATION OF EW4ALL

While there is no one-size-fits-all approach, this guide, developed by WMO, UNDRR, and a cohort of organizations and partners, proposes a step-by-step process for implementing the initiative at the national level. It is important to note that each country has its unique challenges and opportunities and needs to set its own implementation pathway accordingly. This guide, therefore, aims to provide an orientation of the steps to be taken, which should be adjusted and amended according to national context, priorities, needs, and gaps. Implementation of the Early Warnings for All Initiative at the national level may require some or all of the below steps:

Step 1: stakeholder mapping: As a first step (if not already available), the EW4All initiative recommends identifying and mapping out all relevant stakeholders in the country who are active across the spectrum of the Early Warning System (EWS). This includes government agencies, non-governmental organizations, academic institutions, private sector entities, communities at risk, and donors. The mapping exercise will help to identify key actors, their roles (i.e. capacity development, direct implementation, technical support, donors, etc.), and gaps in stakeholder engagement. It will also be important to identify multi-lateral and bi-lateral funding agencies that are supporting early warning programming.

Step 2: national consultative workshop: A consultative workshop should be organized to present the Early Warning Initiative, secure institutional buy-in, present ongoing early warning work in the country, identify an appropriate coordination mechanism, and discuss gaps and priority technical needs for support. The workshop should engage all relevant stakeholders, including government officials, civil society representatives, donors, and affected communities. The workshop covers all four pillars of EWS. A key outcome is agreement on the most appropriate coordination mechanism for EWS and identification of priority technical areas of support required.

Step 3: gap analysis: After the consultative workshop, it is recommended that a gap analysis is conducted across all four pillars of early warnings. The gap analysis aims to identify the strengths and weaknesses of the existing early warning systems and highlight areas for improvement. A Minimum Core Capability Checklist developed by the EW4All Initiative can be made available for the gap analysis at the country level.

Step 4. National Plans and roadmaps developed: Based on the findings of the gap analysis, priority technical areas of support should be identified in the form of an action plan or roadmap for implementation. If the country does not have an official roadmap for the implementation of EWS, this step can also be conducive to formulating a national roadmap. The action plan or roadmap should set out how to bridge the identified gaps and outline the key actions, technical support and capacity required to improve the effectiveness of early warning systems, as well as agreed timelines and budget. It should also include provisions for monitoring and evaluation to ensure that progress is being made towards achieving the goals of the initiative. A financing component is also critical, and additional technical support may be required to develop sustainable financing solutions for early warning.

Step 5. Implementation, Monitoring, and Reporting: The implementation of Early Warning involves a range of activities, including improving risk knowledge, strengthening monitoring and analysis capabilities, enhancing communication and dissemination systems, and building response capacity. The implementation process should be guided by the stakeholder coordination mechanism established or confirmed in the national consultative workshop. A monitoring framework has been established for use in countries, and technical support is also available to strengthen reporting on Target G of the Sendai Framework, which tracks progress on Early Warning systems.

Based on this implementation plan, 5 of the 13 pioneer African countries for the EW4All, Ethiopia, Madagascar, Mozambique, Uganda, and South Sudan, launched the implementation plan for their countries in November 2023. Mauritius and Comoros are scheduled for December 2023, while the rest are billed for early 2024. The national launches and consultation workshops on EW4All are critical first steps in this process.

In September 2022, WMO partnered with the African Union Commission, the Government of the Republic of Mozambique, and other partners to convene a Ministerial Conference on Early Warning and Early Action for the Southern Africa Development Community in Maputo, Mozambique. Africa has built on the outcome of this conference to initiate more activities following the EW4ALL initiative. Significantly, another critical milestone in the implementation of the EW4All on the continent is the development of the Africa Action Plan on Early Warning, which was launched at the Nairobi Africa Summit on Climate Change in September 2023. This plan outlines where Africa would like to be, what constitutes success in early warning, and the actions required to be taken to achieve these goals. Notably, at the Africa Climate Summit, the President of Kenya HE William Ruto, was nominated Champion for EW4All in Africa.

FRAMEWORK FOR TRAINING THE TRAINERS ON CLIMATE EDUCATION IN TEN EASTERN AFRICAN COUNTRIES

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Prof. Debo Adeyewa, Chair, Education & Training, AfMS

Dr. Gachahi Lydia Wangechi, Secretary, E & T, AfMS & Team Leader of Kenya on Pilot Project



1. BACKGROUND

One can classify education into three categories such as formal, informal, and non-formal. The formal education is done in academic institutions and in this system, one passes one examination/degree and moves up the ladder. Schools, Colleges, Universities, and some other Institutions of Higher Education (IHE) basically impart formal education and these are guided by government rules and regulations with specific syllabi. On the other hand, informal education is not done in formal institutions but primarily by parents, family, friends, and through everyday experience. on-formal education includes adult education, literacy programmes, skill development, and community programmes. This type of education is highly flexible and can be under by various organizations such as NGOs, scientific societies

, and volunteer organizations on various platforms. Using this medium, one can educate many more people compared to the students in the formal education system. Looking at the present climate crisis across the globe, it is essential to create awareness across all cross sections of society about some important climate-related issues such as the science behind global warming, climate disasters, sustainable development approaches, clean energy, adaptation and mitigation strategies, socio-economic issues and above all, the responsibilities of individuals in the present scenario. Teachers are the backbone of the society. They teach the students and also build future citizens of the world simultaneously. Training them on the most relevant issues of climate change is like training the trainers. Training teachers will have cascading effects and, in the process, several students will be educated which in due course may create citizens who will be ready to face the challenge of climate emergency.

Considering the human concern about climate change in today's world, the International Forum of Meteorological Societies (IFMS) can raise the importance of formal education on different platforms and try to influence the decision-makers to introduce the subject at all stages of school/college/university education. Taking advantage of the internet and social media, IFMS can try to enlarge the scope of non-formal education with the help of various international agencies and National Meteorological and Hydrological Societies (NMHSs). This can reach larger sections of the people and benefit the society. Fortunately, today, a lot of educational materials are available free of charge on the internet which can be channelled most effectively with the efforts of IFMS. Although information is floating everywhere, one needs to assimilate that in a participatory manner especially from the early stages of life to understand, analyse, innovate, and thereby, contribute to the benefit of society.

Teachers' and students' programmes through their direct participation have their unique place in capacity development through education and training. For the right reasons, one of the important objectives of IFMS is to develop capacity through teacher training in climate education. Most appropriately, countries in the Horn of Africa and Eastern Africa are selected for executing a pilot project. As discussed, the initial plan was for nine countries including Ethiopia, Eritrea, Djibouti, Kenya, Somalia, South Sudan, Sudan, Tanzania, and Uganda. But subsequently, the tenth country Burundi has been added in the right spirit.

2. Status of Formal Education in Weather and Climate in Selected 10 African Countries

In this proposed programme, school and college teachers will form the core group. Usually, before teaching any group of students, it is expedient to know their background so that teachers can build on their existing knowledge and prepare the teaching materials. This procedure helps in transferring adequate knowledge from the tutor to the students smoothly. Keeping the above principle in mind, in this pilot project, the status of current formal education in weather and climate in the ten East African countries has been collated from the respective volunteers in each country. The summary of the teaching programmes is given below.

2.1 Schools

Four countries including Ethiopia, Kenya, Somalia, and Tanzania have responded to our request. We request others to do the same.

1. **Ethiopia:** In grades 9, 10, 11, and 12, the fundamentals of atmosphere, weather, climate, climate variation and change in Africa are taught. The details of the syllabus in different grades are as follows:

Grade 9: Composition and layers of the atmosphere; Difference between weather and climate; Atmospheric temperature, its measurement, interpretation, and lapse rate; Formation of rain, its types, measurements, slopes of houses in different climate regions; Types of winds, cyclones and anticyclones concerning the rotation of the earth,

impact on buildings and crops; Types of atmospheric pressure, relation with temperature and altitude, skills of measuring and recording atmospheric pressure.

Position of the sun at various latitudes at noon of Dec 22/June 21; Effect of latitude on temperature, rainfall, and pressure; Comparison of rainfall and temperature between coastal and interior areas; Types of ocean currents, its impact and effects on temperature and rainfall on land.

Grade 10: Classification of climate, Comparison of Greeks' and Koppen's classifications, Causes of climate change, and major consequences of climate change.

Grade 11: Elements of weather and climate, major climatic controls of Africa, seasonal temperature conditions of Africa, seasonal distribution of rainfall in Africa, and climatic regions of Africa.

Grade 12: Factors that influence the spatial distribution of the climatic elements of Ethiopia and the Horn; spatial and temporal variation of temperature in Ethiopia and the Horn; the spatial and temporal variation of rainfall in Ethiopia and the Horn; and rainfall regions in Ethiopia.

2. Kenya: Weather and climate are only taught in Geography as a sub-topic in Forms 2-4 as follows. Further, not all students who do geography in Forms 1 and 2 continue with it in Forms 3 and 4, i.e. it is not a compulsory subject in the final Form 4 examination. The specific topics form-wise are given below.

Form 2 (Weather): Definition of weather, elements of weather, factors for siting weather station, instrument for measuring elements of weather condition, recording and calculating weather conditions, structure and composition of the atmosphere, weather forecasting, and factors influencing weather.

Form 4 (Climate): Distinction between weather and climate, Factors influencing climate, Distribution, and characteristics of climatic regions of Kenya and the world, Causes, effects, and possible solutions to aridity and desertification, and causes and consequences of climate change.

3. Somalia: In Somalia, only one school teaches weather, Climate Physics, and geography.

4. Tanzania: Most of the primary schools in Tanzania have weather and climate topics under the geography subject. At the secondary school level, students are briefly introduced to climate change. The syllabus includes a definition of weather and climate, weather and climate elements, and instruments used in measuring.

2.2 College/University Education

Seven countries (Ethiopia, Kenya, Tanzania, Somalia, Sudan, South Sudan, and Uganda) have provided the requisite information.

1. Ethiopia: Four Universities are offering B.Sc., M.Sc., and PhD degrees. Arba Minch University offers a B.Sc. in Meteorology and Hydrology, an M.Sc. in Meteorology and Climate Change and Sustainable Development, and also PhD in both subjects. Addis Ababa University has M.Sc. and PhD in Atmospheric Science and Haramaya University has M.Sc. and PhD in Climate Smart Agriculture. Wollega University offers a B.Sc. in Climate and Hydrology.

B.Sc. in Meteorology consists of Fundamentals of Atmospheric Sciences and Hydrology, Earth Observation, Monitoring and Analysis, Weather Forecasting, Applied Meteorology, Atmospheric Chemistry, Climate Variability and Change, and Tropical Meteorology.

M.Sc. in Meteorology consists of Computer Programming, GIS and Spatial Analysis, Satellite and Radar Meteorology, Synoptic Meteorology, Tropical Weather and Climate, Numerical Weather Prediction, Hydrology and Water Resources, Climate Smart Agriculture, Statistical Methods in Atmospheric Science, Atmospheric Chemistry and Air Pollution, Climate Change Science and Modelling.

M.Sc. in Climate Change and Sustainable Development consists of the Science of Climate Change, Principles and Practices of Sustainable Development, Tropical Weather and Climate, Advanced GIS and Remote Sensing, Economics of Climate Change, Climate Smart Agriculture, Earth System Modelling, Climate Change Impacts, Adaptation and Mitigation: Concepts, Tools, Practices and Policies, Climate Change and Water Resources, Advanced Statistical Techniques in Climate Science, Energy Resources and Renewable Technology, Climate Change and Human Health.

2. Kenya: Kenya has more than 20 public Universities and many private Universities that offer undergraduate and postgraduate degree and diploma programs. There are also many tertiary institutions offering undergraduate diplomas and certificates. Unlike in basic education (primary and secondary), post-secondary curricula are not common in all institutions. Each college/University has its own curriculum depending on the mandate. There are a few institutions that offer meteorology and climate-related sciences; these include the University of Nairobi, Masinde Murilo University of Science and Technology South Eastern Kenya University, and the Institute of Meteorological Training and Research which offers undergraduate courses.

Some other institutions offer weather/climate-related courses under environmental, geosciences, and water-related degree programs. For example, The Technical University of Kenya offers several course units on

meteorology and climate in its degree and diploma programs in Environmental Resources Management. Kenyatta University has a well-established department of environmental sciences and offers some course units on weather/climate.

3. Tanzania: Various colleges and Universities have degree courses and/or modules related to climate and climate change at B.Sc. and M.Sc. programmes. For instance, the University of Dar es Salaam has a degree course on Meteorology and M.Sc. on climate change and Sustainable Development. At Ardhi University, there is a module on introduction to Meteorology for B.Sc. majoring in Environmental Science and Environmental Engineering. Water Institute offers certified courses on Hydrology and Meteorology.

4. Somalia: In Somalia, Hargeisa University teaches Agriculture, Meteorology, and Environmental Sciences in B.Sc. and M.Sc. degree in DRM. Amoud University offers Meteorology, Climatology Environmental Science at B.Sc., and Climate Change and Environment Sustainability at the M.Sc. level. National University has a Bachelor in Environment and Geographic Science.

5. Sudan: Two Universities in Sudan provide B.Sc. in Meteorology; Bahri University and Omdurman Islamic University. Bahri University has a five-year degree which consists of General Mathematical and Physical Courses, Introduction to Meteorology, Data Processing in Meteorology, Physical Meteorology, Dynamical Meteorology, Synoptic Meteorology, Satellite Meteorology, Numerical Weather Prediction, Climatology, Weather System of Sudan, Agricultural Meteorology, Tropical Meteorology, Economical Meteorology, Climate Change, General Oceanography, and Marine Meteorology.

Omdurman Islamic University Courses consist of Geography of Sudan, Principles of Astronomy, Meteorological and Astronomical Terminology and Meteorological Physics, Remote Sensing, Numerical Analysis, Environmental Agrometeorology, Meteorological Instruments and Observation Methods and Satellites Meteorology. Others include Dynamic Meteorology, Synoptic Meteorology, Physical Meteorology, Numerical Weather Models, Synoptic Meteorology (Advanced), Hydrometeorology, Climate Change, Tropical Meteorology and Oceanography.

