

PREVIOUS FEWS NET CONTRIBUTIONS TO GAR

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Basic Methodology

- ① Identify drought metric
- ② Calibrate metric to observed losses
- ③ Build empirical loss exceedance curve
- ④ Run simulations
- ⑤ Generate theoretical loss exceedance curve

Basic Methodology

Identify Drought
Metric

Calibrate Metric to
Observed Losses

Run Meteorological
Simulations

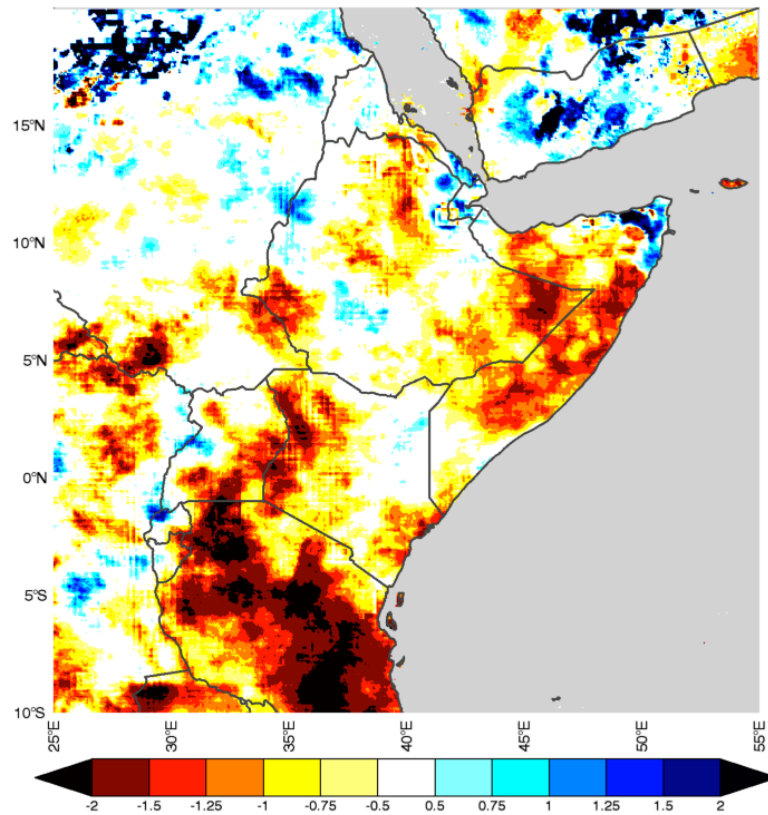
Generate Loss
Exceedance Curve

Identify Drought Metric

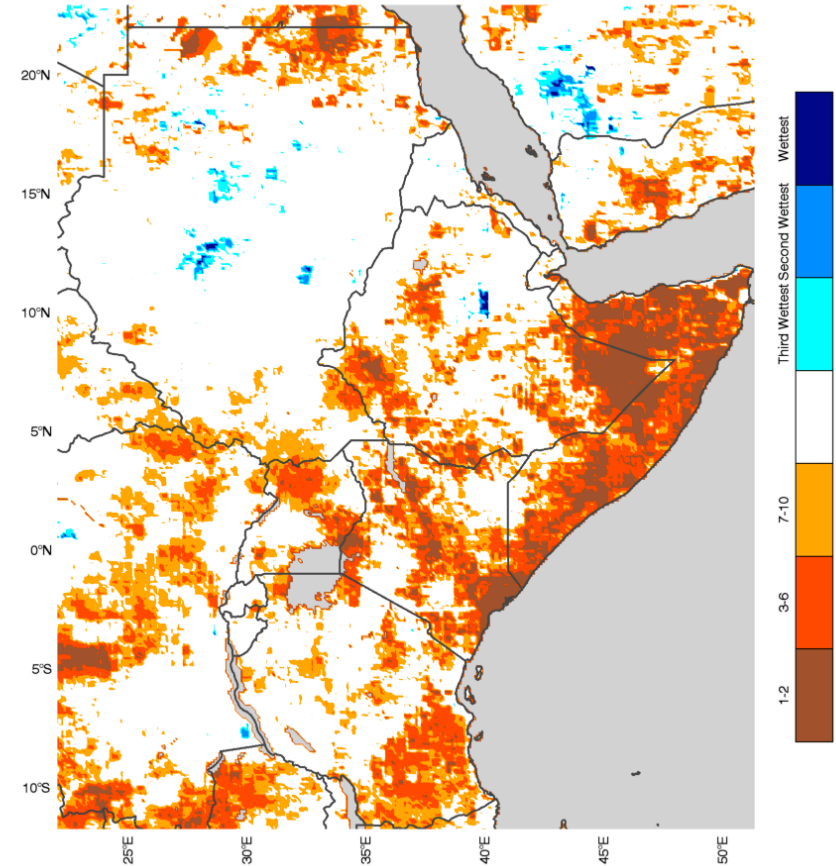
- Standardized Precipitation Index
- Crop Model (Water Requirement Satisfaction Index)
- Standardized Precipitation Evapotranspiration Index (SPEI)
- Vegetation Health (NDVI)
- Soil Moisture

