

### Summary

- This bulletin gives a summary of evolution of the climate systems, outlook for the October to December 2016 rainfall season, advisories and early warnings to various weather sensitive sectors including Agriculture and food security, Livestock and wildlife, Natural Resources and Tourism, Energy and water, Local Authorities, Health and Disaster Management.
- The outlook indicates that, suppressed rains is more likely to happen over most areas of the country where as sufficient rainfall is expected over few areas of the Lake Victoria basin and the Southern parts of the country.
- Onset of the season is expected to delay over most areas during the season, commencing during the first week of October over the Lake Victoria basin and few areas of northern coast.

### CLIMATE SYSTEMS OUTLOOK DURING OCTOBER TO DECEMBER, 2016

Evolution of climate systems shows that the observed cooling over Central Equatorial Pacific Ocean is likely to persist through mid-December 2016. As a whole the Central Equatorial Pacific Ocean-atmosphere system shows a leaning towards La Niña particularly for the months of October to November 2016. Cool to neutral sea surface temperature prevails over Western Indian Ocean (East African coast) while warming is dominant over the Eastern Indian Ocean (Indonesia). The predicted Sea Surface Temperature over the Indian Ocean implies weak easterly wind flow with likelihood of suppressed moisture towards East African coast. Warming over South-east Atlantic Ocean near Angola coast particularly during the months of October to December 2016 is likely to suppress westerly wind flow from Congo Basin towards the country resulting into less moisture influx into the country. Neutral conditions across the South-western Indian Ocean during the months of October and December 2016 are likely to suppress occurrence and contribution of tropical cyclones during the season. A Weak La Niña and Cooling ocean temperatures in the Indian ocean indicates that less humid air masses are likely to occur over the country during much of the October to December 2016 and may result into suppressed rainfall season. Based on current and expected climate systems, there is an elevated risk for rainfall deficit and poor distribution during the October to December 2016 rainfall season. Periods of suppressed rains are likely particularly over the Northern coast and North-eastern highlands.

### SEASONAL RAINFALL OUTLOOK DURING OCTOBER TO DECEMBER, 2016

The October to December 2016 (OND) short rainfall season (*Vuli*) is more significant for the Bimodal areas that include North-eastern Highlands, Northern coast, Lake Victoria Basin and Northern parts of Kigoma region.

#### (a) Short Rainfall Season (*Vuli*) over Bimodal areas

The onset of the season is expected to commence late over most areas. Dry spells are likely to dominate over most areas particularly during the months of October and November 2016. The rains are expected to be normal to below normal over the Lake Victoria Basin and below normal-to-normal over Northern coast and Northeastern Highlands as shown in Figure 1.

#### *Lake Victoria Basin: (Kagera, Mara, Mwanza, Geita, Simiyu and Shinyanga regions)*

Rains in these regions are expected to start in the first week of October, 2016 over Kagera region then spread to Mwanza, Geita, Mara Simiyu and Shinyanga regions by the third week of October 2016. The rains are expected to be normal to below normal over some parts of Kagera, Mwanza, and Geita regions and mainly below normal over Simiyu and Shinyanga regions.

**Northern Coast areas and its Hinterlands: (Dar es Salaam, Tanga, and Coast regions, Islands of Unguja and Pemba and northern Morogoro areas)**

Rains are expected to commence in the third week of October, 2016 over Tanga region and then spread to Dar es Salaam, Pwani, Zanzibar and Morogoro regions during the fourth week of October, 2016. The rains are expected to be below normal to normal. Periods of relatively long dry spells are likely to occur over most areas particularly during the months of October and November, 2016.

**North-Eastern Highlands: (Kilimanjaro, Arusha and Manyara regions)**

Rains are expected to start in the third week of November 2016 and are expected to be below normal-to-normal over most areas.

**(b) Seasonal Rains (Msimu) during November to April over Unimodal areas.**

Seasonal rains are more significant for unimodal areas (Western, Central, Southwestern Highlands, Southern region and Southern Coast). Rainfall Over these areas are expected to start late over most areas and are expected to be below normal to normal over most parts except for the southern coast (Mtwara region and some parts of Lindi region) and Ruvuma region where normal rains are likely to occur.

**Western areas: (Tabora, Rukwa, Katavi and Kigoma regions)**

Rains are expected to start earlier during the fourth week of October, 2016 over Kigoma, Rukwa and Katavi regions and then spread to Tabora region on the third week of November, 2016 and the overall performance is expected to be below normal to normal.

**Central areas (Singida and Dodoma regions)**

Rains are expected to start during the second week of December, 2016 and are expected to be below normal to normal over most parts of the region.