6. South Sudan: Some portions of meteorology are taught in two Universities in Schools of Natural and Environmental Resources and Education. The University of Juba has a School of Natural & Environmental Resources which teaches Remote sensing and GIS, the School of Applied & Industrial Sciences offers Introduction to Meteorology and the School of Education teaches Gender & Environment, Climatology, Dynamic Meteorology, Cloud Physics and Tropical Meteorology. The University of Bhar-El-Gazal has a School of Education teaching GIS, Remote Sensing, Climatology, Physical Meteorology, Gender & Environment.

7. Uganda: In Uganda, Makerere University (Meteorology and Geographical Sciences), National Meteorological Training School (NMTS) (Diploma in Meteorology, Diploma in Agrometeorology and Certificate in Meteorology and Entebbe Parents Secondary School (Physics and Geography, among others) are engaged in weather and climate-related topics.

3.The Way Forward:

At this point, it is necessary to reiterate the important aspects of the proposed Education and Training programme of IFMS.

- a) Our ultimate objective is to educate school children either formally or informally about the important aspects of current climate variations and changes.
- b) The above can be done with the help of science teachers in schools and intermediate colleges by training them on climate science and climate-related disasters.
- c) Courses are being designed for teachers training in the virtual mode by delivering about 20 hours of lectures on 10 different themes.
- d) The ten themes and detailed courses will be prepared through the involvement of experts which will include some of them teaching in colleges/universities in their respective countries.
- e) Item 4 will be executed through 10 hours of virtual presentations as soon as possible.

Section 2 of this article gives a summary of the topics taught in different schools and colleges in East African countries. It provides the information that both school teachers and college/University Professors have expertise in the global and local climate including the impacts of climate variations and change on agriculture, human health, economics, disaster management, and socio-economic aspects of climate change. Students are also exposed to weather and climate-related topics. There are similarities in the fundamental topics of climate taught in almost all countries. However, there are differences in the application aspects from country to country. It is essential to identify the local weather and climate specific to each country and then introduce this in the teacher's training courses to be prepared by IFMS/AFMS. It is found that the transfer of knowledge becomes very effective when the local climate issues are discussed as examples and applications of meteorology and climate.

The Professors teaching in the above-mentioned Universities can be encouraged to join select groups of global experts in designing and preparing courses for the school/intermediate college teachers. It may be noted that the concerned school teachers and college Professors have adequate climate knowledge and hence the job will not be taxing for any group. There will be some modifications or tuning to make the courses more practical and effective in knowledge transfer. To achieve the stated objectives, the following steps may be taken as early as possible:

1. A couple of interactive meetings to finalise the most important climate theme common to these countries such as water availability.
2. Identification of schools/colleges to be part of the programme e.g. establishing weather observatories for educational purposes, the conduct of seminars, etc.
3. Identification of teachers from each of these institutions suitable for undergoing training; mostly with science, mathematics, and geography backgrounds.
4. Identification and modification of teaching material available on the internet emphasizing the regional climates.
5. Preparation of documents for teachers' training.
6. Monitoring of weather observations with the help of students.
7. Students' involvement in executing small scientific projects using the collected data.
8. Periodic workshops to evaluate the progress and make course corrections.

Proposed Plan for Teacher's Training

This addendum to the above article provides the current thoughts about how the training of selected Teachers will be conducted, and what will be covered. We expect feedback from readers on any points in this addendum.

Step 1: There will be a one-hour introductory lecture on each topic listed below while discussing and finalizing the details of courses for the teachers. This will be done by a select group of experts from Universities, the Diaspora, and Friends of Africa.

Step 2: For the actual training, each item will have two one-hour lectures. Lecture notes should be prepared and available to the teachers.

Step 3: PRACTICAL DEMONSTRATION of some of the equipment will be done in Step 3. Some useful experiments will be demonstrated.

TOPICS OF TEACHER TRAINING:

1. Fundamentals of Weather and Climate
2. Details of Regional Weather and Climate
3. Observations and Monitoring of Weather Data
4. Use of satellite data in climate studies
5. Physics and Chemistry of Global Warming
6. Extreme Weather Events
7. Early Warning and Disaster Management
8. Fundamentals of Numerical Weather Prediction
9. Role of Mathematical Models in Sustainable Development Goals
10. Citizen Science and Socioeconomic Development.

REQUEST:

Please have a look at the list and comment on it:

1. Do you agree with this list?
2. Do you think it needs changes, if yes, what changes, e.g. what additional courses, etc.
3. In what ways you can help in these courses:
 - a. Finding available courses or preparing the Course if not available.
 - b. Presenting the Course.
 - c. Assist in presentation – please define in what way.

Please respond as soon as possible to: ifms.collaboration@gmail.com

AFRICA'S NEW WEATHER AND CLIMATE LEARNING PORTAL

Robert A Varley DSc CMet CDir
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Reading, UK

"EDUCATION IS THE MOST POWERFUL WEAPON WHICH YOU CAN USE TO CHANGE THE WORLD" – N. MANDELA



When the African Meteorological Society (AfMS) was founded in 2021, a key aim was to bring together local knowledge from all the individual meteorological societies in Africa – to cooperate, to build capacity, and to share best practices in the field of weather and climate. The AfMS aspires to organise education and training events, to share resources, to host conferences, and to encourage science and technology collaborations, paying particular attention to those aspects of meteorology which can be solved only on an Africa-wide basis or are best approached on that scale. AfMS is part of a wider global community of meteorologists brought together in the International Forum of Meteorological Societies (IFMS), with the shared goal of advancing meteorology, so building resilience to the growing risks of the changing climate. An early success for AfMS from this global partnership is the new Learning Portal, developed with the support of the IFMS, the Royal Meteorological Society in the UK (RMetS), and the American Meteorological Society (AMS).

The new Learning Portal was launched ahead of the 27th UN Climate Change Conference of Parties in Egypt. Building on the wealth of useful learning material already available online, the portal provides a single point of access to a suite of resources recommended for people across Africa. Over 70 learning resources have been subject to expert scrutiny, collated, reviewed and grouped for different audiences by a team of experts from RMetS and IFMS.

The screenshot shows the AfMS Learning Portal website. At the top, there is a navigation bar with the IFMS logo and a search bar. Below the navigation bar, the page title is "AfMS Learning Portal". The main content area includes a brief introduction to the portal's purpose and a list of seven user groups: School Children and Teachers, Scientists and Researchers of Earth Sciences, Members of the public with an interest in weather and climate, Professional users of weather and climate information, Weather and climate enthusiasts (non-professional), Policy Makers, and Weather and climate practitioners (meteorologists).

The learning resources are presented in seven downloadable catalogues, each with a specific audience in mind:

- School Children and Teachers
- Members of the public with an interest in weather and climate

- Weather and climate enthusiasts (non-professional)
- Weather and climate practitioners (meteorologists)
- Scientists and Researchers of Earth Sciences
- Professional users of weather and climate information
- Policy Makers

The catalogues are in pdf format for easy download over a low-bandwidth connection, each one listing the relevant resources with their creator, a brief description, languages available, a web-link to each resource and the connectivity requirements for access. Web development was kindly provided by AMS and the portal is currently hosted by IFMS here: https://www.ifms.org/index.cfm/ifms/afms-learning_portal/.

African Meteorological Society

Learning Resources for Policy Makers

Language: AR (Arabic), EN (English), FR (French), PO (Portuguese), RU (Russian) or SP (Spanish)

Connectivity: Assessed as H (high), M (medium), or L (low) where H indicates that there are a lot of high-resolution videos/ animations whereas L indicates fewer graphics or an offline option

Name/title	Brief description	URL	Notes	Language	Connectivity
General Meteorology					
ThoughtCo.	ThoughtCo. looks at how the weather works by exploring the science behind daily forecasts, weather safety, and climate change	https://www.thoughtco.com/weather-and-climate-4133550	Click on the topic of interest and then navigate to the required resources. Free to use and no registration required.	EN	L-M
Observing, nowcasting, and forecasting African Weather Systems					
ASEMET (African Satellite Meteorology Education and Training)	Free, self-paced online learning resources on the use of meteorological satellite images and products, including material on the transition to Meteosat Third Generation satellite.	https://asmet.africa/2022	Registration/enrolment is required for access to the resources.	EN, FR, SP	M
Sat 24	Real-time satellite imagery of Africa, including satellite including satellite-based rainfall	https://en.sat24.com/en/af	Open access	En, NL, ES, FR, PT, DE	M
Basic Satellite Imagery Interpretation	The course consists of a set of tabs, each dealing with a different satellite product and each illustrated by a satellite image movie covering the whole of Africa.	https://www.meted.ucar.edu/education.training/lesson/1316#.X2C.fWgzYuU	Registration /enrolment is required for access to the resources	EN	H
Hydrology/ hydrometeorology /water resource management					
Flash Flood Guidance System (FFGS) Training	FFGS Training presents a collection of training resources selected by the FFGS Team to provide opportunities to learn about flash floods. The selection of resources is organized by topics related to the subject of Flash Floods.	https://etrp.wmo.int/course/view.php?id=196	Includes links to other resources.	EN, FR, AR, O	H

There is now an opportunity for meteorologists from every African nation to build on what has been achieved so far:

- to use the Learning Portal, and build knowledge skills, and capability in weather and climate;
- to spread the word and build a vibrant, pan-African learning community of users;
- to add new learning materials, with a focus on Africa-related topics; and
- to join the AfMS Education and Training team for future development of the portal.

If you are interested in being part of this important initiative, please contact [Prof. Debo Adeyewa Chair AfMS Education and Training Committee: Debo ADEYEWA <deboadeyewa@gmail.com>].

APPLICATIONS OF SATELLITE-DERIVED PRODUCTS OVER AFRICA FOR METEOROLOGICAL ANALYSIS OVER DATA-SPARSE REGIONS

Mr. R.C. BHATIA – Retd. Additional Director General, IMD, India



1. Introduction

Satellite-derived products are useful for analysis of weather systems over the regions where conventional observations network is sparse. Vast oceanic areas surrounding the African continent on the western, eastern, and southern sides are generally the ones where there is practically no data available for conventional analysis. Satellite data can fill this gap. Apart from the satellite pictures of earth's cloud cover, some of the useful derived products available from the website (www.tropics.ssec.wisc.edu) are Total Precipitable Water (TPW), upper-level winds, low-level convergence, upper-level divergence, relative vorticity at various levels and wind shear. These are available in real time and can be easily accessed for operational use. Brief details on these products are also available on the website.

2. Animation sequences of TPW, etc.

A quick glance at this product provides useful guidance about the moist and dry areas and how they are changing with time. If there are any vortices embedded in the flow patterns, they can be easily discerned as they are important for the initiation of weather. After the Onset of the Southwest Monsoon (SWM) over India in June-September, if we look at this product over the Indian Ocean Data Coverage (IODC) area, moist airflow from the Southeasterly direction can be seen over the West Indian Ocean. The IODC sector also covers large parts of the East African coast and other surrounding areas. Along the Somalia coast, strong low-level moist airflow from the Southwesterly direction can also be seen. Low-level Cloud Motion Vectors (CMVs) derived from satellite data also bring out this feature quite often during monsoon season. Cross-equatorial flow near Somalia's coast is also seen in the CMVs. If we analyze the satellite products over this region, it is seen that generally there is not much rain over Somalia. In general, there is low-level divergent flow in this area. Upper-level divergence is also not high due to which atmosphere is not favorable for the development of convective activity. In general, there is an environment of stability over the region during monsoon season. Moisture levels are generally lower near the Somalia coast as compared to the Central Arabian Sea.

After the withdrawal of SWM from India during the Post-monsoon season (generally from 15 October onwards) Tropical Convergence Zone shifts a little southwards and moist air at lower levels starts flowing from east to West. Sometimes small vortices form on this flow which can easily be recognized from low-level relative vorticity products (850 and 700 hPa levels). During the post-monsoon season, sometimes there is a large build-up of moist air to the east of Somalia coast and it gradually drifts westwards towards Somalia coast. Under favorable conditions of low-level convergence and Upper-level divergence, convective weather can develop over Somalia and surrounding areas. An example of one such case on 30 October 2023 is shown in Figure 1. Monitoring of the animation sequence over this region shows that large moisture build-up took place over 0-10 degrees North and 50-65 degrees East during the five days from 26-30 October 2023. It gradually drifted westwards due to strong low-level Easterlies prevailing over the region. Convective clouds could be seen just entering the Northern parts of Somalia's coast on 31 October early in the morning. On the next day (1 November 23) more convective clouds which were a little stronger (Figure 2) could be seen along the Somalia coast. Favorable conditions for the development of convective activity could also be properly assessed using appropriate satellite products like low-level convergence and upper-level divergence. For a certain time, on 30 October, small vortices could also be seen (850 hPa relative vorticity product) in some areas of the West Indian Ocean a little away from Somalia coast.

3. Use of satellite products over the West coast of Africa

During the season of Tropical Cyclones forming in the Atlantic Ocean, animation sequences of TPW over the North Atlantic Sector very clearly bring out the initial formation stage of the vortex when it forms quite close to the west coast of Africa (Near Senegal and surrounding areas). TPW animation shows disturbance getting formed which is also supported by other products like 850hPa vorticity, low-level convergence, and low-level winds. Detection of such disturbances in the initial stage is important for forecasting weather in the affected areas. We generally see one disturbance getting formed and then within the next 2-3 days, it moves Westwards/ Northwestwards and gradually intensifies to higher stages as it moves over the vast oceanic areas. Subsequently another similar disturbance forms near about the same area or a little away from it. After its slight intensification, this also moves West/ Northwestwards and strengthens further over the Atlantic Ocean.

