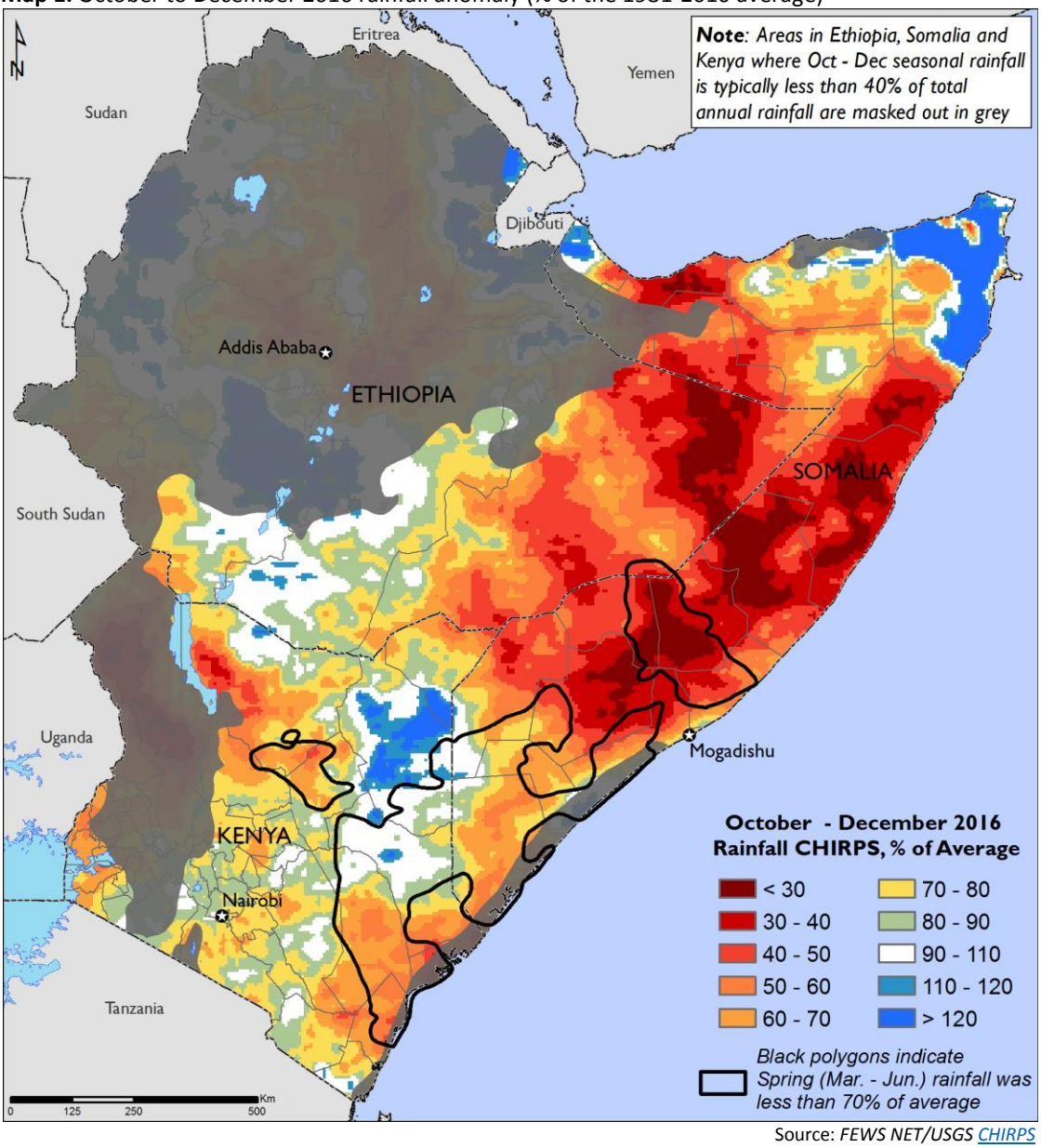
FEWS NET
FAMINE EARLY WARNING SYSTEMS NETWORK

EAST AFRICA Special Report February 3, 2017

Illustrating the extent and severity of the 2016 Horn of Africa drought

A severe drought, related to La Niña and warm West Pacific sea surface temperatures, significantly impacted rainfall performance during the 2016 October to December season across the Horn of Africa. This drought greatly limited crop production and pastoral resource regeneration. In Somalia in particular, food security impacts are expected to be severe. This report presents a series of maps which illustrate the extent and the severity of the drought, as well as its impacts on crop and rangeland conditions and on food prices. For a more detailed narrative and analysis of the drought's current and expected impacts on food security, please visit www.fews.net/east.

Map 1. October to December 2016 rainfall anomaly (% of the 1981-2010 average)



Source: *FEWS NET/USGS CHIRPS*

This map illustrates how rainfall between October and December 2016 deviated from the 1981-2010 average over the Horn of Africa. During this period, rainfall was less than 30 percent of average across much of Somalia and the Somali Region of Ethiopia. The temporal distribution of rainfall across much of Kenya and southern Ethiopia was also very poor.

