



REGIONAL FOOD SECURITY PROGRAMME

GROWING SEASON STATUS

Rainfall, Vegetation and Crop Monitoring



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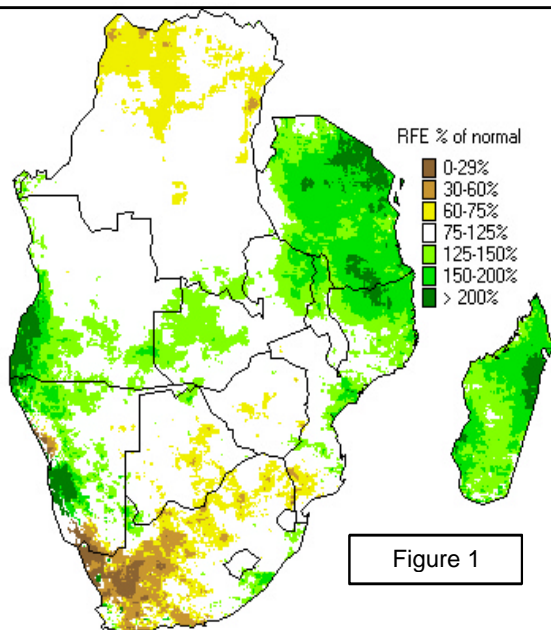
Highlights

- Good rainfall performance in the northern half of the SADC region, but poor rains in the southern parts by the end of February 2007.
- The prolonged dry spells develop into drought affecting Botswana, Lesotho, Namibia, Swaziland, southern Mozambique and southern Zimbabwe.
- Food security prospects at both (some) national and regional level uncertain as drought sets in.
- Persistent heavy rains resulted in widespread floods in Zambia, Madagascar and central Mozambique.

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Cumulative rainfall (1 September 2006 to 28 February 2007) as percentage of average



Rainfall Performance

Rainfall estimates (RFE) (Figure 2, page 3) and ground reports indicate that good rains continued in the northern parts of the SADC region in February 2007. During the first dekad, excessive rains were received in northern Mozambique, most of central Madagascar and extreme south-western Tanzania. However, southern Mozambique, extreme northern South Africa and southern Zimbabwe were very dry. During the second dekad, widespread rains were received in Zimbabwe and Mozambique and this brought some relief to the southern parts of these countries which had experienced lengthy dry spells. More rains were received in these areas as a result of the cyclone Favio in the third dekad of the month, but the rains may have been too late for some of the moisture stressed crops. The dry spells continued over Botswana, South Africa, (including the productive Maize Triangle area), Lesotho and Swaziland, developing into a moderate drought. The food security prospects at both national level in some countries, and regional level become uncertain as drought sets in.

Cumulative analysis of received rains from 1st September to February 28 as a percentage of average (Figure 1), indicates that central parts of South Africa, central and southern Botswana, southern Mozambique, northern Democratic Republic of Congo and parts of Zimbabwe have recorded below average cumulative rainfall. The northern parts of the region, together with Madagascar, have had a very wet season so far.

SADC Member States:

Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe.

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Vegetation condition

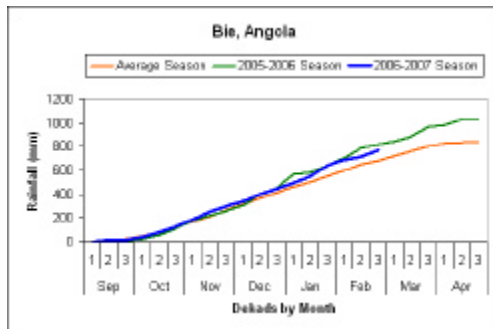
Normalized Difference Vegetation Index (NDVI) images (page 4) for February 2007 indicate that there was an improvement in the vegetation conditions as the vegetation responded to the good rains in different parts of the SADC region in February. The images suggest that vegetation conditions appeared to be above average in most parts of Botswana and Tanzania throughout the month. Persistent cloud cover over western Angola, southern half of central Democratic Republic of Congo, Madagascar, Malawi, southern Tanzania and most of Zambia throughout the three dekads of February makes it difficult to judge the true extent of vegetation development in these areas. Vegetation conditions, including pastures, had improved owing to the good rains (excessive, in some cases) received in these parts of the region. Elsewhere in the southern parts, vegetation was beginning to show the impact of dry conditions.