Drought Metric Examples

October to Present SPI



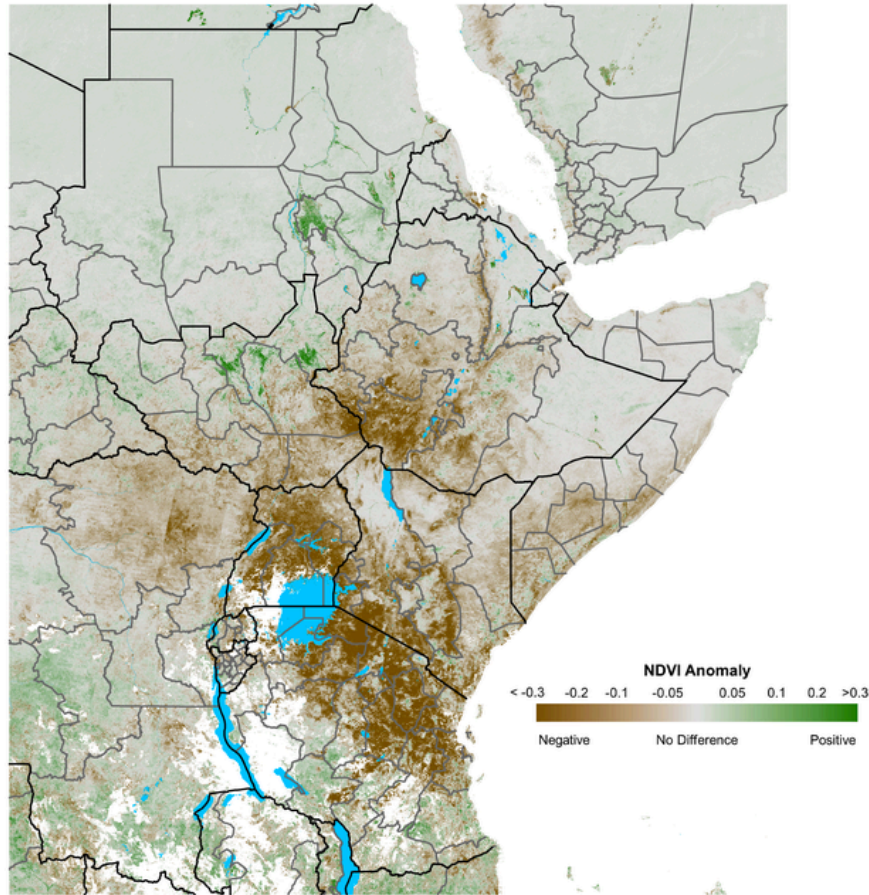
Soil Moisture Rank 2016



Drought Metric Examples

East Africa eMODIS 250m NDVI Anomaly

2017 minus Average (2001 - 2010)
Period 07 / Jan 26 - Feb 05, 2017

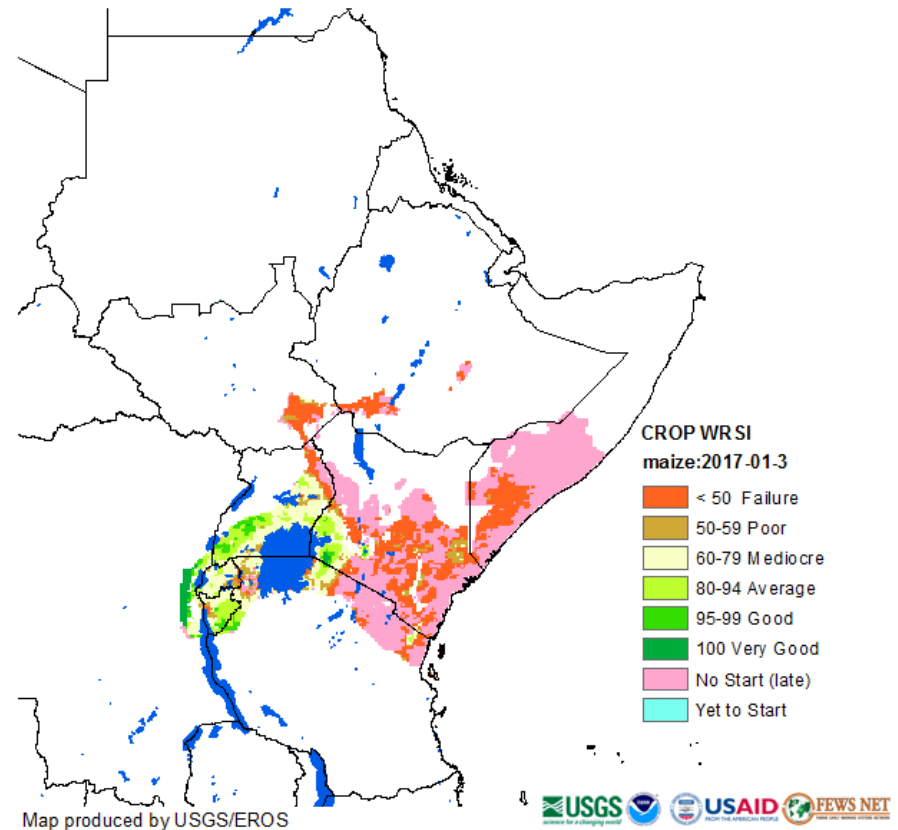


Map Produced by USGS/EROS



WRSI Current

January 2017 Dekad 3



Calibrate Metric to Observed Losses

- ⦿ Requires loss data for multiple years over multiple events
- ⦿ Build statistical relationship between drought indicator and losses
- ⦿ Relationship varies across countries and within countries
 - Finest possible truth data
 - Logical spatial monitoring zones

Run Simulations

- ① Generate simulated seasons using a bootstrap approach
- ① Use simulations to calculate metric for large number of years
- ① Important to maintain spatial and temporal relationships

Generate Loss Exceedance Curve

- Convert test statistics to losses
- Use this to identify the
 - Probability of specific loss amounts
 - Average annual loss
 - Loss associated with 1-in-n event
- Example: Maize Loss for Malawi