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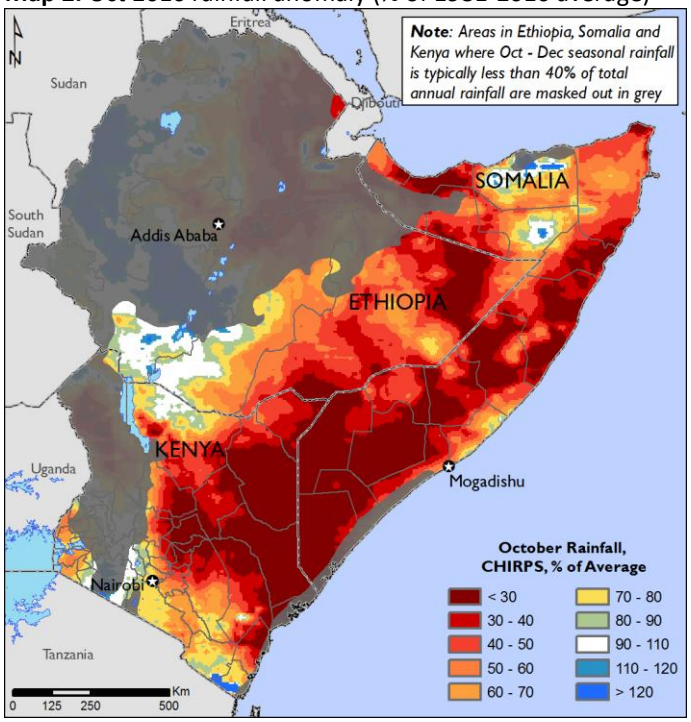
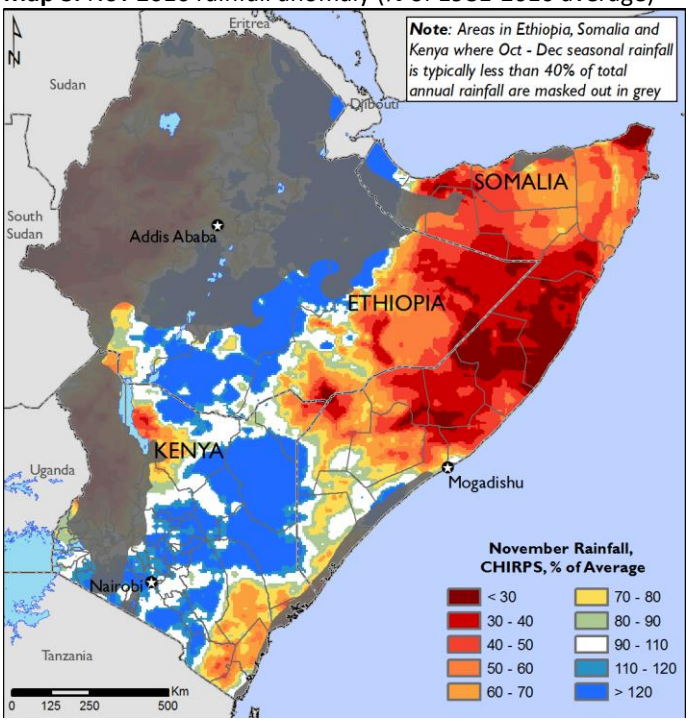
Map 2. Oct 2016 rainfall anomaly (% of 1981-2010 average)



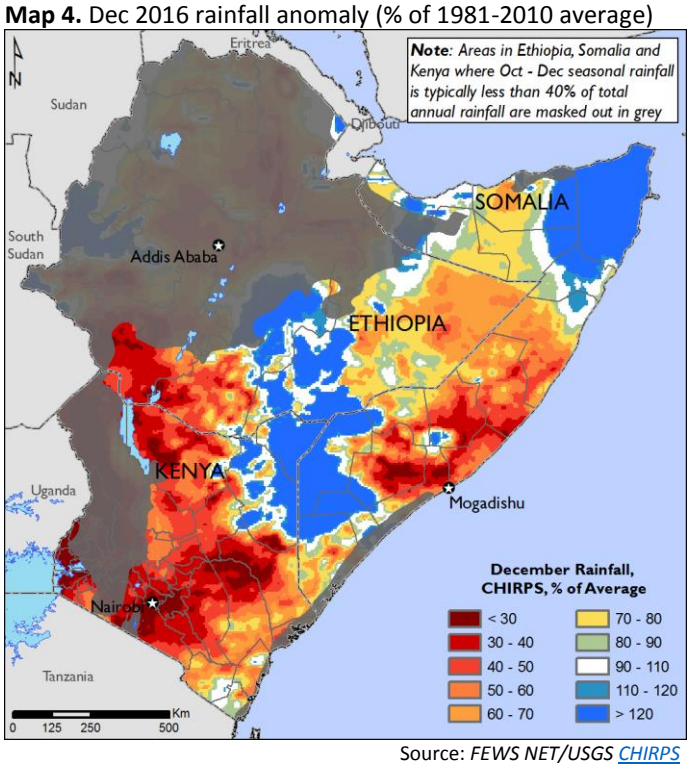
Source: *FEWS NET/USGS CHIRPS*

Map 3. Nov 2016 rainfall anomaly (% of 1981-2010 average)



Source: *FEWS NET/USGS CHIRPS*

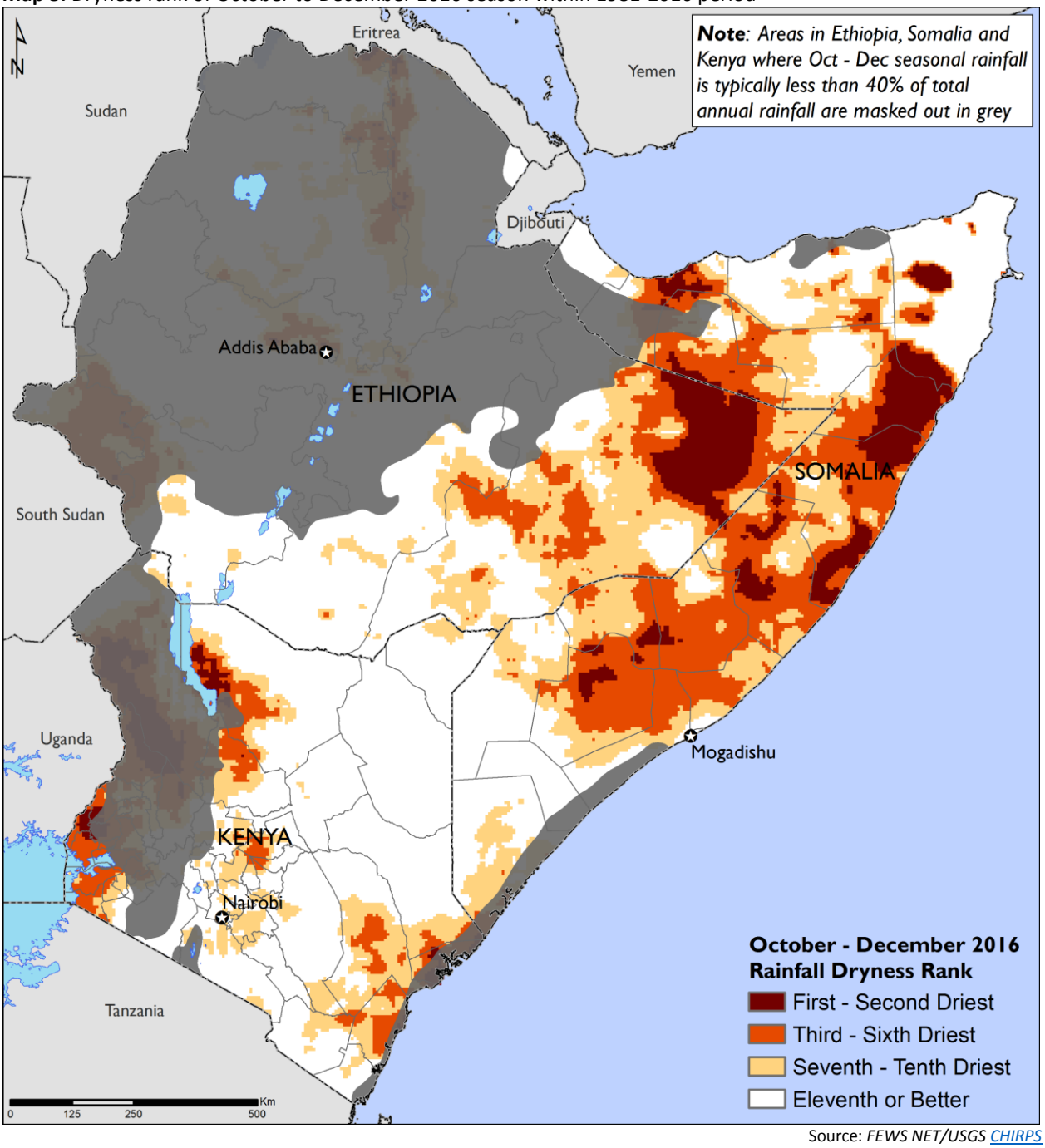
Map 4. Dec 2016 rainfall anomaly (% of 1981-2010 average)