Regional Floods and Dry Spells

Dry spells persisted in the southern half of the region in February. Crops in Botswana, Lesotho, Swaziland, southern Zimbabwe southern Mozambique and South Africa showed signs of severe water stress by the end of the month. On the other hand, heavy and excessive rains received in the northern half of the region in January and February resulted in widespread flooding and destruction of crops in Angola, the Democratic Republic of Congo, Madagascar, Malawi, Mozambique, Namibia and Zambia. The floods resulted in loss of lives, displacement of people, damaged infrastructure, loss of crops and livestock, as well as leaching of soil nutrients. In contrast, good harvests are expected in several parts of the region including Zambia and Malawi due to the very good rains that have been received in parts of these countries

Time series and country updates

A number of rainfall graphs are presented with updates for SADC countries for which satellite and/or field information (provided by collaborating NEWUs) is available. The graphs are based on rainfall estimates (RFE) data and show a comparison with an 11-year (1995-2006) average for selected sub-regions of SADC, which can be administrative boundaries, watersheds, or agricultural areas.



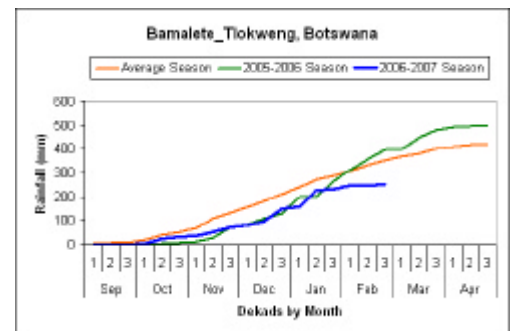
Angola

Satellite imagery suggests that moderate to high rainfall was received in most parts except on the coast. Angola has generally received sufficient amounts of rainfall since the beginning of the season, benefiting the crops. Analysis of cumulative rainfall received suggests above normal rains for February in most parts of the country. The crops are expected to be at flowering stage with the early planted crops reaching maturity. A good harvest is expected although too much moisture and insect infestation have been reported. Cumulative rainfall graphs suggest that the Bie

province received near-normal rains for the entire month of February.

Botswana

Rainfall deteriorated further during the month of February with almost the entire country experiencing below normal monthly rainfall. Crops in almost all cropped parts of the country continued experiencing water stress with a very high possibility of crop failure especially in Kgatleng, Kweneng, South-east and Southern districts. Crops ranged from vegetative to dough stages and harvesting of cowpeas was in progress. Livestock and pastures were still in fair to good conditions. Cumulative rainfall graph for Botswana's Tlokweng district indicates a very dry month of February and a season well below normal.



(Country updates continued on page 5)

