

S2S forecasting Capacity Building Initiatives over Eastern and Southern Africa

Eastern and Southern Africa regions are no strangers to the devastating impacts of climate related hazards such as floods, droughts, high winds and landslides. These events have led to localized to large-scale crop damage, pests outbreak, food insecurity, loss of property, displacement of populations, and damage to infrastructure. In an endeavor to increase community resilience, most National Meteorological and Hydrological Services (NMHS) are migrating from forecast driven products to climate services. Climate services have a potential to reduce climate vulnerability by enhancing forecast skill, information access, knowledge exchanges, and hence improved decision making. In order to increase uptake of climate services, there is a need for provision of timely and accurate climate information to decision-makers.

The World Meteorological Organization (WMO 2020) laid out the requirements for operational S2S forecasts at NMHSs. These include:

- Access to high-quality historical station datasets or satellite rainfall estimates;
- Access to forecasts and reforecast data and to data from Global Producing Centres;
- Access to statistical tools for calibrating or downscaling model forecasts, including regression methods, canonical correlation analysis, singular value decomposition, etc.;
- Access to Windows or Linux computers with minimum hardware capabilities

Accordingly, a number of training initiatives have been undertaken to enhance the capacity of NMHSs in the Eastern and Southern Africa regions to develop objective monthly to seasonal forecasts. In August 2021, a training “**Objective Climate Forecasts for Agriculture and Food Security Sector in Eastern and Southern Africa**” was conducted from 31 August – 4 September 2021 in Victoria Falls, Zimbabwe. The workshop brought together more than 50 experts from National Meteorological and Hydrological Services (NMHS), Regional Climate Centers, Research Institutions, Agricultural and Food Security institutions, and actors from 15 Eastern and Southern Africa regions. The main objectives of the training workshop were to build the capacities of national and regional experts in objective seasonal forecasting, enhance the co-production of

reliable and improved climate information and services in the agriculture and food security sector, and establish multi-institutional and multi-stakeholder dialogue and knowledge sharing platform to strengthen institutional linkages and south-south partnerships.



The participants had the opportunity to practice the procedures in developing the IGAD Climate Prediction and Applications Centre (ICPAC) objective seasonal forecasts and were able to practice how to use Python-based Climate Predictability Tool (PyCPT) and ensemble regression method, which empower them to generate national seasonal forecasts. Additionally, the co-production session enabled participants to learn the theory and implications of co-production for generating reliable climate information and services for development and planning in the agricultural sector.

The training was followed up by the **“AICCRA Regional Training for East and Southern Africa”** held in Kampala, Uganda in November 2021 (Grossi, 2021). The training brought together a total of 44 participants representing 11 NMHS from both Eastern and Southern Africa. Three parallel workshops were held in Kampala and altogether, the workshops aimed at advancing the availability, access, and use of high-quality climate information to anticipate, manage, and respond to climate-related disasters and longer-term climate change in the Eastern and Southern Africa region. The theoretical and practical sessions trainings that were delivered include; 1) Climate Data Tools and Automatic Weather Station Data tool, 2) Data Library and Maprooms, 3) Seasonal forecasting utilising the NextGen and ICPAC regression approaches.



The evaluation from the trainings showed that participants appreciated the value in doing the trainings together rather than separately in their respective countries. The participants highlighted that the regional trainings were important for sharing experiences on how others handle similar or new challenges in climate science, networking and building synergies. With further trainings as requested by the participants, there is hope that climate services over the regions will improve, thereby strengthening early warning systems and preparedness of the communities.

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References

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