TANZANIA METEOROLOGICAL AGENCY

MONTHLY WEATHER BULLETIN

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HIGHLIGHTS

- Much of bimodal sector continued experiencing low soil moisture conditions leading to moderate to poor crop states.
- In December temperatures over most areas in the country were generally warm leading to uncomfortable conditions, and the trend is towards warming during the coming month.

SYNOPTIC SUMMARY

During December 2010, southern hemisphere systems (Mascarene and St. Helena anticyclones) generally relaxed slightly while the Siberian Anticyclone in the northern hemisphere continued to intensify contributing to extension of the Arabian ridge into the northeastern highlands of the country while the Azores anticyclone intensified slightly due to warming over the area. The meridional arm of the rain-making mechanism i.e. Inter-Tropical Convergence Zone (ITCZ) was occasionally active over central and western parts of Africa but the zonal arm remained diffused over the eastern sector of the country. *La Niña* conditions (below normal sea surface temperatures) continued to persist over much of equatorial Pacific Ocean with a maximum cooling reaching around -2.5°C. Equatorial Sea Surface Temperatures (SSTs) were above average across much of Atlantic, southeastern Indian and north-western towards western Pacific Oceans. The area covering central to western Indian Ocean continued to experience near neutral SSTs conditions. Low level easterly to southeasterly wind flow associated with relatively less moisture dominated most parts of Tanzania, but the northeastern sector of the country featured a northeasterly wind flow during the end of the month.

WEATHER SUMMARY

RAINFALL

The month of December 2010 observed increased rains in several parts of the country mainly over the unimodal sector (Central, Western, Southwestern and Southern areas).

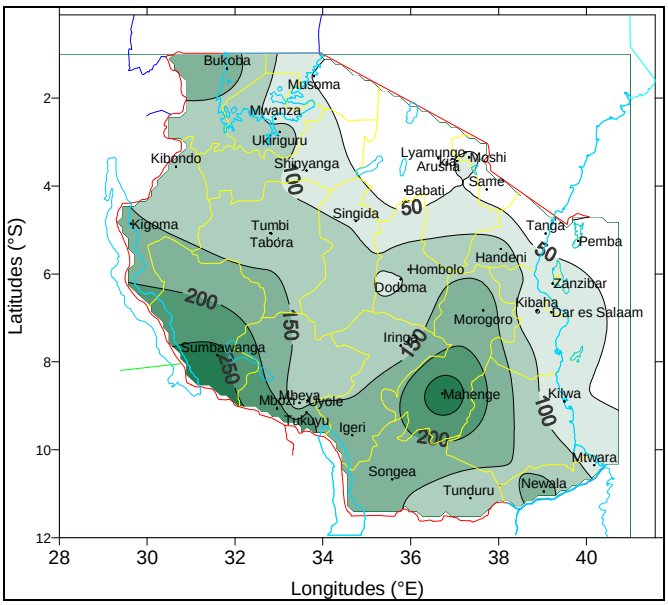

Fig. 1: Dec 2010 Rainfall distribution in millimeters

The highest total rainfall amount for the month was recorded at Mahenge 296.9 mm, followed by Sumbawanga 265.2mm, Mbozi 228.7mm, Tukuyu 204.6 mm, Morogoro 181.6 mm, Bukoba 176.3 mm, Newala 166.0 mm, Igeri 159.2 mm, Songea 158.3

mm, Kigoma 158.0 mm, Tabora 154.9 mm, Hombolo 136.1 mm, Ukiriguru 133.2 mm, Uyole 126.2 mm, Handeni 122.7 mm, Iringa 115.4 mm, Kibondo 107.8 mm, Tunduru 106.7 mm and Zanzibar 102.4 mm. The rest of the stations recorded rainfall amounts below 100 mm, with northeastern highlands receiving below 50 mm of rainfall for the period as depicted in Figure 1 above.

MEAN AIR TEMPERATURE

Temperatures were generally high over much of the country except for a few highland areas where temperatures were slightly low as indicated in Fig. 2A.

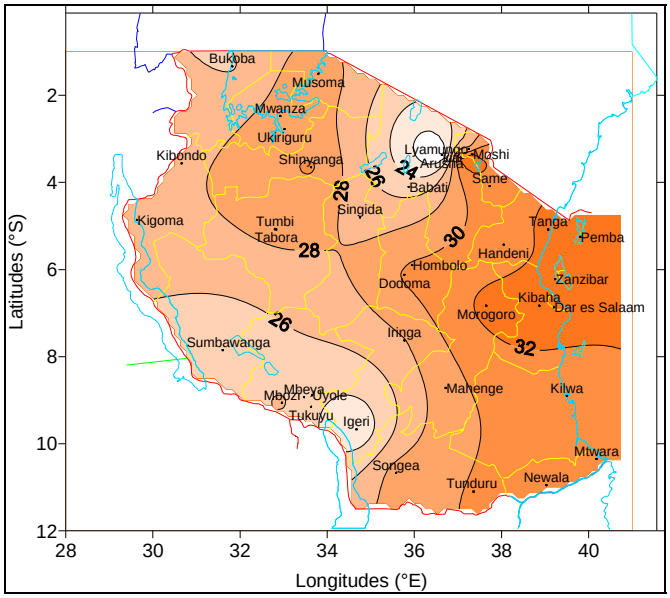

Fig 2A: Dec. 2010 Mean Maximum Temperature (°C)