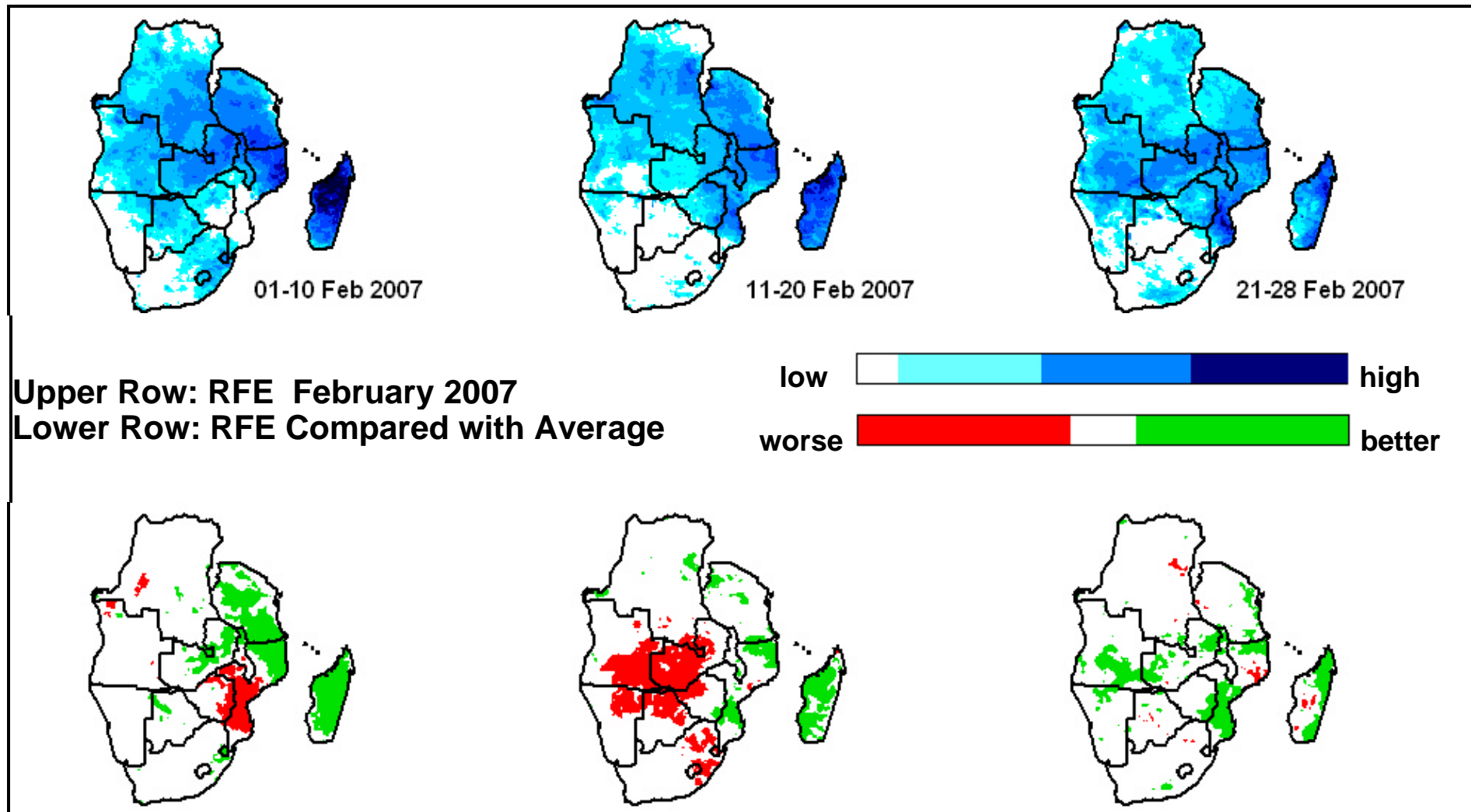


Figure 2.

Rainfall Estimates (RFE) images, February 2007 and difference from average
From left to right are Dekads 1 (1-10 Feb), 2 (11-20 Feb) and 3 (21-28 Feb)
Differences from average, lower row, are based on a 10-year average of 1995-2005

