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FARMD ANNUAL CONFERENCE 2014

Session 2 – Climate Change and Weather: A Shifting Target
for Agriculture?

Elijah Mukhala, World Meteorological Organization (WMO)
Representative for Eastern and Southern Africa



World Meteorological Organization

Weather • Climate • Water



FARM^D

Forum for Agricultural Risk Management in Development

Climate Change and Weather: A Shifting Target for Agriculture?

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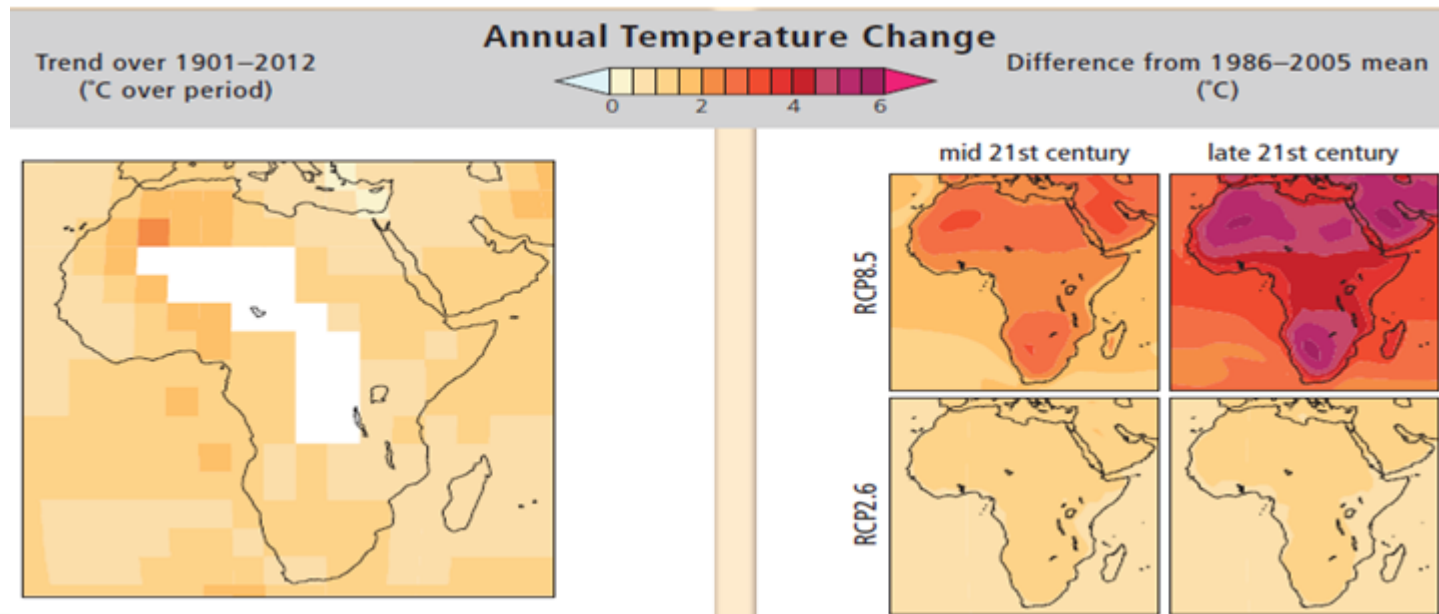
Climate trends, where to?

- The warming of the climate system is unequivocal with Africa being one of the most vulnerable continent with great impacts in terms of water stress
 - What are the trends being observed in climate?
 - Is the impact similar all over Africa? Evidence of analysis?
 - Under the circumstances how do we move forward?