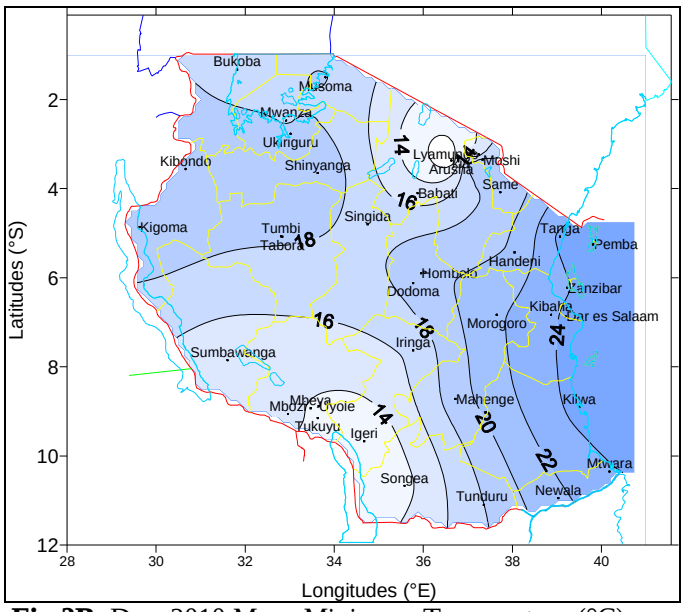

Fig 2B: Dec. 2010 Mean Minimum Temperature (°C)

The coastal region and its hinterlands, parts of northeastern highlands, central and Shinyanga regions, recorded monthly mean maximum temperatures exceeding 30 ºC as indicated in Figure 2A. Mean maximum air temperature values ranged between 23ºC and 32 ºC. Morogoro recorded the highest mean maximum temperature of 33.7 ºC and absolute maximum temperature of 34.3°C during the first dekad of the month. Igeri over southwestern highlands recorded the lowest day time values in the second dekad with a maximum temperature of 22.9°C.

Mean minimum air temperatures recorded ranged from 12ºC to 24.0ºC as shown in Fig 2B. The lowest value of mean minimum temperature recorded was 11.3°C at Igeri with absolute minimum temperature 10.7 ºC recorded during first dekad of the month.

MEAN SUNSHINE HOURS

Sunshine duration records across the country during December show that the mean bright sunshine hours ranged from 4 hrs/day over western Lake Victoria basin, northeastern highlands, and southern areas to about 10 hrs/day over eastern sector of the country including coastal areas as shown in Figure 3.

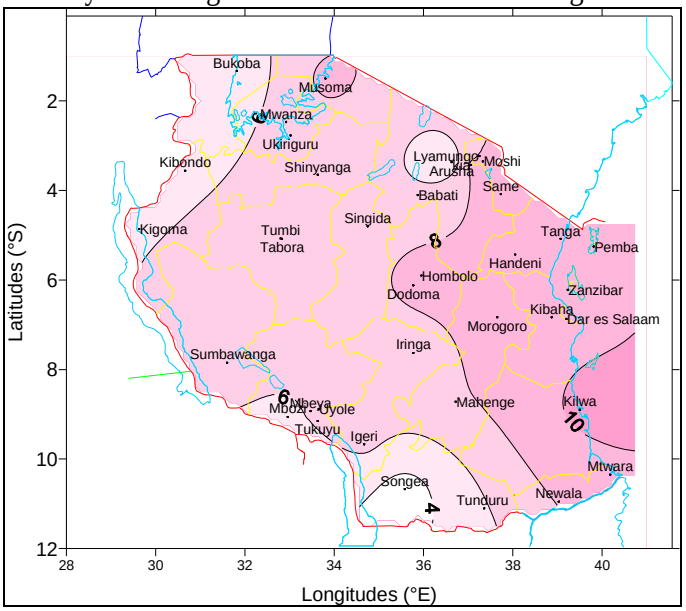

Fig 3: December 2010 Mean Sunshine Hours (hrs/day)

MEAN WIND SPEED

Mean wind speeds across the country ranged from 4 to 12 km/hr during the month as shown in

Fig 4. Same district in the northeastern highlands experienced wind speed exceeding 12 km/hr. Low wind speed of below 4 km/hr was recorded over parts of northern coast.

Windy and dry conditions significantly increased loss of water through evapotranspiration.