Source: *FEWS NET/USGS CHIRPS*

By the end of the year, cumulative seasonal rainfall between October and December 2016 was less than 50 percent of average across much of Somalia and southeastern Ethiopia (Map 1). Despite short periods of intense rainfall in late November and early December (Map 3, Map 4), the temporal distribution of those rains was late and poor, and did not contribute greatly to improving seasonal prospects.

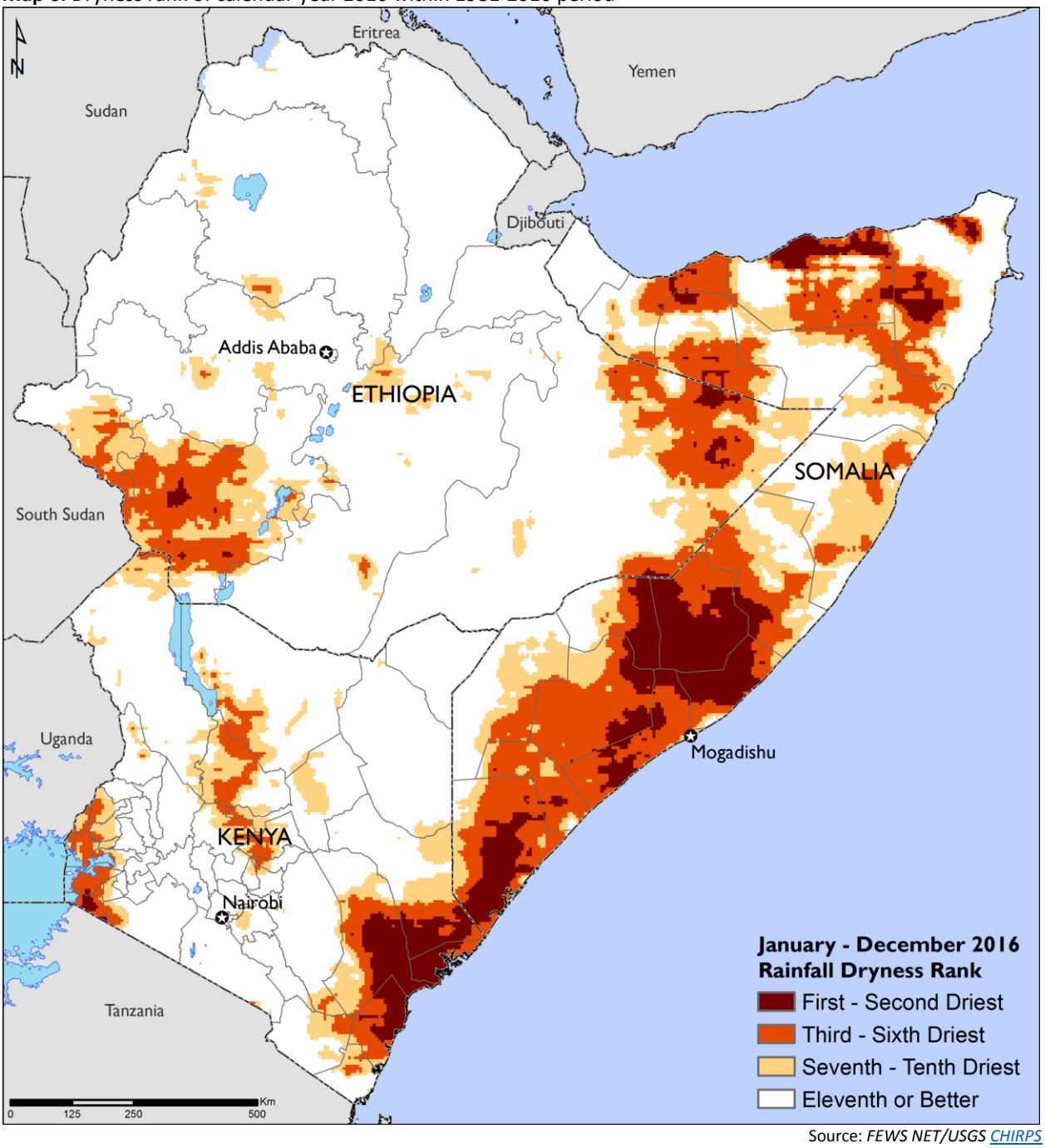
Map 5. Dryness rank of October to December 2016 season within 1981-2016 period



Source: *FEWS NET/USGS CHIRPS*

This map highlights areas where the October to December 2016 season was among the driest seasons in the past 36 years. Large areas of Somalia and Ethiopia experienced the driest or near-driest season on record.

