



## Terms of Reference for CONFER ICPAC Project Principal Investigator

### Background

The IGAD Climate Prediction and Applications Centre (ICPAC) is a specialized institution of the Intergovernmental Authority on Development (IGAD). ICPAC has a responsibility for the provision of timely early warning information and supporting specific sector applications to enable the Greater Horn of Africa (GHA) region cope with various risks associated with extreme climate variability and change for poverty alleviation, environment management and sustainable development of member countries.

**CONFER** (Co-production of Climate Services for East Africa) is a multinational collaborative European Commission (EU) funded project that aims to bolster resilience to climate impacts in East Africa by enhancing the capacity of ICPAC to develop improved climate services in the water, energy and food security sectors based on co-production methods and advances in numerical modelling and statistics. The project will actively interact with a wide range of stakeholders and end-users in East Africa to enhance their ability to plan for and adapt to seasonal climate fluctuations. CONFER follows three parallel research tracks: (i) enhance coproduction and user engagement, (ii) improve on the accuracy and local detail of numerical prediction model outputs for East Africa, with a particular focus on seasonal prediction, and (iii) develop statistical and machine learning tools to obtain a new level of seasonal forecast skill based on numerical models and high-resolution satellite data, and involve scientific experts in a large training and capacity development programmes to enhance climate information uptake in the above three focus sectors.

**CONFER** implements 5 technical work packages (WPs) to attain specific objectives as listed below:

- i) **Co-production of Climate Services** to identify how stakeholders and end-users employ climate information for planning and implementation of climate adaptation, and to collaborate with them to co-produce new climate services to increase the efficacy and quality of this work;



## IGAD Climate Prediction & Application Centre

- (ii) **Climate, hydrological and crop modelling** to improve on the accuracy and local detail of numerical prediction model outputs for East Africa, with a particular focus on seasonal prediction;
- (iii) **Processing of Copernicus data** to obtain a new level of seasonal forecast skill based on numerical models and high-resolution satellite data by developing statistical and machine learning tools;
- (iv) **Training and capacity development** to organize training and build capacity for enhancing climate information uptake in the water, energy and food security sectors; and
- (v) **Communication, Dissemination and Exploitation** to disseminate research products and solutions to wide swaths of society, ranging from the general public to policymakers in Europe and Africa

The anticipated **outcomes** of **CONFER** can be summarized as follows:

- New seasonal forecasting products with enhanced skill, reliability, objectivity and level of detail, to support ICPAC and NMHSs in providing crucial predictions
- Contributions to improved food security estimates for enhancing preparedness and mitigation strategies for droughts and other climate-related emergencies
- New predictions for regional planning of water and energy resources, allowing more precise planning
- Enhanced exploitation of weather and climate information in the Greater Horn of Africa
- Encouragement of innovative spin-off initiatives and business developments in climate services
- Enhanced capacity at ICPAC and NHMSs through a strong focus on training

As the main beneficiary of **CONFER**, ICPAC is expected to (i) operationalize research outcomes and test results to deliver co-produced climate services in food security, water, and energy sectors; (ii) lead in the engagement of key stakeholders and practitioners and developing a state-of-the-art coproduction methodology in WP1 (**Co-production of Climate Services**); (iii) co-lead in the integration of dynamical and statistical climate forecast production systems in WP2



## IGAD Climate Prediction & Application Centre

(**Climate, Hydrology and Crop Modeling**); (iv) contribute to and participate in WP3 (**Processing of Copernicus data**) in the design and development of tailored applications and products; (v) participate in WP4 (**Training and capacity development**) to support capacity needs assessment and training; (vi) co-lead in the design of communication and dissemination strategy, exploitation strategy and support of policies in WP5 (**Communication, Dissemination, and Exploitation**) to expand the reach, uptake and use of climate information and products in decision making; and (vii) ensure efficient administrative and financial management, perform monitoring and evaluation, and communication and interaction for project implementation at ICPAC in WP6 (**Project management – Africa Activities**).

The project will build on progress already made in delivering user-led services within ICPAC under the SCIPEA (Strengthening Climate Information Partnerships – East Africa, a project in the WISER programme) and W2-SIP (WISER Phase 2 Support to ICPAC) projects, including service development teams, co-production and the GHACOFs. For implementation of CONFER work packages at ICPAC, we seek to recruit a Project Principal Investigator to lead and coordinate technical activities as well as manage and communicate project implementation as described above.