This sequence of formations continues till the end of the Tropical Cyclone season in the Atlantic Ocean. Satellite-derived products are extremely useful for monitoring such systems.

Sometimes large amplitude upper-air troughs form on the eastern parts of the Atlantic Ocean when cold dry air descends over this area from the northern latitudes. The process leading to the formation of such troughs can be seen from animated sequences of TPW data. Due to strong anticyclonic flow at upper and middle levels over central parts of the North Atlantic Ocean, dry air from the North flows to lower latitudes and reaches eastern parts of the Atlantic Ocean. This dry air descends close to the West coast of the African continent and an upper-air trough forms over the Eastern Atlantic a little to the west of the African coast. General features associated with this trough can be easily seen in satellite-derived products like upper-level winds, divergence, and vorticity products. Such systems are important from the point of view of weather over North western parts of the African continent and adjoining areas. They gradually move East-northeastwards or Northeastwards and affect the weather over the areas affected by them. An example of one such case is shown in Figure 3. It shows clouds associated with a middle-level and upper-level trough over northwestern parts of the African continent. It formed over eastern parts of the Atlantic Ocean on 23 October 2023 and gradually drifted eastwards. Other satellite products also depicted important features associated with this synoptic situation.

4. Use of satellite products over South Africa and other surrounding areas.

During October-December weather over the southernmost parts of the African continent, particularly over South Africa, is affected by the eastward propagating waves which are well captured in the satellite-derived products. The relative vorticity at various levels, low-level convergence, upper-level divergence, and upper-level winds are useful for monitoring such systems. One such example is shown in Figure 4.

5. Summary.

The website of Wisconsin University referred to above also depicts the 5-day animation sequences of all products, except wind products. These animation sequences reveal a lot about the movement of weather systems, their intensity, and interactions with other systems. These are very useful for day-to-day operational monitoring of different weather systems leading to better forecasts. Satellite-derived information should be used as an additional aid in the areas where conventional data is also available. However, over the data sparse regions, satellite data is the only source and can be used for monitoring various systems. Some illustrative examples have been discussed in the above paras.

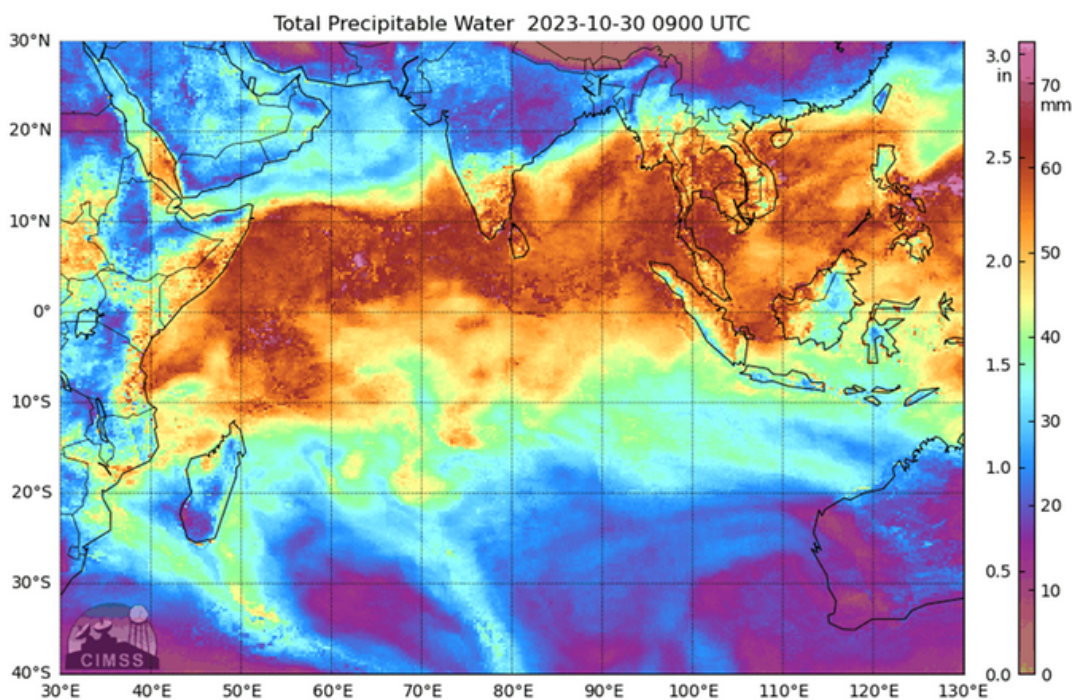


Figure 1: TPW product over IODC area on 30 October 2023 showing the large build-up of moist air between 0-10 degrees N and 50-65 degrees East to the east of Somalia coast. Animation of this image showed the westward drift of this large chunk of moist air. An area of high low-level vorticity near 38degree South and 55 degrees East is also seen.

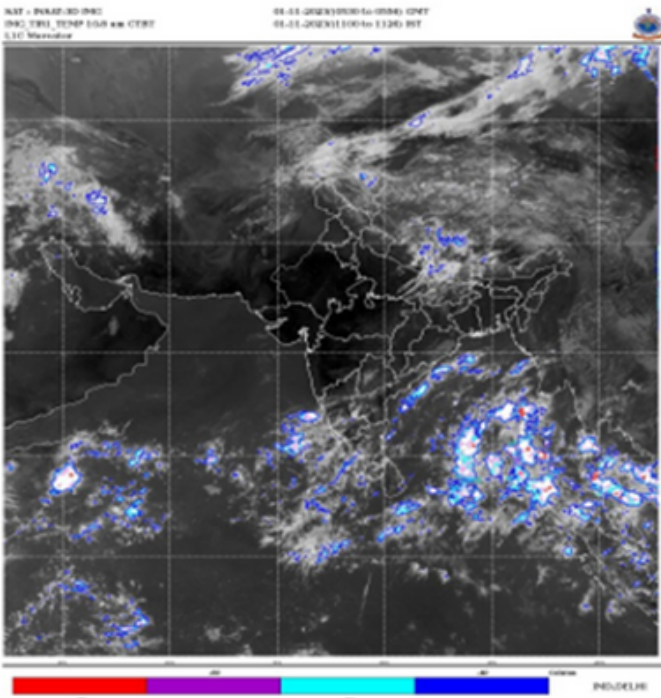


Figure 2: INSAT-3D Infrared image at 0530 UTC on 1 Nov.23 with cloud top temperatures showing strong Convective clouds over Somalia coast.

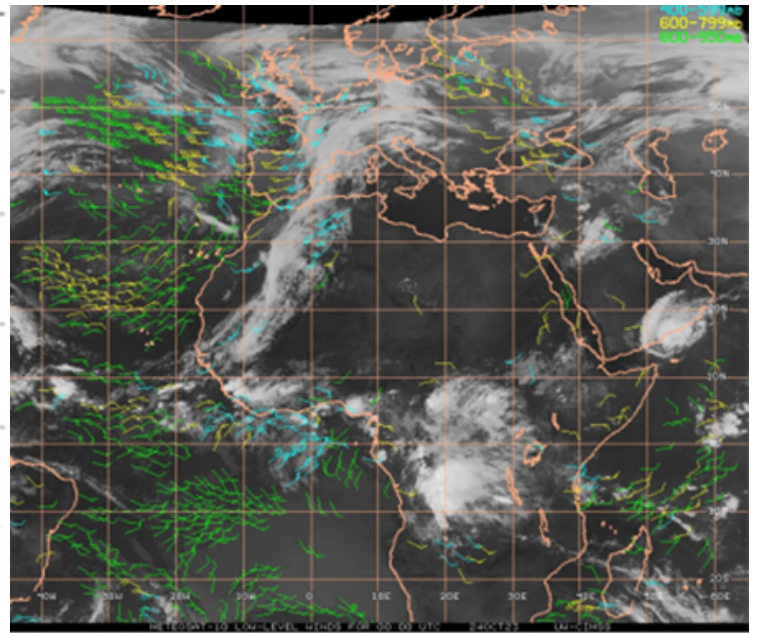


Figure 3: Low-level Cloud motion vectors with IR image in the background over East Atlantic/ Africa sector on 24 October at 00UTC showing a large amplitude trough over western parts of Africa.

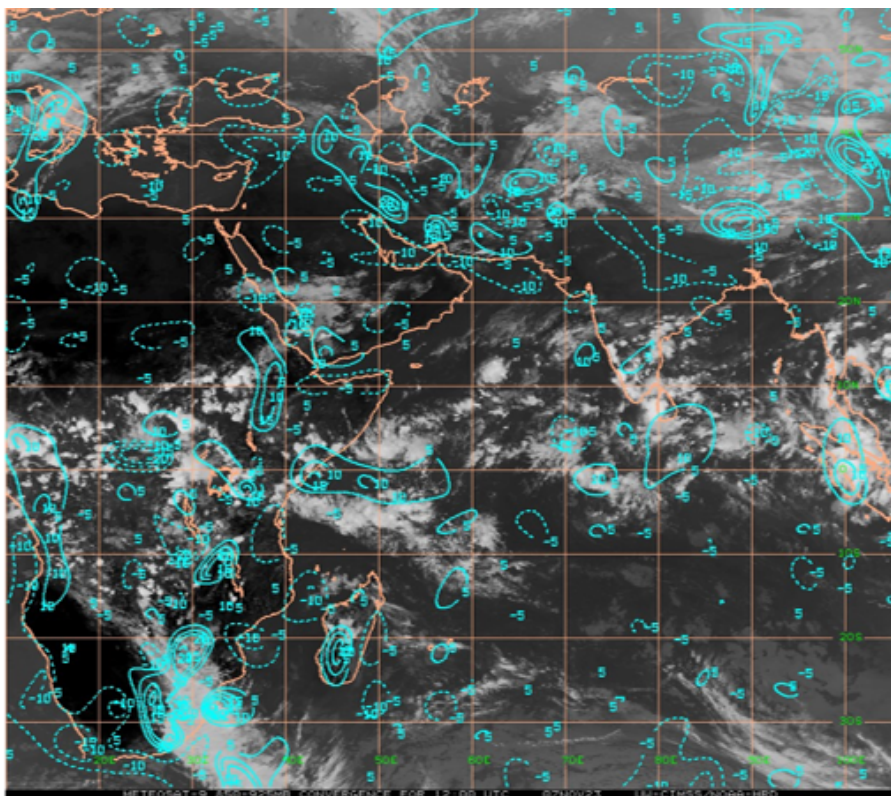


Figure 4. Low-level convergence associated with an eastward propagating disturbance affecting the weather over Southeastern parts of South Africa on 7 Nov. 23 at 12 UTC. IR picture in the background is taken from METEOSAT-9.

THE AFRICAN DIASPORA AND FRIENDS OF AFRICA (D-FOA) COMMITTEE OF THE AFMS

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 University of Maryland, Baltimore County (UMBC)
 1000 Hilltop Circle, Baltimore, MD 21250



The African Meteorological Society (AfMS) has an important role to play in building and sustaining the capacity needed to provide Africa adequate resilience against the increasing threat of climate variability and change. The need for AfMS contributions toward the attainment of this goal has become even more urgent as Africa navigates an uncertain future threatened by the rapidly changing climate being manifested in a variety of extremes, including drought, flooding, heat waves, wildfires, air pollution, and other such large-scale environmental anomalies. Members of the African diaspora and friends of Africa engaged in the weather and climate enterprise around the world understand the critical importance of having a strong continental meteorological society in anchoring Africa's preparedness to mitigate the threat of extreme weather and related environmental events that have become increasingly unpredictable due to climate change.

We know that this field of knowledge has been crucial in advancing the economic and technological development of the different countries where most of us live and work. This is why many of us have very enthusiastically embraced the AfMS, become honorary members of the society, and volunteered to serve on the AfMS Diaspora and Friends of Africa (D-FOA) committee. We congratulate our African colleagues on the publication of this maiden issue of the AfMS Newsletter and we are delighted to support this and other visionary programs of the society.

Our D-FOA committee was formed shortly before AfMS was inaugurated in November 2022 and has been very active since. Our committee members who are resident in different parts of the world come from academia, government, and the private sector. The enthusiasm of our members to support AfMS initiatives is remarkable. We hold monthly video calls where we discuss how to maximize our support for AfMS programs and activities. Accordingly, our committee has representatives in the AfMS governing board and the society's nine other committees. Indeed, the D-FOA Committee is strategically positioned within the AfMS to support the initiation and implementation of concrete actions aimed at helping the society ensure its sustenance, growth, and the full attainment of its goals and objectives. In effect, we have identified several potential avenues through which the participation of our members in AfMS activities can bring benefits over the short and long term. Such avenues include, but are not limited to:

1. Assisting the teams that create AfMS Education and Training (E&T) courses
2. Presenting Webinars on topics of interest to AfMS
3. Teaching courses when invited to do so at AfMS E&T events
4. Participating in international Science and Technology (S&T) collaborations
5. Mentoring African students and early-career scientists
6. Offering Postdoctoral and Graduate student opportunities to qualified African students
7. Supporting AfMS Publications
8. Assisting the AfMS in organizing its Conferences
9. Assisting the AfMS in other miscellaneous ways

Most members of the D-FOA Committee have volunteered or indicated their intention to volunteer for several of these activities whenever their expertise is needed. The roles such volunteers will play can come in a variety of forms, as briefly detailed below:

1. Assisting the teams that create AfMS education and training (E&T) courses: AfMS will be starting a Teacher Training Pilot Project in East Africa and the Horn of Africa involving nine countries: Kenya, Tanzania, Uganda; Somalia, Djibouti, Eritrea, Ethiopia, Sudan, and South Sudan. A team of Friends of Africa volunteered and led the development of the E&T materials to be used for the training pilot project. They solicited suggestions of available high-quality training materials from around the world and many of us provided information about such training materials, which the team compiled into a valuable resource for AfMS training efforts. We will also participate in adapting such materials to the African environment so that they will serve the intended purpose optimally.