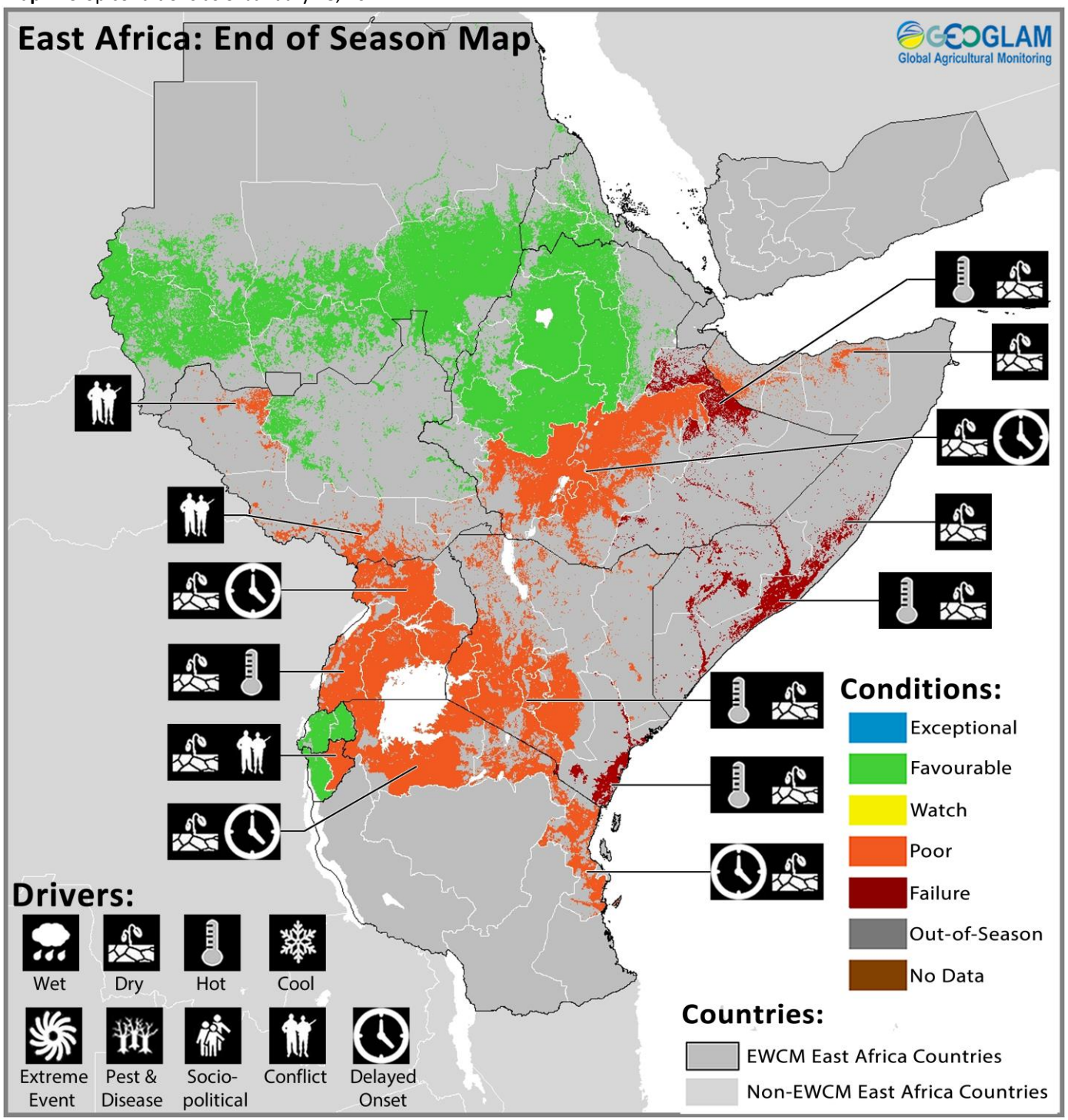
Map 6. Dryness rank of calendar year 2016 within 1981-2016 period



Source: *FEWS NET/USGS CHIRPS*

Prior to October, pasture and water resources were already atypically poor in many areas as the March to June 2016 rains were below average and failed to adequately restore rangeland resources. Similar to Map 5, this map highlights areas where the 2016 calendar year was among the driest years in the past 36 years. This includes much of Somalia, as well as parts of neighboring Kenya and Ethiopia. This map also shows that while October to December was somewhat dry for northern Somalia and coastal Kenya (Map 5), calendar year 2016 was among the driest years on record for these areas.

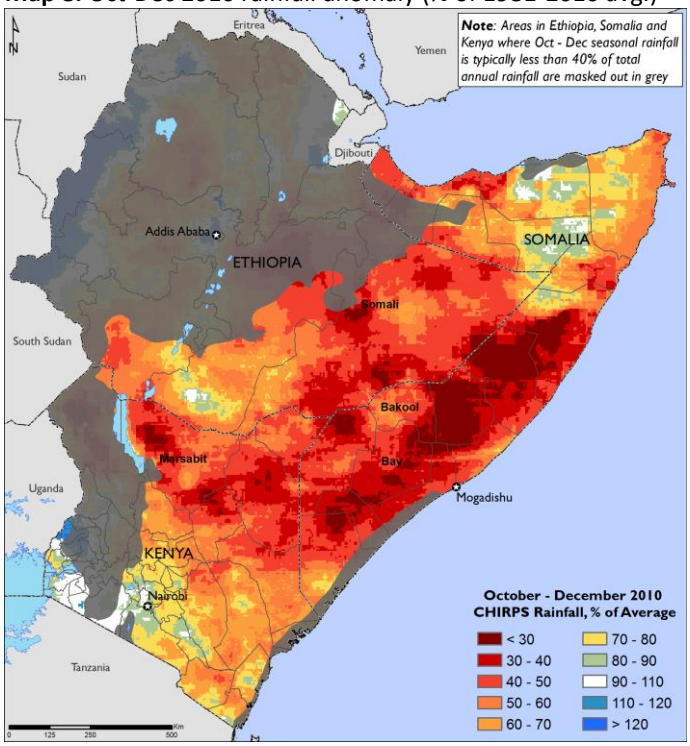
Map 7. Crop conditions as of January 28, 2017