### **Responsibilities**

The incumbent will work on coordination and technical activities in the implementation of CONFER at ICPAC in two parallel tracks.

#### **a) Project Coordination**

- i) Liaise with CONFER Team at NORCE to ensure efficient administrative and financial implementation of CONFER at ICPAC;
- ii) Plan and manage ICPAC CONFER component on a day-to-day basis and ensure timely and on-budget delivery of planned activities;
- iii) Liaise with appropriate IGAD divisions and units to obtain relevant inputs during project implementation;



## IGAD Climate Prediction & Application Centre

- iv) Coordinate communication with all project partners, relevant stakeholders, and financing partners;
- v) Provide inputs to the detailed Monitoring and Evaluation Framework developed jointly by project partners;
- vi) Carry out other relevant duties as required by the Director of ICPAC

### **b) Project Technical Support**

- i) Ensure there is strong scientific foundations for improved downstream climate services and forecasts that target food, energy and water sectors;
- ii) Ensure dynamic interactions among work packages for seamless integration of activities at ICPAC and flow of information at all levels;
- iii) Operationalize research outcomes and test results to deliver co-produced climate services in food security, water, and energy sectors;
- iv) Lead, support, and contribute to
  - reduce WRF biases through parameter tuning of the selected convective scheme and improving representation of land-atmosphere interactions including assessment of various land initialization strategies;
  - establish climatology and interannual variability of WRF driven by CFSv2 Reforecast (or another GCM with a fixed hindcast, i.e. reforecasts not produced on-the-fly);
  - evaluate skill of the forecast products for rainy/dry season onset, duration, termination as well as dry and wet spells (measures of reliability to be included in products developed in WP1);
  - characterize the seasonal evolution of the major circulation systems in relation to the onset, peak and cessation of the seasonal rainfall;
  - characterize the key circulation systems during extreme wet and dry years;
  - establish efficient and robust statistical methods to construct WRF ensembles for probabilistic forecasts;
  - increase the number of GCMs for statistical downscaling from Copernicus as well as other seasonal forecasting products from C3S;



## IGAD Climate Prediction & Application Centre

- assess and select the best available GCM for the region from global prediction systems provided by C3S and NMME; and
- design, test, and implement improved methods to combine statistically post-processed GCM and WRF forecasts.

### **Required Qualification**

Ph.D. in meteorology, atmospheric science, environmental science or engineering;

### **Required Experience**

- At least 7 years of experience working on weather and climate prediction;
- Experience and excellent computing skills in weather climate model implementation;
- Experience in implementing project capacity development activities;
- Experience in writing scientific papers on peer-reviewed journal;
- Experience in delivering capacity building.

### **Required Knowledge, Skills, Abilities**

- Knowledge/background on climate and climate drivers of the Eastern Africa;
- Programming experience in the Weather Research and Forecasting (WRF) model or similar regional climate models;
- Working knowledge in FORTRAN and scripting language (e.g., csh, Bash, etc);
- Solid statistical programming and data visualization experience with NCL, R, Python, MATLAB, NCO, CDO, etc.;
- Knowledge of High Performance Computing (HPC) system and experience working under UNIX/Linux operating system;
- Strong organizational skill and ability to work in a team environment.



IGAD Climate Prediction & Application Centre



## **Language Skills**

Excellent knowledge of English and working knowledge of French would be added advantage.

## **Duration of Assignment**

The assignment is for 42 months subject to performance and availability of funds.

## **Reporting Line**

The Project Principal Investigator will report to the Programme Manager of Climate Diagnostics and Prediction Programme

## **Remuneration**

The successful candidate will earn a monthly lumpsum salary at IGAD P4-level without any other benefits.

## **How to Apply**

To apply, please submit by email only with the subject “Application for CONFER Project Investigator” a letter of interest and a statement of research, curriculum vitae, and the names, addresses (mailing and email addresses) of three referees by 28 August 2020 to [recruitment@igad.int](mailto:recruitment@igad.int) with a copy to [recruitments@icpac.net](mailto:recruitments@icpac.net).

## **Work Station**

ICPAC Headquarters located within the Nairobi Metropolitan Area in Kenya. Missions to IGAD member states might be necessary.