



Somalia Drought Watch

November, 2010

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Key messages

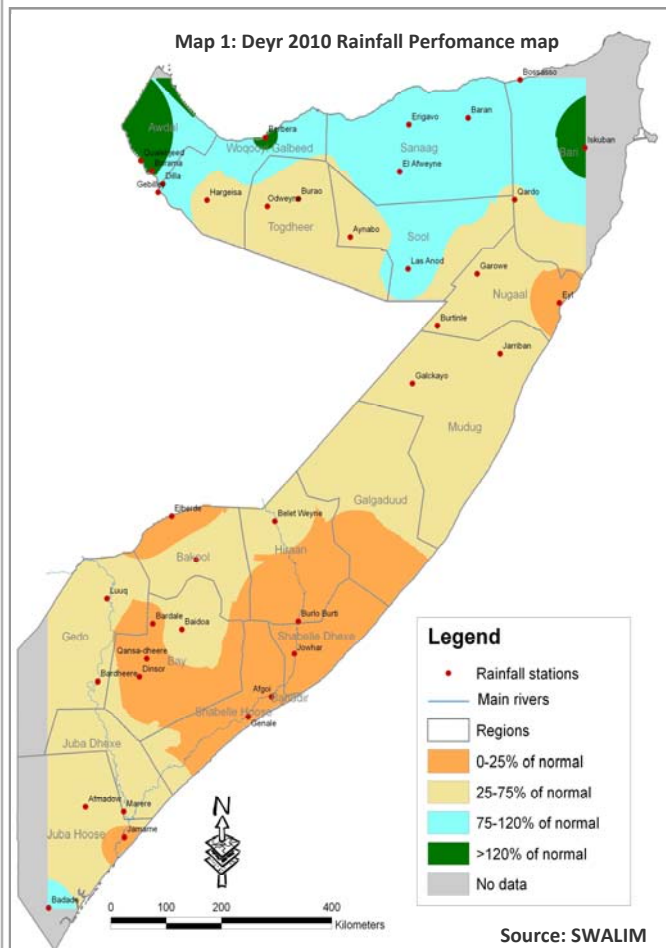
- During the Deyr 2010, most parts of south and central Somalia have recorded significant rainfall deficits compared to the long term average of the same season.
- Moderate to severe drought conditions are being experienced in south and central Somalia. The negative trends are not expected to reverse until the next rains which are anticipated in April 2011.
- The poor Deyr rains have significantly affected crop and pasture conditions in most parts of the country. Prospects of Deyr cereal production, as well as water availability for livestock are of a great concern.

Introduction

Welcome to this new, monthly information bulletin produced by SWALIM together with FSNAU and FEWS NET to equip decision makers with better information on drought conditions. In this bulletin the following definition is adapted. "Drought is an extended period of time during which fresh water availability, particularly rainfall and soil moisture, are below normal, and temperature and wind are high", which specifies the natural phenomena, the hydro-meteorological drought. Hence, the main factors causing drought are rainfall deficit, excess temperature and deficit in soil moisture.

The analysis in this bulletin consists of four parts: (i) Observed rainfall performance analysis is presented on page 1. (ii) The results of vegetation conditions analysis, represented by NDVI (Normalized Difference Vegetation Index); as an indicator for soil moisture, are shown on page 2. (iii) The Combined Drought Index (CDI), used to measure the magnitude and severity of drought is derived from a combination of rainfall, temperature and vegetation conditions (page 3). For more information on the index, please refer to: <http://www.faoswalim.org/downloads/cdi.pdf>. (iv) Page 4 summarizes the the observed river levels along the Juba and Shabelle rivers and general potential impacts of the developing drought situation in Somalia. For more information on the impacts please consult the upcoming FSNAU analysis.

