

**The State of the African Climate System Conference:  
Pushing Back the Frontiers of African Climate Science Research**

**Research Gaps & Priorities to Inform Adaptation Decision-Making in Africa**

***Concept Note***

**Date:** September 2012 (immediately preceding CCDA-2 Conference)

**Where:** UNECA, Addis Ababa (Ethiopia)

**I. Background**

The World Climate Research Program's CLIVAR Panel on the Variability of the African Climate System (VACS) outlined in December 2011 the following climate science priorities for Africa:

1. Enhanced end-user decision making in relation to climate information across all timescales in Africa
2. Extension of seasonal prediction lead times
3. Underpinning research on drivers of climate variability, particularly at seasonal timescales and uncovering the source of climate model errors
4. Robust climate change projections at scales salient for societal needs and challenges
5. Attribution of climate extremes: what is natural and what is human forced?

Limits to knowledge impose tenacious boundaries and restrict the usability of climate information for African decision-makers and communities most vulnerable to current and future impacts of a changing climate. As the continent predicted to be the second hardest hit by Climate Change impacts, immediately following polar zones (IPCC, 2007), Africa has a stake in improving the skill and salience of climate research outputs.

Even more urgent is the need to ensure that current and future African climate research is both informed and driven by the critical adaptation needs of African decision-makers in Africa, at regional, national and local levels, striving to adapt under an uncertain climate future.

As such, there is a need to bring together African decision-makers and climate researchers and scientists, around the common goals of identifying the state of knowledge on the African climate system, recognizing current gaps in climate knowledge, developing a framework for mainstreaming climate information into decision making, and defining and driving an African agenda for future climate research that will inform adaptation decisions by the mid- to end 21<sup>st</sup> century.

A conference bringing together scientists of African science towards meeting African policy-makers' needs has never taken place on the continent. Aside from noteworthy regional climate research programs such as the AMMA in West Africa, African climate researchers remain isolated from one another, and distant from decision-makers in need of robust climate research outputs to make critical adaptation decisions, across all timescales.

The **State of the African Climate System Conference 2012** proposes to narrow the large gap currently existing between African decision-makers and climate researchers and scientists, and to bring African climate scientists together to push back the frontiers of African climate science, and improve climate science outputs so that they may inform adaptation decision-making in Africa.

Following the twin-track approach of researching the use of existing climate information for decision-making, while improving predictability and skill of climate science outputs (ACPC, 2011), the **State of the African Climate System Conference 2012** will contribute a significant step to the latter endeavor, catalyzing climate science research for improved and more salient climate science outputs in the near-future.

## II. Objectives

The overall goal of the **State of the African Climate System Conference 2012** is to narrow the large gap currently existing between African decision-makers and climate science researchers, towards the production of actionable climate research outputs that will inform adaptation decisions in Africa by the mid- to end 21<sup>st</sup> century.

The specific objectives of this Conference are as follows:

- 1) Identify the current state of knowledge on the Variability and Changes in the African Climate system, and knowledge gaps in climate science prediction and projections as well as uncertainties
- 2) Define and Build consensus on critical climate research gaps / climate science frontiers that need to be addressed to inform adaptation decision-making in the near and longer-term in Africa;
- 3) Review and Assess the State of knowledge on each Climate Science frontier identified (from the mapping of knowledge gaps in 1), through presentations by leading researchers in each field;
- 4) Identify missing links and obstacles that will need to be overcome in order to bridge African Climate science and Applications;
- 5) Develop pan-African climate research program proposals for each critical Climate science frontier, and submit for funding to research donors in attendance.

Expected outputs and outcomes from the State of the African Climate System Conference 2012 are summarized in Table 1.