2. Presenting Webinars on topics of interest to AfMS: Webinars presented through any of the well-established virtual media platforms are needed to reach participants in different parts of a country or region of Africa simultaneously. Many members of the D-FOA Committee are experienced Earth and Atmospheric scientists

who have presented such Webinars to different audiences nationally and internationally. We would be delighted to present such Webinars to audiences convened by AfMS.

3. Teaching courses when invited to do so at AfMS E&T events: Many of our members are professors at reputable tertiary institutions around the world and teach academic courses at undergraduate and graduate levels. Many of us are experienced in teaching courses during summer schools involving participants from multiple institutions around the world [e.g., Ichoku, 2017]. We would be happy to teach courses at summer schools coordinated by AfMS or under its auspices. Some of us may be willing to spend our sabbatical leave or serve as visiting professors at African Universities, where we can teach courses that are relevant to the attainment of AfMS goals.

4. Participating in international Science and Technology (S&T) collaborations: Many of our members have collaborated extensively with colleagues in African institutions and organizations and continue to do so. We are happy to expand these collaborations in a variety of ways, including jointly seeking and pursuing research and fellowship opportunities. Such international S&T collaborations are vital for effectively addressing issues of importance that transcend national or even continental borders.

5. Mentoring African students and early-career scientists: Our members engage with African students and early-career scientists whom we meet at summer schools and various international conferences that we participate in or through international collaborations. We are always happy to provide mentorship to such acquaintances, as we know how mutually beneficial such relationships can be for the advancement of society where some of us have professional interests and/or even family relationships. AfMS can provide a forum that will promote such D-FOA engagements for the benefit of all.

6. Offering Postdoctoral and Graduate student opportunities to qualified African students: Many of our members have recruited and trained students and postdoctoral associates from Africa. Many of those we have trained have gone on to hold responsible positions in various organizations and institutions around the world. We also host early-career to senior scientists from Africa on short-term visits. We continue to seek out such opportunities, which will probably be even more fruitful within the context of AfMS for mutual benefit.

7. Supporting AfMS Publications: Atmospheric and climate science professionals understand the value of peer-reviewed and other publications in advancing our field of knowledge. Furthermore, we understand that weather and climate phenomena do not obey human-delineated territorial boundaries. It goes without saying that members of our D-FOA Committee are interested in submitting manuscripts that report the results of our research for publication, serving as reviewers of submitted manuscripts, and/or sitting on the editorial board of the Journal of the AfMS scheduled for launch within the next year or two.

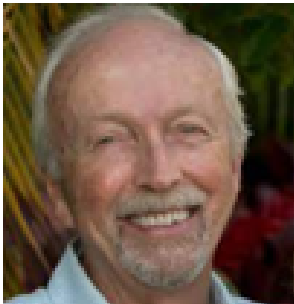
8. Assisting the AfMS in organizing its Conferences: Our D-FOA members can assist the AfMS with various tasks during conference planning and organization. Some of our members can participate in technical organizing committees and serve as reviewers of abstracts submitted to the conference. We can help to recommend keynote/invited speakers on specific topics of interest and several of us can perform such functions if invited to do so by the conference/session organizers. Since many of us are engaged in collaborative educational and research activities in Africa, we can propose and/or chair relevant sessions and present our own research and related activities at AfMS conferences. We can also help to identify and recommend appropriate exhibitors of relevant instruments and other technology and help in advertising the conferences amongst our colleagues and professional networks across the world. We can collaboratively organize relevant training classes or other side events that typically take place at such large conferences.

9. Assisting the AfMS in other miscellaneous ways: Our D-FOA can assist the AfMS in various other ways. Interaction between our members and AfMS members who are residents in Africa will likely open so many new opportunities, some of which we are not able to predict at this time. Examples include (a) serving on AfMS advisory committees; (b) partnering to develop research proposals and conduct research that can lead to new discoveries and the generation of important results that will be mutually beneficial to Africa and other regions of the world; (c) engaging in long-term scientific collaborations that can open new opportunities for some present and future members of AfMS.

References: Ichoku, C., (2017) COSPAR Capacity Building Workshop on Interdisciplinary Remote Sensing, Modeling, and Validation of Environmental Processes, Kumasi, Ghana, 12-23 June 2017, <https://cosparhq.cnes.fr/events/cospar-capacity-building-workshops/>

THE AMS GLOBAL PARTNERS PROGRAM: AN OPPORTUNITY FOR AFRICAN SCHOLARS

Dr. Walter Dabberdt and Dr. Darrel Baumgardner



1. Overview

A new opportunity is now available to interested African scholars and practitioners (collectively referred to as “International Scholars”) to leverage their skills and gain additional expertise in their area of study, practice, and research.

The American Meteorological Society’s (AMS) Global Partners program matches International Scholars seeking collaborations with AMS Volunteers who have the expertise, experience, and availability, compatible with those of the International Scholar. The program is available to International Scholars from academia and other non-profit institutions. Many types of collaborations can be undertaken (remotely or in-person) by the International Scholar and the AMS Volunteer; here are a few examples.



2. Creation of new academic programs

Given the growing need to enhance interdisciplinary collaborations between environmental scientists and those from other areas of research in the social or health sciences, the international Scholar could work with the AMS Volunteer to design a curriculum that attracts students and professors from multiple disciplines.

3. New syllabus development

There are many new areas of study in the environmental sciences that don’t easily

fit within traditional academic courses, especially topics like the impact of air quality on health, climate change, and weather anomalies, and many other diverse topics that require the development of course content that is relevant to our society today. Developing these syllabi would be a valuable collaboration between the International Scholar and the AMS volunteer.

4. Visiting Scholar in residence and Guest Lecturers

High-speed internet access has made long-distance, virtual interactions much simpler and has enabled frequent communications among researchers; however, having a physical presence in the classroom or laboratory provides the Scholar an opportunity to develop a more personal relationship among the AMS Volunteer and professors, students, and associates.

5. Research collaboration

Collaborative research can encompass participation in field projects, laboratory studies, model development, or any combination of these, carried out at either the Volunteer’s or Scholar’s home institution. Collaborations could also be carried out where field observations are being conducted or at some other location apart from the home institutions

6. Engineering support

Many AMS Volunteers are engineers, e.g., computer, electrical, mechanical, etc., or scientists with engineering backgrounds. This expertise can be useful to Scholars who may be considering the acquisition of instruments and need an expert’s opinion on applicability. Designing field programs, setting up laboratories or troubleshooting sensors can also be a useful collaboration that utilizes the AMS Volunteer’s expertise.

7. Editorial support

International Scholars often come from regions where English is not the native language, and yet a large majority of venues where these Scholars present their research use English as the common idiom for oral presentations, peer-reviewed publications, or proposals for funding from international agencies. AMS Volunteers can be helpful in refining the use of the language, particularly with technical descriptions that may not easily translate from the Scholar’s native language.

8 Student mentoring/guidance

Perhaps one of the most important roles that both the AMS Volunteer and Scholar can play is that of mentoring undergraduate and graduate students, not only by sharing their respective experiences and expertise but also by exposing them to a broader, international culture.

9. Summary

The Global Partners program provides a conduit and unique opportunity for International Scholars from Africa (and elsewhere) in the atmospheric and related sciences to engage and establish working relationships and friendships with AMS Volunteers. It can be especially beneficial to early- and mid-career International Scholars who may have limited connections with experts in an appropriate field.

Services are offered on a pro bono basis except for travel and per diem (if needed), communication, and other support costs, which can be provided by the Volunteer or the International Scholar's institution or a non-AMS party. The role of the Program is limited to functioning as an exchange mechanism that facilitates the matching of those International Scholars in need of relevant expertise with AMS Volunteers offering to provide them.

The matching process is initiated when international scholars or their institutions initiate contact with the Volunteer Program with specific requests, and the Program's 'matching coordinator' identifies those Volunteers who have the requisite expertise and availability. Once the International Scholar and the AMS Member-Volunteer mutually agree that a collaboration is feasible, an agreement is negotiated between the Volunteer and the International Scholar.

10. Signing Up.

International Scholars can apply for collaboration by using the following link:

<https://community.ametsoc.org/volunteer-with-ams/international-volunteering>

African scholars and diaspora who are members of the American Meteorological Society are also encouraged to become Volunteers in the Global Partners Program by registering at the above link which provides two options (1) to apply as an International Scholar and (2) to apply as a Volunteer

AMS Global Partners Contacts:

Walter Dabberdt, PhD, AMS Global Partners Committee - (wdabberdt@comcast.net)

Darrel Baumgardner, PhD, AMS Global Partners Committee (darrel.baumgardner@gmail.com)

Erica Callahan, AMS Manager of Community Engagement - (ecallahan@ametsoc.org).

Request for Assistance for Creating NMSoc

To participate in the activities of AfMS as a country, you must have an NMSoc. We urge all countries to start the process of creating their own NMSoc. Please click on the following link for more guidance: The attached document provides you with the rationale behind it no matter whether your country is very small or very big.

To request IFMS assistance to create your society, please complete the form at the following link: <https://forms.gle/trsTPVNqKvKwRW7T9>



AN APPEAL: - WHY BE A MEMBER OF A NATIONAL METEOROLOGICAL SOCIETY IN AFRICA?

Stephen A K Magezi (Uganda), Chair of the Committee to Create NMSocs and liaison with existing NMSocs, RMSs, and IFMS. Also, Executive Director of Rwenzo – Green Associates Ltd – Kampala, Uganda



1. INTRODUCTION

A rapid scan of weather, climate, and climate change literature shows that during contemporary times and especially during this twenty-first century there has been a rapid increase in the number of scientists engaging in atmospheric research, weather forecasting, and climate modelling. This is true, especially across academic institutions in Europe, the Americas, and most of the developed East. In WMO Regional Association 1 (RA1) Nations which is most of Africa, it may be said that we have not seen a comparable increase in knowledge expansion despite the very few notable works from some leading

academic institutions within Regional Association 1 (RA1) member states. The work on understanding the El-Niño impacts especially on Africa (to which African scientists have greatly contributed) has been greatly appreciated by most local users.

2. WHICH ARE RA 1 MEMBER STATES?

The RA1 member states are those in the so-called WMO Regional Association 1 (RA 1) that covers most of Africa. In all, RA 1 comprises six regional blocks. The figure shows the sub-regions of the RA 1 Membership. For purposes of the AfMS, an additional member comprising the Diaspora has been created.



3. WHAT PROGRESS HAVE THE RA 1 MEMBERS MADE?

Despite all these challenges, much more needs to be done to bring RAI to speed and also to enable them to contribute and at the same time benefit from the cutting-edge technological innovations as they relate to weather, climate, and climate change impacts and potential opportunities. It is also imperative that a concerted and joint approach is adopted to benefit from the synergies provided by all of Africa and the rest of the world coming together for the benefit of humankind in general but also to enable alignment of our RAI member states with the rest of the scientific community where the future belongs. Today, for example, Artificial Intelligence (AI) is becoming a potential avenue for progress and this will be more appropriate in the field of weather, climate, and climate change applications. Presently, RAI member Nations are the most ill-prepared to participate and or even tap the benefits of Artificial Intelligence, especially in weather and climate predictions as well as applications. Here, there is still a need for the Weaker Members of our global community to work closely with the more exposed members for the benefit of all mankind. The wise people taught us that the strength of a chain is determined by the strength of the weakest link. This statement is most true in weather and climate services because predictive models require data from all WMO Member states regardless of their technological advances or political orientations. This is why global institutions like the IFMS, WMO, AfMS, IPCC, etc. among many others are necessary blocks to pave the way for responsive and functional weather and climate services across the world.

Apart from the stated weather, climate, and climate change predictive efforts/modelling, there is a great and ever-present need to expand related knowledge through all associations and institutions starting with our related National Scientific Institutions, our National Meteorological and Hydrological Services (NMHSs) and other private sector entities to improve our knowledge in weather, climate and climate change applications and related opportunities. This is enhanced through aggressive networking as well as knowledge and experience sharing among others. We can do this through the various IT communications protocols, conferences, symposia, workshops, and appropriate research linkages through the S&T collaboration program of IFMS and AfMS.

4. WHERE DO WE START?

It would appear that the International and global movers are moving much faster than our respective National Institutions in RAI Member states. We already have the IFMS as well as the AfMS with well-articulated structures. This is a top-down approach which always presents application challenges. To be a voting member of AfMS and IFMS, you must have an NMSoc in your country. Presently the African Member states that have National Meteorological Societies (or equivalent) are a total of 15 member states out of a possible 54 members. The potential members are Benin, Cameroon, Djibouti, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Mauritius, Niger, Nigeria, South Africa, Sudan, Tanzania, and Uganda while the NMHS of Comoros, Djibouti, and Algeria are associate members. Those shown in Red colour are yet to apply for membership with the AfMS and IFMS.

The following 11 countries have requested assistance in creating an NMSoc: Comoros, Cote d'Ivoire, Gabon, Gambia, Lesotho, Malawi, République Centrafricaine, Sierra Leone, Senegal, Zambia, and Zimbabwe. While this is a good start, it is far below the critical membership that will enable the AfMS to grow the science of weather, climate, and climate change and related applications/opportunities. We need to mobilise ourselves to be able to tap into the global opportunities as well as the synergies that accrue from a united effort of member states. To achieve this goal, the AfMS has put in place several Committees one of which is **C2: the Committee to Create NMSocs and liaison with existing NMSocs and RMSs, and IFMS.** This committee is a great opportunity to boost the ranks of the AfMS by growing the numbers of the AfMS. Membership of the AfMS requires that members will be the individual National Meteorological Societies even though honorary members will be accommodated from the Diaspora community as well as from Friends of Africa and African residents.

