Africa Panel - VACS

VACS Cape Town 2011: Panel Meeting
21-23 November 2011

- African Climate Panel and the World Climate Research Programme doing? (21 Nov am)
  - CLIVAR and GEWEX contexts
  - WGSIP context
  - JSC views
- Major Programmes and initiatives in Africa (21 Nov pm)
- Climate science priorities for VACS (22 Nov)
- Planned VACS initiatives (23 Nov)

Science Priorities established by VACS

- **Data: Combined (blended) high quality data sets**
- Data underpins climate science but data unavailability acts as a particular constraint in Africa.
- **Mechanisms: Improved understanding of weather/climate interface**
- Rainfall is a key variable in African climate science. Rainfall comes from weather systems not climate. Efforts to connect across the interface of weather and climate are fundamental to progress in prediction but evidence of direct attempts is scant.
- **Models: what is the source of model errors and uncertainty**
- Models are key to prediction. Model errors undermine the usefulness of prediction. A vital step in dealing with model errors is the diagnosis of their source.
- **Enhanced seasonal prediction capability**
- Seasonal prediction is the route through which climate and society connect most closely in Africa. Several issues limit progress. The root causes of the limitations need to be made clear alongside deliberate strategies for undoing the limitations.
- **Attribution of recent climate changes (inc. Extremes) in Africa**
- It is often said that Africa is hardest hit by climate change and claims abound as to weather and climate anomalies that purport to have their provenance in climate change. Rigor in this vital area is lacking and this climate science priority needs to promote the application of such rigor.
- **Services: production of climate and weather services that are better targeted to end user needs across all time scales**
- The future of the climate science enterprise in Africa hinges on applications.

VACS Activities in relation to Grand Challenges (1)

- 1. *Provision of skillful future climate information on regional scales (includes decadal and polar predictability)*
  Regional-scale climate prediction in Africa has served as a catalyst for the organization of climate science and its connectivity to users/society. The regional climate outlook forums have been running longer and are more numerous in Africa than on any other continent. This partly reflects the importance of climate prediction given the exposure of the continent to rainfed subsistence agriculture. RCOFS are represented on the VACS panel through panel members from the core RCOF regions. Key activities of the panel are uncovering the limitations to prediction and the connection of users with climate information. VACS panel meetings and conferences are one mechanism by which the impediments are identified.

- 4. *Improved understanding of the interactions of clouds, aerosols, precipitation, and radiation and their contributions to climate sensitivity*
  Africa is the largest source of mineral aerosols on the planet. Mineral aerosols are a key cause of model error on NWP to climate timescales. VACS serves on two key field programmes in Africa aimed at addressing the links between mineral aerosols and climate (namely Fennec and DO4Models).

VACS Activities in relation to Grand Challenges (2)

- 5. *Past and future changes in water availability (with connections to water security and hydrological cycle)*
  Water is the prime focus of climate science in Africa – for example seasonal prediction is overwhelmingly concerned with rainfall prediction. VACS promotes the investigation of issues such as seasonal rainfall onset and cessation that are known to be scientifically challenging but which otherwise be neglected by the scientific community. VACS, for example, is represented on flagship and well-resourced research programmes, such as the Africa CSRP of the UK Met Office, which are able to take up these challenges through improvements in numerical models making up the GPCs.

- 6. *Science underpinning the prediction and attribution of extreme events* VACS agreed in the last few months to promote this item through highly visible publications written by the panel to journals such as BAMS

VACS-WCRP

- *GEWEX* – Since the last CLIVAR SSG, there has been dialogue with GEWEX on how to strengthen the partnership between GEWEX and CLIVAR for VACS. The interaction with GEWEX falls under what was CEOP and is now the GEWEX Hydroclimatology Panel (GHP), chaired by Dennis Lettenmaier. The direct contact for VACS has been Sam Benedict who coordinates GHP, and who was present at the 4th VACS meeting last year. The GHP regularly holds teleconference calls with its Regional Hydroclimate Projects that VACS will be invited to participate in.

- *NOAA and JCOMM Data Buoy Cooperation Panel (DBCP)* – VACS has supported capacity development workshops organized in the Western Indian Ocean sector. Our main interlocutor is Sidney Thurston, International Coordinator for the NOAA Climate Program Office.

- *CORDEX* – VACS is working to strengthen its links to the CORDEX-Africa activity to encourage community analysis of the CORDEX dataset. The CORDEX output will be potentially useful across many African regions and for use by the science, impacts, adaptation and vulnerability research communities. With the availability of CORDEX datasets and CMIP5 model runs, there scope for the update of the VACS African Climate Atlas (http://www.clivar.org/organization/vacs/resources/vacs-climate-atlas).

Activities

- Strengthening the network of climate scientists across Africa:
- Exchanges Special Issue, August 2012 – introducing the major international research projects that are ongoing across Africa
- VACS Newsletter – a quarterly (depending on demand) newsletter that would share new results, emerging scientist news and profiles, events and opportunities
- VACS database of climate scientists in Africa – searchable by topic and geographical area of study

- Review papers to identify the science priorities for climate science in Africa
- 5th VACS Panel meeting

Planned Activities

- The **State of the African Climate System Conference (SACSC) 2013**
- Objective: 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.
- Tentative location: Addis Ababa, Ethiopia
- Timeline: September 2013, in partnership with the Africa Climate Policy Center (ACPC)
- Funding support will be required; buy-in for all major research donors a requisite to render this effort a truly pan-African climate research initiative.

VACS and new WCRP structure

- The WCRP JSC has requested that VACS propose what panel members believe is the best framework for WCRP activities in Africa, including where the panel would be in WCRP's organisational structure. After discussion, and with the proposed science priorities in context, panel members would suggest that VACS should be renamed "**African Climate Panel**" and would still be part of CLIVAR. However, the panel recognizes that a strong interaction with GEWEX is necessary for the accomplishment of the science priorities.
- With a more ocean-atmosphere oriented CLIVAR in the future, yet oceans remaining vital to the atmosphere overlying Africa, a CLIVAR-GEWEX nexus is thematically ideal for VACS although management under CLIVAR is optimal. From an African perspective, CLIVAR and GEWEX are complementary projects as we care about droughts, floods, and soil moisture but we know that ocean variability drives interannual and decadal variability. The real challenge in Africa is to have researchers, sciences managers and stakeholders to buy in the values and principles underlying CLIVAR and GEWEX