Deyr 2010 Rainfall Performance



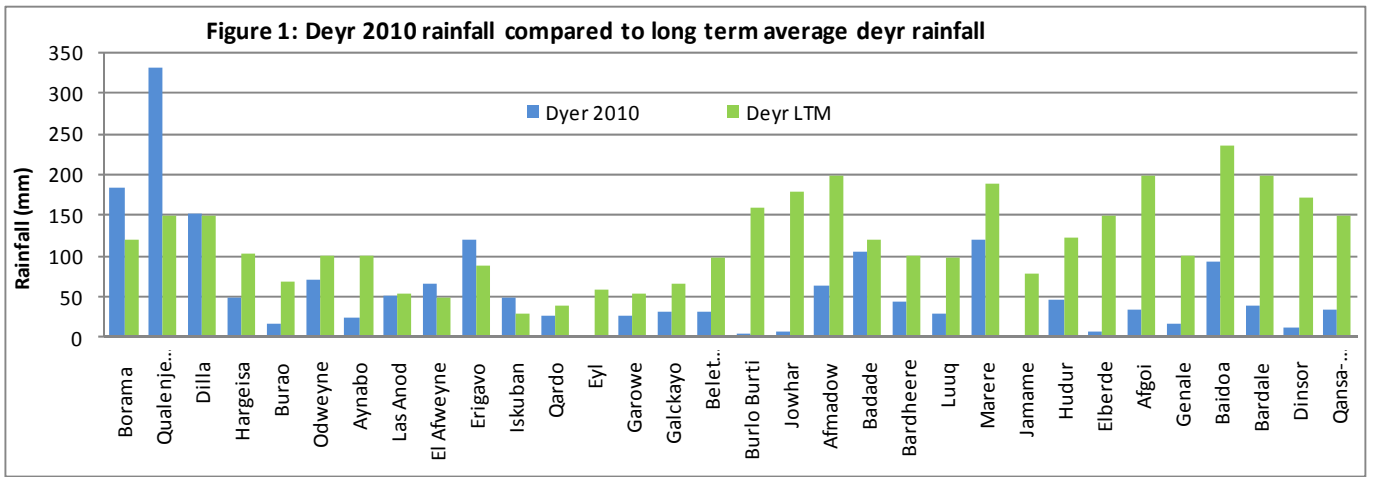
Hot and dry weather conditions persisted in most parts of Somalia from September through November 2010. High temperatures combined with lack of rainfall, caused water stress to crops, livestock and water resources.

In the southern and central Somali regions, only a few areas had rain in November after a late start of the Deyr season rains. Compared to the long term average rainfall the area shows below normal rainfall performance during the season (map 1). The Lower and Middle Shabelle as well as Bay regions recorded 0 to 25% of normal rainfall. During the Deyr 2010 rains, out of the active 26 rainfall stations 12 recorded less than 50% and 5 stations recorded less than 20% of normal rains. The number of rainy days, observed at several stations, were less than five with scattered rains. According to field reports, the hardest hit areas are the central regions (Mudug, Galgaduud and Hiran). However, there are no rainfall records to confirm this in Mudug and Galgaduud. Bullo Burti and Belet Weyne in Hiran recorded 2% and 30% respectively of their normal rains.

The northern regions, which had received exceptionally good rains during the last Gu season, recorded normal to below normal rains in September and October. Togdheer and Nugaal regions in the north recorded small deficits of rainfall during the season while Woqooyi Galbeed, Sanaag and northern Bari regions recorded normal rains. Awdal region received above normal rains.

Comparison of Deyr 2010 rainfall and long term average Deyr rainfall is shown in the graphs on page 2 (Figure 1).





Vegetation Conditions

Satellite derived NDVI data (SPOT VEGETATION-1Km resolution) was used to assess the vegetation conditions during the month of November (peak *Deyr* growing season) 2010 in Somalia. The results from this analysis indicate that most of south and central parts of Somalia had large decrease of vegetation compared to the long term average conditions. Most parts of northern Somalia indicated no change in vegetation as shown in Map 2.

Figure 2, which compares the 2010 NDVI and the long term average NDVI, shows that Gebilley, Borama and Erigavo in the northern parts of the country are within normal range. Irrigated areas along the River Shabelle and agricultural areas in Bay region indicate a large decrease in vegetation as seen in the graphs on this page.

