TANZANIA METEOROLOGICAL AGENCY

MONTHLY WEATHER BULLETIN

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HIGHLIGHTS

- Performance of rainfall during October - December 2007 was generally below normal over many areas in the country except over Bukoba, Zanzibar, and Sumbawanga.
- Most areas in the bimodal sector had experienced a poor soil moisture supply not conducive for growth and development of the early planted crops and thus poor yields are anticipated.

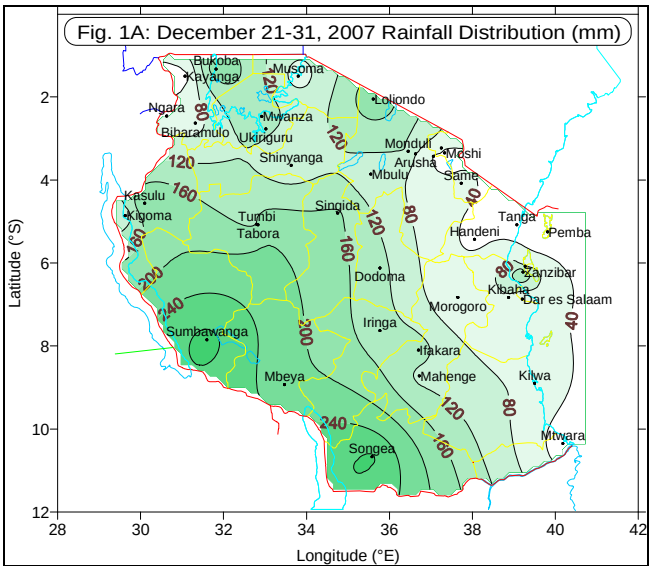
SYNOPTIC SUMMARY

During December, positive SSTs anomalies were observed along the Indonesian coast and north of Australia, and over the northwest Indian Ocean extending southwards towards Mozambique Channels. Patches of negative SSTs were observed over the central Indian Ocean. The neutral SST conditions were dominant over most part of the Indian Ocean. The Arabian ridge was dominant over northwest Indian Ocean resulting in dry conditions over northeastern highlands and northern coast. The development of the tropical depression (ELNUS) over the Mozambique Channel enhanced thundery showers over western areas, southwestern highlands and southern region. The southern hemisphere systems (the St. Helena and Mascarene highs and East African ridge) were relaxed. The northern hemisphere systems (the Azores and Siberian highs together with Arabian ridge) were relatively intense, thus allowing the Inter- Tropical Convergence Zone (ITCZ) to be over south. The pronounced weak trough was dominant over western areas, enhancing thundery showers along the meridional arm of the ITCZ.

WEATHER SUMMARY

RAINFALL

During December, seasonal rains (*Msimu*) picked up tempo resulting in a significant increase in rainfall activities over areas with unimodal rainfall pattern where most of the stations reported monthly rainfall which exceeded 100 mm as shown in Fig. 1A. Much of the rainfall was reported over the western, southwestern highlands and southern regions where the highest amount was reported at Sumbawanga 292.7 mm, followed by Songea 285.4 mm, Mbeya 209.1 and Kasulu 204.5 mm. Some other parts reported rainfall between 120 and 200 mm. A few localized areas in the Lake Victoria basin and northeastern highlands of the bimodal rainfall pattern were the only areas in the regime that experienced significant rainfall. Most of the rainfall activities were reported during the second dekad of the month.



On the other hand, the performance of rainfall during October – December (OND) 2007 was generally below normal over many areas in the country except over Bukoba, Zanzibar, and Sumbawanga, as indicated in Figure 1B. During OND the short rains (*vuli)* have performed poorly

over most of bimodal areas covering eastern Lake Victoria basin, northeastern highlands and northern coast including the Isles.