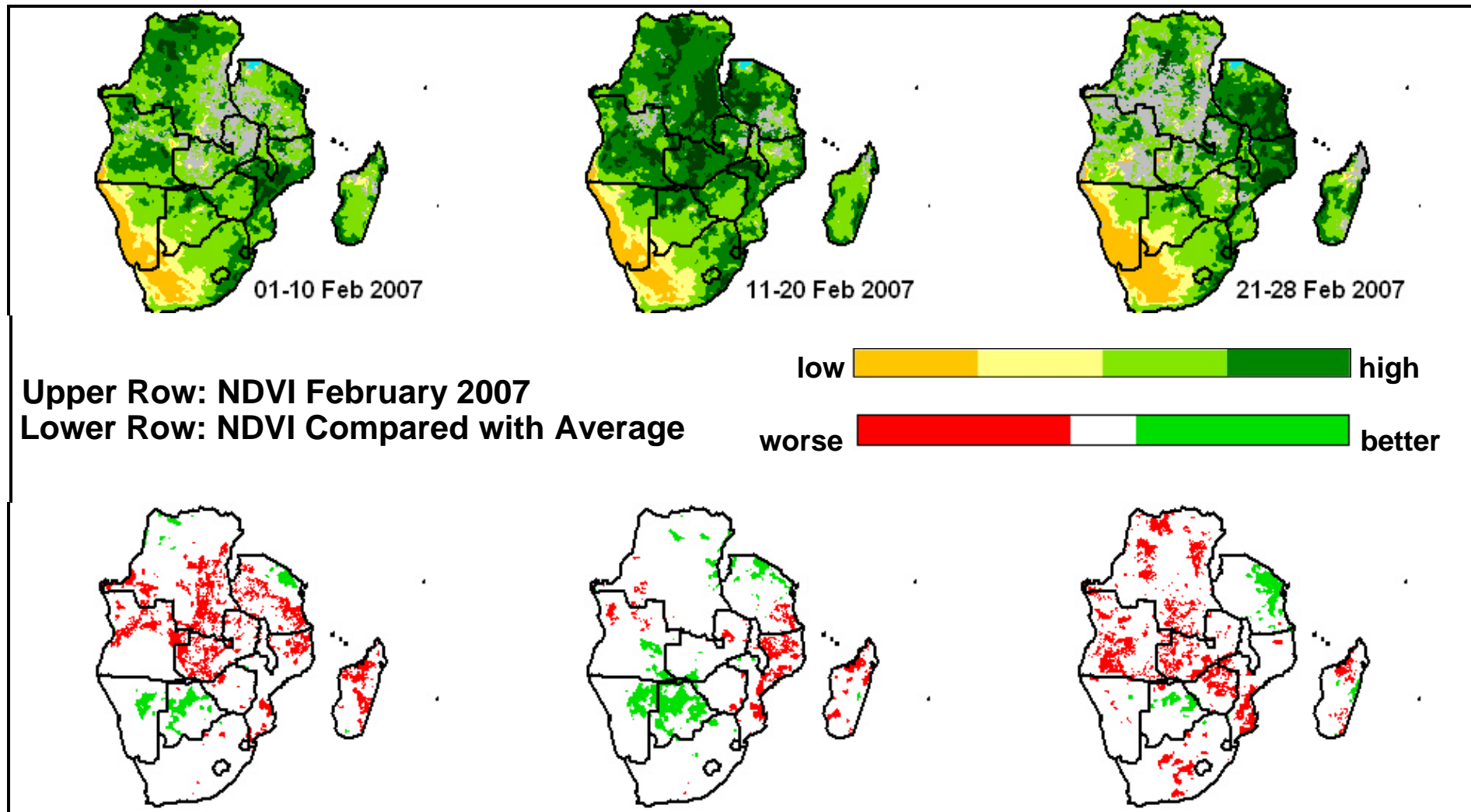
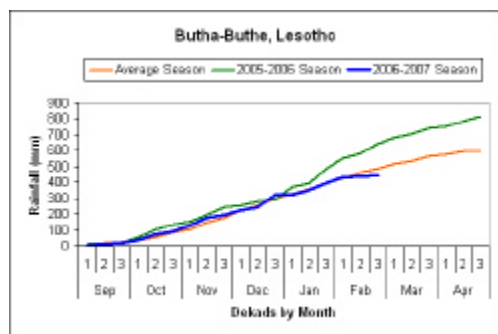


Figure 3. Normalized Difference Vegetation Index (NDVI) images, February 2007 and difference from average
From left to right are Dekads 1 (1-10 Feb), 2 (11-20 Feb) and 3 (21-28 Feb)
Differences from average, lower row, are based on a long term average of 1982-2006

Time series and country updates (continued)



Lesotho

Dry weather conditions persisted into February and prevailed up to the end of the month. The rainfall received during the month was far below monthly normal and insignificant to crops due to very high temperatures and hence high rate of evapotranspiration. Thaba-Tseka recorded the highest monthly rainfall of 52.2mm while Phuthiatsana as the lowest monthly rainfall of 11.00mm. Summer crops in most parts of the country were wilting due to water stress. Some crops had remained stagnant at various stages, mostly at tasselling and grain-filling stages

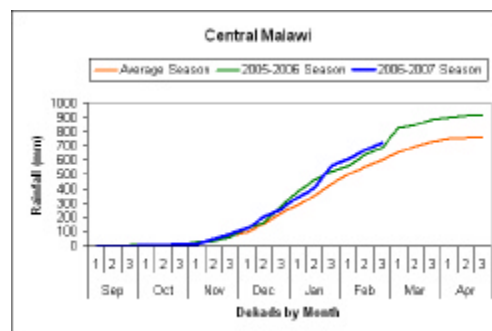
leading to poor harvest prospects. Vegetation, crops and pastures were in poor conditions especially over large parts of the lowlands and the Senqu River valley. There were reports that even vegetables were hardly seen on the market. Deteriorating water availability was impacting on livestock condition as well. Cumulative rainfall (September 2006 to January 2007) suggested a deteriorating season for Butha Buthe district.