With the cessation of the Deyr rainy season, the soil moisture conditions are expected to gradually reduce, with a corresponding rapid decline in the vegetation conditions in most parts of the country.

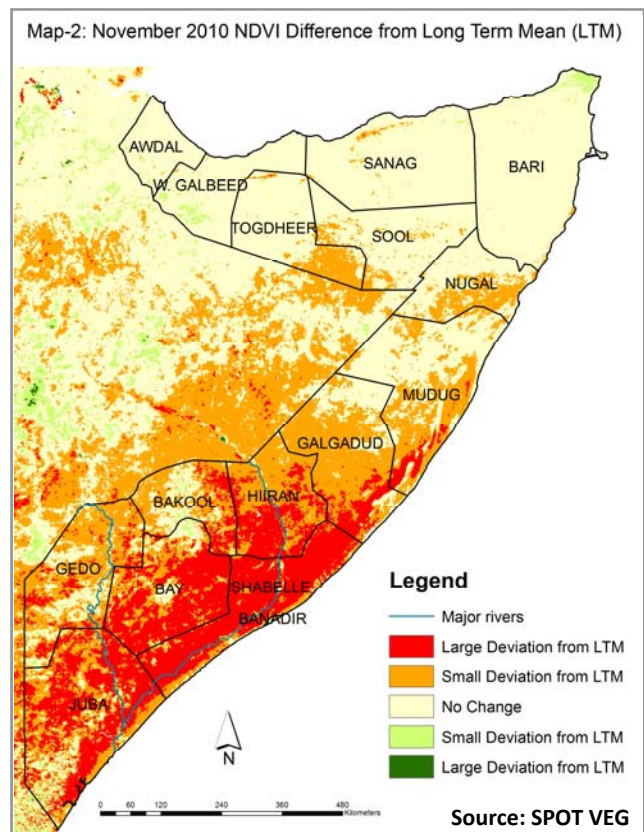
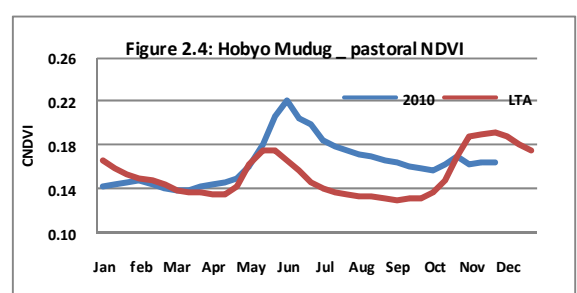
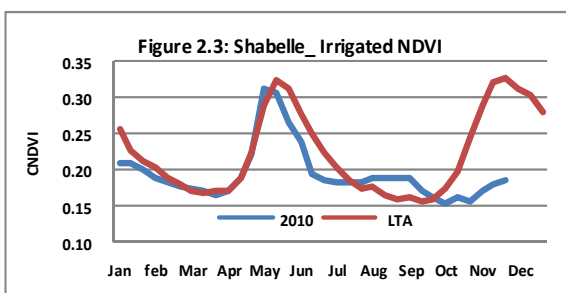
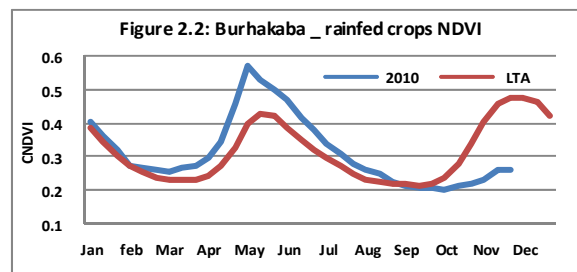
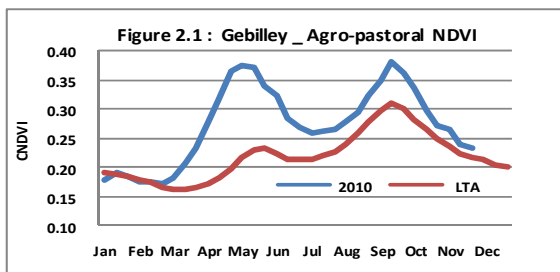
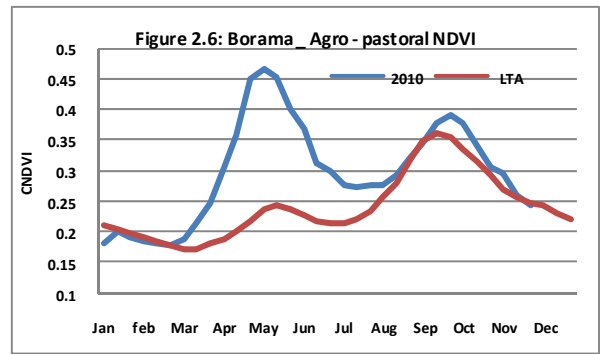
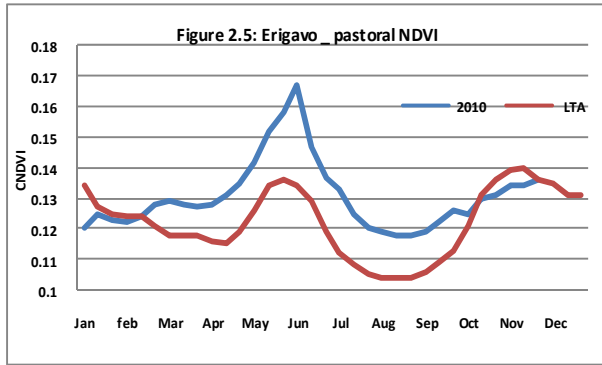


