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Minimizing Risks through Science

2017-18 SEASONAL RAINFALL FORECAST FOR ZIMBABWE

METEOROLOGICAL SERVICES DEPARTMENT

28 August 2017

THE ZIMBABWE NATIONAL CLIMATE OUTLOOK FORUM

Introduction

The Meteorological Services Department of Zimbabwe (MSD) annually convenes a National Climate Outlook Forum (NACOF) where the seasonal weather forecast for the upcoming rainfall season is presented to national stakeholders. This follows the regional forum, Southern Africa Regional Climate Outlook Forum (SARCOF). It should be noted that the SARCOF Statement is relevant only to seasonal (overlapping three-monthly) time-scales and relatively large areas and may not fully account for all factors that influence national climate variability, such as local and month-to-month variations (intra-seasonal).

Users are strongly advised to contact the National Meteorological and Hydrological Services for interpretation of this Outlook, additional guidance and updates.

Multi-sectoral stakeholders will use this planning tool which is critical for enhancing socio-economic development of the nation since weather and climate information is invaluable to all sectors of the economy.

Methodology

Using statistical, other climate prediction schemes and expert interpretation, the climate scientists determined likelihoods of above-normal, normal and below-normal rainfall for each area i.e. October-November-December (OND), and January-February-March (JFM). The climate scientists took into account oceanic (sea surface temperatures) and atmospheric factors that influence our climate over SADC region (which includes Zimbabwe), in particular the El Niño-Southern Oscillation (ENSO).

ENSO is the interaction of anomalous sea surface temperatures and atmospheric pressure over the eastern tropical Pacific Ocean (Peru and Ecuador). This phenomenon affects climatic patterns around the globe. The term ENSO refers both to El-Niño and La-Niña phenomena and the Southern Oscillation. On average El Niño and La-Niña events occur once every four to seven years in an alternating sequence. El Niño explains the warming of the eastern tropical Pacific Ocean while La Nina explains the cooling of the same region. In the case of Zimbabwe, a rainfall season that follows an El Niño has a high probability of being dry while a season that follows a La Nina event is highly likely to be wet.

A different case of a Neutral ENSO event is when its neither cooler or warmer than normal over the eastern tropical Pacific Ocean. This condition (neutral phase) is the current ENSO status and is forecast to remain so throughout the rainfall season.

Climatologically, a rainfall season associated with the neutral phase of ENSO can potentially go either way (below or above normal).

Furthermore, a quick survey of views of experts in the Indigenous Knowledge Systems also showed the same trend for the country as the scientific projections.

Seasonal Rainfall Outlook for Zimbabwe for 2017/18

The seasonal rainfall forecast is divided into two sub-seasons: October to December 2017 (OND) and January to March 2018 (JFM). The country is demarcated into three (3) zones as illustrated in **Figure 1** below.

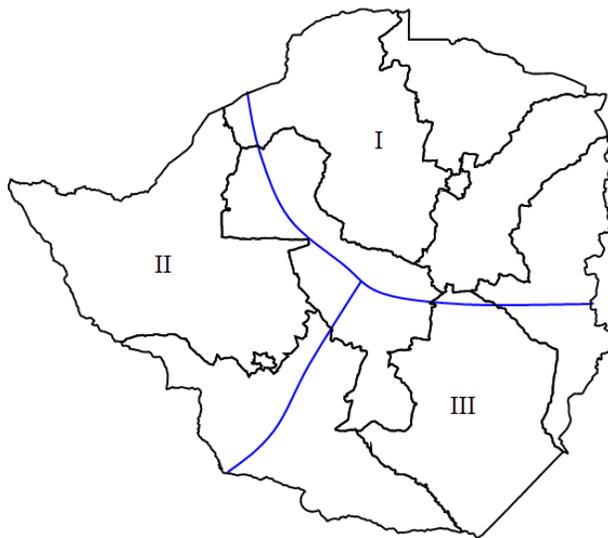


Figure 1: Zimbabwe's Homogeneous Rainfall Zones

The zones were determined using long term meteorological and physical data to delineate areas within Zimbabwe with similar characteristics (homogeneous rainfall zones). **Although they are demarcated by lines, they are in effect zones of transition.**

Present meteorological conditions and indications for the next 6 months are for the following:

a) Rainfall outlook for the October to December (OND) 2017 period

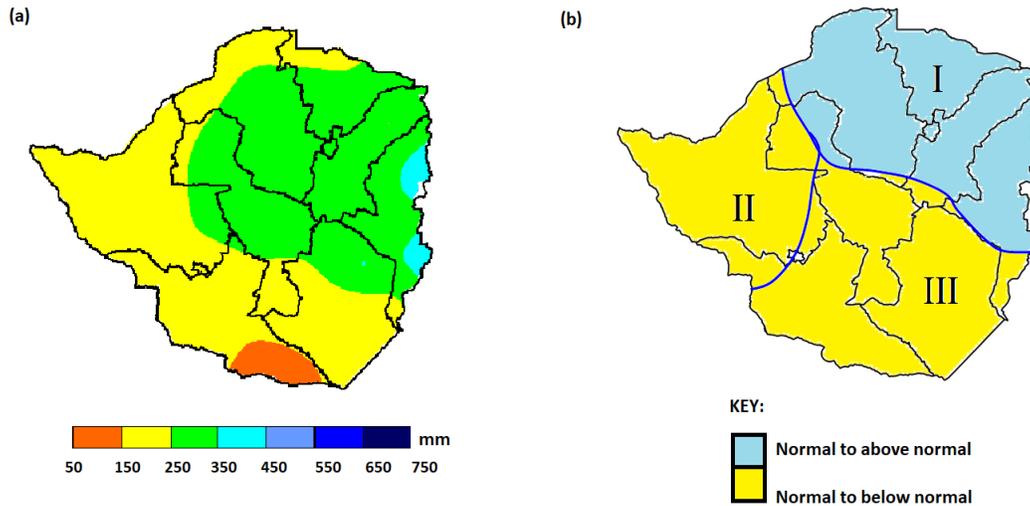


Figure 2(a) Long term mean rainfall for October-November-December (1981-2010), (b) Seasonal outlook for October-November-December.