Source: *GEOGLAM EWCM*

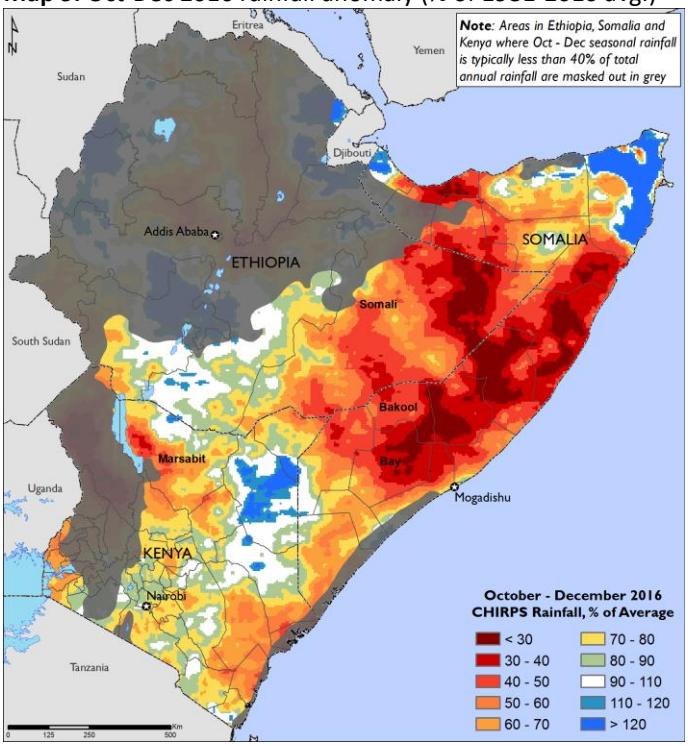
This map presents end of season crop conditions in East Africa as classified by the GEOGLAM Early Warning Crop Monitor (EWCM). The EWCM is a consensus based, multi-agency effort in which experts from FEWS NET, JRC, WFP, Agricultural Research Council of South Africa, and the University of Maryland assess a range of inputs, including remotely sensed imagery and field reports, to classify current crop conditions. The EWCM classified the end of season cropping conditions as "Failure" in eastern Ethiopia, southern and central Somalia, and coastal Kenya. Crop conditions were classified as "Poor" in northern Somalia, central Ethiopia, and the rest of Kenya. Cropping conditions were also "Poor" for the secondary seasons in Uganda, Tanzania, and eastern Burundi.

Map 8. Oct-Dec 2010 rainfall anomaly (% of 1981-2010 avg.)



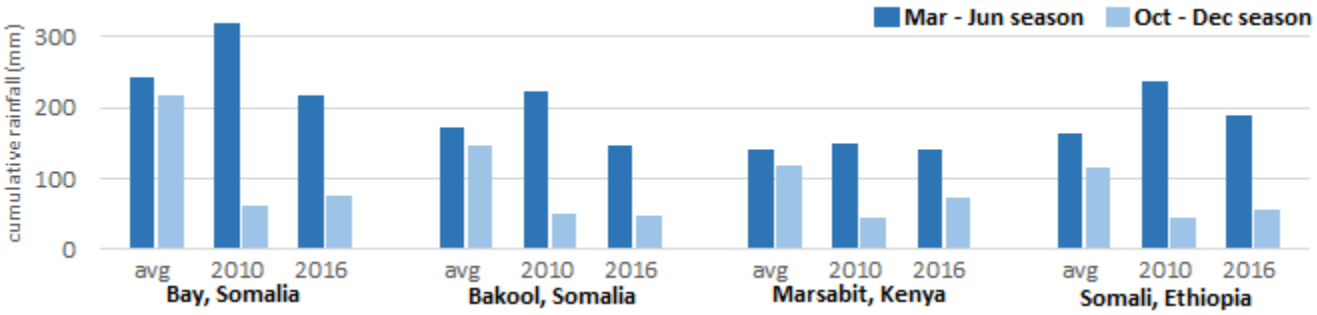
Source: *FEWS NET/USGS CHIRPS*

Map 9. Oct-Dec 2016 rainfall anomaly (% of 1981-2010 avg.)



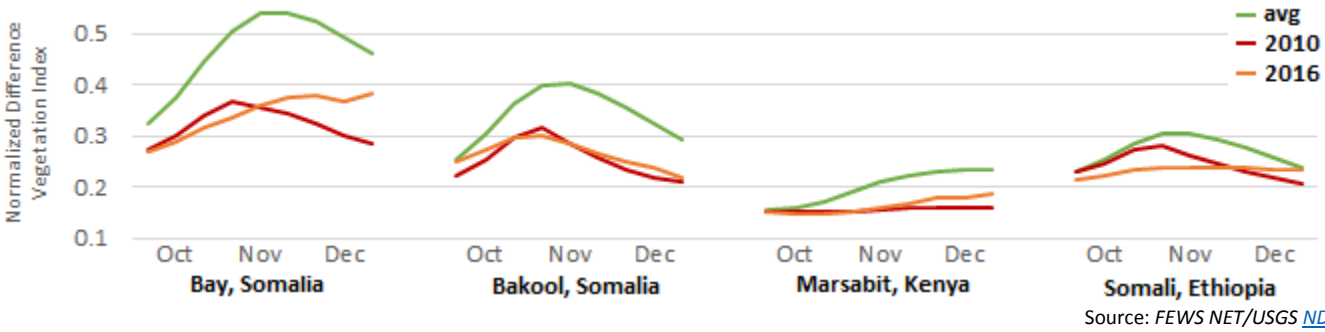
Source: *FEWS NET/USGS CHIRPS*

Figure 1. Seasonal rainfall accumulation for select areas compared to 2010 and short-term mean (2001 – 2016)