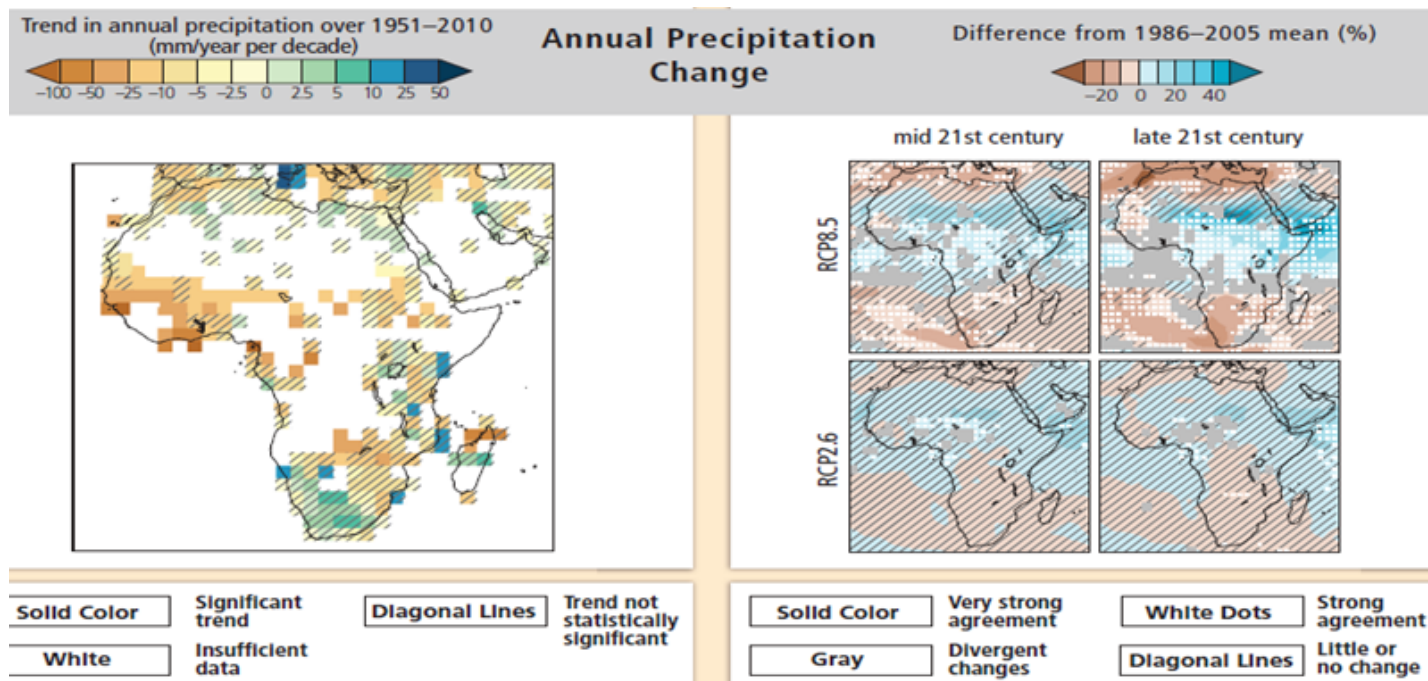
Temperature trends, where to?

- ❑ **Overall warming** in annual and seasonal observed trends in mean near surface temperature and positive trends in annual minimum and maximum temperature.
- ❑ **In West Africa and Sahel:** Near surface temperatures has increased over the last 50 years with increased number of warm days and warm nights.