Madagascar

Both satellite imagery and ground information indicate that the first dekad of February was the wettest dekad of the month. Recording stations in the north and central Madagascar such as Ambohitsilaozana, Antsohihy and Nosy Be received above 200% of their normal rainfall. A few stations received below normal rainfall. Normal widespread moderate to heavy rainfall was received during the second dekad. The third dekad was drier in some parts while elsewhere it was wet, with the northeastern coastal parts getting the heaviest rains.

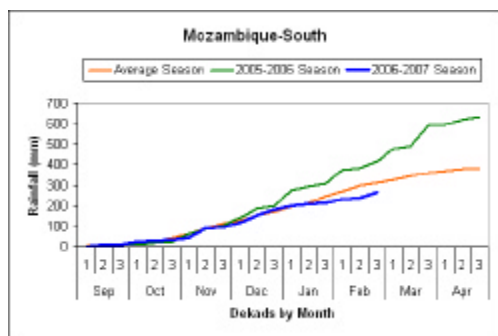
Malawi

There was considerable reduction in rainfall amounts and distribution over most parts of Malawi particularly over the south and central Malawi during the first dekad of February. There was a decrease in rainfall over the central and northern parts during the second dekad resulting in some parts of central Malawi recording poor rainfall performance for about twenty days in February and crops had to survive on residual moisture following good rains in January. Rainfall performance improved during the third dekad bringing soil moisture relief to these areas. The general crop stand in the fields was reported in good condition with the maize crop ranging from flowering and cobbing to maturity and drying stages. Water logging, nutrient leeching and floods have been experienced in some parts of the country. No major incidences of pests and diseases were reported. A bumper harvest was being expected. The first round crop production estimates from Ministry of Agriculture and Food Security put a national production forecast of 3.15 million metric tonnes.



Mauritius

Mauritius continued receiving substantial rains brought by tropical cyclone Gamede in February. The excessive rainfall amounts for the West (321.3 mm), North (326.0 mm), East (491.0 mm), South (619.8 mm) and Centre (943.1 mm) represent 156%, 132%, 130%, 178% and 235%, respectively, of the normal rainfall in the respective regions. The heavy rainfall caused temporary water logging in most fields and might have adverse effect on overall cane growth as at the end of February stalk elongation was lower than during the corresponding period in 2006 to the North, East, and South. In the West and the Centre it was higher. Cumulative elongation island-wide was higher by 3.9 centimetres compared to the corresponding period in 2006. Total cane height at the end of February was 130.5 centimetres which is taller than February 2006 by 10.3 cm. Fertilizer application in some regions and weed control were in progress.



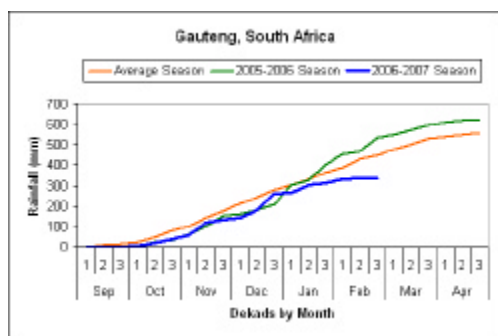
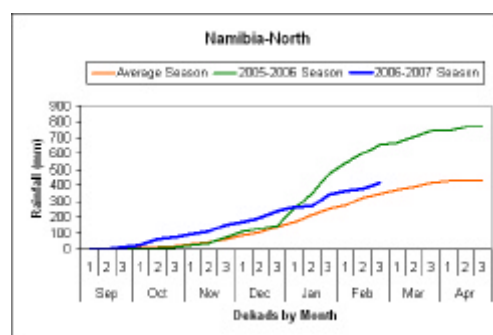
Mozambique