**South-western highlands: (Mbeya, Iringa, and Njombe regions and southern Morogoro areas)**

Rains are expected to start during the second week of December, 2016 and are expected to be below normal to normal over most parts of the region.

**Southern Region and Southern Coast: (Ruvuma, Mtwara and Lindi regions).**

Rains are expected to start during the second week of December, 2016 and are expected to be below normal-to-normal over most parts except for Mtwara, south of Lindi region and some parts of extreme South-East of Ruvuma regions.

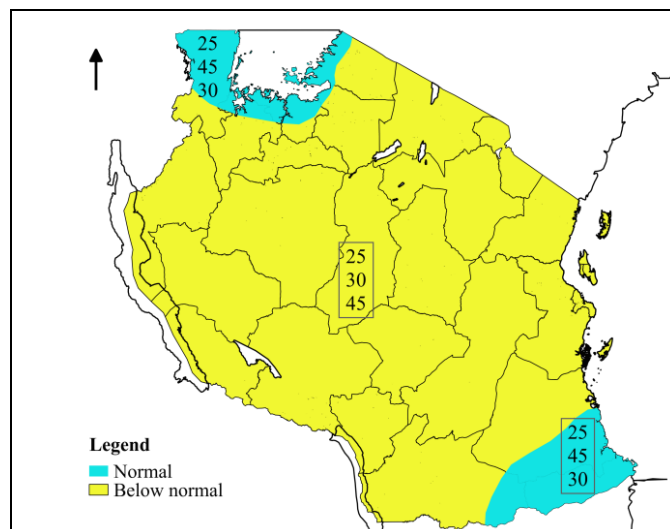


Figure 1: Rainfall outlook for coming rainfall season October to December, 2016

**EXPECTED IMPACTS AND ADVISORY DURING OCTOBER TO DECEMBER, 2016**

**Agriculture and Food Security**

The expected below normal rains associated with late onset over most parts of the country are likely to result in inadequate soil moisture, which may adversely impact crop production and pastures for livestock. Farmers are advised to prepare their farms and acquire agricultural inputs early enough while making appropriate land use management and right choice of crop varieties. Farmers are also advised to store and use properly the available yield so as to sustain their households in case of shortage.

**Pastures and Water for Livestock and Wildlife**

Episodes of delayed start of the rains and intermittent dry spells anticipated during the season may lead to insufficient pasture, drying of livestock water infrastructures, subsequent outbreak of livestock diseases and increase of conflicts between water users and Pastoralists. Pastoralists in those areas are advised to store enough animal feeds for use during the dry season, to harvest their livestock earlier when they still have good condition and to keep livestock according to the grazing areas capacity. Due to high likelihood of disease outbreak, regular dipping and vaccination against pests and diseases are highly recommended.

**Water and Energy**

Shortage of water in dams and hydro power plants reservoirs are expected. Therefore, the available water in the dams has to be used sparingly. The likelihood of decrease of water levels in rivers and lakes may cause conflict among the water users. In this regard,

necessary mitigation measures such as water harvesting and storage practices are highly recommended.

**Health sector**

Due to the anticipated shortage of water, the community may be forced to utilize unsafe water. Therefore, there is a likelihood of outbreak of water borne diseases. Relevant Authorities concerned with public health and individuals are advised to take appropriate health measures needed to minimize the expected negative impacts on health.

**Local Authorities**

Due to the fact that even in below normal rainfall areas, short periods of heavy rains are also expected, water drainage systems should be opened and cleaned so as to avoid water accumulation due to surface runoff and floods that may cause damage of infrastructures and loss of lives and property.

**Disaster Management**

Disaster management authorities and other stakeholders are advised to take necessary measures such as good practice of environmental conservations and ensure preparedness, response, and mitigation plan are in place to reduce any negative impacts that may result from the expected below normal rainfall.

**Media**

The media is advised to obtain, make regular follow-up and disseminate weather and climate information and warning including the updates as provided by TMA. Moreover, Media is encouraged to seek and obtain inputs from relevant sectors when preparing and communicating cross cutting issues related to Weather and Climate to the Public.

**NOTE:** The current status of seasonal forecasting allows for prediction of spatial and temporal averages and may not fully account for all physical and dynamical factors that influence short-term climate variability. Users of this outlook are, therefore urged to make good use of daily, ten day and monthly updates issued by TMA. TMA also advises all users of weather information including farmers, livestock keepers, wildlife conservation authorities, hydrological and health sectors to continue seeking, and following experts' advice on their relevant sectors.

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