The Pan African View
Research, Operational Issues, instrumentation and Data Needs across Africa to enhance US-Africa research Collaborations

Wassila M. Thiaw

Climate Prediction Center
National Centers for Environmental Predictions
Outline

• Facts
• Opportunities
• Challenges
• US NWS Perspectives
Facts

• Growing disparities between the developed world and Africa in access to the use of technology to benefit society

• Africa one of the regions of the world most vulnerable to climate variability and change.
  – Floods
  – Droughts
  – Food security

• Recurrent and severe droughts in Africa in the 70s through the 90s caused demand for water for human and agricultural use to exceed reliable supply
Facts (Cnt’d)

- Recurrent and severe droughts in Africa in the 70s through the 90s caused demand for water for human and agricultural use to exceed reliable supply
  - Agrhymet Center established (1974): Achieve food security and increased agricultural production in Sahel member states
  - IGHAD Climate Prediction and Applications Center (ICPAC) and Drought and the Drought Monitoring Center (1989): Early warning systems to mitigate impacts of extreme climate events
  - African Centre of Meteorological Applications (ACMAD) (1992): Center of excellence for meteorological applications for development
Opportunities

• The Earth Summit in Rio de Janeiro in 1992 called for a mobilization of the international community for sustainable development especially in Africa

• G8 Summit in 2005 focused on climate change and economic development in Africa

• Africa considered as the continent where capacity building is most needed

• Many developed and emerging countries have developed programs to provide funding to Africa
  – China
  – Korea
  – India
Opportunities (Cnt’d)

• National and regional institutions and academia in Africa have real opportunities to contribute to advancing the science of climate prediction to improve services.

• Institutions must have strategic plans to develop innovative programs aimed at meeting their mission requirements and goals, including interactions with socio-economic users.
Challenges

• Good governance and prioritization: Much of the funding for Africa is for governments to use at their discretion
• Human resources and capacity building
• Education and professional development training
• Data accessibility and knowledge sharing
Challenges (Cnt’d)

Number of gauge stations reporting on the WMO GTS
Challenges (Cnt’d)

Daily Data Availability

Percentage of GTS obs reporting ( ≥ 0.0mm & <=9999 ) 1983-2009
Challenges (Cnt’d)

- Despite increases in GTS gauges over time, the spatial distribution of stations still remains sparse over the continent.
- Analyses are subject to inconsistency due to unavailability of inputs.
The Ethiopian telecommunication infrastructure has recently been disrupted causing data not to flow into WMO global telecommunication system.

Chronic missing data have serious impacts on model performance.
How do we achieve tangible capacity building in Africa?

• Programs aimed at influencing policy change
  – Develop telecommunication infrastructure to allow data to flow into the GTS
  – Data Rescue Program
  – Advocate and demand for free access to data
  – Establish strong connections between national institutions and universities: Invest on education and professional development training
  – Establish mechanism for accountability
US NWS Approach to Capacity Building

Example:
WRF Modeling Training Workshop, South Africa, 2007

• Outcome
  – Seventeen participants from 8 NMHSs and 2 universities
  – Each of the 8 NMHSs received a DWS
  – Six out of the eight countries run the WRF model successfully.
Free Access to Data and Products

• CFSR

• CFSv1

• CFSv2

• Products
  – [www.ncep.noaa.gov](http://www.ncep.noaa.gov)
  – [www.cpc.noaa.gov](http://www.cpc.noaa.gov)