Heavy rains were received in the northern regions of the country, with some areas receiving as much as three times their normal dekadal amounts during the first dekad of February. The rains, in conjunction with the high rainfall in the Zambezi basin in upstream countries, led to flooding in the Zambezi basin and in the northern region. Floods in Tete, Zambezia, Manica, Sofala and Nampula provinces destroyed crops and livestock, displaced people and resulted in loss of life. In the central and southern parts, very little rainfall was received during the first and last

dekads but the second dekad was wet as substantial amounts of rainfall, brought by cyclone Favio, were recorded, with Machaze, Mabote, Vilankulo, and Inhassoro districts registering amounts above 250mm. For extreme southern Mozambique, poor and erratic rains prevailed and crops were wilting. Crops in the major maize growing areas in the north ranged from vegetative to flowering stages. Cumulative rainfall graph for southern Mozambique indicates below-average rainfall totals for season thus far.

Namibia

Both satellite imagery and ground reports indicate that during February, almost the entire country with the exception of the Caprivi region, experienced erratic rains. The dry conditions during the first half of the rainy season (October to January) persisted into February and negatively impacted on crops in regions which include Kavango, Omusati, Oshana and Oshikoto. By the end of February, crops showed symptoms of severe water stress. On the other hand, excessive rains resulted in flooding in Caprivi. The floods submerged and destroyed hectares of crops and displaced people in the eastern Caprivi region. Livestock condition was fair. Cumulative rainfall totals (September 2006 to February 2007) suggest an above normal rainfall for northern Namibia.



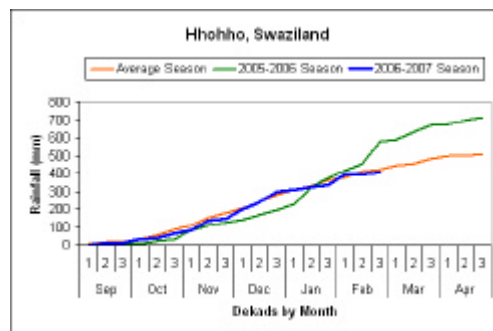
South Africa

Erratic rains persisted over South Africa throughout the month of February. During the first dekad, light to moderate showers were received over Eastern Transvaal, Free State and Kwazulu-Natal while it was dry elsewhere. Dry conditions, with a few very isolated showers, were recorded for the second and third dekads. Very dry conditions and high temperatures persisted over the western half for the entire month. By the end of February, crops, especially in the maize producing areas, were showing symptoms of moisture stress. Due to poor rainfall

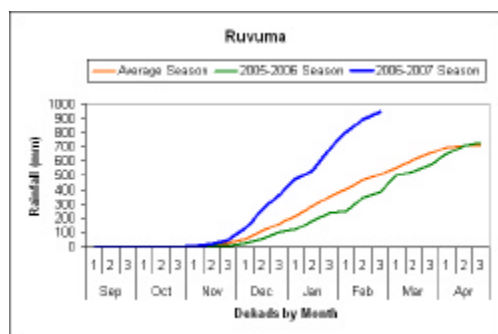
performance in January and February, final maize production is expected to be much lower than initially anticipated. Analysis of cumulative rainfall total received since September suggests that most parts of the country, including the highly productive maize triangle area, have received below normal to normal rains. Cumulative rainfall graph for Gauteng indicates a well below normal rainfall totals for the season by the end of February.

Swaziland

Light to moderate rainfall was received during the first dekad of February. For the second and third dekads, rainfall was erratic and dry spells, coupled with high temperatures, were experienced over most parts of the country. In general, crop condition in the Highveld and Middleveld was good irrespective of the dry spells and ranged from tasseling to cobbing stages. However, crops in the Lowveld were wilting due to moisture deficiency. Final maize production is expected to be much lower



than average. The cumulative rainfall curve flattened for the month of February indicating a poor rainfall performance.



