Monitoring for Environment and Security in Africa

SADC-THEMA Agricultural Bulletin

March 2014, Issue: 07

Summary

- *Heavy rainfall observed in most parts of the region.*
- *Flash floods observed over Northeast and Central Botswana, Mozambique, South Africa and southeastern parts of Zimbabwe*
- *Drought conditions over the coastal parts of Angola*
- *Improved vegetation conditions over the far southern parts of Botswana and the far eastern parts of Tanzania.*

1. Highlights **Season 2013- 2014**

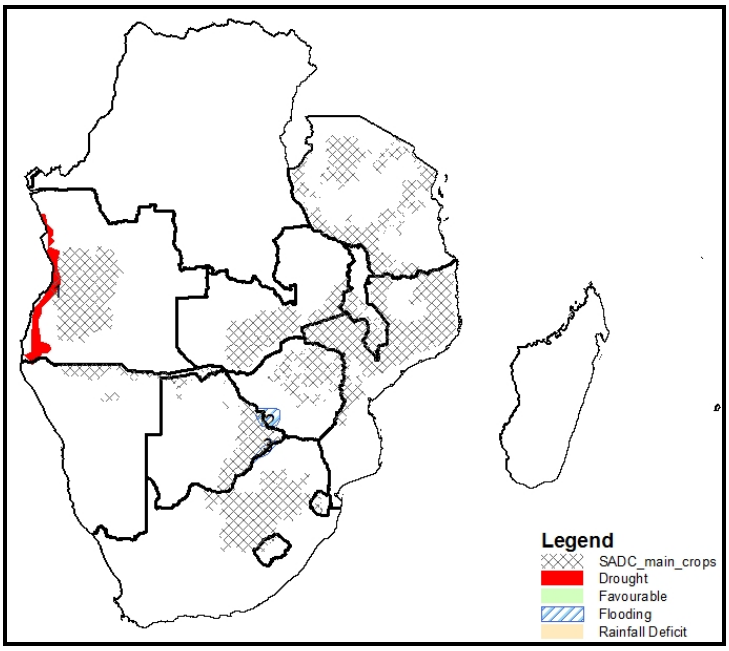
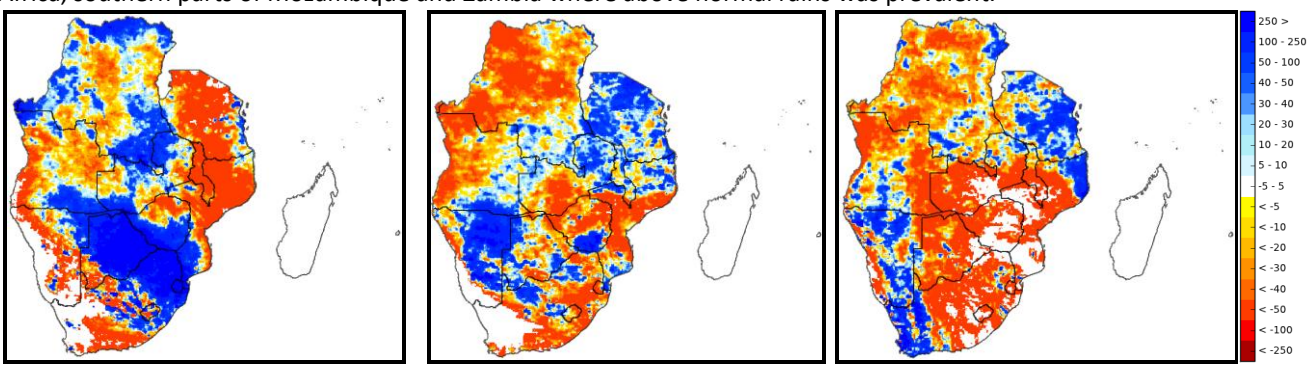


Figure 1: spatial distribution of the main events

Contents:

2. Rainfall Performance

The good rainfall received during the month of February continued in the first dekad of March causing flash floods over many local areas of the SADC region especially in Botswana, Namibia, Mozambique, South Africa and Zimbabwe. The most notable rains (in excess of 100mm) were recorded over some parts of Botswana, Namibia and Zimbabwe during the first dekad of the month (Figure 2). The second and third dekads rainfall anomaly maps shows shows a decline in rainfall over most parts of the SADC region except over some parts of Angola, Namibia, Tanzania, isolated areas in Botswana and South Africa, southern parts of Mozambique and Zambia where above normal rains was prevalent.



Dekad 1: March 2014 Dekad 2: March 2014 Dekad 3: March 2014

Figure 2: Rainfall Anomaly maps; there has been a general decrease in rainfall performance in both intensity and distribution during the month of March.
Note: Normal ranges between -10mm to 10mm., less than -10% is below normal and greater than 10mm is above normal.

