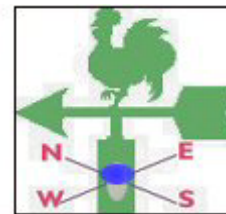




# TANZANIA METEOROLOGICAL AGENCY



## MONTHLY WEATHER BULLETIN

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### HIGHLIGHTS

Crops over unimodal areas are expected to benefit from normal rainfall although in areas where above normal rains are expected, there is a likelihood of excessive soil moisture levels mainly over low lying farms resulting into leaching of nutrients, hence affecting crop management. For farm operations farmers are advised to follow weather forecasts issued by the Tanzania Meteorological Agency.

### SYNOPTIC SITUATIONS

Follow up observations show that the southern hemisphere high pressure systems particularly the Mascarene portrayed gradual relaxation during the month of December 2012, in the northern hemisphere, the Azores, Siberia and Arabian ridge demonstrated steady intensification. This situation resulted into shifting of Inter-Tropical Convergence Zone (ITCZ) to the southern sector of the country though it stayed diffused over much of the eastern sector of the country due to existence of the troughs in central Indian Ocean rendering all these areas to low moisture feeding from Indian Ocean. The ITCZ was quite active in central tropical Indian Ocean whereby the sea surface temperatures were observed warmer than the western and eastern counterparts. It was obsolete over much of eastern half of the country and re-emerged active over the western parts of the country.

### WEATHER SUMMARY

### RAINFALL

During the month of December 2012 poor rainfall distribution was experienced over much of the northern coast, northeastern highlands and the Islands of Unguja and Pemba as compared to other parts of the country mainly the Lake Victoria basin, western, central and southern regions as well as the southwestern highlands that generally received quite significant rainfall amounts. The highest amount of rainfall for the month was recorded at Matangatuani Agromet station in Pemba

(287.3 mm), followed by Tukuyu (235.3 mm), Tabora (227.4 mm), Mbozi (226.4 mm), Bukoba (219.2 mm), Mugumu (218.7 mm), Singida (201.9 mm), Sumbawanga (200.3 mm), Kibondo (194.5 mm), Shinyanga (190.8 mm), Kilwa (186.3 mm), Iringa (173.5 mm), Babati (173.3 mm), Songea (171.9 mm), Tumbi (Mwanza (164.3 mm), Pemba (157.7 mm), Dodoma (155.2 mm), Mpanda (147.6 mm), Mahenge (147.6 mm), Mahenge (147.1 mm), Ukiriguru (138.2 mm), Zanzibar (137.0 mm), Kigoma (136.1 mm), Namanyere (127.8 mm), Mbeya (122.7 mm), Mlingano (116.5 mm), Igeri (116.2 mm), Arusha (115.6 mm), Same (114.9 mm), and Uyole (101.4 mm). Remaining stations recorded rainfall below 100 mm with a few obtained below 50 mm as depicted in Figure 1 below.

