

October to December rainfall totals well below average in Eastern Horn as season ends

KEY MESSAGES

- Between mid-December and early January, little to no rain fell in most northern areas of East Africa, including areas of Somalia, southern Ethiopia, and northeastern Kenya that have been worst affected by atypically severe dryness during the October to December rainy season. Overall, the October to December season performed very poorly in much of the Eastern Horn of Africa, with rainfall starting as many as four weeks late, prolonged dry spells, and cumulative rainfall less than 50 percent of average in many areas.
- Rainfall has been below-average since mid-December in much of Tanzania, western Kenya, Uganda, Burundi, and Rwanda. In Tanzania and Burundi, rainfall during the next two weeks may contribute to some improvements to cropping conditions, while harvest prospects remain poor in Uganda, parts of Kenya and Tanzania, and reduced yields are expected in localized areas of Rwanda.
- During the next two weeks, seasonal rainfall is expected to continue moving further south, resulting in seasonally dry weather over many northern areas of East Africa. Seasonal dryness in much of the Horn is likely to aggravate already poorer than usual pastoral conditions, with further deterioration likely through at least the start of the next rainy season in March 2017.

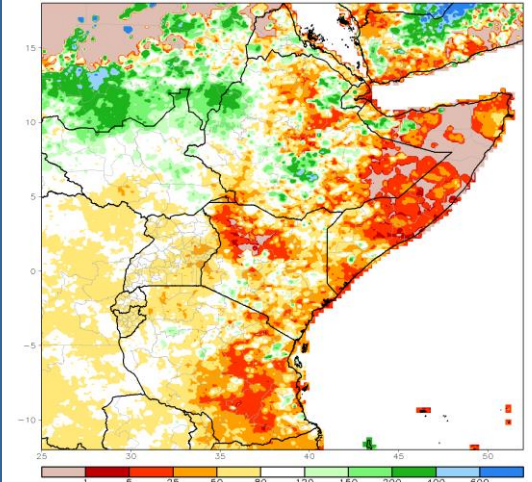
SEASONAL PROGRESS

Between mid-December and early January, little to no rain fell in most northern areas of East Africa, including areas of Somalia, southern Ethiopia, and northeastern Kenya that have been worst affected by atypically severe dryness during the October to December rainy season. Decreases in rainfall in December are typical as rainfall moves southward seasonally, effectively putting an end to the season. Overall, the October to December season performed very poorly in much of the Eastern Horn of Africa, with rainfall starting as many as four weeks late, prolonged dry spells, and cumulative rainfall less than 50 percent of average in many areas (Figure 1). Rainfall during the last 30 days has also been below average in much of eastern Tanzania, Uganda, Rwanda, and Burundi.

Vegetation conditions remain below average across many areas of the Horn of Africa according to the Normalized Difference Vegetation Index (NDVI) (Figure 2), although NDVI does show some improvements compared to previous weeks due to increases in rainfall in late November and early December in parts of southern Somalia, south-central Ethiopia, and northeastern Kenya. The combination of below-average rainfall, the late onset of rainfall, and the end of seasonal rains during mid-December has shortened the growing period for crops in rain-fed agricultural areas. Increases in rainfall during late November and early December have slightly improved pasture and water availability, but regeneration of these resources is

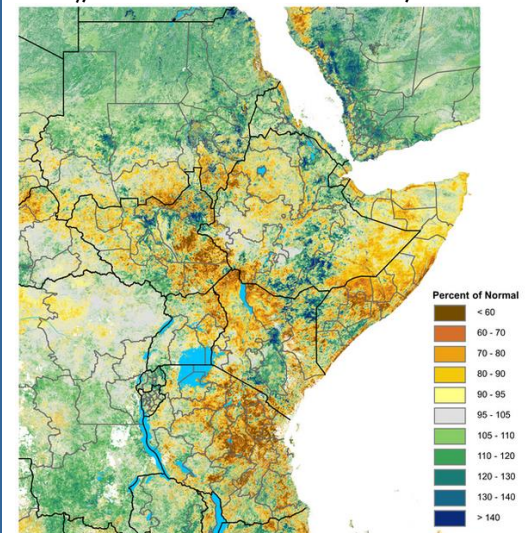
Please see http://www.cpc.ncep.noaa.gov/products/african_desk/cpc_intl/ and <http://earlywarning.usgs.gov/?l=en> for more information on remote sensing.

Figure 1. ARC2 estimated rainfall anomaly, percent of normal (1983-2009), October 1 - December 31, 2016



Source: NOAA/NWS/CPC

Figure 2. eMODIS/NDVI anomaly (2001 - 2010), December 21 - December 31, 2016



Source: USGS/FEWS.NET

expected to remain well below average. In Rwanda, NDVI suggests vegetation conditions are above average, while vegetation conditions are more mixed in Burundi.