Figure 2: 2010 NDVI compared to long term average NDVI



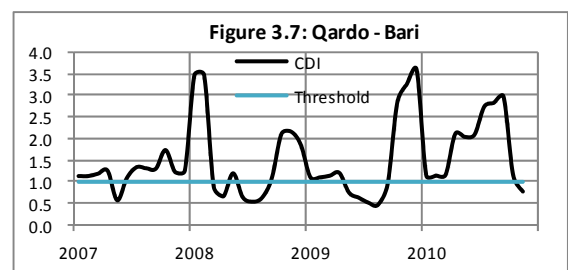
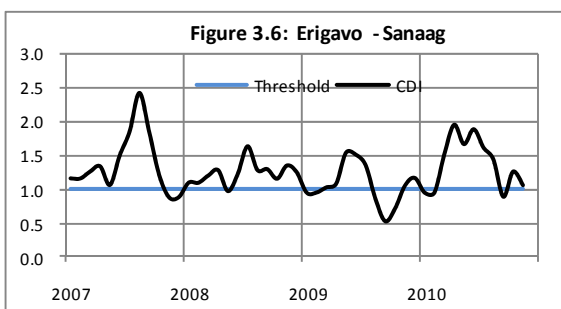
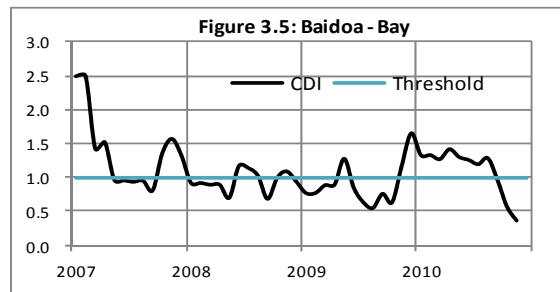
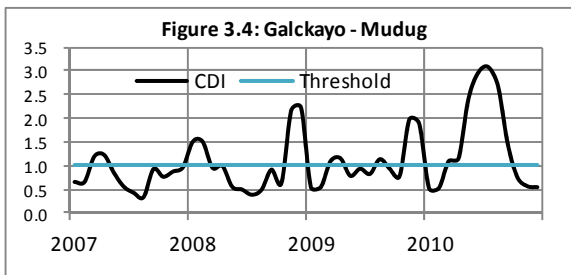
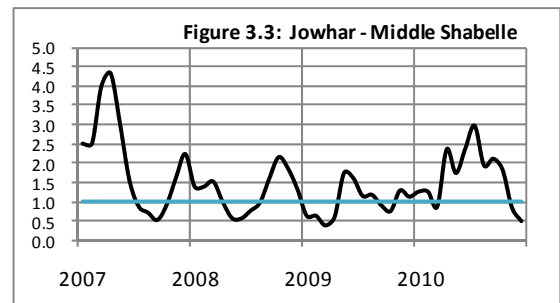
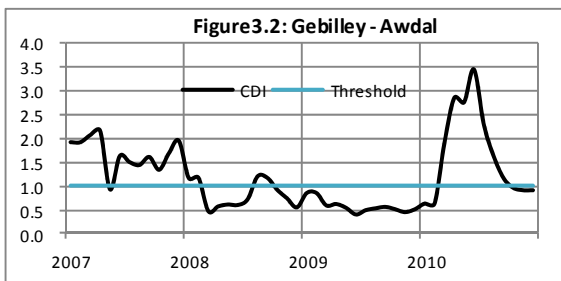
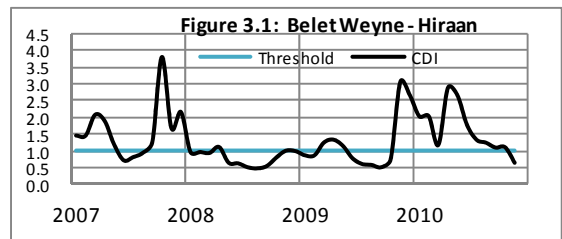