Region I: Harare, much of Mashonaland East, Mashonaland West, Mashonaland Central, northeastern parts of Midlands, most of Manicaland
Increased chance of normal to above normal

Region II: The greater part of Matabeleland North, parts of Midlands and parts of Mashonaland West.
Increased chance of normal to below normal.

Region III: Masvingo, the bulk of Midlands, the extreme southern parts of Manicaland and the bulk of Matabeleland South.
Increased chance of normal to below normal.

(b) Rainfall outlook for the January to March (JFM) 2018 period

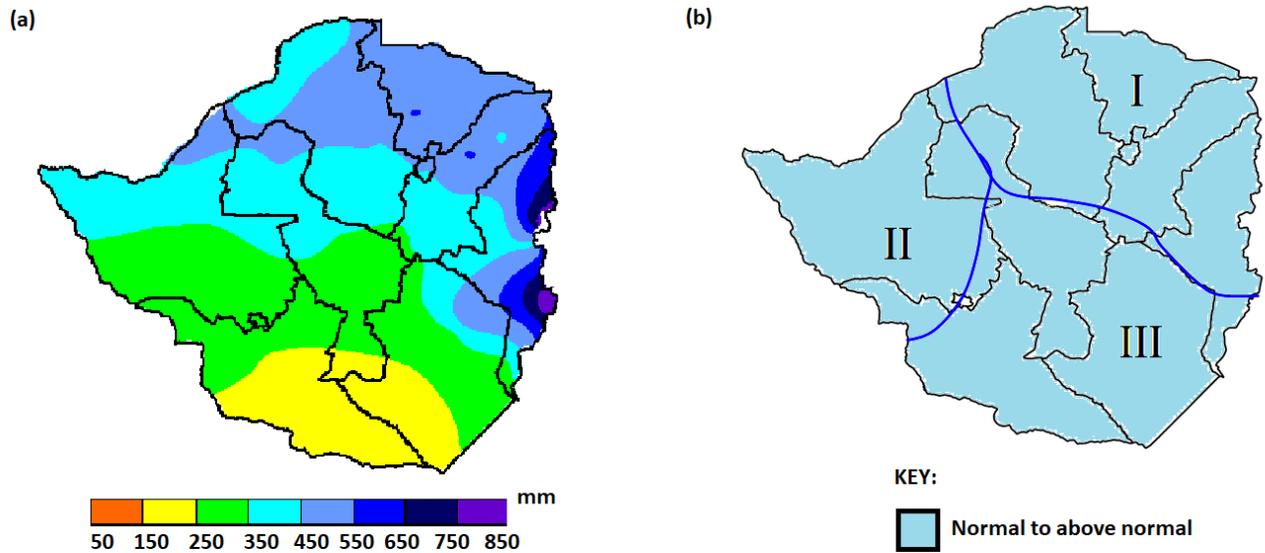


Figure 2(a) Long term mean rainfall for January-February-March (1981-2010), (b) Seasonal outlook for January-February-March.

Region I: Mashonaland Provinces, Harare, most of Manicaland, northern parts of Masvingo and northern parts of Midlands.

Increased chance of normal to above normal

Region II: The greater part of Matabeleland North, northwest Matabeleland South, Bulawayo.

Increased chance of normal to above normal

Region III: The greater part of Masvingo, the extreme southern parts of Manicaland, southeast Matabeleland South and the southern parts of Midlands

Increased chance of normal to above normal

Please Note: The Meteorological Services Department will continue to monitor all the available seasonal climate indicators which influence Zimbabwe's rainfall as they evolve. Thus, the seasonal rainfall predictions will be updated on monthly basis beginning end of October. In addition, there will be daily weather forecasts and 10-day weather bulletins that will take into account any changes.

IMPLICATIONS OF THE 2017/18 RAINFALL SEASON OUTLOOK

It is commendable that agricultural inputs have already been distributed to most regions.

Please note:

- ✚ October rains are generally erratic for rain-fed agriculture, more meaningful rains should begin in November.
- ✚ It would be prudent to put in place measures for early cloud seeding programme in light of the expected slow start of the season particularly in Regions 2 and 3
- ✚ In view of the moisture availability and suitable temperature thresholds, those with irrigation facilities should not wait for the main rains to fall. They can plant any time now, taking into account the high temperature needed for germination;
- ✚ The high temperatures and dry vegetative matter are highly conducive to run-away veld fires
- ✚ Flash floods and cyclones are likely as the season progresses

There is need to continue with water harvesting programmes.

- ✚ The policies of small dam construction and borehole drilling/ deepening, conservation and protection of wetlands should continue, more so in the Southern Provinces of the country;
- ✚ Application of fertilizers should be guided by the 10-day weather forecasts as well as advice from Agricultural authorities; (Conservation, e.g., contouring and ridging/ smart agriculture); The 10-day weather forecasts will be issued from October until April;