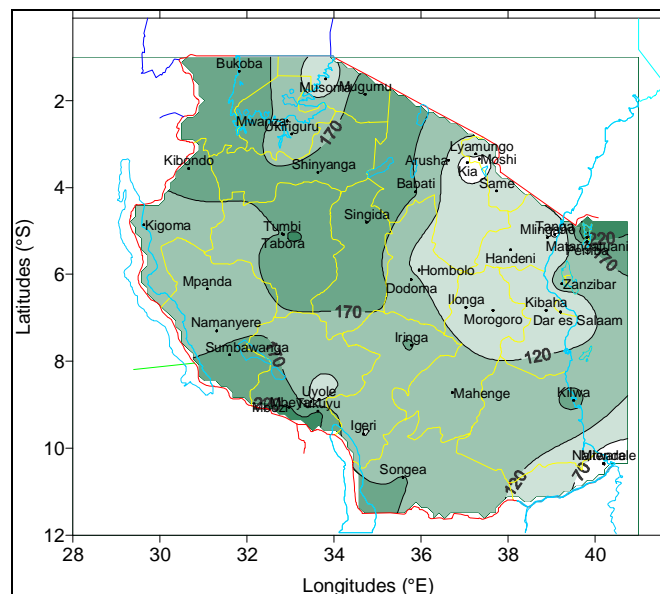
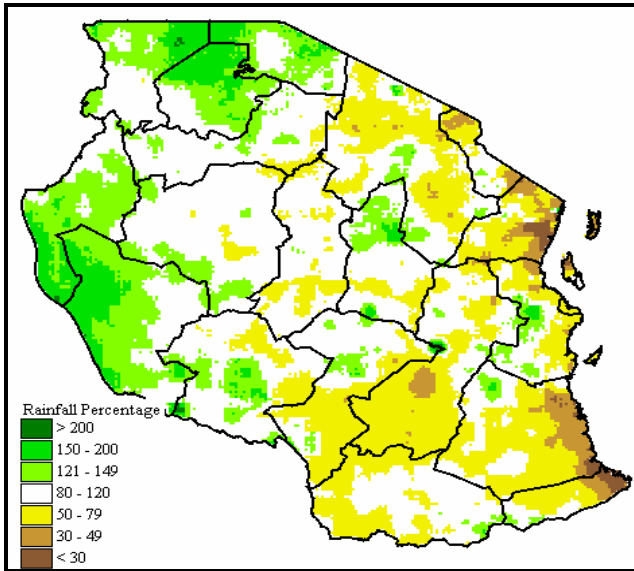


Figure 1: December 2012 Rainfall distribution in (mm)

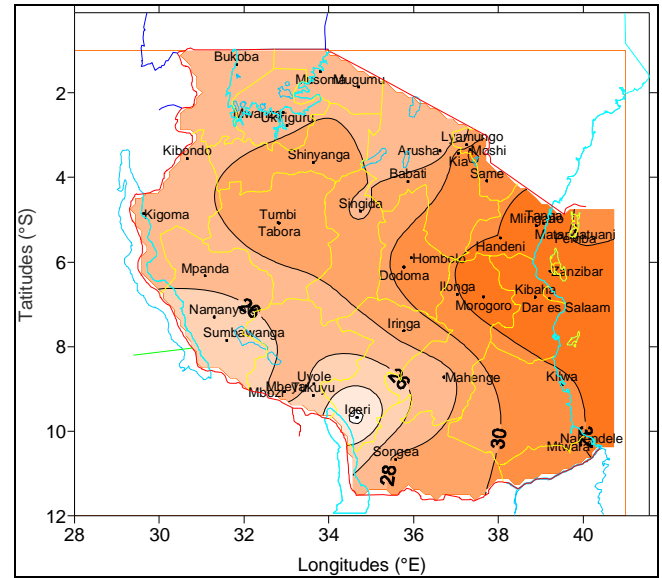


**Figure 1b:** Percentage of rainfall for 1st October to 31st December 2012 as depicted by the Geospatial Water requirement Satisfaction Index (GeoWRSI) model with Improved Rainfall Estimates from Satellite Rainfall Estimates (RFE) and gauge data from Tanzania rainfall stations networks.

The October – December 2012 rainfall season Rainfall from 1st October to 31st December depicts poor performance of below 80% of the average over northeastern highlands, coastal and south of Morogoro region, with pockets of less than 30% observed mainly over northern and coastal belts as shown in Figure 1b.