Combined Drought Index

The results of the monthly CDI calculations show favourable conditions in November 2010 in some parts of the northern regions and unfavourable conditions in the rest of the country. The graphs in Figure 3 show the CDI values for selected areas in Somalia. In Figure 3 the threshold 1.0 indicates normal conditions. Drought conditions have a CDI value of less than 1.0, while wet conditions have values greater than 1.0. Stations that indicate severe drought include Belet Weyne (Hiraan), Jowhar (Middle Shabelle) and Galckayo in Mudug region. Gebilley and Erigavo in W. Galbeed and Sanaag regions respectively show normal conditions during this time of year.

Figure 3: Monthly CDI graphs for some selected stations in Somalia

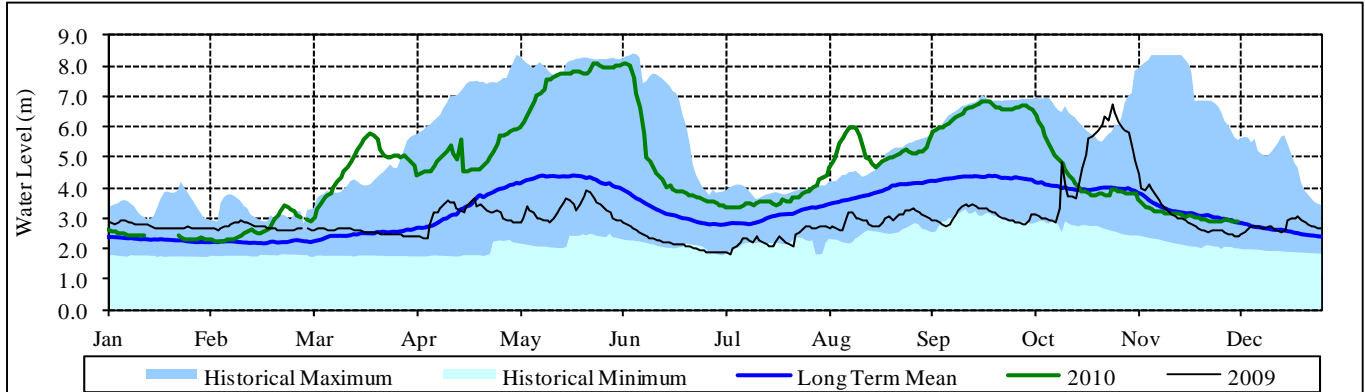
CDI Value	Drought condition
0.0 to 0.3	extreme hydro-meteorological drought
0.3 to 0.5	severe hydro-meteorological drought
0.5 to 0.7	medium hydro-meteorological drought
0.7 to 0.9	mild hydro-meteorological drought
0.9 to 1.1	normal
> 1.1	above normal