5. THE APPEAL

From the foregoing, there is a lot to do to make the AfMS more functional and responsive to the scientific gap that presently exists in the weather, climate, and climate change services/ applications across the entire RAI Member states. C2 Committee calls on all member states who have not created a National Meteorological Society to create one, or if a member state already has one and is yet to join the AfMS to do so as soon as possible. It is imperative, therefore, that all RA 1 Member States which do not have an NMSoc are urged to create one. The size and activities of the NMSoc may depend upon the population size and the number of professionals in the specific Member State. The Committee to Create NMSocs and liaison with existing NMSocs and RMSs and IFMS (C2) as well as the Entire Executive of the IFMS and that of the AfMS are ready and willing to help each member state in tailoring their NMSoc to seamlessly become a member of the AfMS as well as the IFMS.

6. WAY FORWARD

Already the AfMS structure is in place and the various AfMS committees are in place. C2 has already prepared the TORs and an Execution Plan is in its final stages of completion. As per our mandate, we continue to ask all of us to encourage those we know to influence the creation of National Meteorological Societies. Together we shall overcome this gap!

About the Author:

Mr. Stephen A K Magezi (Email: -rwenzogreen@gmail.com) started as a Meteorologist at the then-East African Meteorological Department in 1974. He joined the Uganda Meteorological Services in 1980 at the rank of senior meteorologist and progressed to the rank of Commissioner for Meteorology as well as Uganda's Permanent Representative to the WMO. He retired from service in 2010 and started a consultancy to conduct feasibility studies covering the aspects of environment, climate, and climate change impacts.

The consulting firm, Rwenzo-Green Associates Ltd, conducts Feasibility Studies, Environmental Impact studies, and Climate Impact studies including climate proofing of development projects, especially infrastructure. Presently, he is the Chairperson of the AfMS' Committee to Create NMSocs and liaison with existing NMSocs, RMSs, and IFMS.

AFMS CONFERENCES

First Cut at the Conference Program			
Start	End	Program	Remarks
DAY 1			
9:00	10:30	Plenary Session 1 on Topic 1	
10:30	10:45	Health Break	
10:45	12:00	Breakout (BO) sessions	
		BO Session 1	
		BO Session 2	
12:00		Lunch Break	
13:30	15:00	Plenary Session 2 Topic 2	
15:00	15:15	Health Break	
15:15	17:00	Breakout (BO) sessions	
		BO Session 3	
		BO Session 4	
		Committee Meeting	
18:00	20:30	Ice Breaker	
DAY 2			
9:00	17:00	The day format is the same as above except for different topics.	
		AfMS Board Meeting	
18:30	21:00	Conference Dinner & Awards	
DAY 3			
9:00	17:00	The day format is the same as above except for different topics.	

AFMS CONFERENCES

1. Introduction

To build capacity in Africa, AfMS plans to hold its conferences every year. In the beginning, we could have an "In-person and if feasible, online Conference" (hereafter referred to as "AfMS Hybrid Conference") one year and only "AfMS On-line Conference" every other year. Once things settle down and a lot of interest is seen, we could decide to hold "AfMS Hybrid Conferences" every year.

For "AfMS Hybrid Conferences", the location will be selected by the Conference Committee with a fair and competitive process (barring any special justifiable reason) and the final selection will be approved by the AfMS Board.

Each Conference can have a different theme and somewhat different structure, but a general outline is required and presented here. A more detailed document will be prepared very shortly.

There will be three parts to this document:

Part 1: Overall Description of the Conference and its theme.

Part 2: Detailed Requirements of the Sessions concerning timing, and submissions.

Part 3: Topics of Plenaries and Break-out" Sessions.

At this time, we are providing the first Part only. The other two parts will be developed once the first Part is finalized.

2. AfMS General Format of the Hybrid Meetings

This document discusses "AfMS Hybrid Conferences" the first of which is planned for November/December 2024 time frame. The format of "AfMS Hybrid Conferences" (which will be in-person with an on-line component) is discussed here. The Hybrid nature of the Conference will allow a larger audience to participate. Although the Conference Committee with the consent of the Board can review and revise this document as per current requirements, here are the salient points about AfMS Conferences.

3. General Format of the Meetings

- The duration of the Conference should be at least three days.
- There should be Plenary Sessions of 90 minutes in the morning and also on some or all afternoons.
- At least 4 to 5 Plenary sessions should be planned.
- There will be Break-out sessions (depending upon the topics to be covered, we could have two or more Breakout sessions at a given time).
- There will be a Poster Session.
- All chairpersons of sessions will be requested to be onsite at the meeting at the Conference site. Two onsite chairpersons need to be nominated by conveners for any one-time block of the oral sessions
- The feasibility of organizing an Exhibition of Vendors is being evaluated. If we do organize, this will allow attendees to see and experience actual equipment. The decision needs to be taken whether to have an Exhibition or not and if yes, should it be for 2 or 3 days.

Note: Your suggestions on the Conference format, and topics for the plenary sessions, breakout sessions, etc., if any, will be warmly welcome and should be sent on the following address: ifms.collaboration@gmail.com.

Building Capacity to withstand the effects of GW&CC



Unified & Collaborative Approach to Capacity Building in Africa

Know your AFMS Better



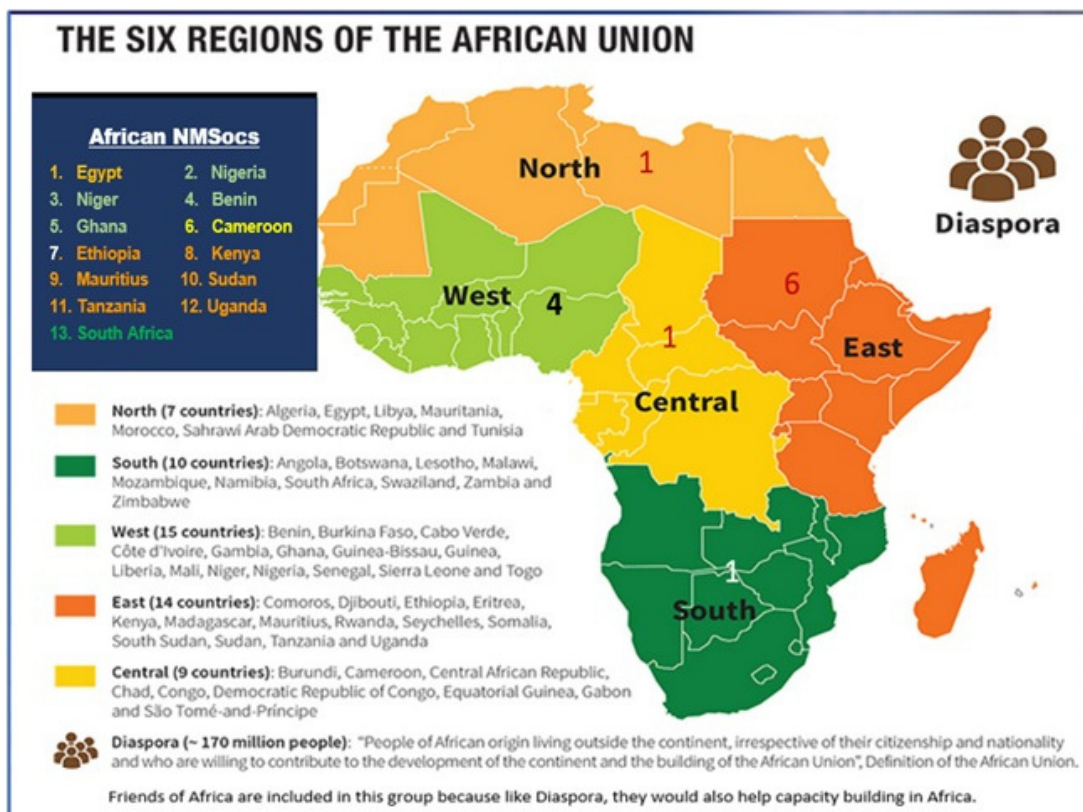
1. Introduction

The African Meteorological Society (“AfMS”) was created in 2021 to strengthen the knowledge base and provide advice on the infrastructure needs of countries in the African continent. The AfMS unites all the existing National Meteorological Societies (NMSocs) and helps create new ones in those countries where it does not exist. After setting up its structure, it was inaugurated online on November 30, 2022, with stimulating presentations by various experts and some entertainment.

This article is meant to introduce the AfMS and its governance structure. AfMS consists of a General Assembly, a Board, and a set of

Committees. Africa is a large continent with 54 countries and a population of over 1.460 billion in 2023. Therefore, we have divided Africa into 6 regions which include (Northern, Eastern, Western, Central, Southern, and Diaspora).

Therefore, in addition to other members of the Board, there are six Board members representing these six regions.



2. VALUE PROPOSITION OF AFMS

HONORARY MEMBERSHIP

Once again, we would like to remind you that we have opened an Honorary Membership for individuals to be able to become non-voting members.

The donation amount set for Honorary Membership of AfMS falls into the following categories:

- Honorary Members from Affluent Countries: US\$30.
- Honorary Members from African Countries: US\$ 10.
- Honorary Members from countries outside Africa which are designated as Developing Countries: \$20 and those designated as LDCs US\$10.

Pay Now

PayPal Account

for more information : www.africanmetsociety.org

The AfMS has a well-defined Value Proposition which is presented below. The Committees responsible for implementing each Value Proposition are shown in the Brackets below.

VP-1.Organizing scientific meetings, and lecture series in person or through Webinars - (C-4)

VP-2.Creating means of easy communication to conduct various activities such as Webinars, Meetings, Conferences, preparing Newsletters, and maintaining the Website (C-5)

VP-1.Supporting scientific publications and research for public welfare, and Publishing AfMS Scientific Journal - (C-8)

VP-2.Holding an Africa-wide Conference in one of the member countries - either a physical or an online Conference; (C-7)

VP-3.Looking into the feasibility of Certification of professionals. If found important by member societies, it will be implemented - (C-4)

VP-4.Assisting in Educational Programs by holding Webinars and Online Training Programs and also, if required and feasible,

by developing its training programs - (C-4)

VP-5.Cooperating with the National Meteorological Services of Africa (NMHSs) and with IFMS, other Regional Meteorological Societies (e.g., EMS, FLISMET, etc.), and National Meteorological Societies for the benefit of strengthening Global Weather Enterprise-(C2)

VP-6.Instituting Recognition and Awards Program for both young and mature professionals of both genders - (C-9)

VP-7.Promoting S&T Cooperation and cooperation between Public, Private, and Academic Sectors - (C-6)

VP-8.Ensuring that AfMS is well staffed and well Financed to Conduct its operations effectively and efficiently - (C-3 & C-5)

VP-9.Above all, strengthening existing National Meteorological Societies and creating new ones in those countries where no such society exists - (C-2).



AFMS-IFMS MEMBERSHIP APPLICATION

Currently, we know that 13 National Meteorological Societies (NMSocs) exist in Africa.

If your country has one and it is not a member of AfMS yet, please become a member by registered with us using the link below

Register Now
[Click Here!](#)

www.africanmetsociety.org

3. OVERALL STRUCTURE OF AFMS

The Management of AfMS is divided into three parts: (1) General Assembly (2) Board (3) Committees.

3.1 GENERAL ASSEMBLY

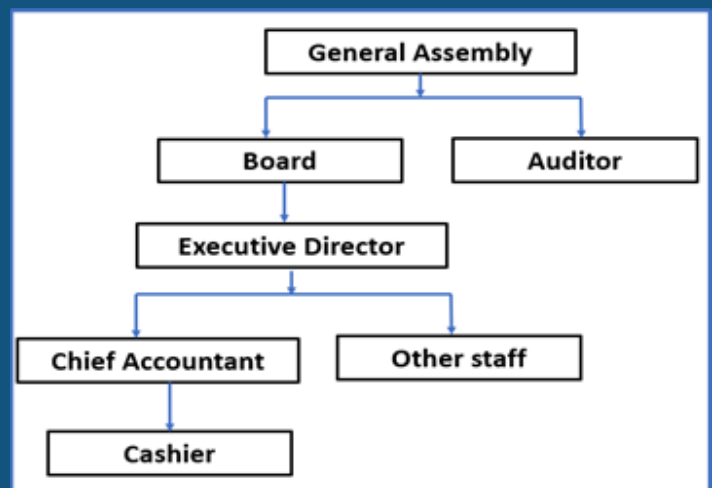
The General Assembly consists of all Member societies – full members and associate members with ONLY full members having voting rights. Auditor reports to the General Assembly.

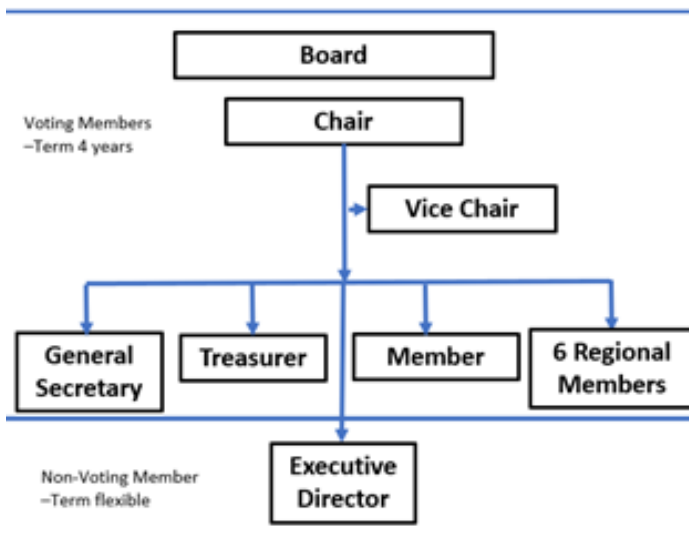
The General Assembly is the overall Governing body of AfMS. Any fundamental changes to the organization must be approved by the General Assembly.

3.2 BOARD MEMBERS AS PER AFMS CONSTITUTION

The next level is the Board which is shown below. The Committees are a very important component of the AfMS because each Committee implements one or more value propositions of AfMS.

As per the Constitution, there are 11 Board Members which are as follows:
(1) Chair (2) Vice Chair, (3) Secretary, and (4) Treasurer (5) Member at large (6) Six Regional Members.