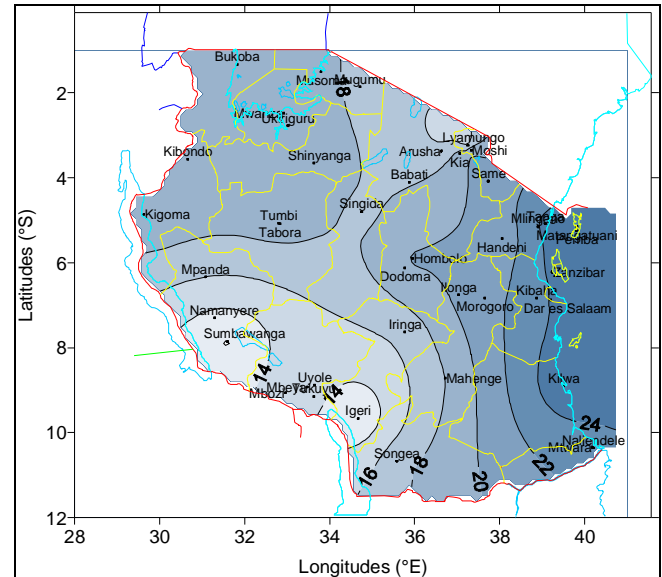
**MEAN AIR TEMPERATURE**

Mean maximum temperature during the month ranged between 21.3°C and 33.5°C as indicated in Figure 2A below. The highest absolute maximum temperature of 33.6°C was observed at Kibaha during the first dekad of the month. The lowest absolute maximum temperature was 21.0°C that observed during the third dekad of the month over Igeri station in the southwestern highlands.



**Figure 2A:** December 2012 Mean maximum temperature (°C)

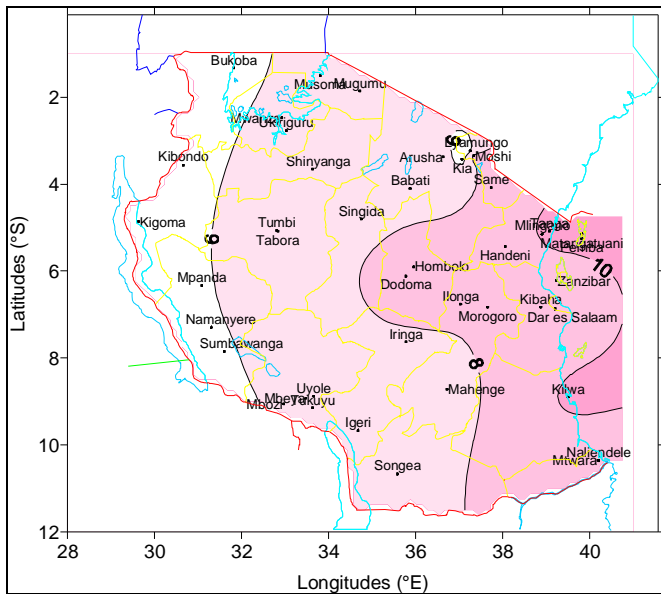
Temperatures were relatively high as was evident over almost the whole country during the month with the lowest observed values obtained over Igeri in the southwestern highlands, as indicated in Figs 2A and 2B. The mean minimum air temperatures ranged from 11.8 °C to 25.6°C, whereby the lowest absolute minimum temperature value was 11.3°C recorded at Sumbawanga during the third dekad of the month, and the highest absolute minimum was 26.3°C recorded at Kilwa during the third dekad of December.



**Figure 2B:** December 2012 Mean minimum temperature (°C)

**MEAN SUNSHINE DURATION**

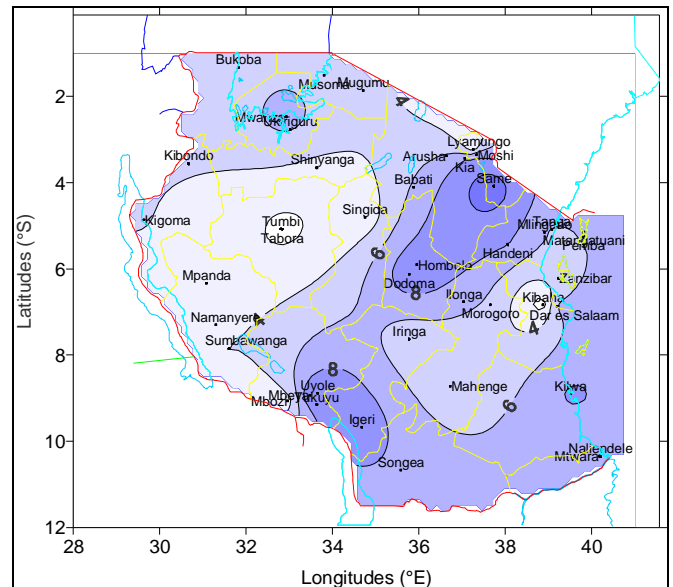
Sunshine durations across the country during the month of December 2012 ranged from about 5 hrs per day as the shortest duration observed around Kigoma to about 11 hrs per day as recorded over Tanga in the northern coast areas of the country as shown in Figure 3.