Source: *FEWS NET/USGS CHIRPS*

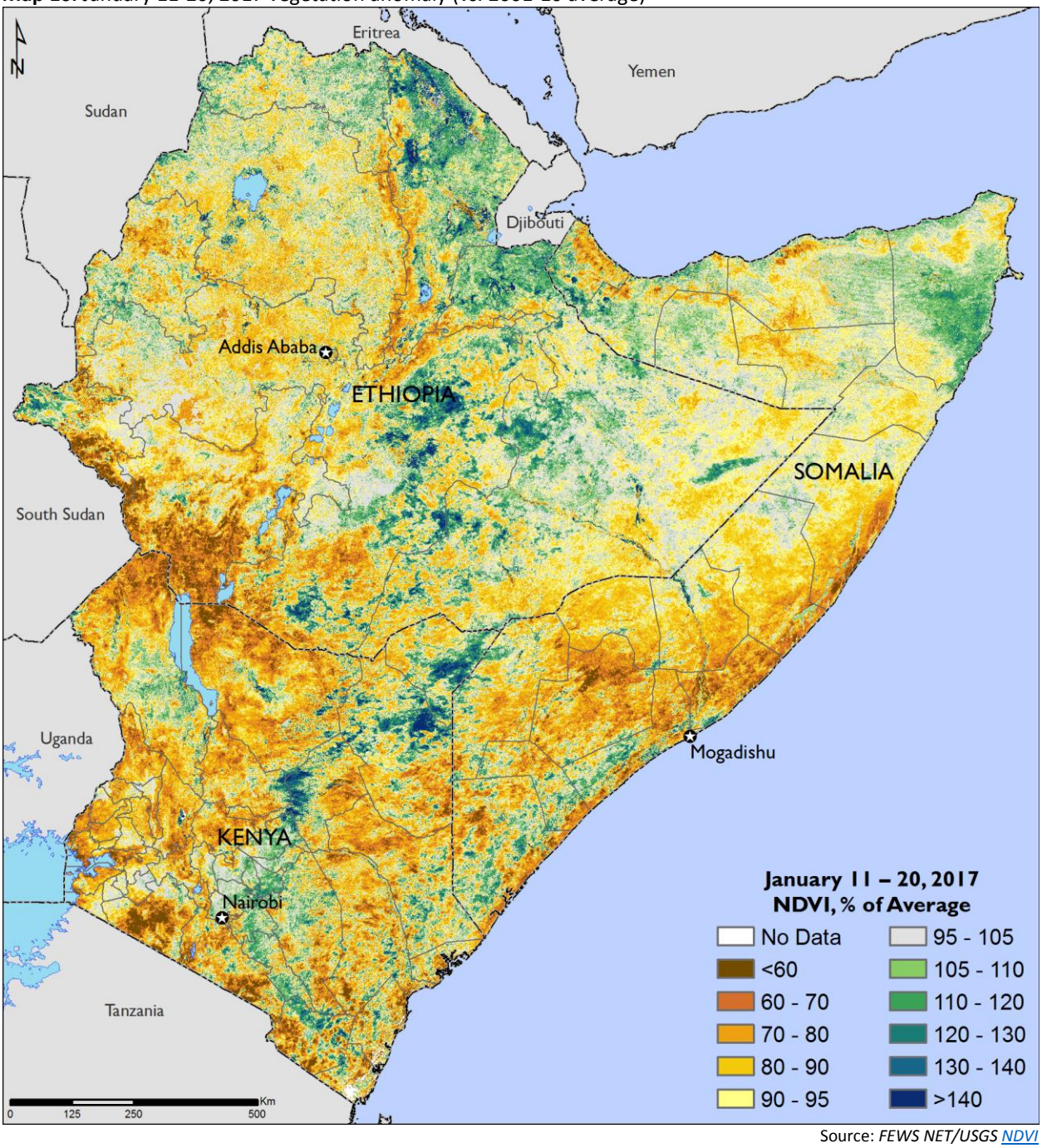
Figure 2. NDVI value for select areas compared to 2010 and short-term mean (2001 – 2010)



Source: *FEWS NET/USGS NDVI*

These maps compare October to December 2016 seasonal rainfall performance to the same season in 2010, the failed season that preceded the 2011 Famine in Somalia and food security Emergency in neighboring areas. Figure 1 displays seasonal rainfall accumulation for select areas and compares it to 2010 and to the short-term average. Figure 2 shows remotely sensed vegetation conditions in the same areas for October to December 2016 and compares it to 2010 and to the short-term average.

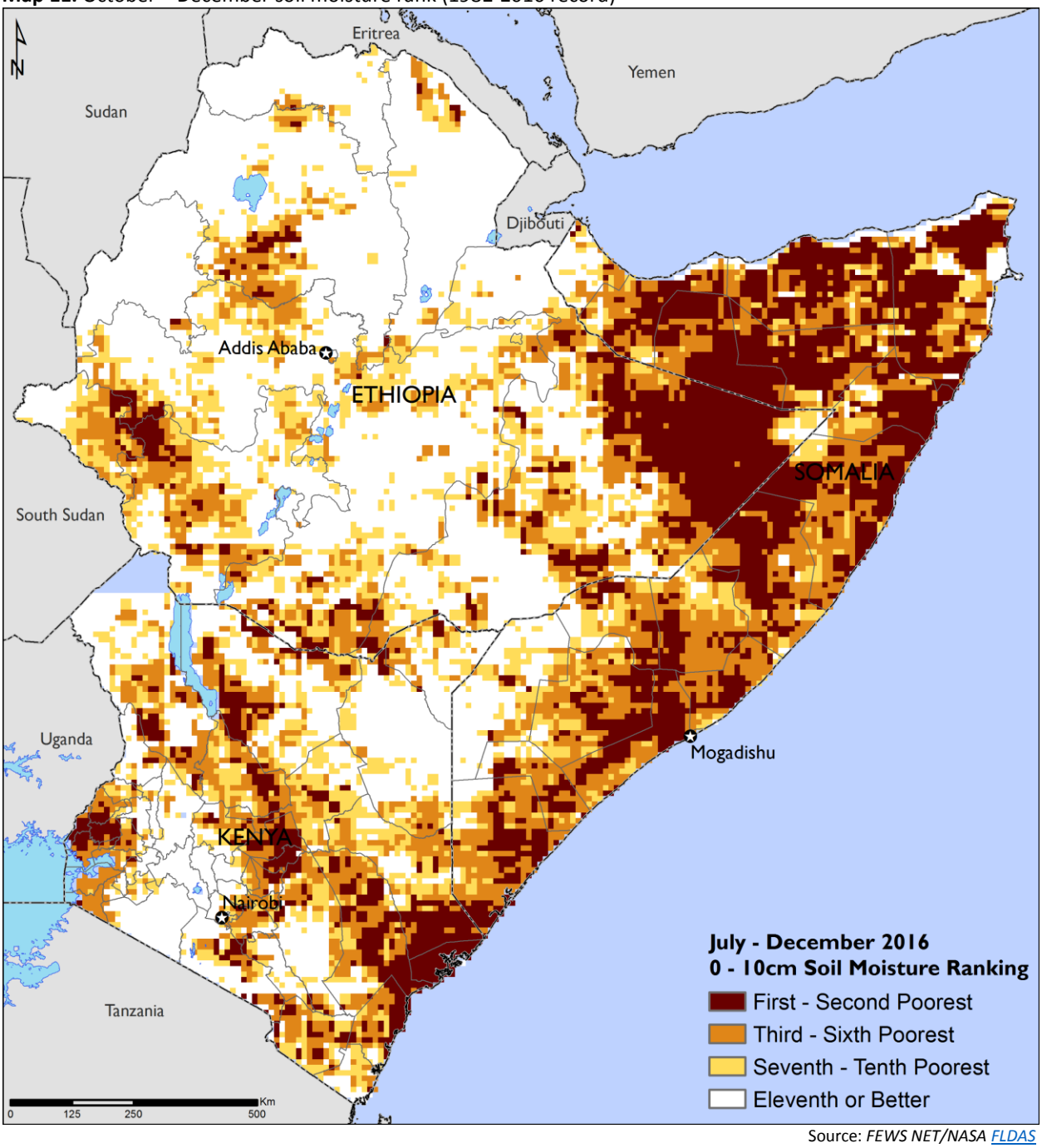
Map 10. January 11-20, 2017 vegetation anomaly (vs. 2001-10 average)