The following is a country-by-country update on recent seasonal progress to date:

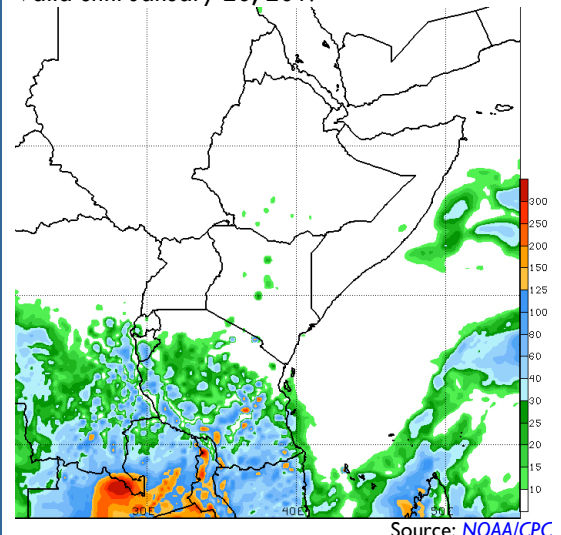
- In **Ethiopia**, the October to December *Deyr/Hageya* rainy was well below average in most of Somali Region and in eastern and southern areas of Oromia Region and in southern SNNPR. Improvements in rainfall in late November and early December in parts of SNNPR and southern Oromia have contributed to some improvements in water and pasture availability, but these improvements did not continue into mid or late December, when little to no rains were received.
- In southern **Somalia**, light rainfall in early to mid-December has contributed to slightly improved rangeland conditions, but was insufficient to support crop development in most areas. Central and northeastern Somalia received little to no rainfall during this time, and prospects for agricultural production and rangeland regeneration remain well below normal.
- In **Kenya**, below-average rainfall followed by higher than normal temperatures has led to drier than normal conditions across the country. In southeastern marginal cropping areas, where the October to December short rains are the primary season, the enhanced mid-November rains slightly improved conditions, but the cessation of the season by mid-December shortened the growing period since crops were planted late. As a result, harvest prospects remain below average. In coastal marginal agricultural areas, the majority of households were unable to plant any maize due to the extremely dry conditions. Due to below-average rainfall and hotter than normal conditions, parts of western Kenya are also likely to face reduced yields, with prospects for slightly below-average harvests.
- In **Tanzania**, there was a delayed onset of both the bimodal *Vuli* rains (mid-September to December) and the unimodal *Msimu* rains (November to February) and rainfall has been below average across many parts of the country, especially in northeastern and central areas. Northeastern bimodal rainfall deficits and the erratic nature of the rains are expected to reduce yields for cereals, pulses, and root crops. In addition, significant crop losses have already occurred in unimodal-bimodal transitional areas in parts of the northwest, including in Kagera and Kigoma.
- In **Rwanda**, cumulative seasonal rainfall has been generally near average in many parts of the country, and prospects for near-normal bean harvests remain favorable, except in a few localized areas. However, periods of below-average rainfall and dry spells since mid-December during critical crop development stages are likely to lead to reduced yields, particularly in some eastern lowland areas. Overall, vegetation conditions according to NDVI remain mostly positive, except in some localized areas.
- In **Burundi**, rainfall has largely been sufficient to support average crop development, except in some eastern and northern lowlands areas, where many crops were planted late due to erratic early season rainfall. In these areas, crops remain underdeveloped and the shortened season is likely to reduce yields.
- In **Uganda**, rainfall remained below average during the month of December, which has led to increased rainfall deficits and for crop production prospects are poorer than normal across much of the country.

FORECAST

The short-term NOAA/GFS rainfall forecast through January 20, 2017 shows a continued southward shift of seasonal rainfall into Tanzania, Burundi, and countries in Southern Africa (Figure 3). In effect, this points to the completion of rainy seasons in much of northern East Africa. As January is typically dry for most of East Africa, including in countries in the Eastern Horn, pasture and water conditions are likely to continue to deteriorate until the next seasonal rains begin in March.

Rainfall is likely to be heaviest in Burundi, the southern half of Tanzania, and southern parts of the Democratic Republic of the Congo. In Burundi, late season rainfall could result in some improvements in cropping prospects, particularly if they extend beyond what is climatologically

Figure 3. 2nd. Week GFS-Rainfall forecast (mm), Valid until January 20, 2017



Source: [NOAA/CPC](#)

normal and provide moisture for late-planted crops. In Tanzania, the short-term forecast indicates improved *Msimu* rainfall, although rainfall deficits are likely to remain southeastern areas, where cumulative seasonal rainfall has been less than 50 percent of normal rainfall to date, and in southern areas where prolonged dry spells have lasted up to 30 days.