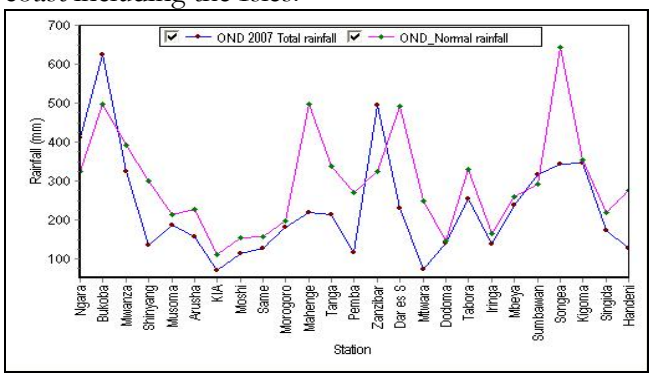
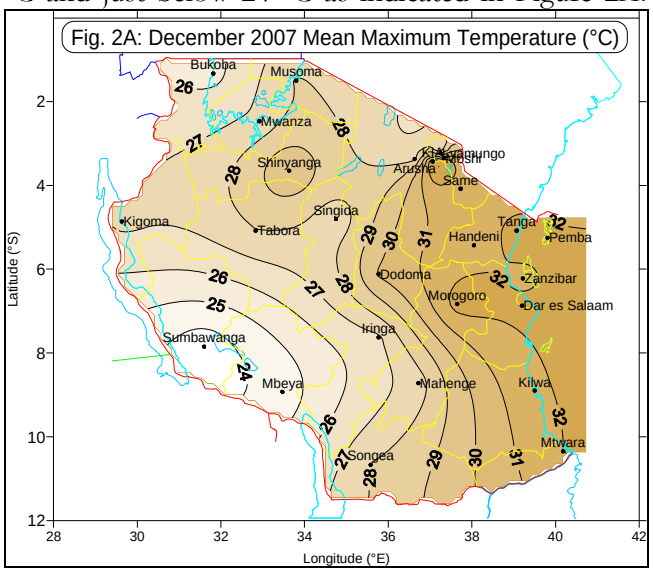


Fig. 1B: October - December (OND) 2007 rainfall performance over few selected stations

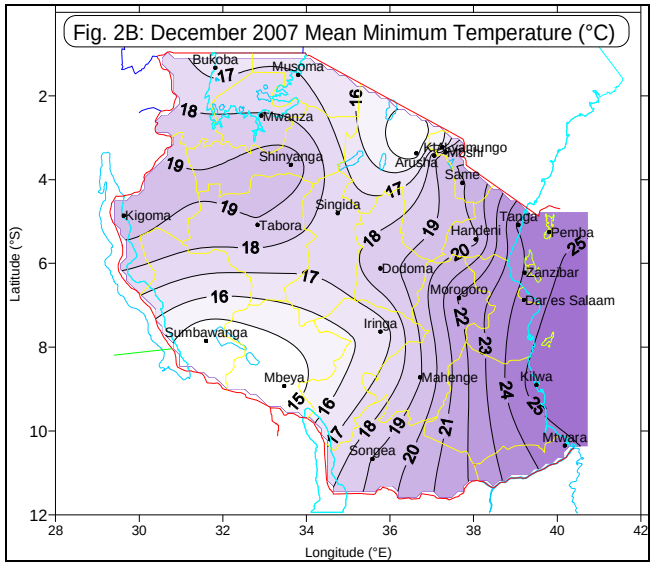
MEAN AIR TEMPERATURE

Temperatures continued to rise during the month, indicating a normal trend for the period. The spatial mean maximum and minimum values are shown in Figs. 2A and 2B respectively. The mean maximum temperature ranged between just above 32 ºC and just below 24 ºC as indicated in Figure 2A.



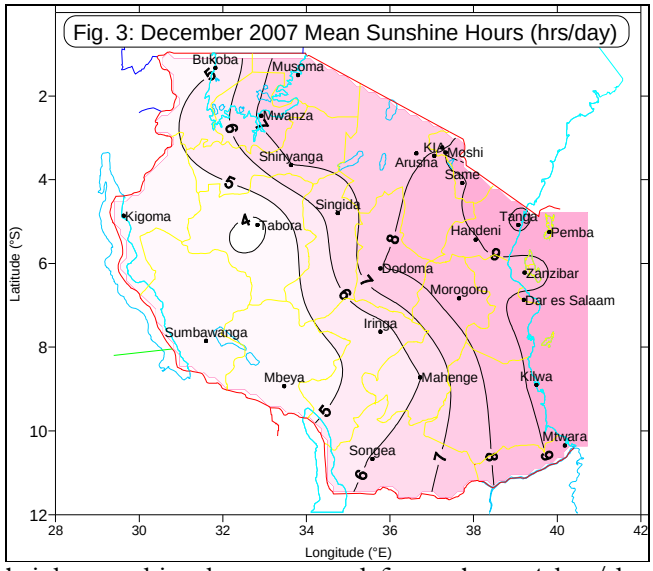
The highest mean maximum temperature recorded during the month was about 33.0 °C at Kilimanjaro International Airport (KIA) with the absolute maximum of 33.5 °C recorded during the second dekad of the month. The lowest mean maximum temperature was about 24 °C over Sumbawanga in the southwestern highlands.