<b>Specific Objective</b>	<b>Expected Output</b>	<b>Expected Outcome</b>
1. Identify the current state of knowledge on the Variability and Changes in the African Climate system, and knowledge gaps in prediction and projections as well as uncertainties	African Climate science knowledge gaps are mapped, particularly within the bounds of the limits to predictability, for all climate-sensitive sectors defined out of CCD-1	- Improved understanding of the limits of African climate predictability; - Preliminary identification of gaps in climate science knowledge (African climate science frontiers)
2. Consensus on critical climate research gaps / climate science frontiers needed to be addressed to inform adaptation decision-making in the near and longer-term in Africa	- Current gaps in African climate knowledge (Climate Science frontiers) are identified; - African Climate science research priorities are defined and prioritized	Narrowing of the large gap separating African climate researchers and adaptation decision-makers
3. Review of the State of knowledge in each Climate Science frontier (knowledge gap) identified under Objective 1	- Presentations by leading researchers working to push back each identified Climate Science frontier clarify current state of knowledge on the CS frontier; - Review article on the state of knowledge on each CS frontier	Improved understanding of the current state of knowledge on each African Climate Science frontier
4. Identify obstacles needed to be overcome to push back the Climate science frontiers	Presentations by leading researchers working to push back the identified Climate Science frontier clarify obstacles to furthering knowledge on CS frontier, and ways forward to overcome them	- Improved understanding of obstacles to furthering knowledge on each African Climate Science frontier, and ways forward to overcome them; - Greater focus on key impediments to better prediction; - Allocation of resources to identified priorities
5. Develop pan-African climate research program proposals for each critical Climate science frontier, and submit for funding to research donors in attendance, enabling the sustainability of climate research in Africa	- Pan-African research programs addressing the frontiers of African climate science (Onset/cessation, Inter-seasonal variability, Emerging climate risks, CC) are developed, and funded; - Existing African climate science research institutions/hubs selected to serve as hosts for each African Climate Science Frontier Research node (potentially coordinated by an African Centre for Climate Research (ACCR) and funded by an Africa Science Foundation (ASF), both to be	- Critical mass of African climate researchers catalyzed to push back frontiers of African CS; - Deeper cross-African research collaborations between climate scientists researching the same CS frontier, as well as African climate science institutions; - Strengthening of regional and national African climate science research institutions, enabling them to address the critical decision-making needs of policy makers and vulnerable communities; - In the long run, utilization of

	<p>developed, in collaboration with the African Academy of Sciences (AAS), to sustain the research agenda;</p> <ul style="list-style-type: none"> <li>- Sustainable partnerships between universities, research institutions, RCCs and national frameworks for Climate Services developed, to accelerate the assimilation of research into operational climate services and decision-making;</li> <li>- Added-value of model prediction products rigorously assessed and evaluated.</li> </ul>	<p>outputs of climate research programs by multidisciplinary community of university, industry and government partnerships in Africa that will design, test and introduce climate-based strategies for a greater quality of life in the regions served by the program and its hosting institutions.</p>
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**Table 1: Expected outputs and outcomes from the State of the African Climate System Conference 2012 (September, 2012)**

### III. Role of Participants

- Climate scientists researching in Africa and worldwide on each Climate Science Frontier in the Conference’s Plan of Action, and with established experience working to push back the frontiers of African climate science, will be invited to present on their findings during the SACSC 2012. They will also be invited to participate in the ensuing review of the state of knowledge on each identified Climate Science Frontier. Priority will be given to African researchers and Africa-based climate research institutions for presentation of their findings.
- Adaptation policy-makers at regional, national and local levels will be invited to participate in the consensual definition of Climate science priorities. They will be in charge of validating the African Climate Science Frontiers, as well as serving on the Scientific Steering Committee that will be established for the purposes of the SACSC 2012. Capitalizing on attendance at the 2<sup>nd</sup> Climate Change and Development in Africa Conference (CCDA-2), which already targets leading policy-makers across Africa working on adaptation, a wide swathe of adaptation decision-makers will be invited to partake in the SACSC to express themselves on urgently needed climate research in Africa vis-à-vis adaptation decisions that they are making under uncertainty.
- Finally, donors and development partners interested to fund and support improvements in African climate science research will be invited to attend the Conference, and review the African Climate Science Frontier Research program proposals that will be ensure from the SACSC 2012.

**Targeted Climate Science participants:**

- African Climate Scientists (especially young, early career and women) actively researching on the Africa climate system and related fields (from African NMHs, universities, RCCs and GPCs)
- Regional climate centers and institutions in Africa (ACMAD, ICPAC, SADEC RCC)
- Research partners
  - o Chapter lead authors of the IPCC SREX, AR5 WG2 and Africa chapters
  - o NOAA Africa Desk
  - o UK Met Office/Hadley Centre
  - o ECMWF
  - o ....
- Universities and government laboratories outside of Africa with a deep interest in African climate research
  - o Oklahoma University
  - o ...

**Targeted End-user participants:**

- All Delegates participating at ACPC's CCDA-2
- UNISDR Regional Office
- World Bank PPCCR Country leads
- NGOs and CBOs active in adaptation (Red Cross, Care, Wetlands)
- Target ICLI mayors
- Adaptation researchers (e.g.: ACCA network)
- Adaptation research partners (WRI, etc.)

**Targeted potential donors:**

- WCRP (GEWEX/ CLIVAR)
- ClimDev (AdB)
- Clinton foundation
- All major research programmes conducting work on the African climate system: IDHP / Diversitas / Cordex
- ...