All these positions in the above section, except Executive Director, are elected positions. However, to formulate the organization and kick-start it, we have appointed an interim Board which will be in effect till we hold elections of the first Board in November 2024 for which the procedure will be defined and agreed upon in a General Assembly Meeting.

In the Interim Board, the following are the current assignments:

AfMS BOARD MEMBERS

					<div style="border: 1px solid black; padding: 5px; color: red;">Vacant Egypt eligible but not yet a member of AfMS</div>
Dr. Buruhani Nyenzi Chair	Mr. Workneh Degefu Vice Chair	Dr. Godwin Ayesiga General Secretary	Ms Hidaya Senga Treasurer	Mr. Kidanu Woldemedhin Member At large	XYZ Rep Northern Region
			<div style="border: 1px solid black; padding: 5px; color: red;">Vacant South Africa eligible but not yet a member of AfMS</div>		
Dr. Kamal Alawad Rep Eastern Region	Prof. Debo Adeyewa Rep West Region	MOLOU Emmanuel Rep Central Region	XYZ Rep. Southern Region	Dr. Aisha Owusu Rep. Diaspora	Tafesse Gurmu Executive Director



3.3 COMMITTEES OF THE AFMS

To implement the Value Proposition of the AfMS, we have created 10 Committees. These Committees take care of specific duties assigned to them, e.g., the Education and Training Committee takes care of the education, and certification of professionals, the Publication Committee helps in the production of newsletters and journals, Conference Committee helps organize Conferences.

Each Committee consists of a Chair, a Vice Chair, a Secretary, and several members. There is one Committee just to find volunteers. Since AfMS is an Expert volunteer-based organization, we urge all Africans, African Diaspora, and Friends of Africa interested in helping create capacity in Africa to register their intention to serve the committee of their choice by registering on the following link.

LINK TO BECOME VOLUNTEER FOR AfMS:

<https://forms.gle/69vpHbBwNZzh3AZA9>

Your participation is necessary to create a knowledge base and capacity in Africa to withstand the adverse effects of Global Warming and the resulting Climate Change.



- Meeting procedures.
- Quorum rules.
- How agendas and minutes are prepared and distributed.
- How the committee will communicate between meetings.
- And most importantly for many committee members, the annual time commitment.

4.3 Reporting:

- The Committee reports to the Board of AfMS through one of its officers (Chair/Vice Chair/Secretary) which it must discuss with the Board to determine the line of responsibility.
- Frequency of Reporting with a written Report to be decided in consultation with the Board.

4.4 TOR and Action Plan and their Review:

Each Committee is expected to organize its operations as follows:

- We have provided the Terms of Reference (ToR) to each Committee which it is expected to review and finalize.
- Each Committee is expected to prepare its Action Plan which describes how the items in the ToR will be implemented and what actions need to be taken for the smooth operation of each Committee.
- The ToR and Action Plan must be reviewed and updated at least twice a year.

4.5 Deliverables:

- The Committee shall make its Operational Plan and deliver it to the Board.
- In addition, a Report of the Committee's Operations will be prepared as agreed with the Board.

4. DESCRIPTION OF COMMITTEES

In this section, we first present the information that is common to all Committees followed by the information specific to each Committee. All Committees are staffed by expert volunteers from Africa, Diaspora, and Friends of Africa (D-FOA).

4.1 Budget Requirements

- The Budget Requirements shall be provided by each committee to the AfMS Board which will review and approve it.
- After approval of the Board, the Finance Committee can decide how to approach the identified "Donors" using means it feels necessary.
- The Chair of each Committee shall control the budget and how funds are disbursed through the secretariat. Each member will have to make his/her arrangements for participation in the Virtual Meetings.

4.2 Meetings

The Board in consultation with the Chairs of all the committees will decide the following:

- Define meeting frequency and location – this will be mostly online.

5. CHALLENGES ENCOUNTERED BY THE COMMITTEE SO FAR

The following teething problems have been faced by most Committees due to several factors:

- Some committees need more members. We expect expert professionals from Africa to offer their services by registering on the link provided in Section 3.3.
- The level of communication and participation is still relatively low with the stakeholders as well as potential stakeholders (inclusive of universities) which are often significant pillars of NMSocs;
- Membership from Francophone members is from Benin and Niger only and they also have to take a more active role. There is a strong need to increase the Francophone representation. There is a need to involve French-speaking countries fully which is like a chicken and egg story. French countries might be looking for French documents, however, AfMS being a volunteer-based organization is looking for French speaking volunteers to do that. Please break this standoff by offering to be volunteers for AfMS and increase French language usage;
- We need the participation of expert volunteers from all countries of Africa and even outside Africa to ensure the success of this venture.
- **Unfortunately, often there is limited feedback and or response from the PRs as well as others that have been contacted. We believe that capacity building is the job of NMHSs but they do not have sufficient resources and staff. We are trying to assist them through expert volunteerism which they should appreciate and provide as much help as possible;**
- Some potential members are yet to realise that it is not only the staff of the NMHSs that can initiate the creation of NMSocs but it can also be initiated by Professors from Universities and other related Institutions. We request Universities to take a more active role.
- In many countries, realizing the importance of the assistance that NMSocs provide, the related government departments assist them financially as well as in kind.
- Finally, NMSocs are the backbone of all Regional Societies like AfMS. All countries big and small must have an NMSoc to take full advantage of the AfMS and its various activities. The locals belonging to the Public, University, and Private Sectors need to show a stronger willingness to create an NMSoc in their country.
- Financing AfMS has been a challenge that we need to overcome using innovative ways.

6. Positive Outcomes

Despite some challenges mentioned above, the following are the positive points which need to be mentioned:

- The support of the WMOs RAI office is greatly appreciated. Dr. Agnes Kijazi, the director of that office is convinced about the importance of NMSocs and the AfMS. She has participated in almost all of our activities. We hope she will also help us convince WMO to provide financial assistance to AfMS through IFMS.
- The AfMS was inaugurated on November 30, 2022. In a year, despite a lack of funding and the need for more volunteers, it has progressed to a point where it is almost fully operational.
- We are already working on the following three very important milestones that are the backbone of a Professional Society: A newsletter, a Journal, and a Conference. We urge all professionals from Africa and outside Africa to participate in this very important revolution to create capacity. The success of this mission is so important for Africa that there is no choice but to strengthen it further.
- By showing the above progress and the participation of several Volunteers, we feel that there will be a stronger case for getting financial assistance from various funding organizations.

7. Conclusions

It is important to note that it is the mandate of NMHSs to create capacity in their countries. But they find it hard because of a lack of resources. The NMSocs and, the AfMS which unites them, are volunteer-based organizations that can help NMHSs to meet their mandate. Therefore, NMHSs should support their NMSocs and the AfMS to the best of their ability - financially, in kind, morally, and by asking their staff to be volunteers. That is the recipe for the success of Africa in building a knowledge base to handle disasters caused by Climate Change and improve its economy.

DESCRIPTION OF COMMITTEES

8. Finance Committee (C1)

8.1 Introduction

The Committee to Organize Finances for AfMS is one of the ten standing committees of the African Meteorological Society (AfMS). Since financing and expert volunteers are the two most important components of the life of the Society, we must make sure that this Committee also has some members with connections in the institutions that finance a philanthropic organization like AfMS.

8.2 Objective

Although AfMS is a volunteer-based organization, it requires financing for its operation. Some examples of activities requiring financing include the cost of the operation of the secretariat, organizing events, maintaining the website, Tools required for meetings (e.g., Zoom), scholarships, holding Conferences, awards, travel requirements, producing Journals, Newsletter, and any other special events, etc. Therefore, the objective of this Committee is to explore and arrange finances for various Committees of AfMS.

8.3 Committee Leadership and Membership

It took a long time to find the Chair Mr. Pascal Waniha for this Committee. The volunteers were recruited through a Volunteer Offer link. Many more volunteers are required.

Leadership: Dr. Pascal Waniha (Chair, Tanzania), Ms. Becky Manzou (Vice Chair, PR of Zimbabwe), Mr. Mathew Ndaki (Secretary, Tanzania).

Members: Dr. (Mrs.) Almaz Tadesse (Ethiopia), Dr. Andre Kamga Foamouhoue (Niger), Dr. Moudi Pascal (Cameroon), Mr. Bekure Ketema (Ethiopia), Dr. Buruhani Nyenzi (Board member, Tanzania), Mr. Houmed Iwad Ali (Djibouti), Ahmed Omar (Djibouti), Gildas Omosola (Cameroon)

We need many more members from various regions of Africa to cover all countries.

8.4 Tasks to be executed by the Committee

- a) The Committee will ask all other AfMS Committees and the Secretariat for their Budget Requirements.
- b) The Committee will identify various financing resources, it can approach directly and those which require the assistance of others e.g., IFMS.
- c) Prepare the Annual Program and Budget for approval of the Board.
- d) Clearly define the responsibilities of its members e.g., who is expected to approach whom.
- e) This Committee is also supposed to help in financing the NMSoc which is selected to hold the Conference.
- f) Hold meetings with funding agencies.

1.1 Progress of the committee So far

Since this Committee started very late, its first meeting was held on November 23, 2023. The Committee has been provided with Terms of Reference (ToR) to guide its operations. Now we are in the process of preparing an Execution Plan which will contain all activities to be executed by this Committee and the person who will perform each task. In addition, it needs many more members which we must look for.

Activities of this Committee include the following:

- a) Identify donor organizations and the type of projects they support as per their charter. Well-defined projects such as preparing a Course, holding a training session, etc. are easier to fund. General expenses e.g., for running the Secretariat require different ways of financing, e.g., membership fees from member societies, Honorary Membership fees, donations by individuals, and surpluses from conferences, etc.
- b) Prepare convincing letters matching the mandate of each organization to attract donors.
- c) Prepare presentations for all types of donors.
- d) Clearly define all duties and assign the right people.
- e) Look for people who are well-connected with donor organizations.
- f) With the help of C3 (recruiting Volunteers), get many more volunteers from different countries in Africa.

1

8.5 Way forward

The Committee will complete and formalize the draft of the Action plan. This should help mobilization in a phased manner. We also call on all members to help the committee in addressing the challenges highlighted above, e.g., recruiting more members for this committee, preparing letters matching the requirements of each donor organization, and having meetings with these organizations.

9. CREATE NMSOCS AND LIAISON WITH EXISTING NMSOCS, RMSS, AND IFMS COMMITTEE - C2

9.1 Introduction

The major task of the AfMS is to create collaboration in Education and Training and Science and Technology between NMSocs, RMSs, and IFMS. That requires that each country has a NMSoc irrespective of its size. Currently, there are only 13 NMSocs in all of Africa which is a continent of 54 countries. Therefore, the main task of this Committee is to create NMSocs in those 41 countries that do not have one yet and create collaboration between NMSocs, RMSs, and IFMS.

9.2 Objective

The objective is to create NMSocs and create collaboration between NMSocs, RMSs, and IFMS.

9.3 Committee Leadership and Membership

Leadership: Mr. Stephen A K Magezi (Chair, Uganda), Mr. Arthur Gar-Glahn (Vice Chair, Liberia), and Mr. Sam Ochoto (Secretary, Uganda),

Members: Mr. Workneh Degefu (Ethiopia), Dr. Lucy Mtilatila (Malawi), Dr. Ahamed Youssouf Abdou (Comoros)

9.4 Tasks to be executed by the Committee

- a) Make presentations on the creation of NMSocs.
- b) Ensure that all African countries have their NMSoc so that they can fully participate in AfMS activities and conduct their own activities irrespective of the size of their country.
- c) Guide the AfMS on how to create a liaison between individual NMSocs (African or from other continents) as well as with RMSs and IFMS.
- d) Define how various entities NMSocs (African and outside Africa), RMSs (EMS, FLISMET among others), and IFMS could collaborate.
- e) Coordinate collaboration in various ways defined under d).
- f) Contact PRs and university professors to initiate the creation of their NMSoc;
- g) Share Best Practices among all societies.
- h) Request for more volunteers to join the Committee to cover all parts of Africa;

9.5 Progress of the Committee

- a) The committee has prepared Terms of Reference (ToR) to guide its operations. The ToR is to be reviewed by mandate every six months and also as required by any new changes.
- b) An Action Plan has been prepared although it is still in draft form awaiting input from stakeholders. During the Initial phases of the Committee operations, the committee achieved the following.
 - Contacted all the WMO Permanent Representatives (PRs) for Africa in whose country there is no NMSoc to sensitize them about the benefits of National Meteorological Societies (NMSocs) and encourage them to create their NMSocs and subsequently affiliate them with the African Meteorological Society (AfMS) and IFMS;
 - Requested the PRs to assign Contact or focal persons with whom the AfMS would liaise to fast-track the creation of National Meteorological Societies in their respective Nations.

9.6 Countries that have created National Meteorological Societies so far

The 14 existing NMSocs: Benin, Cameroon, Egypt, Ethiopia, Ghana, Kenya, Madagascar, Mauritius, Nigeria, Niger, South Africa, Sudan, Tanzania, and Uganda. Ten of them are already members of AfMS. Egypt, Ghana, Mauritius, and South Africa are still to become members of AfMS.

Associate members are the NMHSs of Comoros, Djibouti, and Algeria.

Interest in creating an NMSoc shown by: Central Africa, Comoros, Cote d'Ivoire, Gabon, Gambia, , Lesotho, Madagascar, Malawi, and Senegal, etc.

9.7 Way forward

The Committee will complete and formalize the draft of the Action plan. This should help mobilization in a phased manner. We also call on all members to help the committee in addressing the challenges highlighted above.

10. RECRUITING VOLUNTEERS FOR AFMS COMMITTEE - C3

10.1 Introduction

The AfMS is an organization run mostly by Volunteers. Volunteers come from the Public, Academic, and Private sectors. They can be active professionals or retired professionals. Many of the volunteers are active professionals and they have only limited time. Therefore, a lot of professionals are required to be volunteers to operate AfMS.