Source: *FEWS NET/USGS NDVI*

This map uses eMODIS Normalized Difference Vegetation Index (NDVI) to estimate the current health and density of vegetation compared to average. These data are a good indicator of pasture/forage availability for livestock. Mid-January imagery indicates that vegetation conditions are significantly below-average across Somalia and much of Kenya and southern Ethiopia. Given the combination of a poor March to June 2016 season and the failed October to December 2016 season pasture conditions are very poor in many areas leading to below-average livestock body conditions and forcing households either to keep their livestock in dry-season grazing areas or to migrate atypically in search of pasture.

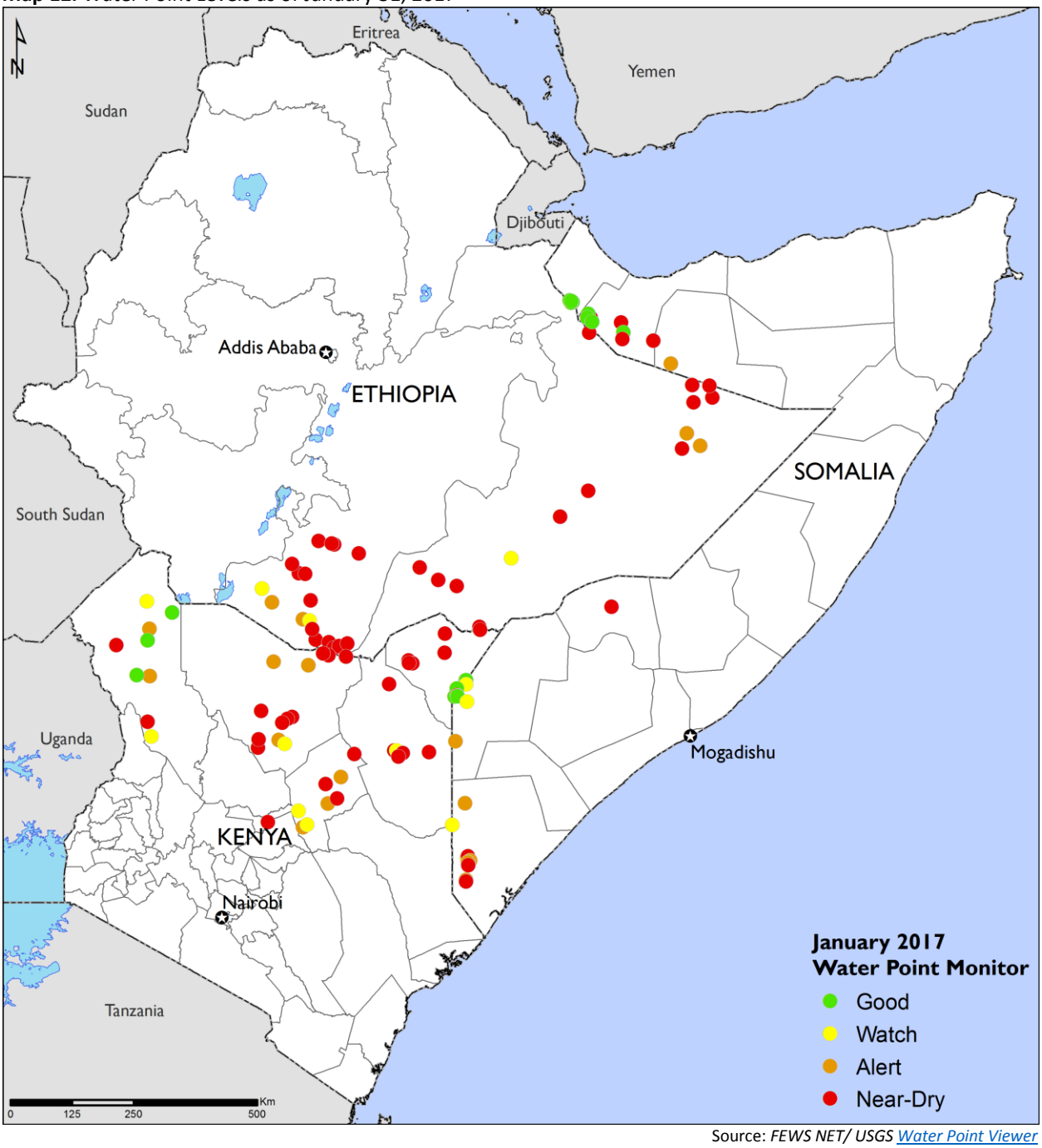
Map 11. October – December soil moisture rank (1982-2016 record)



Source: *FEWS NET/NASA FLDAS*

This map illustrates the outputs of a soil moisture model run by NASA as part of the FEWS NET Land Data Assimilation System (FLDAS). This model incorporates data on rainfall, humidity, winds, soil type, and temperature to estimate the moisture present in the near-surface soil for the October to December period.

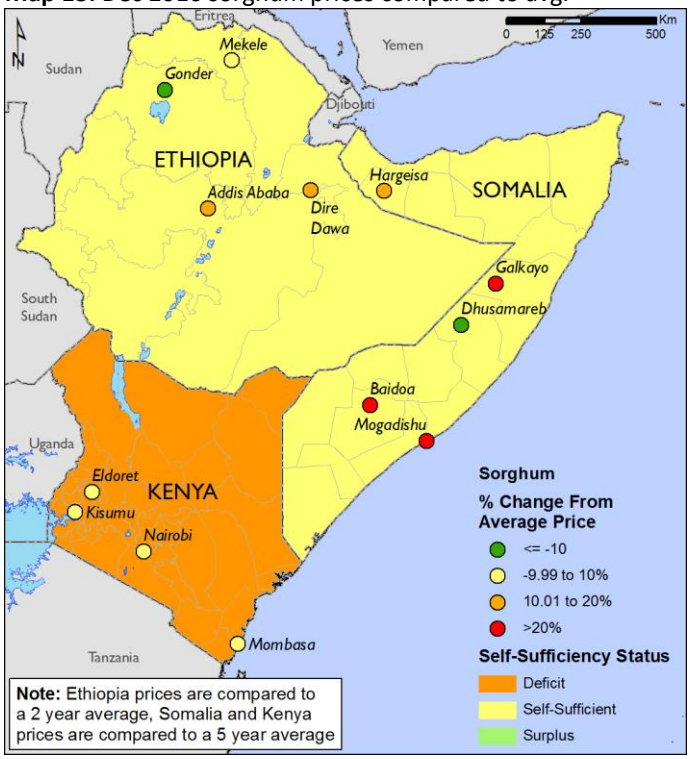
Map 12. Water Point Levels as of January 31, 2017