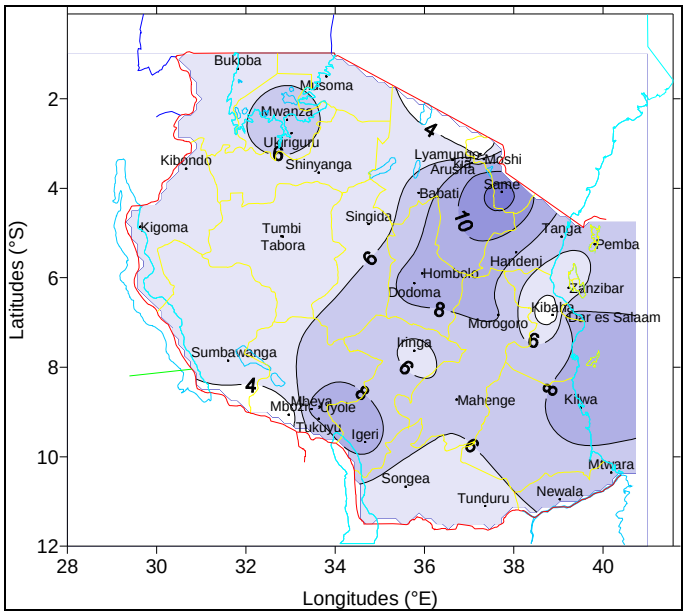

Fig 4: December 2010 Mean wind speed (km/hr)

AGROMETEOROLOGICAL SUMMARY

Replenishment of soil moisture that spread over much of unimodal areas of the country during the month convinced most farmers to engage in farming activities, thus field work including land preparation and planting were carried out concurrently to save on time as practiced in several parts of the country such as Tabora (Nzega district), Shinyanga, Morogoro (Ifakara, Ilonga), Mbeya (Uyole) and Ruvuma (Tunduru and Songea districts) regions.

On the other hand much of bimodal sector continued experiencing low soil moisture conditions leading to moderate to poor crop states. Crops over Lake Victoria basin (Biharamulo, Sengerema, Kibondo, Tarime and Kibondo districts) were reported at various growth and development stages ranging from emergence to tasseling as for maize while beans was between budding to near ripeness stages and both in moderate to poor state. Over northern coast (Pangani and Handeni districts), maize were at between emergence to vegetative stages in poor to moderate state. Northeastern highlands particularly Same district reported maize at vegetative stage in poor state while at Lyamungo and Moshi districts beans were at emergence to flowering stage in good state except Rombo that reported maize and beans in moderate state.

Wet conditions over some areas during the month increased availability of water and pastures for livestock and wildlife.

HYDROMETEOROLOGICAL SUMMARY

Water levels in lakes, dams and river flows have regained due to the moderately wet conditions, however water for human and industrial usage and hydro power generation should still be used sparingly.

ENVIRONMENTAL SUMMARY

Temperatures over most areas in the country were generally high associated with high humidity leading to uncomfortable conditions. The trend is towards warming during the coming month.

EXPECTED SYNOPTIC SITUATION DURING JANUARY 2011

During the month of January 2011, the Siberian high with the Arabian ridge are expected to intensify more while Azores high is expected to intensify slightly. The St. Helena and Mascarene highs are expected to relax slightly and hence provide room for the rain belt (ITCZ) to migrate southwards towards the equatorial areas. However, the ITCZ is expected to be diffused over the eastern half of the country particularly over northern coast. Intensification of the Siberian High and the associated Arabian ridge are likely to allow northerly to northeasterly wind flow towards the country. The SSTs over the central to eastern equatorial Pacific Ocean are expected to continue to be below normal (*La Nina* conditions) while above average SSTs conditions over the tropical western Pacific Ocean and eastern Indian Ocean (areas around Indonesia)

are expected. Near neutral equatorial SSTs over the central towards western Indian Ocean are expected with few pockets of slightly below normal SSTs. Above average SSTs across much of Atlantic Ocean are expected with pockets of below average over the central part of the Ocean. *La Niña* conditions are predicted to persist across much of the Pacific Ocean and the maximum cooling is expected to reach -2.5°C. Similarly, in the Indian Ocean, there is a likelihood of enhanced convection over Indonesia and suppressed convection over central towards western Indian Ocean. This will lead to less moisture injection towards the country as a result of a dry northeasterly and a weak easterly wind flow. A slight relaxation of Azores High is likely to trigger weak westerly to northwesterly wind flow towards western and central areas of the country, which are likely to bring less moisture over the areas from the Congo basin.

EXPECTED WEATHER DURING JANUARY 2011

Lake Victoria basin (Kagera, Mwanza, Mara and Shinyanga regions): is likely to feature below normal rainfall and thunderstorms over few areas.

Western regions (Kigoma, northern Rukwa and Tabora regions): are likely to feature below normal to normal rainfall and thunderstorms over few areas.

Southwestern highlands (Southern Rukwa, Iringa and Mbeya region): are likely to feature normal to above normal rainfall and thunderstorms over some areas.

Northern coast (Dar es Salaam and Tanga regions, the isles of Unguja and Pemba): is likely to feature below normal rainfall.

Central areas **(**Dodoma and Singida regions): is likely to feature normal rainfall and thunderstorms over some areas.

Northeastern highlands (Kilimanjaro, Arusha and Manyara regions)**:** is likely to feature below normal rainfall.

Southern region (Ruvuma region)**:** is likely to feature normal rainfall and thunderstorms over some areas.

Southern coast (Mtwara and Lindi regions) is likely to feature mainly normal rainfall.

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