Africa Climate Research for Development

F. Semazzi, A. Tall, B. Hewitson, A. Pirani,
CLIVAR-GEWEX Africa Climate Panel,
ACC2013 Scientific Steering Committee
Africa Climate Research Priorities
Africa Climate Conference – ACC2013, October, 2013
User-driven Research Frontiers (Community Paper)
In alignment with the critical information needs of African end-users, policy-developers and vulnerable communities, to adapt to a changing climate and manage risks in the 21st Century:

- To support intra-seasonal risk monitoring and management to inform within-season operations (5 to 40 days range)
- To support strategic ahead-of-season planning (1-month to 12-months outlook)
- To support longer-term strategic planning/policy development (next 1-10 years)
- To support Climate change adaptation policy development/planning (next 50+ years)

- Assessing the current vulnerability due to recent climate events
- Estimation of the impacts of climate variability and change
- Decision making at local scales
- Building credibility and confidence in predictions, across timescales
- Mainstreaming climate services into policy formulation and decision making
Africa Climate Conference - ACC 2013

Plenary
State of Knowledge, Research Gaps and Strategies to Address Research Gaps-
towards coordinated pan-African Research
Lessons Learned
Short range planning and Extremes preparedness
Long-Term Planning
Parallel Session Recommendations
Market Place for a future research agenda
Partners Roundtable - Shaping Future Opportunities

Parallel Sessions & Posters
Climate Impacts
Mainstreaming Climate Information
Climate Variability and Predictability
Observations, Extremes and D&A
Africa in a Changing Climate
Regional downscaling

Side Events
AfDB - Pilot Project on Climate Resilience
Losses and Damages due to extreme
climate events : ACMAD
HyVIC
AMCOMET, UNESCO, WMO Event
DfID Future Climate Future Africa
Participatory Game Session on Attribution
Africa Climate Research For Development Agenda

- Coordination Platform
- Steering Advisory Group
- SECRETARIAT
- Improved Observation System and Delivery
- Scientific and Institutional Capacity Development
- Mainstreaming Climate Services and Integrated Research
- Co-designed multi-disciplinary climate research
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Subseasonal to Seasonal Prediction Project for Africa
R. Graham (UK Met Office), A. Robertson (IRI), O. Ndiaye (ANACIM)

Integrated Climate Science, Applications and Policy Research: HyVIC Project

Towards Robust Climate change projections over Africa: integrated CORDEX user-driven analysis
B. Hewitson, M. Shongwe

African Climate Data and information System (ACDIS)
A. Kamga, A. Klein Tank, A. van Engelen, T. Dinku, A. Giannini, O. Baddour
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Re-thinking capacity building for climate science in Africa
B. Hewitson

Climate Information Partnerships for Resilience and Early Warning – Africa (CIPREWA)
R. Graham, F. Lucio

Placing the decision first: learning from experience in decision-making under deep uncertainty to guide the priorities for climate science
N. Ranger

Co-production of Climate Knowledge
M. Daly, Y. Mkwizu, H. Mahoo

Capacity Building Framework for Climate Services at RCCs
F. Semazzi
Africa Climate Research For Development Agenda

Coordination Platform

Steering Advisory Group

SECRETARIAT

Co-designed multi-disciplinary climate research

Improved Observation System and Delivery

Scientific and Institutional Capacity Development

Mainstreaming Climate Services and Integrated Research

WCRP

World Climate Research Programme
Africa Climate Research Priorities
Africa Climate Research for Development (CR4D) Agenda

Documents
African Climate Science Frontiers: Addressing Priority Research Gaps to Inform Adaptation Decision-Making in Africa
Steering Committee for the African Climate Conference 2013

Africa Climate Conference Final Statement 2013
Endorsed by ACC2013 Participants and CCDA3 2013 Participants

Addressing Climate-Related Challenges and Information Needs in Africa – Africa Climate Conference 2013; Arusha, Tanzania, 15–18 October 2013

Climate Sciences and Services for Africa – Strategic Research Opportunities for ClimDev - Report, 2014


Objective:
Defining a Sustainable Mechanism - the Institutional Platform - for Implementing Climate Research for Development (CR4D-Africa) Agenda

African Union, ClimDev-Africa (ACPC, Africa Development Bank, AUC)
WMO, WCRP, WWRP, GFCS, AMCOMET, Future Earth
ACMAD, Regional Climate Centers, Regional Economic Centers, NHMS and University representatives
Partner organizations (e.g. FARA, ASARECA, ROPPA, CGIAR-CCAFS, WASCAL, SASCAL, START, partner research institutions (e.g. UKMO, Meteo France, DWD, IRI, NOAA, ECMWF, EUMETSAT)

Presentation of Africa CR4D Federation of Proposals
Expected Outcomes:

• Joint statement on priorities for African climate research (*leadership, ownership*) to be shared with all major donor agencies;
• Agreement on a sustainable coordination mechanism to implement CR4D Agenda
• Establishment of an institutional arrangement to manage and coordinate the CR4D Agenda (Secretariat)
• Establishment of various Task Teams to advance CR4D Agenda
• Launch of the new CR4D-Africa Scientific Steering Group (develop ToRs)