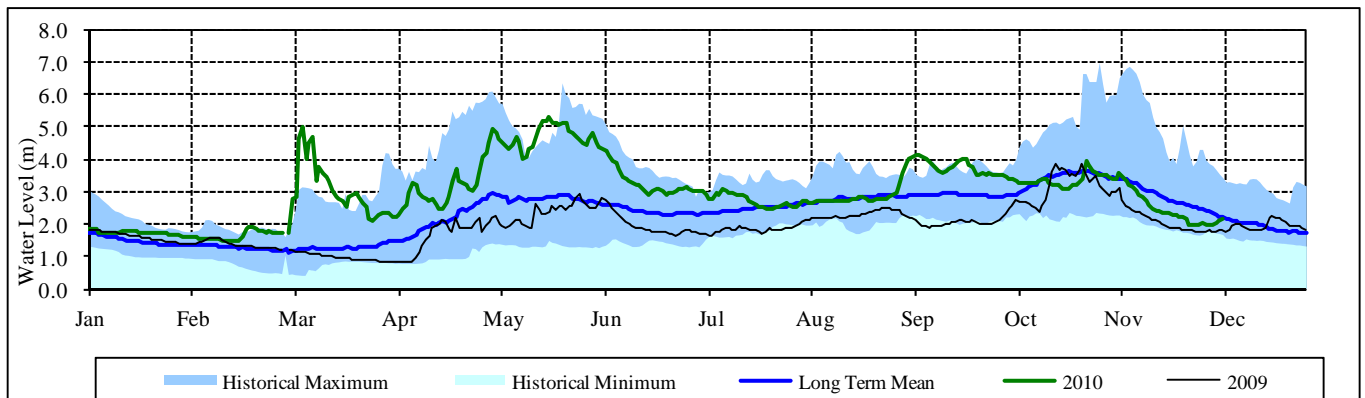
River Levels

Observed river levels are currently below their normal values for this time of year. The river levels are expected to remain low in the coming months following the end of the Deyr rainy season. The graphs below show comparison of current and long term average levels for both the Shabelle and Juba Rivers at Belet Weyne and Luuq stations, respectively. Although the levels were high in September and October, they declined rapidly due to decreased rainfall in Ethiopia. The situation is more serious along River Shabelle since there are large areas under irrigation, and the off-season (after November) cash crops might be highly affected.

Shabelle River at Belet Weyne



Juba River at Luuq



Potential Impacts

The poor *Deyr* rains have significantly affected crop and pasture conditions in most parts of the country. Prospect of *Deyr* cereal production is of a great concern. Rain-fed areas are worst affected both in southern and central Somalia where crop development is very poor due to persistent moisture stress. In irrigated agricultural zones in south Somalia the lack of rainfall has resulted in a non-uniform crop establishment and growth. Overall the area under irrigated crops currently is well below average due to constrained access to irrigation as a result of significant drop down in river levels, particularly in the Shabelle region. Increased competition for the use of water for irrigation has been reported among farmers using pumps as well as those relying on gravity fed systems.

Pasture conditions have also deteriorated significantly in most parts of the southern and central regions as well as in some parts in the northern areas. Average pasture conditions are only observed in northern regions, which received moderate rainfall in October, such as Awdal, W. Galbeed, parts of Togdheer and localised areas of Sool, Sanaag and Bari regions. Water conditions are also relatively better in the above areas compared to central and southern pastoral areas, where boreholes remain the only water source, as the other water sources (berkads, water catchments, etc.) have largely dried-up. Complete absence of rains in November has further exacerbated water and pasture conditions, particularly in Mudug, Galgaduud, Hiran and the coastal parts of the north-eastern areas, as well as on the Sool Plateau of Sanaag region.

This Drought Watch is a joint publication between SWALIM, FSNAU and FEWS NET Somalia. It is updated monthly, and is available from the SWALIM website: <http://www.faoswalim.org>. The technical support and provision of the NDVI satellite images by the Joint Research Centre of the European Union is greatly appreciated.