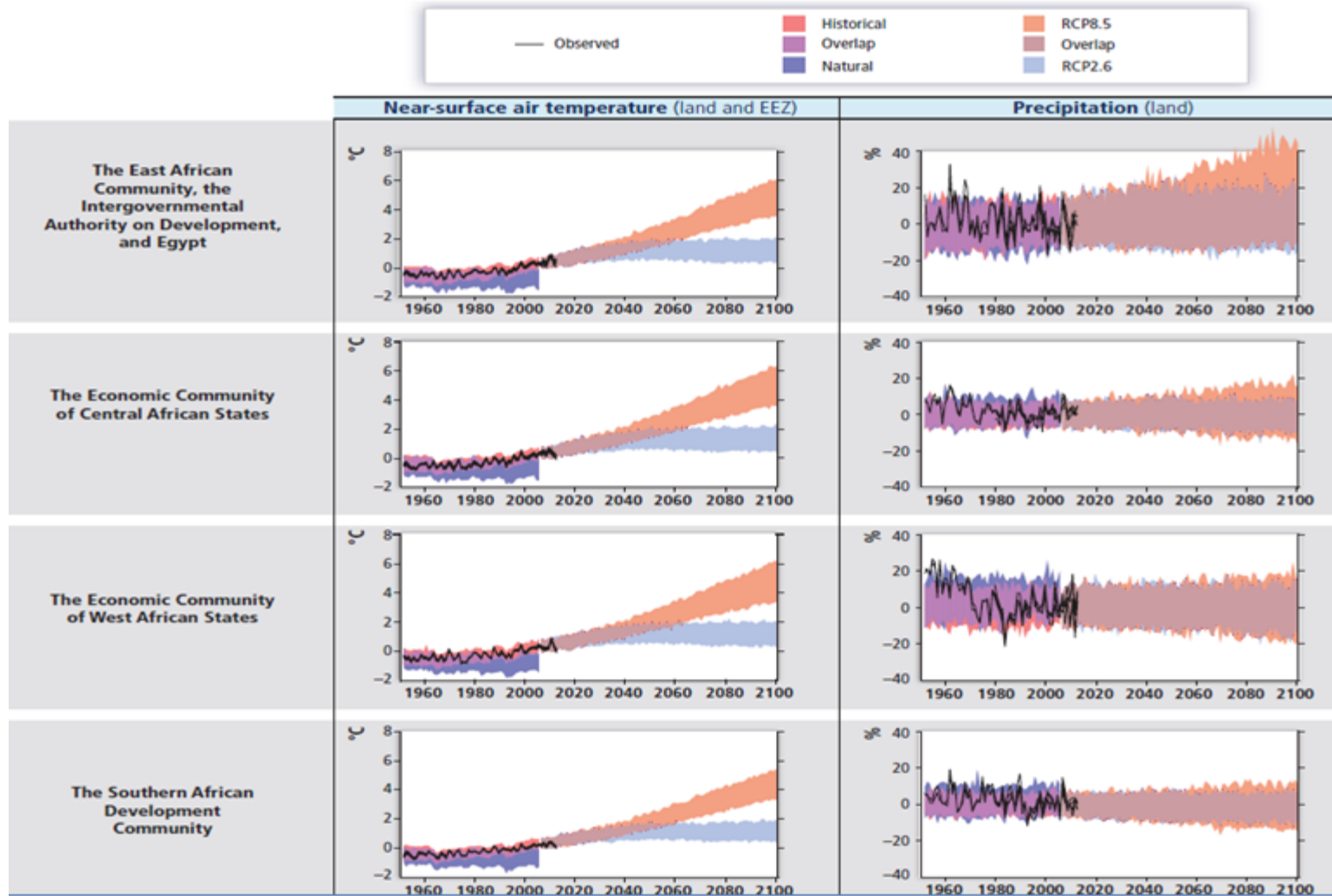


Rainfall trends, where to?

- ❑ Map of observed annual precipitation change from 1951–2010, derived from a linear trend.
- ❑ CMIP5 multi-model mean projections of average percent changes in annual mean precipitation for 2046–2065 and 2081–2100 under RCP2.6 and 8.5, relative to 1986–2005