The mean minimum air temperature ranged from just below 15 ºC to slightly above 25 ºC. The lowest value of the mean minimum temperature was about 14.1 °C observed at Sumbawanga station, while the highest value was about 25 °C recorded at Kilwa in the southern coast as shown in Fig. 2B. During the second and third dekads of December Sumbawanga and Arusha were the coolest areas in the country with a 10-day mean minimum temperature of about 14 °C.



MEAN SUNSHINE HOURS

Sunshine hours across the country during December indicate that the duration of mean

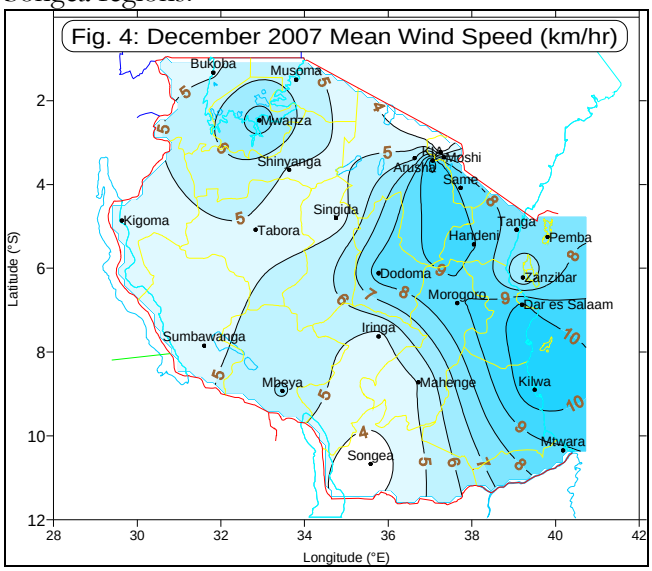


bright sunshine hours ranged from about 4 hrs/day to above 9 hrs/day as shown in Figure 3. Longer bright sunshine hours (> 8 hr/day) occurred over northeastern highlands and coastal belt including

Islands of Zanzibar and Pemba, areas which also experienced little rainfall. Cloudy activities over western, southwestern highlands and western parts of Lake Victoria basin shortened bright sunshine durations to less than 5 hrs/day in those regions.

MEAN WIND SPEED

During the period mean wind speed across the country ranged between about 4 to 10 km/hr as indicated in Fig. 4. Central areas and northeastern highlands and southern coast experienced windy conditions where wind speeds exceeded 8 km/hr. The core of maximum wind speed of about 10 km/hr was recorded at Kilwa Met station. Calm conditions and low wind speeds at about 4 km/hr were recorded in a few areas in northern Arusha, and Songea regions.



Compared to November, the wind strength and pattern indicated slight decrease over some areas during December with a significant decrease of about 4 km/day observed over central areas and northeastern highlands. Wet conditions over central and southwestern highland areas have reduced prospects for occurrences of dust devils, wind erosion, and higher evaporation rates.

SATELLITE INFORMATION

Mean vegetation condition during the third dekad of December is indicated in Figure 5 in a NOAA satellite imagery, depicting the Normalized Difference Vegetation Index (NDVI). Higher values of vegetation indices appear over Lake Victoria basin, western, central and coastal belt areas. Low values are depicted as pockets over a few areas of the southern sector of the country mainly Ruvuma, Mtwara, Lindi and Iringa while over the northern sector low vegetation is depicted in Arusha and Shinyanga regions. The vegetation condition has slightly improved compared to the last month of November over much of southern Lake Victoria basin (Shinyanga) northern Tabora, central (Singida and Dodoma), northeastern highlands (Manyara, Arusha and Kilimanjaro regions), and eastern Mara region, areas which have a high potential for livestock keeping. The observed improvement of vegetation is likely to influence pasture availability for livestock in these areas.