Source: *FEWS NET/ USGS Water Point Viewer*

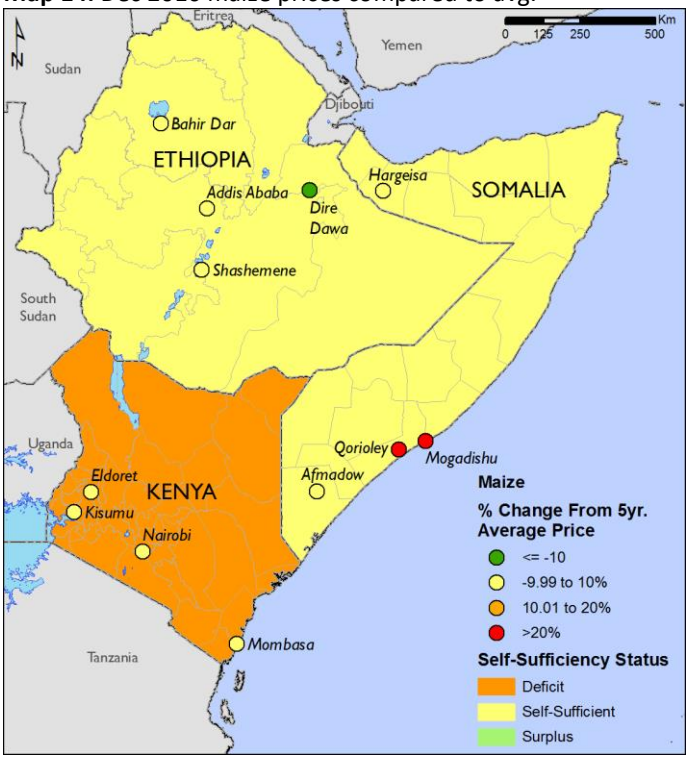
This map illustrates water point monitoring data from USGS. The system monitors 234 water points from Mali to Somalia and aims to help provide an understanding of the current availability of water for human and livestock consumption. By estimating water point depth and comparing to previous years' levels, the Water Point Viewer is able to provide an indication of the status of water points. In January 2017, most monitored water points in Kenya, Ethiopia, and Somalia were at "Alert" or "Near-Dry" levels.

Map 13. Dec 2016 sorghum prices compared to avg.



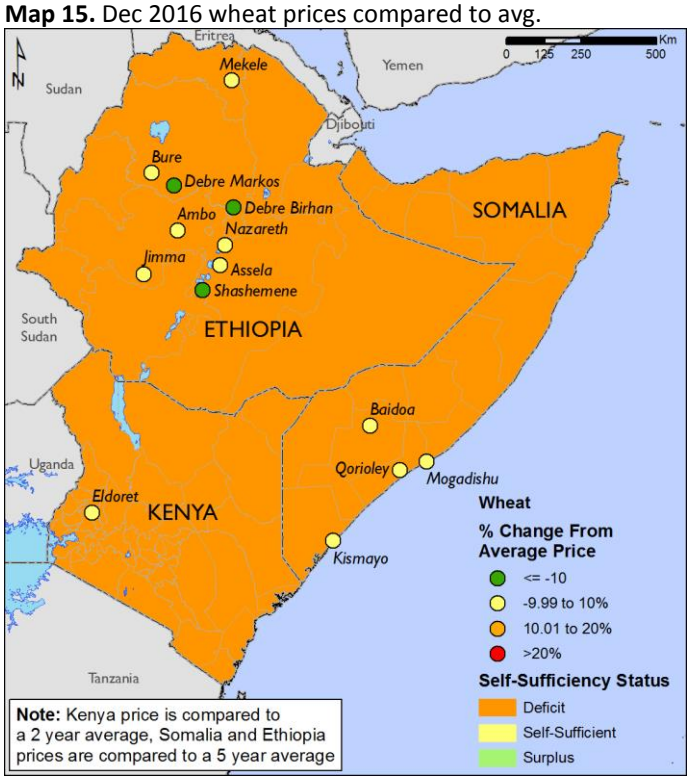
Source: *FEWS NET*

Map 14. Dec 2016 maize prices compared to avg.



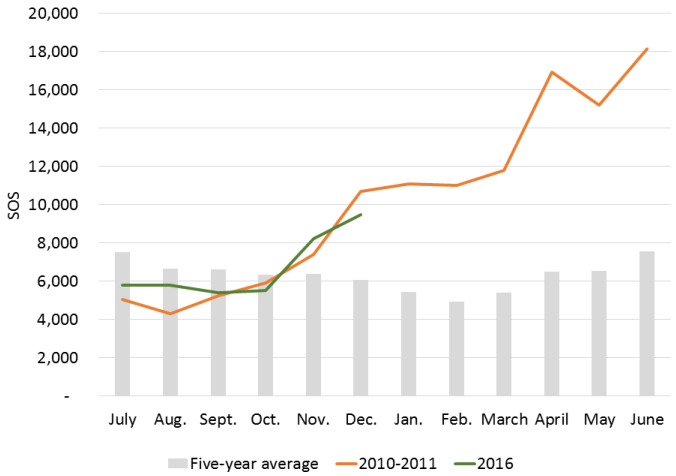
Source: *FEWS NET*

Map 15. Dec 2016 wheat prices compared to avg.



Source: *FEWS NET*

Figure 3. Retail price of red sorghum, Baidoa, Bay, Somalia



Source: *FEWS NET*

These maps illustrate December 2016 sorghum, maize, and wheat prices compared to average. Figure 3 shows the price of sorghum in a key market in Somalia, Baidoa, compared to average and 2010/11. Prices for local cereals (sorghum, maize) have already begun to increase atypically in many areas of Somalia, particularly in southern and central regions.