Projected Trends in Temperature & Precipitation



The Big Picture: Shrinking Rains caused by a warming Indian Ocean

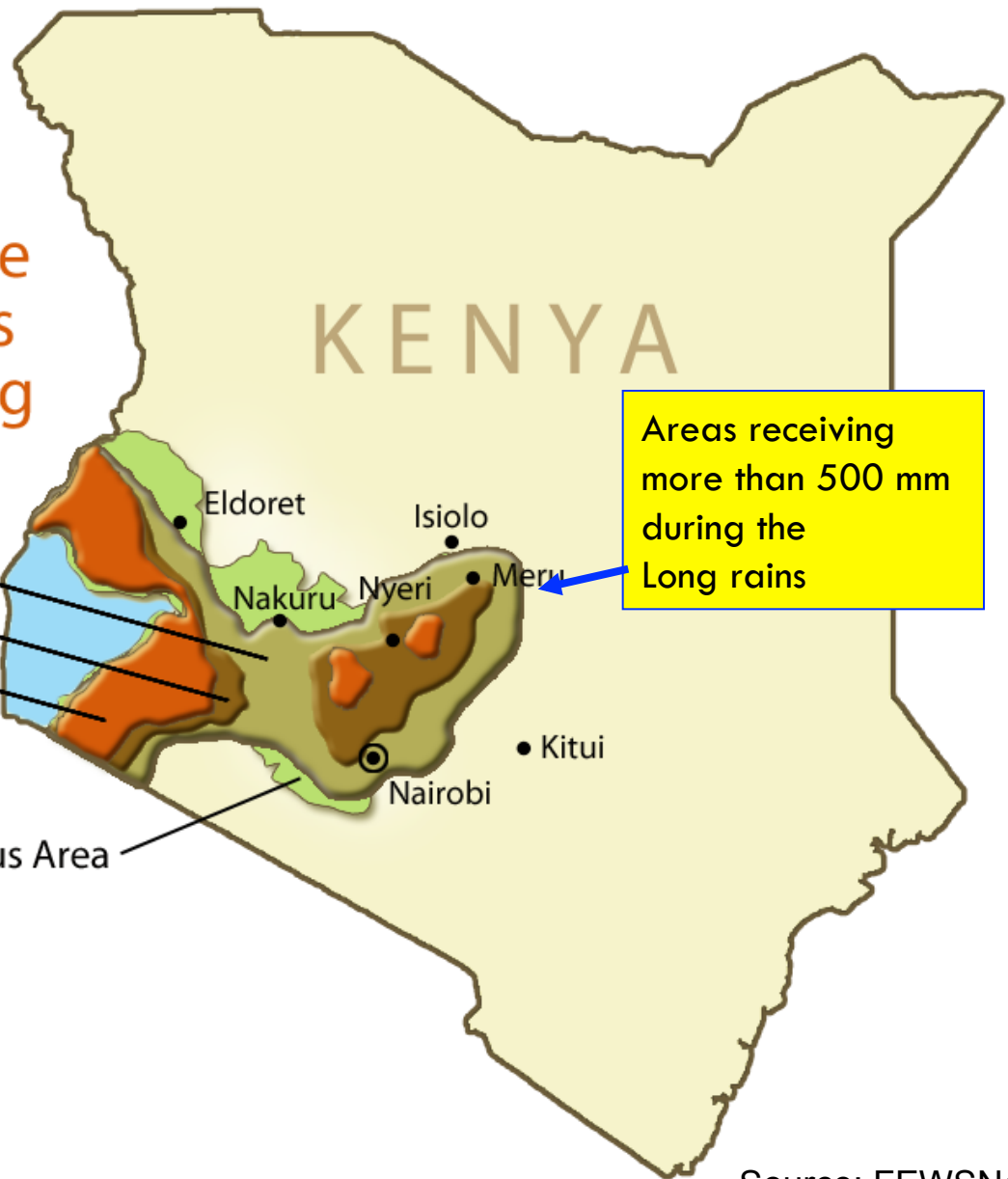
Productive crop areas shrinking

1960 - 1989
(observed)
1990 - 2009
(observed)
2010 - 2039
(predicted)