10.2 Objective of the Committee

The objective is to recruit a lot of expert volunteers to staff various Committees of the AfMS. Since the whole continent is to be covered, we must look for volunteers from all countries.

10.3 Committee Leadership and Membership

Leadership: Mr. Wogayehu Legese (Chair, Ethiopia), Mr. Philibert Tibaijuka (Vice Chair, Tanzania), Mr. Kidanu Mehiretu (Secretary, Ethiopia)

Members: Mr. Bekuretsion Kassahun, Mr. Chelele Mathayo Yuvendus

10.4 Responsibilities

- a) Africa is a very large continent. To engage Expert Volunteers from all 54 countries, we need to make a strategy to facilitate this effort. First, we should approach all existing NMSocs of Africa to provide at least a couple of members from their society for this committee. For the remaining countries, we should try to find connections in those countries and also request the assistance of RAI PRs to find some expert volunteers. We should also take help from the RAI office through proper channels whenever required.
- b) Make presentations jointly with C1 (Financing) and C2 (Creating NMSocs) to show the utility of AfMS and its Value Proposition to get volunteers and funding.
- c) In addition to finding volunteers for itself to cover all of Africa, we need to assist Committee C1 and Committee C2 in finding volunteers. The other committees also need additional expert volunteers.
- d) The work will be more intense in the beginning till sufficient expert volunteers are lined up. Then it will be for sustaining the momentum.
- e) Prepare the Annual Program and Budget for approval of the Board.
- f) In cooperation with C1 and C2, conduct Webinars to ensure that the AfMS Value Proposition is strongly portrayed and conveyed to as many Africans as possible.
- g) In addition, find ways to make AfMS well-known to the rest of the world to be able to solicit funding as well as expertise.
- h) Keep an inventory of sources of volunteers and prepare and widely send requests to African Professionals to offer their services.
- i) Clearly define the responsibilities of C3 members.

10.5 Progress of the Committee

- a) The committee has been constituted and its first meeting was held on December 7, 2023.
- b) The Terms of Reference (ToR) have been created but need to be finalized.
- c) To cover all regions of Africa, this committee needs many more volunteers and we have started to look for them by putting an advertisement in this Newsletter.

10.6 Way forward

- a) Make presentations about the Value Proposition of the AfMS jointly with C1 and C2 and request individuals and their organizations to participate.
- b) A detailed Action Plan is required to be prepared. This plan must have all activities required to achieve success and we must assign Committee members to the identified tasks with due dates.
- c) The success of AfMS is fully dependent upon two fundamental ingredients – Volunteers and Funding. Therefore, we must work as hard as possible to meet the mandate of this committee on whom depends the success of the AfMS.

11. EDUCATION AND TRAINING (E&T) COMMITTEE - C4

11.1 Introduction

The main Value proposition of AfMS is to create a knowledge base through E&T and S&T Collaboration. Its mandate is to work on the education of professionals and Teachers from Universities, Colleges, and Schools.

11.2 Objective of the Committee

The main objective of this Committee is to create a knowledge base in Africa through Education and Training (E&T), Webinars, in-person courses, online courses, etc. AfMS will look for existing available courses and if not available, find ways to create them. The other complementary program is the Science and Technology (S&T) Collaboration which has a separate Committee C6

11.3 Committee Leadership and Membership

Leadership: Prof. Debo Adeyewa (Chair - Nigeria), Professor Tsegaye Tadesse (Vice Chair - Ethiopia/USA), Dr. Lydiah Gachahi (Secretary - Kenya), Dr. Sushil Kumar Dash (Special Advisor - India)

Membership: Dr Margaret Kimani (Kenya), Prof. Gilbert Ouma (Kenya), Prof. Emmanuel C. Okogbue (Nigeria), Prof. Clement Akoshile (Nigeria), Mr. Sam Ochoto (Uganda), Dr. Richard Muita (Kenya), Dr. Buruhani Nyenzi (Tanzania), Mr. Benjamin Lantei Lamptey Ghana), Mr. Chelele Mathayo Yuvendus Tanzania), Dr. Kamal Ibrahim Aldien Alawad Sudan), Mr. Badreldin Fartak South (Sudan), Mr. Tadesse Tujuba Kenea (Ethiopia), Dr. Ogwang Bob Alex (Uganda), Prof. Virginia U Okwu-Delunzu (Nigeria), Prof. Olanrewaju Mojisola Rhoda (Nigeria), Mr. Oluwaseun Wilfred IDOWU (Nigeria), Prof. Antony Kinyua (USA), Mr. Houmed Iwad Ali (Maldives), Mr. Kidanu Mehiretu (Ethiopia), Dr Abdullahi Abdirashid Jama (Somalia/USA), Mr. Bradwell J GARANGANGA (Zimbabwe), Mr. Mario Marcello Miglietta (Italy), Dr. Bob Goldhammer (USA), Robert A Varley (UK).

11.4 Responsibilities

- a) The Committee shall define E&T Programs and make an Action Plan to execute them. As much as possible, we will use available E&T programs. Only if some Program is not available and is important for Africa, we will try to find ways of creating such a Program and that also in collaboration with other Training organizations.
- b) The committee must also define how the E&T Programs will be conceived, planned, and executed. The Committee shall prepare E&T Courses and organize their presentation.
- c) The Committee will do surveys to understand which courses are required.
 - a) The Committee will collaborate with organizations that offer courses e.g. WMO, COMET, ECMWF, American Meteorological Society, Royal Met Society, SAMA (South Asian Meteorological Association which organizes many courses), etc.
 - b) Look into the feasibility of implementing a Certification Program for Professionals in Africa. This will ensure that those who call themselves meteorologists, briefers, and broadcasters have the right background.

11.5 Progress of the Committee

- a) The Committee has had several meetings in which a reasonable number participated to discuss modus operandi.
- b) Some Webinars have also been held.
- c) The following two very important E&T Programs are being currently implemented: The Teacher Training Program for Universities, Colleges, and Schools, and the Learning Portal.
- d) The Teacher Training Program is meant to study what is being taught in these institutions and whether it is adequate to produce the kind of talent Africa needs to handle Climate Change and to do high-quality weather forecasting which is important not only for handling disasters but also for the economic development of Africa.
- e) A Pilot Program is being run in nine countries in the Horn of Africa and East Africa. More details are provided in the article on Teacher Training by Prof. Sushil Dash, et al in this Newsletter.
- f) We have Committees from each of the participating countries with a Chair to coordinate their efforts.
- g) Several meetings related to the Teacher Training Program have been held and each committee has been tasked to collect some important information about current Programs in Universities, Colleges, and Schools.
- h) Up to now, 4 Committees have provided the requested information which is being studied by coordinators.
- i) The Learning Portal was built by a group led by Dr. Robert Varley to provide a central repository of the courses available from various resources. A more detailed article on the Learning Portal has been provided in this Newsletter.

11.6 Way Forward

Three important activities which include Teacher Training, improving the Learning Portal to identify gaps, if any, and assistance to the Conference Committee in the Science Program need to be continued.

12. COMMUNICATIONS COMMITTEE – C5

12.1 Introduction

A continental organization like AfMS has many requirements for communication between various entities, e.g., the AfMS Committees, individuals, and the external world. In addition, we also need to maintain our website, create awareness about AfMS through Societal media, and arrange means of conducting remote meetings. This Committee is meant to satisfy all these requirements and more. Help is also required by the Publication in formatting Newsletters and Journals.

12.2 Objective of the Committee

The objective of this committee is to look after all communications requirements of the AfMS which have been presented in the introduction.

12.3 Committee Leadership and Membership

Leadership: Freedom Mukanga (Chair, Zimbabwe), Hailu Wudineh (Deputy, Ethiopia)

Members: Victor Massam (Tanzania), Gaga Youssouf (Djibouti), Workneh Degefu (Ethiopia), Houmed Iwad Ali (Djibouti).

12.4 Responsibilities

- Develop a strategy for keeping the Website up-to-date. Updates should be done at least twice a month and more often, when required.
- Define and develop means of communication between individuals within a committee, between Committees, etc. One of the most popular means of communication between people as well as Committees is the facilities provided by WhatsApp.
- Define, arrange, and implement means of online meetings, webinars, training, Conferences, etc., and get them approved by the Board. This will require utilities like Zoom, MS Teams, WebEx, etc. for Meetings, Webinars, Conferences, etc.
- Organize Social Media usage for the benefit and betterment of AfMS and its Committees.
- Publish the Newsletter after the contents have been created and provided by the Publications Committee i.e., collate all articles/contents provided by the Publication Committee.
- Assist in the production of the Journal of the AfMS. Discuss the role with the Publication Committee and the Board to finalize this role.
- Maintain the above means of communication and assist in diagnosing them when necessary.

12.5 Progress of the Committee

- The committee has been constituted and its first meeting has been held.
- The Terms of Reference (ToR) have been created but need to be finalized.
- To cover all regions of Africa, this committee needs many more volunteers and we have started to look for them by putting an advertisement in this Newsletter.

12.6 Way forward

The Communications Committee plans to revamp the website to make it more interactive and have it become a one-stop shop for anything related to AfMS.

The committee also seeks to redefine, arrange, and implement means of online meetings, training, conferences, and webinars, as will be approved by the Board.

It also seeks to support the Publications Committee in producing the Science Journals of the AFMS and publishing Newsletters on a timely and consistent basis. **Finally, we quote Theo Gold, who states that, "communication is your ticket to success if you pay attention and learn to do it effectively".**

13. SCIENCE AND TECHNOLOGY (S&T) COLLABORATION COMMITTEE – C6

13.1 Introduction

One of the fundamental committees designed to create capacity in Africa in the area of Meteorology and related fields is the S&T Collaboration Committee. The R&D capability can be enhanced through collaboration between African Scientists and those with more experience whether they be from within Africa, or any other country outside Africa. The C6 Committee is meant to create that collaboration.

13.2 Objective of the Committee

Creating S&T Collaboration between professionals of Africa: those from within Africa or Diaspora or Friends of Africa. The idea is to improve the quality of R&D in Africa by collaboration between Scientists from advanced countries.

13.3 Committee Leadership and Membership

Management: Dr. Emanuelle Molou (Chair - Cameroon),

Members: Dr. Alex Nimusiima (Uganda), Mr. Philbert Luhunga (Tanzania), Prof. Tsegaye Tadesse (USA/Ethiopia)

To Confirm: Eric Assuman (Ghana), Haider Mohamed Ali (Djibouti) and Wogayehu Legese Jima (Ethiopia)

13.4 Responsibilities

- Provide a mechanism to connect people to discuss, and if approved, start S&T collaboration.
- Keep a list of people who have shown interest in collaboration with African scientists.
- AMS which runs a similar program called Partnership Program already has such a bank of people on which AfMS can also draw.
- The S&T Committee C6 shall organize Webinars with the E&T Committee C4 at least twice a year and preferably every quarter. Unless we make people fully aware of this Program, we will not get sufficient mileage out of it.
- The S&T Collaboration Committee along with the E&T Committee should look for opportunities for scholarships and fellowships which can be announced as the opportunities happen and certainly at the Awards Ceremony in the Conferences.
- In addition, if during their routine work, researchers feel a need for the S&T collaboration at any level (local, regional, or international), they are supposed to request this Committee to find assistance.

13.5 Progress of the Committee

- The Committee has had its first meeting but it needs many more members to promulgate its message and activities.
- It appears that the value of this Program is not well understood. Making this Program better known is our goal.
- We are running this Program in coordination with IFMS' S&T Collaboration Program and AMS' International Partnership Program. We must do better advertisement and coordination to get maximum benefit out of this Program.
- At least twice a year Joint meeting with IFMS and AMS are strongly recommended.

13.6 Way Forward

- We need to make this Program much better known than what it is today. For that, we need to organize Webinars by Experts to make the value of this Program better known.
- As AMS has done, we should also have a list of experts who are prepared to be partners in case requests are received for S&T Collaboration.

14. ORGANIZE CONFERENCES COMMITTEE – C7

14.1 Introduction

One of the best ways to create capacity is through networking. In-person networking is an important part of developing contacts and discussing your work. Conferences also provide you an opportunity to present your work to peers. It also provides an opportunity to recognize those who have made outstanding contributions to AfMS and S&T.

14.2 Objective of the Committee

To hold regular Conferences with different themes and on different countries. Holding a Conference in a country provides a big boost in terms of awareness of the profession in that country. It also provides an opportunity to recognize the cream of the crop and boost the profession of meteorology

14.3 Committee Leadership and Membership`

Management: Dr. Bob Ogwang (Chair, Uganda), Dr. Nana Prempeh (Vice Chair – Ghana), Dr. Victor Ongoma (Secretary – Kenya), Ms. Bathsheba Musonda (Vice Secretary – Zambia),

Members: Ms. Bathsheba Musonda, Dr. Naomi Kumi (Ghana), Dr. Floribert Vuguziga (Rwanda), Dr. Joan Birungi (Uganda), Dr. Romeo S. Nkurunziza (Burundi), Mr. Sam Ochoto (Uganda), Ms. Margaret Serwanja (Uganda), Mr. Bento Innacio Gambula (Mozambique)

Yet to confirm: Alex Nimusiima (Uganda), Dr. Calvin Gaye (Liberia), Mr. Solomon Ramotuberi Teke (Lesotho), Dr. Didier Ntwali (Rwanda), Mr. Didier Nkapa (Benin), Dr. Faustin Ogou (Benin), Dr. Sarah Osima (Tanzania).