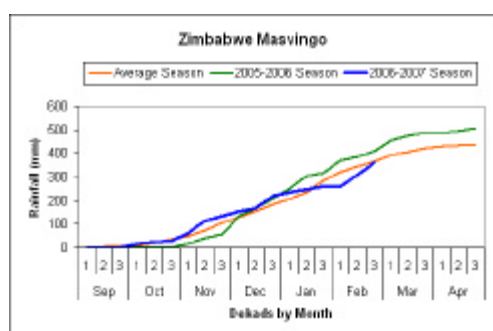
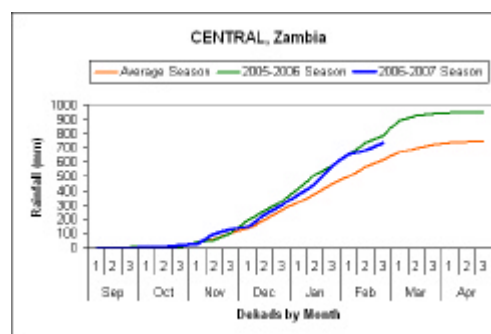
Tanzania

Heavy rains persisted over the southern half (unimodal regions) of the country throughout the month of February where some of the stations recorded monthly total rainfall amounts that exceeded 200 mm. Tukuyu, Songea, Mtwara and Ifakara recorded 242, 232, Dodoma 225, and 205 mm respectively. Incidents of flooding and hail storms were reported in Chunya (Mbeya region) and Mbulu (Arusha region) where infrastructure and several hectares of coffee trees, bananas and other crops were destroyed. Over the northern half, most parts recorded a

slight increase in rainfall activities during the month with much of the northern coast and north-eastern highlands in the bimodal areas remaining generally dry as they awaited the long rains season (Masika) due to start in March. In general, farmers in these areas finalized harvesting of vuli crop, and started land preparations for long rains (Masika) crop. The vuli crop harvest was good except for some areas in the Lake Victoria basin (Mwanza, Shinyanga, and Kagera) where excessive soil moisture levels impeded crop growth during the short rains season. In the unimodal areas, the rains continued to benefit crops predominantly at vegetative to flowering stages and a good yield was being anticipated. The rains continued to improve pasture and hence livestock condition. The cumulative rainfall graph for Ruvuma indicates a well above-average rainfall season.

Zambia

The entire country continued to record normal to above-normal rainfall during the month of February. Due to the excessive/floods, crops in the Western and North western Provinces low plains and along the banks of the Zambezi River were submerged. Livestock moved to higher ground resulting in over-grazing in some upland areas and due to confinement, there was high risk of cattle diseases outbreak. In some parts of the northern half, the crops were in good condition and had reached grain filling to maturing stages. Cumulative rainfall (RFE curve) for central Zambia indicates that above normal rains were received in February 2007.