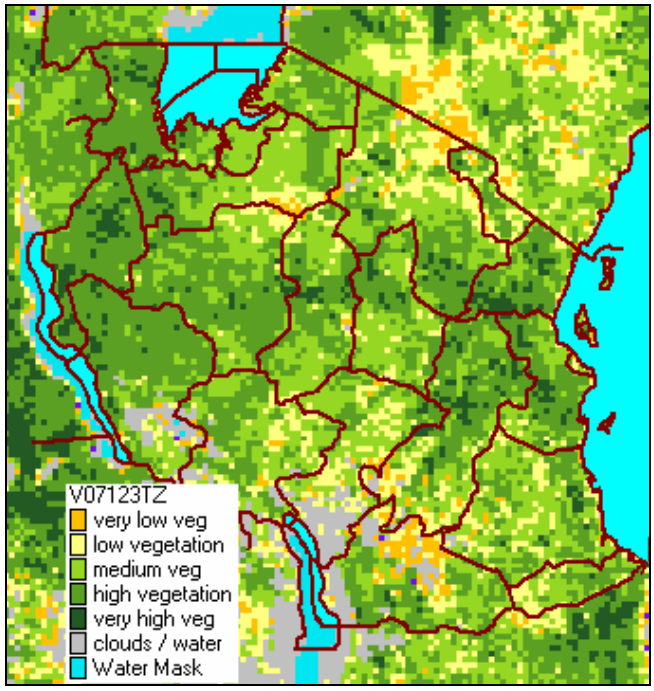


***Figure 5**: NOAA Satellite NDVI indicating the vegetation condition for the period of December 21-31, 2007.*

AGROMETEOROLOGICAL SUMMARY

During the month of December nearly the whole country experienced an adequate supply of soil moisture mainly over the unimodal sector. The major field activities in these areas during the dekad included planting of maize, beans, and sorghum, and transplanting of paddy and tobacco, as reported from southwestern highlands, southern, southern coast and central regions where soil

moisture distribution was rated fairly conducive to younger crops and other relevant field activities being carried out during the period.
Following good performance of short rains (*vuli*) over some areas in the Lake Victoria basin and western parts (Biharamulo, Muleba, Karagwe and Ngara districts) in Kagera region *vuli* crop mainly beans was at ripeness and harvesting stages and in good state whereas in Kibondo and Kasulu districts of Kigoma region maize crop was at tasselling stage and in good state. Over other areas in the bimodal rainfall pattern, Monduli, Handeni, Loliondo and Simanjiro districts in the northeastern highlands and northern coast farmers were involved in land preparation and planting with late planted crop reported at early vegetative stages.

Growth of cassava and sweet potatoes over several areas across the country continued well at various stages, while market supply for both crops was generally good.

Pasture conditions and water availability for livestock and wildlife are improving especially over central and southwestern areas following the ongoing seasonal rains.

HYDROMETEOROLOGICAL SUMMARY

Water levels in lakes and dams, and water flows in rivers are expected to increase as a result of the ongoing seasonal rains over unimodal areas. However, water for domestic and industrial purposes should be used sparingly particularly over the bimodal sector.

ENVIRONMENTAL SUMMARY

Temperatures are high over most parts while humidity is particularly high over the coastal belt.

EXPECTED SYNOPTIC SITUATION DURING JANUARY 2008

The northern hemisphere systems (the Arabian ridge, Siberian and Azores anticyclones) are expected to intensify, while the southern hemisphere systems (The St. Helena, Mascarene anticyclones and the East African ridge) are expected to relax, allowing the ITCZ to be further south. The weak trough over western areas is expected to intensify enhancing effectiveness of the meridional arm of the ITCZ, hence influencing thundershowers along the meridional arm of the ITCZ.

EXPECTED WEATHER SITUATION DURING JANUARY 2008

Over northern coast and hinterlands (Dar-es-Salaam, Tanga and Morogoro regions together with Zanzibar and Pemba Islands) and northeastern highlands (Arusha, Kilimanjaro and Manyara regions) are expected to feature partly cloudy conditions with rainshowers over few areas. Lake Victoria basin (Kagera, Mwanza, Shinyanga and Mara regions) together with northern part of Kigoma region is expected to feature partly cloudy conditions with isolated thundery showers over few areas. Tabora and southern parts of Kigoma region, and central areas (Dodoma and Singida regions) are expected to feature partly cloudy conditions with showers over some areas. Southern coast (Lindi and Mtwara regions) is expected to feature partly cloudy conditions with isolated showers and sunny intervals. Southern areas (Ruvuma region) together with Mahenge and southwestern highlands (Iringa, Rukwa and Mbeya regions) are expected to feature cloudy conditions with thundery showers over some areas.

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