**Figure 3:** December 2012 Mean sunshine hours (hrs/day)

**MEAN WIND SPEED**

Mean wind speed during the month of December 2012, ranged from 1 to 11km/hr across the country. The highest wind speed was 12.2 km/hr recorded over Same in the second dekad, while the lowest wind speed value was 0.7 km/hr obtained over Kibaha in the third dekad of December, as depicted by Figure 4.



**Figure 4:** December 2012 Mean Wind speed (km/hr)

**AGROMETEOROLOGICAL SUMMARY**

During the month of December 2012 soil moisture supply was observed at beneficial levels mainly in the second half of the month when much of the country obtained improved soil moisture levels for the crop requirement, except for a few areas of the central, eastern, southern coast, and southern sectors where soil moisture deficit was pronounced. Early planted crops including maize and beans over parts of Lake Victoria basin particularly Kagera and Mara regions were progressing well and observed at advanced growth stages ranging from ninth leaf to near tasselling as for maize, while budding to wax ripeness stage for beans, with their state being generally good to moderate. Some pocket areas particularly over Lyamungu, Moshi and Same in Kilimanjaro region reported crops that were severely hampered due to soil moisture deficits which largely hit over parts of northeastern highlands and northern coast causing poor to moderate state of crops before the slightly revamped soil moisture status obtained towards the end of the month. However, over the unimodal rainfall pattern particularly central, southwestern highlands, southern region and southern coast the moderate to substantial soil moisture obtained was beneficial for planting and crop establishment being the major field activities during the dekad.

Pastures and water availability for livestock and wildlife have improved over much of the country.

### AGROMETEOROLOGICAL OUTLOOK

Expected normal rainfall during January beneficial for field crops at growth and development stages although over unimodal areas the expected above normal rains is likely to cause excessive soil moisture levels mainly over low lying areas which can result into leaching of nutrients, death of some crops, hence affecting crop management. For farm operations farmers are advised to follow weather forecasts issued by the Tanzania Meteorological Agency.

### HYDROMETEOROLOGICAL SUMMARY

Water levels in lakes, dams and river flow discharges including their respective catchments had not improved much during OND 2012.

### ENVIRONMENTAL SUMMARY

Temperatures over most areas in the country were relatively high mainly towards the end of the month, causing uncomfortable conditions over some areas including coastal regions.

### EXPECTED SYNOPTIC SITUATION DURING JANUARY 2013

For the month of January, 2013 the southern hemisphere high pressure systems are expected to relax further particularly over the Mascarene.

Their counterparts to the northern hemisphere are expected to continue intensifying. This move is expected to favour further migration of the ITCZ to influence much of unimodal areas of the country. Sea surface temperatures are expected to be above normal over much of south west Indian Ocean close to Tanzanian coast. This situation will likely to trigger instability in this domain and thus pressure gradient with north western Tanzania and hence favourable scenario for enhanced convection and thus rainfall across much of the country during January 2013.

### EXPECTED WEATHER SITUATION DURING JANUARY 2013

During this month, seasonal rains are expected to continue satisfactorily over central, western, southwestern highlands, southern areas and southern coastal areas. It is very likely that they will perform well during this month over the unimodal areas. It is also likely that off seasonal rains will be experienced in some areas of the bimodal areas. Detailed forecasted distribution over the country during the period is as follows: Lake Victoria Basin (Kagera, Mwanza, Mara and Shinyanga regions): Normal to below normal rains. Northern coast (Dar es Salaam, Morogoro and Tanga regions, the isles of Unguja and Pemba), northeastern highlands (Kilimanjaro, Arusha and Manyara regions), and western regions (Kigoma, Rukwa and Tabora regions) are expected to feature normal rains. Central areas (Dodoma and Singida regions), southwestern highlands (Southern Rukwa, Iringa and Mbeya region), southern region (Ruvuma region), and southern coast (Mtwara and Lindi regions) are expected to experience normal to above normal rains.

NOTE: Due to the influence of climate variability and change, the normal rains over most areas have associated with poor spatial and temporal distributions, thus not very useful to meet normal operational activities in agriculture, water and energy.

Prepared by

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