**Steering Committee Members as of Now (other partners TBD in Draft 2)**

- **ACPC**
- **CORDEX**
- **VACS-CLIVAR (WCRP)**
- **Representative from Regional Climate Centers (ICPAC, ACMAD, CSC/DMC-Gaborone)**

#### IV. Tentative Timeframe of preparation activities for SACS 2012

Activity	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Concept Note development												
Mapping of African climate science research programs & centers/hubs												
High-Level Stakeholder Consultation Meeting & Scientific Steering Committee (SSC) <i>Establishment To be held in Dakar, Senegal</i>												
SSC meeting and Development of SACSC Plan of Action												
Review of African Climate Science frontiers, for all climate-sensitive sectors recognized out of CCD-1												
Call for papers & Paper selection												
Review of state of knowledge on Africa CS frontiers												
Conference logistical preparation												
SACSC 2012												
Conference reporting and submission of research funding proposals												

## **V. Task List and responsible institutions**

The SACSC 2012 will be co-hosted by the Africa Climate Policy Center-ACPC (as part of the CCDA-2 Conference), the World Climate Research Program's CLIVAR – Climate in Africa Panel (VACS) and by University of Cape Town (UCT).

The following provisions are currently standing:

- ACPC to support the High-Level Stakeholders Consultation meeting, due to take place in Dakar, Senegal in March 2012, and out of which will be established the Conference Scientific Steering Committee;
- ACPC to support the call for proposals and reviews of climate science knowledge, for all climate-sensitive sectors recognized out of CCD-1;
- Conference to be held as part of CCDA-2 (agenda and specific sequencing within CCDA-2 TBD);
- CORDEX and CLIVAR-VACS in charge of the scientific review and steering of the SACSC 2012.

Other participating institutions TBD.

## **White Paper on the Pan-African Workshop - DRAFT**

(JSC Members: Fredrick Semazzi and Pius Yanda)

At the JSC extraordinary session in Boulder (October 2011) Fredrick Semazzi and Pius Yanda were tasked to establish an ad hoc Task Team and develop a 'draft paper' responding to the needs across the African continent. During the VACS panel meeting in Cape Town (December 2011), among other action items, a decision was made to organize a Pan-African Conference on the State of the African Climate System Conference. The overall goal of the **conference** is to narrow the large gap currently existing between African decision-makers and climate science researchers, towards the production of actionable climate research outputs that will inform adaptation decisions in Africa by the mid- to end 21st century.

Considering the breadth and depth of the proposed Pan-African workshop it is our opinion that it will address all the aspects that the JSC asked the ad hoc Task Force to address and much more. This includes the engagement of both well established & young scientists across Africa and the CORDEX project (Bruce Hewitson, South Africa). **We therefore propose to JSC to endorse the proposed State of the African Climate System Conference 2013 in lieu of the formation and activities of the ad hoc Task Team which JSC had earlier recommended.**

The overall objective of the *State of the African Climate System Conference 2013* (earlier planned to take place this year but for practical reasons postponed to early next year) is to strategically narrow the large gap which currently exists between African decision-makers and Africa climate science researchers. The specific objectives of this Conference are as follows:

- 1) Identify the current state of knowledge on the Variability and Changes in the African Climate system, and knowledge gaps in climate science prediction and projections as well as uncertainties
- 2) Define and Build consensus on critical climate research gaps / climate science frontiers that need to be addressed to inform adaptation decision making in the near and longer-term in Africa;
- 3) Review and Assess the State of knowledge on each Climate Science frontier identified (from the mapping of knowledge gaps in 1), through presentations by leading researchers in each field;
- 4) Identify missing links and obstacles that will need to be overcome in order to bridge African Climate science and Applications;
- 5) Develop pan-African climate research program proposals for each critical Climate science frontier, and submit for funding to research donors in attendance.

The conference will have the additional benefit of being organized jointly by WCRP and the African Climate Policy Center (ACPC). The VACS panel is particularly keen on the conference as a vehicle to entrain young African climate scientists – a need which was

discussed at the WCRP Open Science Conference. Such a Pan-African climate conference has not been held before. This will involve a two-step planning process

**Step#1:** A preparatory event this year and it will be piggy-backed on the ACPC's Climate Change and Development in Africa Conference (CCDA-2), due to take place this year from September 17-19, 2012, in Addis Ababa, Ethiopia. This conference will offer the opportunity to meet the community of African adaptation decision-makers at large, and achieve one critical aspect of VACS agenda: consensual identification and validation of the Africa Climate Science frontiers, & validation of the research priorities defined by the VACS Panel in Cape Town. VACS will be working between now and September to plan for preparatory event and aim to get as many climate scientists a possible to the CCDA-2 and its forum of adaptation decision-makers.

**Step#2:** A fully fledged SACSC is envisaged to take place in 2013. Following the CCDA-2 meeting, VACS will set up planning committees (fundraising, Steering committee, etc.), and define a task list and timeline for the SACSC (A small ad hoc planning committee is being established now). A concept note which reflects the current status of the planning is attached. Note that the year should now read 2013.

**Attachment:** The State African Climate System Conference Concept Note.