TANZANIA METEOROLOGICAL AGENCY

MONTHLY WEATHER BULLETIN

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HIGHLIGHTS

Most parts of bimodal rainfall pattern mainly over northeastern highlands and northern coast experienced an acute soil moisture deficit that has critically worsened *Vuli* crops in the region.

SYNOPTIC SUMMARY

During the month of September - December 2008, there was enhanced convection over the central Indian Ocean which disorganized the Inter-Tropical Convergence Zone (ITCZ) thus suppressing weather over the country. This situation was associated with development of tropical cyclones such as "*Asma* " and '*Cinda*' which occurred over the Indian Ocean, east of Madagascar. These tropical cyclones have significantly changed seasonal rainfall systems leading to rainfall reduction over bimodal rainfall areas mainly in the northern coast and northeastern highlands.

WEATHER SUMMARY

RAINFALL

During December the short rains (*Vuli*) continued declining over most parts of bimodal rainfall pattern areas (Lake Victoria basin, northeastern highlands, and northern coast), suggesting the end of the season in the region. However, over unimodal sector the season generally started well and in time. Records from the sample stations indicate higher rainfall amounts above 100 mm collected in the bimodal sector. The highest was in Mahenge 208.7 mm followed by Tabora 201.9 mm, Sumbawanga 179.8 mm, Tukuyu 176.7 mm, Mbeya 171.8 mm, Songea 161.0 mm, Bukoba 133.6 mm, Shinyanga 132.4 mm, Kigoma 127.9 mm, Uyole 122.1 mm, Iringa 108.5 mm and Dodoma 102.2 mm.

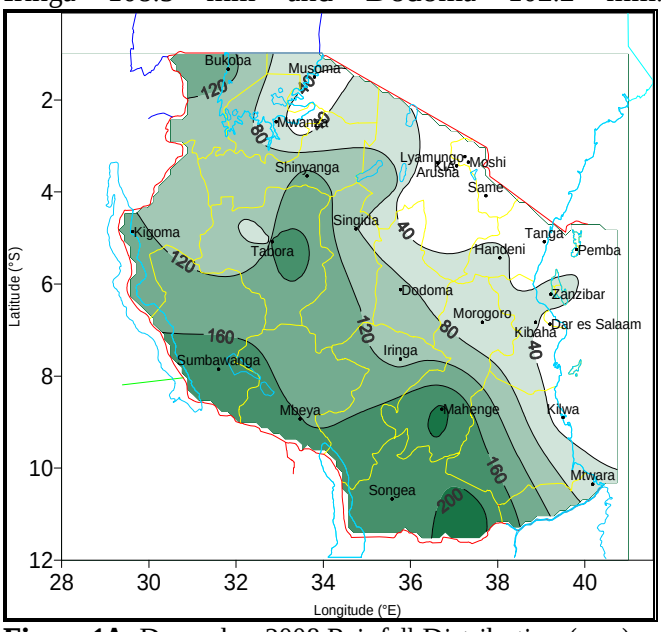

Figure 1A: December 2008 Rainfall Distribution (mm)

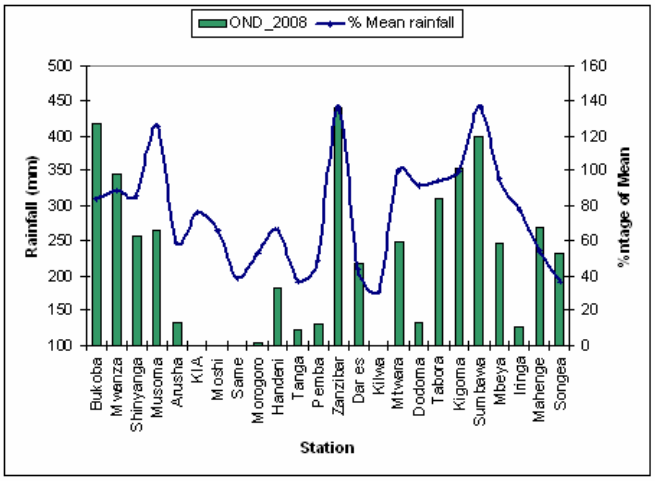

Figure 1B: Rainfall Performance during OND (October to December) 2008 Rainfall Season

Other stations mostly over bimodal sector reported rainfall below 40 mm for the month as shown in Figure 1A.