The heavy falls that continued to be received over most SADC region during the first dekad of the month caused small streams and rivers to over flow especially along Botswana and South Africa border, an over flow of Limpopo river (Fig 3a&b).

Botswana

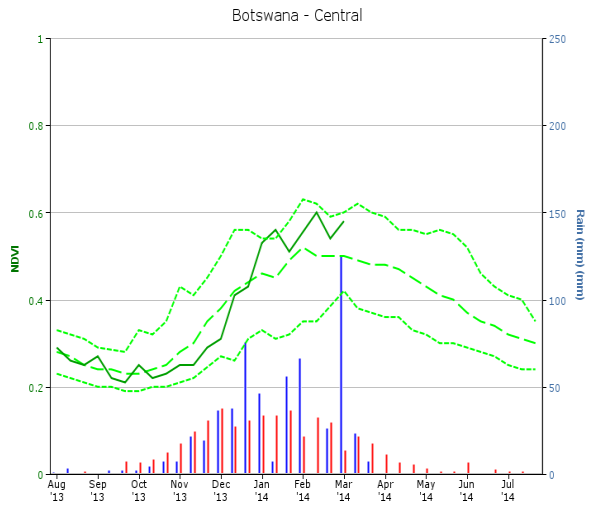


Figure 3a: NDVI and rainfall time series representative of Area 5 (Zimbabwe)

South Africa

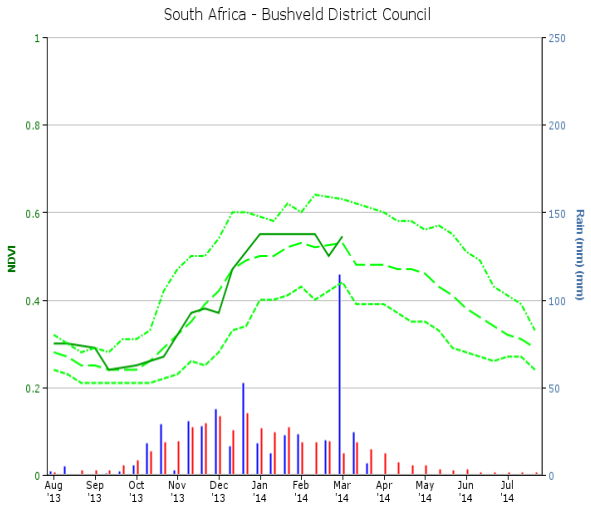
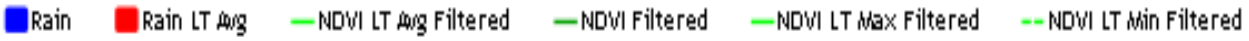


Figure 3b: NDVI and rainfall time series representative of Area 1 (Botswana)



3. Vegetation Conditions

Satellite based analysis of the monthly average NDVI anomaly (Figure 4) for March indicates normal to above normal vegetation conditions over most parts of the SADC region. The good vegetation growth resulted from the continued good rains that were received since the beginning of January. Poor vegetation growth is most notable in the far western parts of Angola, southeast areas bordering South Africa and Botswana, and isolated areas of Tanzania.

The good rains observed during the months of January, February and March over most parts of the SADC region (especially over Botswana, Namibia, Mozambique, South Africa and Zimbabwe) has improved soil moisture condition and hence significantly improved the vegetation growth in most parts of these areas (Fig.4).

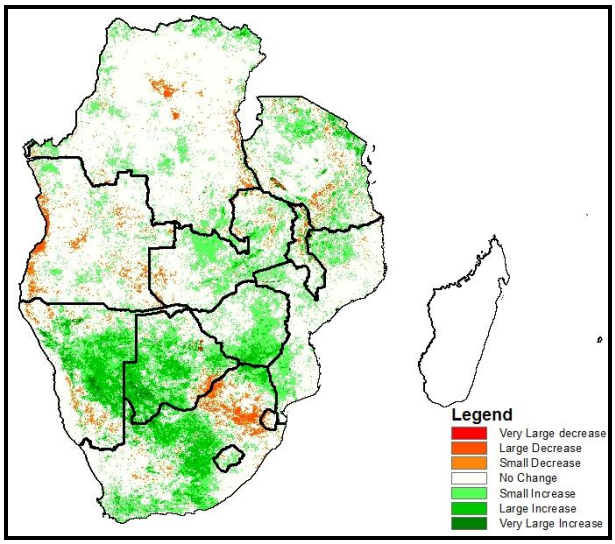


Figure 4: NDVI difference

However, the continued below normal rainfall over the far western parts of Angola (Fig 1, Area 1) has led to the continued deteriorate of vegetation growth over these areas resulting in more areas experiencing drought conditions as shown in Figure 5a. In these areas vegetation has been consistently below normal since November last year. The eastern parts of Tanzania (Fig 5b) which has been experiencing below normal rains from the beginning of the rainfall season is now showing some signs of recovery, due to the increased rainfall received during the second February as well as in the second and third dekads of March.