Follow up with **Regional CR4D Engagement ‘Road Show’** - across 5 African regions, co-organized by AMCOMET, GFCS, AU and RECs, to secure regional ownership of the agenda, ensure agenda reflects regional priorities for research-for-development, and ensure inclusion and buy-in of all relevant national/regional entities (eg ministries of research, NHMSs, sectors)
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Action Items

There is a substantial need to bring cohesion from the fragmented Africa community and for international investment to engage in Africa-led science. **WCRP - through ACC2013 - facilitated the emergence of a single voice to the international agencies.**

- Enhance and support coordinated engagement in Africa (eg by CLIVAR, GEWEX, WGSIP, WGRC, see DFID-ClimDev report)

**African science is led by agendas and initiatives established and led from outside the continent.**

- Prioritize the emergence of African science leadership
- Build a high-level dialogue between *science-active* African-research individuals and groups to build strategic cohesion

**Modeling processes studies to understanding mechanisms for climate drivers, variability and change; and developing region-specific relevant models.**

**Establishment of new approaches to the analysis of the deluge of climate data.**
- Facilitate a new WCRP Analysis thrust – incorporating regional, GCM and observational communities, building on WGRC distillation workshop Fall 2014.
Africa Climate Research Priorities
2015 Engagement Opportunities

2nd WCRP-ICTP Summer School, Spring 2015
Climate System Prediction and the Delivery of Actionable Regional Climate Information
Hosted by ANACIM, Senegal

Joint with WGSIP and WGRC

JSC36 2015, Kampala Uganda
Hosted by Uganda Meteorology Authority, in collaboration with the Uganda Ministry of Agriculture (TBC)

GEWEX Conference 14-17, July, The Hague, Netherlands
• 6 HyVic presentations (posters and oral talks)
• HyVic side meeting event
HyVic GEWEX Regional Hydroclimate Project (Proposed)
Fredrick Semazzi (Chair, HyVic International Planning Committee)
North Carolina State University, Raleigh, 27606, USA

Background

- Lake Victoria Basin is the social-economic nerve center for East Africa (Burundi, Rwanda, Kenya, Tanzania, Uganda) – 30 to 40 million people.
- Mainly a rain fed agricultural economy, with LV supplying fish as a major part of the diet.
- Lake Victoria also provides hydroelectric energy and a relatively insensitive form of transportation.
- The Lake Victoria Basin is geopolitically significant as the source of the White Nile.

Why HyVic?
- Multi-disciplinary, multi-institutional and international research collaboration to identify:
  - leading policy issues,
  - corresponding climate vulnerability thresholds,
  - strategies for building resilience to climate variability and change.
- Current links among international initiatives addressing different aspects of the problem are very weak or non-existent. Initiatives operate independently and disjointedly.
  - inefficient use of fiscal and intellectual resources,
  - failure to fill critical gaps in knowledge,
  - unnecessary repetition.
- HyVic will build an international network: research, operations, policy & applications; leads to resilience to climate variability/change.

Regional Grass Roots Support

HyVic Initial Source of Inspiration: Feasibility study funded by the East African Community (EAC), with full participation of the national Meteorological and Hydrological Services (NMHS).

- EAC Feasibility Study: “Enhancing Safety of Navigation and Efficient Exploitation of Natural Resources over Lake Victoria and Its Basin by Strengthening Meteorological Services for Lake Victoria”
- Recommendation of Feasibility Study: “...we suggest creation of the Regional Hydroclimate Project (HYVIC) GEWEX ...”

-LVB-HyNEWS (Lake Victoria Basin - HydroClimate to Nowcasting for Early Warning Systems) - Formed to enhance the coordination, visibility and sustainability of:
  → HyVic
  → SWNDP (Severe Weather Nowcasting Development and Demonstration Project)
  → EAC NEWS (Navigation Early Warning System)

Governed by an executive committee consisting of: EAC/LVBC, Heads of NMHS and AMCOMET Secretariat (invited observer). Projects’ PIs and five NMHS technical contacts act as a day-to-day coordinating team.

Past and Projections - East African Paradox

Rainfall and Lake Levels:
- Persistent decline in the past and currently
- Projected reversal and increase

Overarching Science Questions

We propose to incorporate the effects of natural decadal variability (NDV), land cover change (LCC) and Global Warming (GW) in the climate models;
- Determine if indeed the projected reversal in rainfall will occur;
  → Determine the timing of the reversal;
  → Determine these two with sufficiently high levels of confidence to support adaptation and mitigation initiatives.

Further Information:
1) EAC Feasibility Study: http://climlab.meas.ncsu.edu/Final_Report_LVBC.pdf
3) Contact Information: Fredrick Semazzi (Chair), fred_semazzi@ncsu.edu
HyVic Timeline

- EAC/LVBC Inception report – June 2011
- EAC/LVBC grass root stakeholders meeting – October 2011
- CLIVAR Exchanges article – October 2011
- Draft science plan – April 2012
- Reading-UK Formation of HyVic ipc – September 2012
- First HyVic IPC meeting at ACC2013 – October 2013
- Start to submit funding proposals - 2014
- EAC Heads of NMHS Meeting 14-17, July
- HYNEWS-Stakeholders’ meeting – 12/14
- HYNEWS Coordination Platform meeting – 9/14
- Approval by GEWEX-GHP (est.)
- JSC36 2015, Kampala-TBC

May 2011  2012  2013  2014  2015