The October – December (OND) short rains "*Vuli*" rainfall season did not perform well as most of the bimodal areas received below normal rains (<80% of normal) with the northeastern highlands and northern coast being the most affected areas as indicated in Figure 1B.

MEAN AIR TEMPERATURE

Warm temperatures were experienced over much of the country during the month indicating persistence of the warm season. The mean maximum temperature ranged between just above 33 ºC and below 25 ºC as indicated in Figure 2A. The highest mean maximum temperature recorded during the month was about 33.7 °C at Moshi with an absolute highest maximum of about 34.8 °C during the third dekad of the month. The lowest mean maximum temperature was about 23.4 °C over Sumbawanga in the southwestern highlands. The mean minimum air temperature ranged from just below 12 ºC to slightly above 25 ºC.

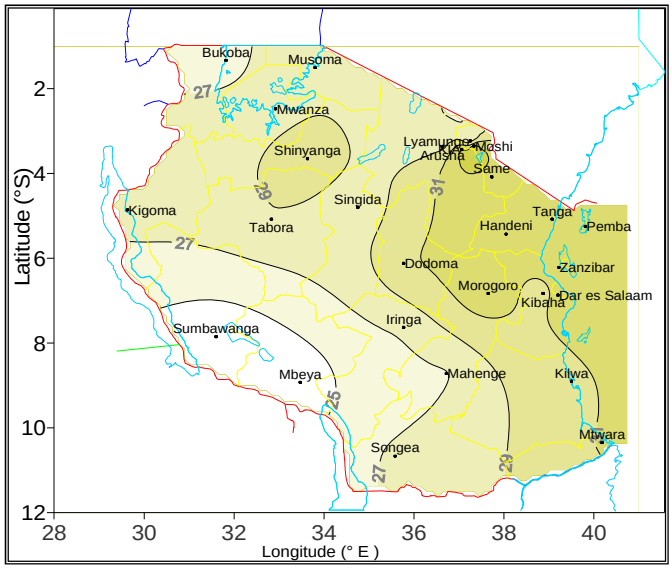

Figure 2A: December 2008 Mean Maximum Temperature (°C)

The lowest value of the mean minimum temperature of about 12.8 °C was recorded at Arusha, while the highest value of about 24.9°C was observed at Tanga and Pemba in the northern coast as shown in Fig. 2B.

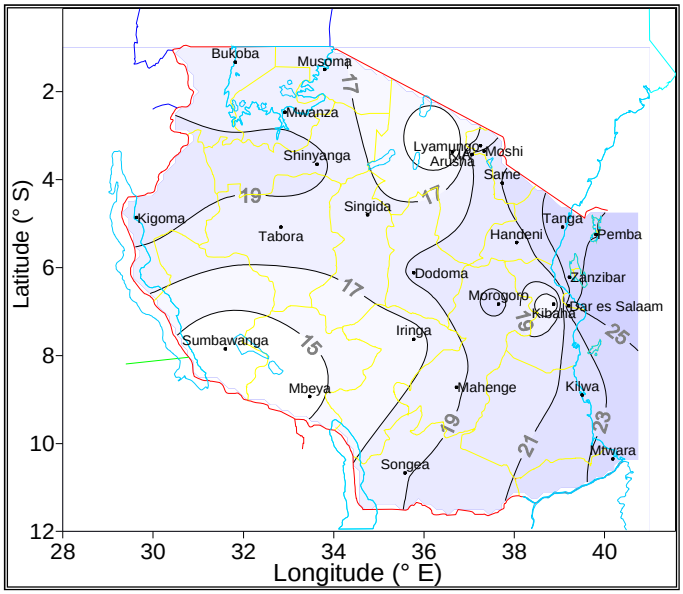

Figure 2B: December 2008 Mean Minimum Temperature (°C)

An absolute minimum temperature of about 12.4°C was also recorded at Arusha during the third dekad of the month.

MEAN SUNSHINE HOURS

Sunshine duration across the country during December indicates that the mean bright sunshine hours ranged from about 4 hrs/day to 10 hrs/day as shown in Figure 3.