Angola

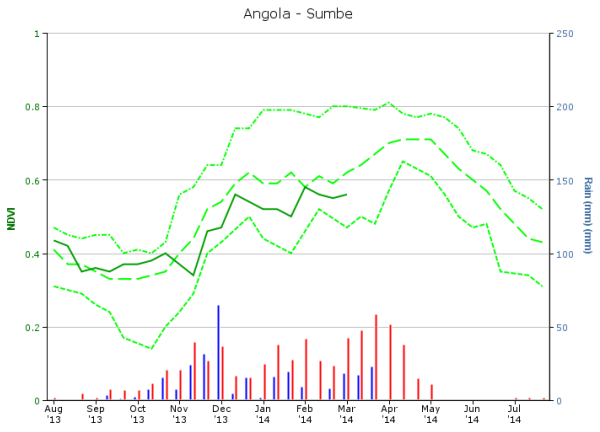


Figure 5a: NDVI and rainfall time series representative of Area 5 (Angola)

Tanzania

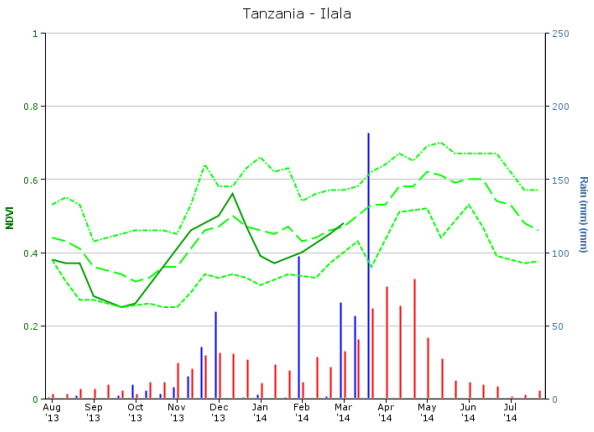
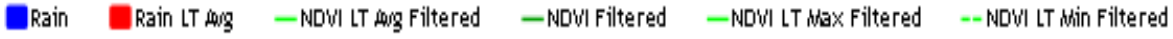


Figure 5b: NDVI and rainfall time series representative of Area 1 (Tanzania)



Due to the approaching end of rainfall season, areas affected by drought are not expected to recover hence may require some interventions.

4. MESA

The **MESA** program addresses the need for improved environmental monitoring towards sustainable management of natural resources in Africa. Five Regional Thematic Actions (THEMA), one per Regional Economic Community (REC), are being established by the Regional Implementation Centres (RICs) to develop appropriate information services, in order to address the already prioritized decision needs of the RECs in the fields of (i) water resources management (CEMAC); (ii) crop and rangeland management (ECOWAS); (iii) agricultural and environmental resources management (SADC); (iv) mitigation of land degradation (including forest exploitation) and conservation of natural habitats (IGAD) and; (v) marine and coastal management (IOC).

The **SADC-THEMA** is developing three information services namely Agriculture, Drought and Fire in order to address the already prioritized decision needs for SADC region. The Agricultural Service will monitor the state of the crops and rangeland. The Drought Service will monitor drought during the whole year and deliver a decadal "Drought map" and a "Drought Outlook" in support of both agriculture and environmental issues. The Fire Service will provide a daily fire risk indication (before the fire), continuous active fire maps (in real time during the fire season, refreshed every 15 minutes) and monthly burnt area assessments (after the fire). A common "Long Range forecast" service will complement the three (3) core services and provide them a seasonal forecast outlook. The SADC-Thema is implemented under the leadership of Botswana Department of Meteorological Services (BDMS). The program is implemented under the coordination of the African Union Commission with the support of the European Union.

5. Contacts

For further information, please visit:

- The MESA-SADC THEMA and its Products: http://www.amesd.co.bw/
- SADC FANR http://www.sadc.int/fanr/

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6 Acknowledgements

This agricultural bulletin is provided every month to provide an overall view of the agricultural season performance. It is the result of cooperation between MESA SADC-THEMA (represented by the Botswana Department of Meteorological Service as the Regional Implementation Centre), the SADC-FANR, JRC-MARS and FEWSNET. This bulletin is exclusively based on the analysis of remote sensing imagery and of derived environmental indicators. Despite of its intrinsic limitations, remote sensing is a cost effective approach allowing a quick monitoring of the environmental situation in the SADC area. The data is received in near real time from the EUMETCast system (courtesy from EUMETSAT), which routinely distributes Earth Observation data by satellites broadcasting.

The MESA project is funded by the 9th European Development Fund of the European Commission.

The retrieving of Earth Observation data, the computation of the environmental indicators as well as the graphics used in this bulletin were automatically performed by the Environmental Station (eStation), developed by the Joint Research Centre of the European Commission (http://estation.jrc.ec.europa.eu).