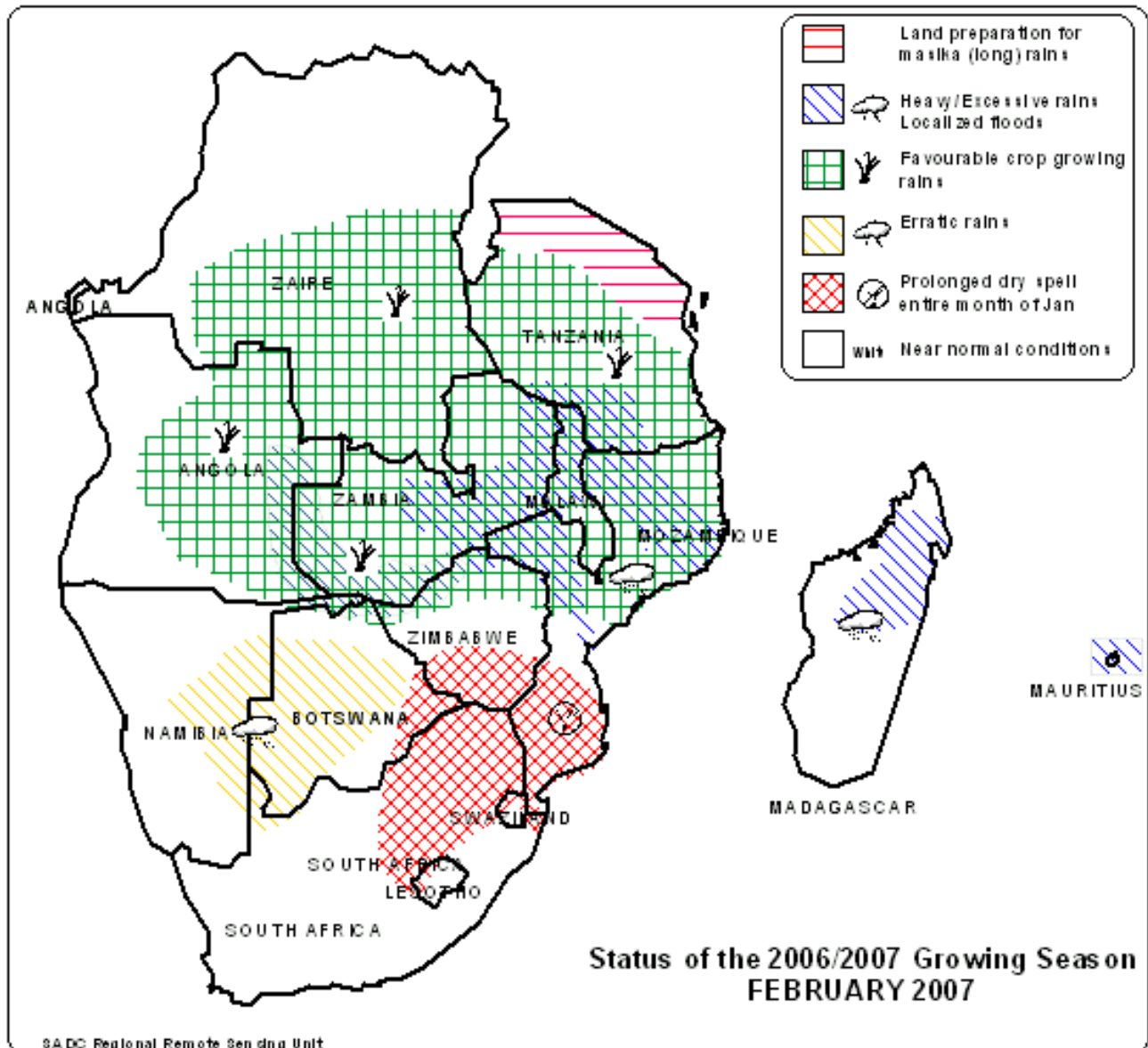


Zimbabwe

Major prolonged dry spells persisted from January to mid-February 2007 in the Manicaland, Midlands, Masvingo and Matebeleland South provinces. The southern half continued to experience erratic rains during the second and last dekads. Tropical cyclone Favio brought moderate to substantial amounts of rain during the second and third dekads of February, benefiting some of the moisture stressed maize crop in Manicaland and Masvingo provinces. Generally crops were in a fair condition even though in some areas, the maize crop was

yellowing due to nitrogen deficiency. Crops ranged from flowering to cobbing in the northern provinces. Livestock were in good condition over the northern half of country while in the south, they were beginning to feel the effects of the dry spells. The cumulative rainfall graph for Masvingo province suggests below normal rainfall performance from mid-January to first dekad of February and a sharp upward trend as substantial rains were received towards the end of February.

SITUATION MAP



ACKNOWLEDGMENTS

The Regional Remote Sensing Unit (RRSU) is pleased to present the fourth issue of the Growing Season Status Report for the 2006/2007 rainy season, covering the month of February 2007. The RRSU acknowledges financial support from Member States (through FANR) and from the EC through an EC-funded FAO project. FAO and USGS/FEWSNET provide technical support and data inputs.

The analysis presented in this bulletin is based on METEOSAT derived Cold Cloud Duration images, which are received through the Botswana Meteorological Department, Rainfall Estimates (RFE) and NOAA-NDVI from the FEWSNET Project. Ground data and interpretation are provided by collaborating national meteorological services and early warning units of the SADC Member States.

The RRSU also provides regular updates on the progress of the 2006/2007 rainy season through 10-day Agromet Updates, which are distributed by the SADC Regional Early Warning System, and posted on the SADC web-site (www.sadc.int) and the Southern Africa Flood and Drought Network site (www.sadc-hazards.net), which is maintained in collaboration with FEWS NET.

The focus of this bulletin is primarily at the regional level. However, any information available has been included in this report. *For more detailed sub-national analysis, readers should consult the national meteorological agencies and food security early warning units.*