El Niño update
(Horn and Southern Africa focus)

Tamuka Magadzire, FEWS NET Scientist, Southern Africa
Gideon Galu, FEWS NET Scientist, East Africa

tmagadzire@fews.net, ggalu@fews.net

Global Learning And Evidence Exchange (GLEE)
Climate Smart Agriculture: Africa

March 13-16, 2016    Lusaka, Zambia
Outline

• El Niño and its typical impacts in eastern and southern Africa
• Impacts of the 2015/16 El Niño
• Current and projected El Niño conditions
What is El Niño?

• natural phenomenon every 2 to 7 years:
  – Warm sea surface temperatures (SST) in equatorial Pacific Ocean
  – Consistent changes in pressure, wind and rainfall patterns
• Causes major global weather and climate fluctuations
• No two El Niño events are the same.
• Part of the ENSO: (1) El Niño, (2) La Niña and (3) neutral phases
General El Niño – Climate Response

December - February

NWS/NCEP
CLIMATE PREDICTION CENTER

FAMINE EARLY WARNING SYSTEMS NETWORK
Average rainfall for El Niño events since 1981, expressed as percent of 35-year average

Based on the CHIRPS dataset
http://chg.ucsb.edu/data/chirps/
Outline

- El Niño and its typical impacts in eastern and southern Africa
- Impacts of the 2015/16 El Niño
- Current and projected El Niño conditions
2015/16 El Niño impacts

- Severe drought and high temperatures in southern Africa
2015/16 El Niño impacts

- Worst drought in at over 35 years in several countries; 2\textsuperscript{nd} consecutive drought season
- Extreme above-normal temperatures
- Poor pasture and water for livestock: Tens of thousands of drought-related cattle deaths
- Large decrease in area planted and widespread crop failure: large reduction in regional production expected
- Water availability reduced, rationing in some countries
- Drought-related disasters declared in 4 countries
- Flooding in the north-east: Tanzania, north Malawi

Source: UCSB/FEWS NET
2015/16 El Niño impacts

- Worst drought in 50–years in Ethiopia, > 10M requiring food assistance.
- Poor harvest in Eastern Sudan for main June – Sept cropping season.
- Good Oct – Dec rains in most areas with expected above average harvests.
- Floods in parts of Somalia, Kenya, Tanzania, Burundi, and increase in water-borne diseases, malaria, cholera.
- Increased post–harvest losses (20–30%) due to continued heavy rains in western Kenya, central and eastern Uganda.

Standardized Precipitation Index for March – December 2015
Impacts and Responses


• >150 attendees from national, regional, international & UN (incl FFP)

• Adverse effects of El Niño were noted
  – Production ↓ Food Prices ↑ Hunger ↑ Malnutrition ↑
  – Impact on water, energy, education and health

• Short and medium/long term measures recommended, incl
  – **Medium Term**: MS & partners to “promote and scale-up appropriate technologies to adapt and mitigate against climate variability and change.”

Outline

• El Niño and its typical impacts in eastern and southern Africa
• Impacts of the 2015/16 El Niño
• Current and projected El Niño conditions
Current ENSO conditions

- This is one of the strongest El Niño events in recorded history
  - * Limited correlation between strength & impacts in Southern Africa
Above average SST in the eastern eq. Pacific ocean (ENSO area) and Indian Ocean

SST anomalies decreased across eastern eq. Pacific ocean.
Increased in Indian Ocean.

Source: NOAA CPC
**ENSO Forecast**

- Potential transition to neutral conditions by MJJ period
- Possible change to La Niña conditions by ASO

*Source: NOAA CPC/IRI*
Average rainfall for La Niña events since 1981, expressed as percent of 35-year average

Based on the CHIRPS dataset
http://chg.ucsb.edu/data/chirps/
Projected ENSO conditions, & potential outcomes based on historical observations

- March-May likely to be under El Niño conditions
  - Typically rainfall:↑east Ethiopia,↓west Ethiopia,↑coastal Kenya
- July-September is likely to be under neutral conditions, according to forecast.
- Oct-Dec may see La Niña or neutral conditions
  - Typically for La Nina, rainfall:↓east Africa,↑southern Africa
  - For neutral conditions, less predictability
- NOTE: **Significant variability in impacts** for different La Niña events, as well as for different El Niño events: “No-regrets approach”
Thank you