The Africa Climate Conference 2013: Africa Prepares a Roadmap Towards Addressing Climate-related Challenges and Information Needs for Policy and Decision Making

The Africa Climate Conference 2013 (ACC-2013) was held in Arusha, Tanzania from 15 – 18 October 2013. The conference, which was organized by the World Climate Research Programme (WCRP), the African Climate Policy Center (ACPC) of the United Nations Economic Commission for Africa (UNECA) and the University of Dar es Salaam brought together more than 300 participants which included decision-makers, research funding agencies, scientists from various disciplines and practitioners from Africa and around the globe. The objectives of the ACC-2013 were, *inter alia*: 1) to assess the state of knowledge of the African climate system and identify existing knowledge gaps; 2) to develop an Africa climate research agenda that will address climate information needs; 3) to develop a framework for mainstreaming climate information into planning and decision making processes; and 4) to establish networks to enhance the production and practical application of relevant information in areas such as agriculture and food production, water resources management, human health, climate risk management and adaptation planning.

Proposed Action Items

Following a series of plenary and parallel sessions, the conference participants endorsed several proposed action items and the Africa Climate Research for Development Agenda, which is summarized in the online supplement. Several existing and emerging structures and initiatives that will potentially provide the necessary enabling environment for the implementation of the action items and the development agenda were identified and are mentioned in the online supplement. The endorsed action items included: 1) development of sustainable observational networks, engaging in intensive observational campaigns, and recovery, digitization and analyzing existing historical climate data; 2) develop impact datasets across climate-sensitive sectors to enable the development and evaluation of application models; 3) undertake research on processes and feedbacks relating to the carbon and water cycles, land-atmosphere coupling and mechanisms communicating the climate change signal on temperature and rainfall in Africa; 4) undertake detection and attribution studies of past and future climate, particularly extreme events; 5) improve the understanding of local and remote drivers of climate variability at short to multidecadal timescales to improve climate prediction skill; 6) undertake multidisciplinary research involving social and natural scientists; 7) overcome barriers and limits
to the flow of knowledge between scientists and the user communities; and 8) build research capacity of African institutions.

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Some Identified Challenges and Gaps

The ACC-2013 was motivated by existing climate-related challenges in Africa including: 1) inadequate and declining ground-based observational data sources; 2) insufficient understanding, knowledge and information on climate variability and change and their impacts on agriculture and food security, water and other natural resources management, sanitation and public health, environmental conservation, economic development, etc.; 3) high vulnerability to natural climate variations and anthropogenic climate change and associated extreme events such as droughts, floods, storms and heat waves; 4) lack of coordinated multidisciplinary platforms for the delivery of national climate services to inform sustainable development; 5) substantive gaps between the production of scientific information and the actual appropriateness, saliency and credibility of the information for the user community and for planning and decision making processes; 6) difficulties integrating contemporary scientific knowledge with local indigenous knowledge; and 7) lack of understanding of the complex interactions and feedbacks between climate and non-climatic stressors of political, social and economic origin.

Proposed Action Items

To address the aforementioned and other related challenges and gaps, the conference participants endorsed several proposed action items: 1) development of sustainable observational networks, engaging in intensive observational campaigns, and recovery, digitization and analyzing existing historical climate data; 2) develop impact datasets across climate-sensitive sectors to enable the development and evaluation of application models; 3)
undertake research on processes and feedbacks relating to the carbon and water cycles, land-atmosphere coupling and mechanisms communicating the climate change signal on temperature and rainfall in Africa; 4) undertake detection and attribution studies of past and future climate, particularly extreme events; 5) improve the understanding of local and remote drivers of climate variability at short to multidecadal timescales to improve climate prediction skill; 6) undertake multidisciplinary research involving social and natural scientists; 7) overcome barriers and limits to the flow of knowledge between scientists and the user communities; and 8) build research capacity of African institutions.