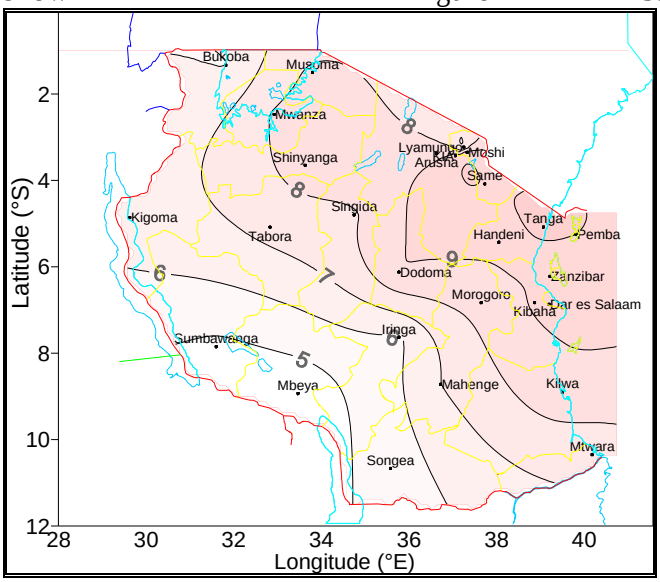

Figure 3: December 2008 Mean Sunshine Hours (hrs/day)

Long bright sunshine hours (> 9 hrs/day) occurred over coastal belt and northeastern highlands including islands of Zanzibar and Pemba. Cloudy conditions shortened bright sunshine durations (< 4 hrs/day) over southwestern highlands as depicted in Figure 3.

MEAN WIND SPEED

During the period mean wind speeds across the country ranged between about 1 to 15 km/hr as indicated in Figure 4. Some parts of northeastern highlands experienced windy conditions that exceeded 15 km/hr. Slight wind conditions and low wind speeds of below 4 km/hr were recorded over east and south of Lake Victoria basin, parts of Tabora and Shinyanga regions as well as parts of southwestern highlands as shown in Figure 4. However windy conditions have increased occurrences of higher evaporation rates.

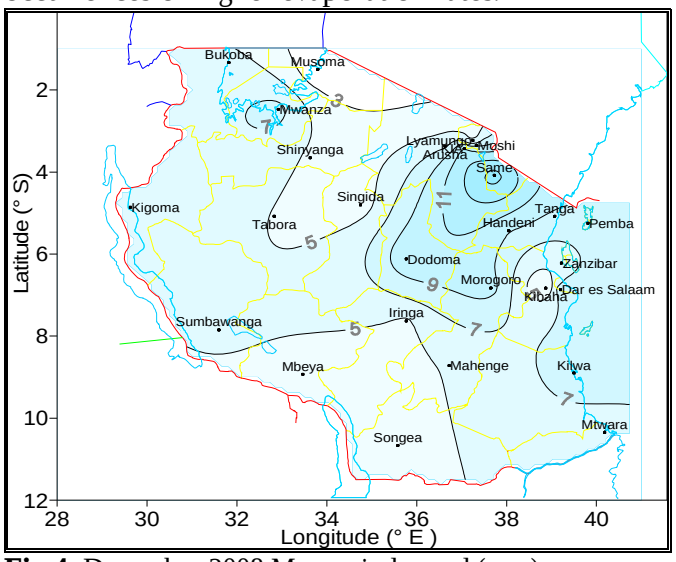

Fig 4: December 2008 Mean wind speed (mm)

SATELLITE INFORMATION

Mean vegetation condition during the month of December is indicated in Figure 5 in a NOAA satellite imagery, depicting the Normalized Difference Vegetation Index (NDVI). The status of vegetation condition was generally poor over northeastern highlands (Arusha, Kilimanjaro, and Manyara regions), as depicted by low to very low NDVI levels in Fig. 5. However, areas over the coastal belt, western, and Lake Victoria Basin indicate medium to high vegetation greening as a result of improved soil moisture levels. Moderate vegetation conditions persisted during December over central regions and parts of northeastern highlands depicting declined pasture supply for livestock and wildlife.