Crop Surplus Area

KENYA

Areas receiving more than 500 mm during the Long rains

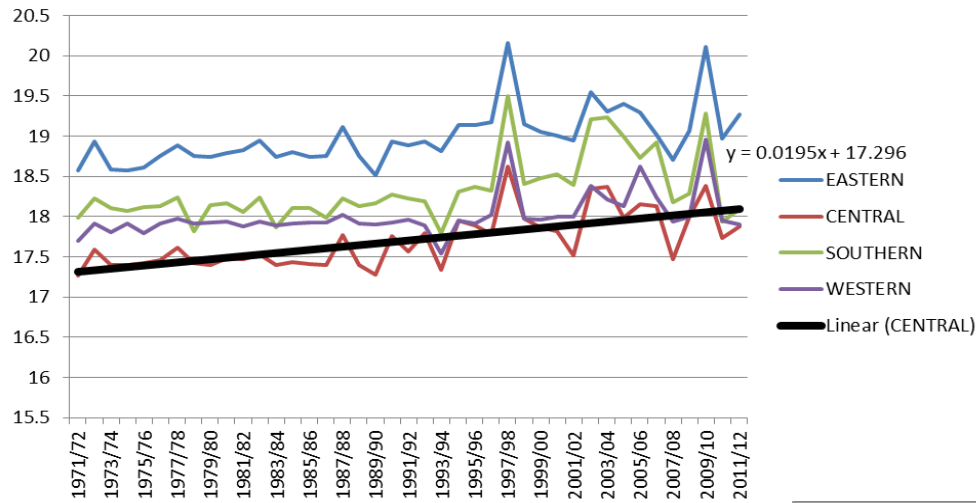


Source: FEWSNet

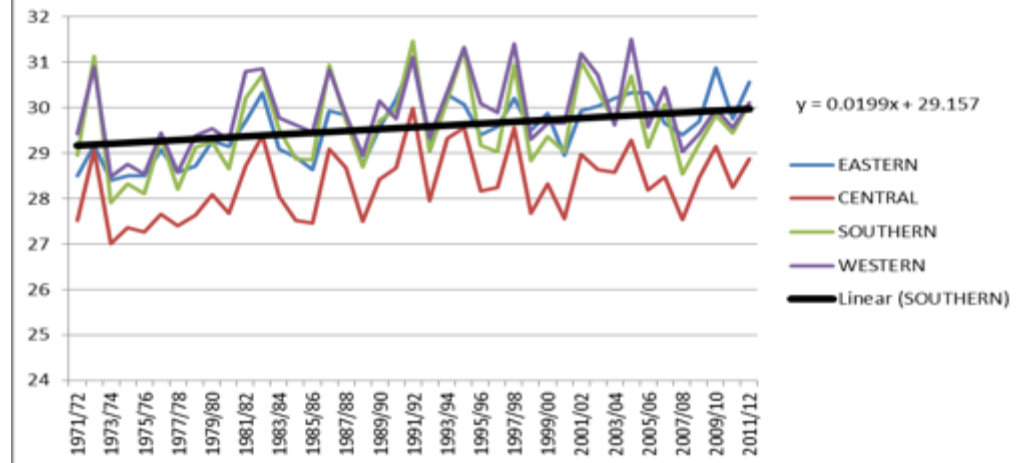


Min and Max Temperature Trends in Zambia

Minimum Temperature Trends



Maximum Temperature Trends



Vulnerability and Impacts; Agriculture and Food Security

Crops: Climate change is very likely to have an overall negative effect on yields of major cereal crops across Africa, with strong regional variability in the degree of yield reduction

Livestock: stressors include rangeland degradation; increased variability in access to water; fragmentation of grazing areas; changes in land tenure from communal toward private ownership; in-migration of non-pastoralists into grazing areas

Agricultural Pests, Diseases, and Weeds: Climate change in interaction with other environmental and production factors could intensify damage to crops from pests, weeds, and diseases

Food security: Africa faces multiple threats stemming from entrenched poverty, environmental degradation, rapid urbanization, high population growth rates, and climate change and variability



What's needed in moving forward?

- More investment in meteorological instruments to increase observational data as well as capacity building for improved weather forecasting
- Enhance support for the Global Framework for Climate Services (GFCS) in order to build resilience of small holder farmers
- Advocacy to senior government official to support and implement already existing appropriate policies.
- Involvement of more private sector partners to build resilience through programmes such as agricultural insurance
- Conservation agriculture provides a viable means for strengthening resilience in agro-ecosystems and livelihoods that also advance adaptation goals
- More research on climate behaviour to much the shifting target including historical climate data analysis





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