14.4 Responsibilities

- Although physical site arrangements are the responsibility of the Conference Committee, several other Committees are also implicated in this effort. For example, the Publications Committee, D-FOA Committee, and S&T Collaboration Committees are involved in the Scientific Program, and the Communications Committee is involved in creating the Conference Website and advertising and popularizing the Conference and its program.
- The Conference Committee has defined the Criteria for the selection of the venue of the Conference in one of the countries whose NMSoc is a member of the AfMS.
- Based on the above criteria, search for the Conference Sites to select the best one where the next Conference should be held. We have already launched this search by sending emails to all member NMSocs along with the qualification criteria. Some questions were received from Tanzania which were answered.
- With the help of the Committees mentioned above, define the following information for the Conference: format, duration, type of sessions, participants, type of themes, etc. A preliminary format has been defined and we are requesting more detailed information about the contents of the Plenary and the Breakout sessions.
- Once the venue has been selected, we will then determine the Overall Conference Chair and the Chairs of the supporting Committees e.g. Scientific Committee, Local Arrangements Committee, Hospitality Committee, Communications Committee, etc.
- As a part of its Proposal, the host NMSoc will prepare the Budget for approval of the Board.
- The financing will be arranged jointly by the host NMSoc, the AfMS Financing Committee, and the AfMS Board.
- It has been observed that Conferences provide a great opportunity to network with peers. They provide an opportunity to present your research and benefit from the presentations made by

14.5 Way Forward

- The Committee will prepare a plan for executing the Conference which will contain all the above information. This Plan will clearly define the responsibilities of its members.
- Once the Conference location has been selected, we will have regular monthly meetings and even more often when required.
- We will get the plan approved by the Board
- A very strong effort is required to make November/December 2024 a reality.

15. PUBLICATION COMMITTEE – C8

15.1 Introduction

The Newsletter and Journal of a Society reflect its image and quality. AfMS has decided to produce both of them and has already started working on them. We understand that the quality will improve over time but we must start on that journey now.

15.2 Objective of the Committee

To provide opportunities for professionals to showcase their work, the Journal of African Meteorological Society (JAfMS) provides publication opportunities to spread knowledge through publishing and Conferences and Webinar opportunities to present and discuss their work. This is one of the best ways to spread knowledge to build capacity.

15.3 Current Members of the Publication Committee

Management: Prof. Gideon Chukuma Ufoegbune (Chair, Nigeria), from French-speaking country (Vice Chair), Prof. Rhoda Mojisola Olanrewaju (Secretary, Nigeria),

Members: Houmed Iwad Ali (Djibouti), Dr Margaret Kimani (Kenya), Wogayehu Legese (Ethiopia), Moses Kibe Kihiko (Kenya), Dr. Anna Msigwa (Tanzania), Muhammad Labiru Abdullahi (Nigeria), Prof. Bernard Tarza Tyubee (Nigeria), Dr. Sydney Samuel Botswana Faustine Tilya Tanzania.

15.4 Responsibilities

- a) Define the format and type of content allowed to be printed in the JAfMS (Journal of AfMS).
- b) Determine the frequency of issuance of the Journal – we are working towards twice a year. It could be quarterly in a few years.
- c) Define the format and type of content allowed in the AfMSNL (AfMS Newsletter).
- d) Determine the frequency of issuance of the Newsletter – initially full edition twice a year. To show the progress of the AfMS, a shorter version could be issued in between.
- e) Look for potential reviewers and keep a list of them with their specialties.
- f) Assign proper reviewers for each paper, more strict review will be done for the Journal to maintain its quality.
- g) Decide whether the Journal or the Newsletter is to be issued in hard or soft format.
- h) Collect all the reviewed papers for a given edition and provide them to the communication committee for collating them into a standard document.
- i) Prepare the Annual Program and Budget for approval of the Board.
- j) Submit annual Activity Report to the Board.
- k) Outline what is in the scope of the committee and what is out of scope.

15.5 Progress of the Committee

- a) Updated call for paper and flyer for the maiden Journal of African Meteorological Society (JAfMS) are ready for dissemination. It includes important information such as submission guidelines, important tentative dates, website for submission, Email of the editorial team, etc. Thus, publicity of the Journal in our various outlets and domains should start as soon as we are certain of those dates.
- b) Selection of editorial board: The editorial team is made up of members of the Publication Committee as listed in Section 3.
- c) Explore means of raising funds for the upkeep of the journal publication.

15.6 Way Forward

15.6.1 Short Term Plan

Explore the possibility of having a bi-annual publication of the Journal of African Meteorological Society (JAfMS) and a quarterly publication of the African Meteorological Society Newsletter (AfMSNL) in the subsequent years.

Work diligently to ensure that the first edition of the Journal is out by the third quarter of 2024.

15.6.2 Long-term Plan:

Having more than one journal outlets that will focus on specific aspect of Africa meteorology/climatology e.g. Journal of Africa Agro meteorology, Journal of Africa Urban climatology etc.



CALL FOR PAPERS

Journal of African Meteorological Society (JAfMS)

The Journal of the African Meteorological Society (JAfMS) welcomes researchers, scientists, and scholars to submit their original research papers for publication in our esteemed journal. JAfMS is committed to advancing the field of meteorology within the African continent, providing a platform for disseminating cutting-edge research and fostering collaboration among meteorologists and atmospheric scientists.

We encourage submissions on a wide range of meteorology, climate science, and weather forecasting topics, with a specific focus on African meteorological issues. The journal aims to showcase research that addresses the unique challenges and opportunities within the African context, contributing to a deeper understanding of weather patterns, climate dynamics, and the impacts of climate change on the African continent.

We invite submissions in areas including, but not limited to:

1. Climate variability and change in Africa
2. Regional climate modeling and projections
3. Weather prediction and forecasting systems
4. African monsoon dynamics
5. Extreme weather events in Africa
6. Agricultural and environmental meteorology in Africa
7. Remote sensing applications for weather and climate studies in Africa
8. Climate adaptation and mitigation strategies for African communities
9. Observational techniques and instrumentation in African meteorology
10. Socioeconomic implications of weather and climate in Africa

Submission Guidelines:

1. Manuscripts should present original research contributions and should not be currently under consideration for publication elsewhere.
2. Authors are requested to strictly adhere to the formatting and style guidelines outlined by JAfMS, available on our website.
3. All submissions will undergo a rigorous peer-review process to ensure scientific Submission rigor and quality.
4. Manuscripts must be submitted electronically via our online submission system, accessible on the African Meteorological Society website.
5. Authors are encouraged to include relevant figures, tables, and supplementary materials to support their research findings.

Important Dates:

- Deadline: March 20, 2024
- Notification of Acceptance: May 30, 2024
- Final Manuscript Due: June 30, 2024

For further details, submission guidelines, and access to past issues of JAfMS, please visit our website [<https://africanmetsociety.org>]. For any inquiries or clarifications, please contact the editorial team at Email: afmsjournal1@gmail.com, Phone: +2347031896607

We eagerly await your valuable contributions and anticipate fruitful collaborations to further our understanding of African meteorology.

Sincerely,

Editor-in-Chief, Journal of African Meteorological Society (JAfMS)

16. AWARDS COMMITTEE – C9

16.1 Introduction

Every scientific organization seeks to acknowledge those individuals, teams of people, and organizations whose work should be recognized for its greater purpose and value to the entire enterprise. AfMS invites its members and friends to nominate those colleagues who are deserving of recognition.

It is important to recognize the contribution of those individuals or teams of people who help society to grow whether scientifically, and technologically or by providing volunteer work that makes society grow. The objective is to encourage professionals to achieve the highest standard. This needs to be done in various categories including very strong contributions to the development of the Society and achievements in Science and Technology at various stages of the career. There should also be scholarships for outstanding students

AfMS invites its members and friends to nominate those colleagues who are deserving of recognition.

16.2 Objective of the Committee

The objective of this Committee is to define categories of people who should be recognized by the Society at its Annual Conferences and other opportunities. The committee calls for nominations and constitutes a special committee to evaluate the contribution of nominees. The final approval is done by the board of AfMS.

16.3 Committee Leadership and Membership

Leadership: Dr. Jimmy Adegoke (Chair US – Nigeria)

Membership: Mr. Zablon Shilenje (Kenya), Dr. Joseph Mukabana (Kenya), Mr. Wogayehu Legese Jima (Ethiopia), Dr. Haidar Mohamed Ali (Djibouti), Dr. Wassila Thiaw (Senegal/USA), and Dr. Mary-Jane Bopape. Other than the Chair, the rest of the members are yet to be confirmed. In addition, the Vice Chair and Secretary of the Committee are still to be appointed.

16.4 Responsibilities

- a) The Committee shall define the categories of Awards and their shape e.g., a certificate, a certificate with a plaque, a medal, cash, etc.
- b) Make an independent Evaluation sub-committee of appropriate scholars, etc. to decide who gets each type of award.
- c) Ask for nominations for awards in various categories every year, sufficiently in advance of the Conference. Most of the time, the Awards Banquet will be held during the Annual Conference, the first one being in late 2024.
- d) Clearly define the responsibilities of its members.
- e) Prepare the Annual Program and Budget for approval of the Board.
- f) Submit annual Activity Report to the Board.
- g) Outline what is in scope for the committee and what is out of scope.

16.5 Progress of the Committee

The first meeting of the committee has been held. Additional progress will be made in the coming year 2024 based on the ideas presented in the following section.

16.6 Way Forward

A lot of work remains to be done which includes:

- a) Defining Categories of Awards based on what other societies are giving. Some examples of awardees are:
 - Contributions in the Scientific area,
 - Contributions in the Development of the AfMS,
 - Best Committee and best Committee Chair,
 - Student Scholarships, etc.,
 - Conference related awards: Best poster, best poster presentation, etc.
- b) Nomination Procedure
- c) Evaluation Procedure
- d) Form of award
- e) When to present, etc.

17. THE DIASPORA AND FRIENDS OF AFRICA (D-FOA) COMMITTEE – C10

17.1 Introduction

There is a strong African Professional Diasporapresence outside of Africa. Many are Professors in reputed universities, many others are researchers at some top-level Research organizations at the level of NOAA, NASA, etc. In addition, there are many "Friends of Africa (FOA)" who are not Africans or of African Origin but are very interested in helping Africa in developing capacity against Global Warming, and Climate Change (GW&CC). Both the above groups have the desire to help Africa and can be of substantial assistance to the AfMS in developing capacity in Africa. They can also provide some financial assistance to AfMS.

AfMS needs the benefit of their knowledge and experience gained in advanced countries. Therefore, we have constituted a separate committee called the D-FOA Committee to liaison with this group.

17.2 Objective of the Committee

The objective of this Committee is to define various activities through which D-FOA members could help AfMS to grow and build the knowledge base in Africa and act upon those defined activities.

17.3 Committee Leadership and Membership

Leadership: Dr. Charles Ichoku (Chair, Nigeria), Mr. Shanti Majithia (Vice Chair, Uganda), Dr. Samson Hagos (Secretary, Eritrea)

Membership: Dr. Richard Damoah (Ghana), Dr. Antony Kinyua (Kenya), Prof Richard Anyah (Kenya), Prof. Tsegaye Tadesse (Ethiopia), Prof. Fredrick Semazzi (Uganda), Dr. Jimmy Adegoke (Nigeria), Dr. Wassila Thiaw (Senegal), Dr. Charles Gatebe (Kenya), Dr. Ali Omar (Uganda), Prof. Belay Demoz (Eritrea), Dr. Ademe Mekonnen (Ethiopia), Dr. Ismaila Diallo (Senegal), Dr. Osinachi Ajoku (USA by Parents of Nigerian origin), Dr. Adeyemi Adebisi (Nigeria), Dr. Akua Asa-Awuku (Ghana), Dr. Akintomide Akinsanola (Nigeria), Dr. Aisha Owusu (USA), Dr. Oye Ideki (Nigeria), Dr. Babatunde J. Abiodun (Nigeria), Dr. Kandis Boyd (USA), Dr. Eloise Marais (South Africa), Prof. Loren White (USA born in Kenya), Mr. R.C. Bhatia (India), Prof Sushil Dash (India), Dr. Robert Varley (UK), Dr. Harinder Ahluwalia (India), Dr. Bob Riddaway (UK), Dr. Gonzalo González Abad (US/Spain)

17.4 Responsibilities

- a) Define various ways Diaspora and Friends of Africa (D-FOA) could help AfMS to grow and help in capacity building in Africa.
- b) Assign members of the Committee to items in the list to develop them further for implementation.
- c) The Committee shall define contact persons to communicate with for each type of activity.
- d) Each committee Member will develop the procedure for the area of which he/she has been assigned the responsibility.
- e) Clearly define the responsibilities of all members.

17.5 Progress of the Committee

- a) The Committee has been holding monthly meetings for the past approximately one year.
- b) The preliminary list of various ways in which C10 can help AfMS has been defined and is being documented. For example, a person to help in S&T Collaboration, a person to keep track of graduate studies opportunities available, Post Doctorate Fellowship opportunities, looking for specialists for Webinars, Assisting in Developing targeted courses, assistance in the production of Journal as reviewers, contributors, in Conferences in selecting papers, making presentations, chairing some sessions, recommending speakers, selecting people to be recognized, etc.
- c) In other words, it has been observed that the D-FOA members can help every committee. Keeping that in mind, we have assigned at least one D-FOA member to each of the other nine committees.
- d) We invite all other committee chairs and members to participate D-FOA meetings which happen on the first Friday of every month unless any change is advertised before the meeting.

17.6 Way Forward

- a) Prepare a document outlining how D-FOA can help each of the other nine Committees and prepare a list of Action Items.
- b) Ensure we have a D-FOA representative in all Committees.
- c) Act upon the Action Items listed above.

WORLD CLIMATE RESEARCH PROGRAMME (WCRP) 2023 OPEN SCIENCE CONFERENCE IN KIGALI, RWANDA

The World Climate Research Programme (WCRP) 2023 Open Science Conference was held in Kigali, Rwanda from October 23 to 27 2023, bringing together over 1400 participants representing scientists from diverse research communities worldwide as well as practitioners, planners, and politicians. They discussed the current state and further evolution of inclusive international climate science, and the scientifically founded actions urgently needed to mitigate against and adapt to climate change.

There final declaration of the Conference is available on the following link: <https://wcrp-osc2023.org/kd-sign>





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