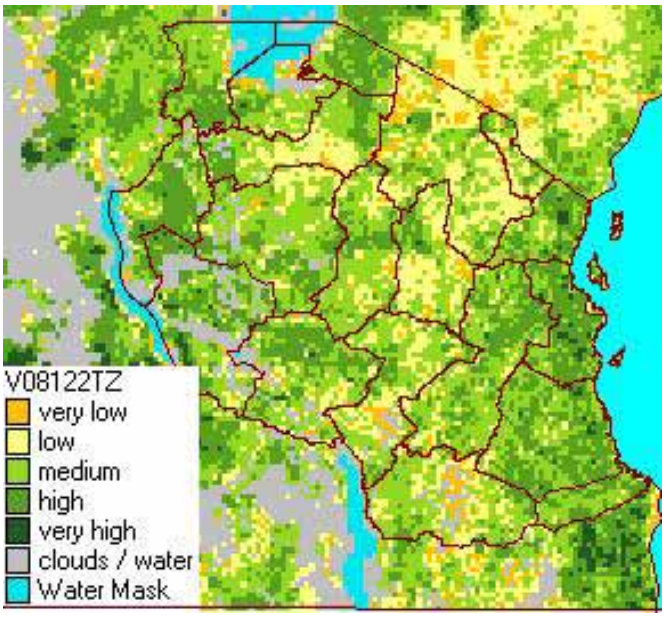

Fig 5: Vegetation condition for the period of Dec, 2008

AGROMETEOROLOGICAL SUMMARY

During December most parts of bimodal areas, except west of Lake Victoria Basin experienced acute soil moisture deficits that critically affected most crops in this region which were at between vegetative and near ripeness stages. The situation was clearly observed over eastern parts of Lake Victoria basin, (Mwanza, Shinyanga north and Mara regions), northeastern highlands (Rombo and Karatu districts, Lyamungu and lower Same), northern coast (Pangani and Handeni districts) and Kibaha district in Pwani region where crop growth and development mostly for maize and beans failed. Except the western Lake Victoria basin which received normal rains, over northeastern highlands and northern coast some farmers were unable to plant during the *vuli* cropping season due to the prevailed poor soil moisture conditions.

Over the unimodal sector (central, western, southwestern highlands, southern and southern coast regions) planting of maize, beans and paddy in several areas was carried out well as facilitated by

favorable soil moisture supply. A few areas over the southern coast in Lindi and Mtwara regions were finalizing normal planting activities.

Market supply for cassava over several areas of the country slightly declined.

Pastures and water availability for livestock and wildlife was generally moderate.

HYDROMETEOROLOGICAL SUMMARY

Seasonal rains that have started over unimodal areas are anticipated to boost water levels in lakes and dams, and rivers in their respective catchment areas. However due to poor performance of *Vuli* rainfall over much of bimodal areas, water for domestic and industrial purposes should be used sparingly.

ENVIRONMENTAL SUMMARY

During December warm temperatures continued as it was anticipated over most parts of the country. However, dry and windy conditions over the central areas decreased and thus reduced prospects for diseases such as coughs, colds, pneumonia and asthma.

EXPECTED SYNOPTIC SITUATION DURING JANUARY 2009

During the month of January 2009, the current and projected climate systems indicate that most areas in the northern and eastern sector of the country are likely to be dominated by mainly dry conditions. The western, southwestern highlands and southern areas of the country are expected to have mainly normal rainfall conditions.

EXPECTED WEATHER SITUATION DURING JANUARY 2009

The Lake Victoria basin (Kagera, Mwanza, Mara and Shinyanga regions including Kibondo in northern Kigoma) is expected to feature partly cloudy conditions with isolated showers and thunderstorms. Northeastern highlands (Arusha, Kilimanjaro and Manyara regions) are expected to feature partly cloudy conditions with light rains over high grounds. The northern coast and hinterlands (Dar es Salaam, Tanga and Morogoro regions, Islands of Unguja and Pemba) are expected to feature mainly partly cloudy conditions and sunny periods with outbreaks of light showers over few areas.

The western areas (Tabora and Kigoma regions), Central areas (Dodoma and Singida regions), southwestern highlands (Iringa, Rukwa and Mbeya regions) together with southern areas (Ruvuma region and Mahenge) are expected to experience partly cloudy conditions with thundery showers over some areas. Rainfall is likely to be near normal over most of these areas except over central areas where pockets of below normal are expected. Southern coast (Lindi and Mtwara regions) is expected to feature partly cloudy conditions with showers and isolated thunderstorms over few areas. Most of these areas are likely to get below normal rainfall with few areas getting near normal rainfall.

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