Existing and Emerging Structures, Initiatives and Opportunities

The African Union Commission (AUC), Regional Economic Communities (RECs) and African Ministerial Councils will potentially provide the political leadership and will mobilize Governments’ support towards the implementation of the Africa Climate Research Agenda for Climate Services and Development. The African Ministerial Conference on Meteorology (AMCOMET), the African Ministerial Conference on Environment (AMCEN) and the African Ministerial Conference on Water (AMCOW) will provide entry points to solicit government commitment and ownership of the ACC-2013 proposed roadmap. The Climate for Development in Africa (ClimDev-Africa) Programme, an initiative of the AUC, the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB) will adopt this Africa Climate Agenda as part of its mandate to lead the response of climate change in Africa. The Global Framework for Climate Services (GFCS) through its partnerships with governments and relevant organizations will facilitate the integration of the research agenda into existing national and regional climate services infrastructures. The World Climate Research Programme, which provided support for the ACC-2013 has pledged its support for the implementation of the conference declaration and recommendations. Several major climate data and research initiatives operating in Africa such as the African Monsoon Multidisciplinary Analysis (AMMA), IGAD Climate Prediction and Application Center (ICPAC), the African Center of Meteorological Application for Development (ACMAD), the West African Science Service Center on Climate Change and Adapted Land Use (WASCAL), the Southern African Science Service Centre for Climate Change and Adaptive Land Use (SASSCAL) will provide the lessons upon which the Africa Research Agenda will be built.

The Africa Climate Research for Development Agenda

The Africa Climate Research for Development Agenda, endorsed by all participants at the ACC-2013 consists of four broad priorities for climate research in Africa. Each priority area contains a cluster of critical pan-African climate research proposals that should be supported and implemented in order to advance the existing knowledge frontiers, bridging the gap between social and biophysical research, and knowledge generation and application. The agenda will guide the World Climate Research Programme (WCRP) implementation of the research component of the Global Framework for Climate Services (GFCS) over Africa.

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Co-designed multidisciplinary research for improving climate forecast skill and reliability, across temporal and spatial scales (towards operational user-relevant seamless forecast products)

Pan-African Climate Research Program Proposals

i. Subseasonal to Seasonal Prediction Project for Africa


iii. Towards Robust Climate change projections over Africa: integrated CORDEX user-driven analysis

iv. Integrated multi-disciplinary climate and impacts research (across four priority GFCS sectors i.e. DRR sector, health, water and agriculture)

v. Extremes Attribution

vi. Multi-disciplinary validation of forecast skill (including impacts skill)

Filling the Data Gap Tailoring for Sector Decision-making

Pan-African Climate Research Program Proposals

i. Filling the Gap in Multidisciplinary data sets (for both climate and sector-specific vulnerability)

ii. Development of Integrated Africa Climate Data Information System within existing national and international initiatives

iii. Risk Profiles for Major African Cities

Capacity-building, at all levels

Pan-African Climate Research Program Proposals

i. Building African Capacity in Climate Science & Communication for Linking Climate Knowledge with Action

ii. Nurturing an African intellectual leadership in Climate Research for Development

iii. African research nodes of excellence

iv. Developing and Mainstreaming training curricula for a changing climate

v. From Global to Local: Linkages across prediction centers for delivery of operational climate services

Mainstreaming climate services into decision making: Linking Knowledge with Action

Improved and more effective communication between climate science and Policy to identify end user needs

Pan-African Climate Research Program Proposals

i. Framework for Co-producing Climate Services and Integrating Knowledge for Action

ii. Building the Interface: Multi-Stakeholder Platforms for Dialogue – Best methods for bringing together climate scientists and users for definition of common language, identification of needs and design of climate services to meet user needs

iii. Co-producing climate knowledge with local stakeholders – the End of End-users

iv. Supporting Adaptation under deep uncertainty adaptation scenarios addressing envelope of uncertainty, across timescales

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