TANZANIA METEOROLOGICAL AGENCY

MONTHLY WEATHER BULLETIN

ISSN No: 0856-0919, Volume 8, Issue 1 January 2006

JANUARY – HIGHLIGHTS

- *Poor distribution of seasonal (Msimu) rains over areas with a unimodal rainfall regime*
- *Poor pasture conditions, low vegetation cover and land encroachments over central areas and northeastern highlands*

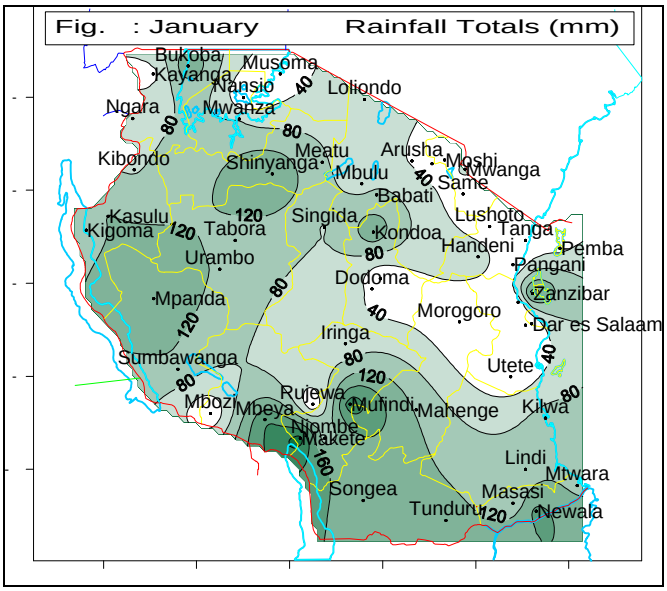
SYNOPTIC SUMMARY

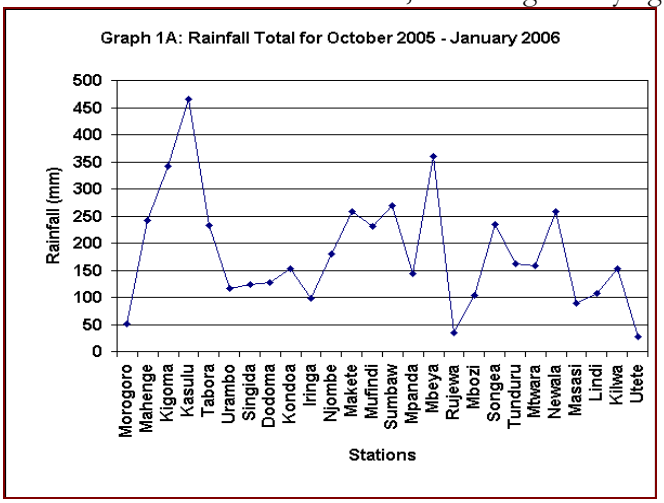
The Azores and Siberian anticyclones remained intense during the month of January, with an extension of Arabian ridge to the northeastern highlands of the country. The Mascarene and St. Helena anticyclones were generally weak due to the passage of the frontal systems over the southern tip of Africa. The zonal component of the Inter-Tropical Convergence Zone (ITCZ) was active south of the Equator. The meridional component of the ITCZ remained active to the west of the Country and neighboring areas. The low level convergence of westerly / northwesterly wind flow from the Congo basin and northeasterly flow from the western Indian Ocean over southern and western parts of the Country were apparent. The existence of moderate tropical storm *Boloetse* over the southwestern Indian Ocean near Mozambique Channel enhanced the strength of westerly/northwesterly wind flow from the Congo basin to western Tanzania thereby increasing rainfall over western, southwestern and southern regions towards the end of the month. Over the coastal belt and the hinterlands of Morogoro, and Pemba and Zanzibar Islands, strong winds associated with the tropical storm *Boloetse* over the Mozambique channels were also apparent.

WEATHER SUMMARY

RAINFALL

Some increase in rainfall activities during the month was recorded over areas which experience a unimodal rainfall pattern (western, southern, southwestern highlands and parts of southern Iringa region). Nevertheless, its distribution remained poor over most areas. Lowland areas, including low-lying areas over the highlands, experienced dry conditions. As shown in Figure 1, total rainfall less than 80 mm was reported over stations such as Rujewa and Mbozi in Mbeya region where peak rainfall activities normally occur during January. On the other hand, poor distribution characteristic was evident when Makete



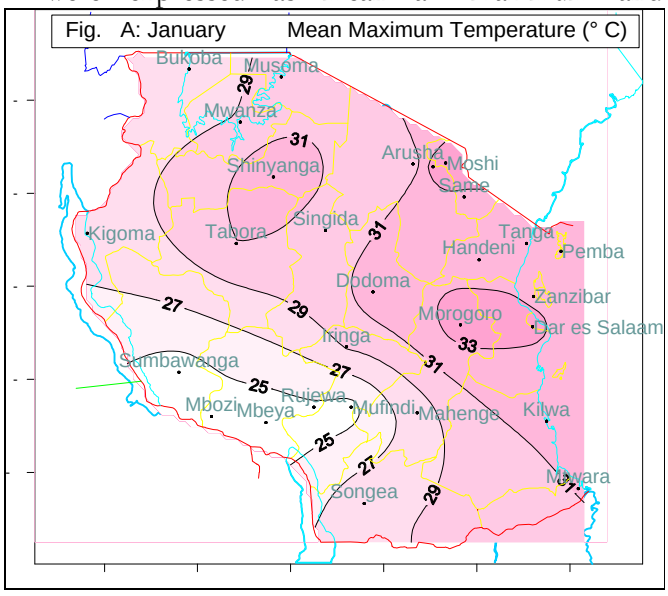


station reported 259 mm in 23 days but Rujewa station situated not more than 50 km away in the rift valley observed only 29.3 mm in 5 days during the month. Graph 1A shows the rainfall performance since October 2005 to-date over few selected stations in the areas which experience a unimodal rainfall regime. The highest total rainfall of about 450 mm was reported over Kasulu district in the western sector of the country. However more than 60% of the stations presented have recorded rainfall less than 200 mm in 4 months` period as shown in Graph 1A. Besides the existing difference in rainfall onset in the areas, such differences in rainfall amounts may be attributed to observed late onset of seasonal (*Msimu*) rains and associated dry spells.

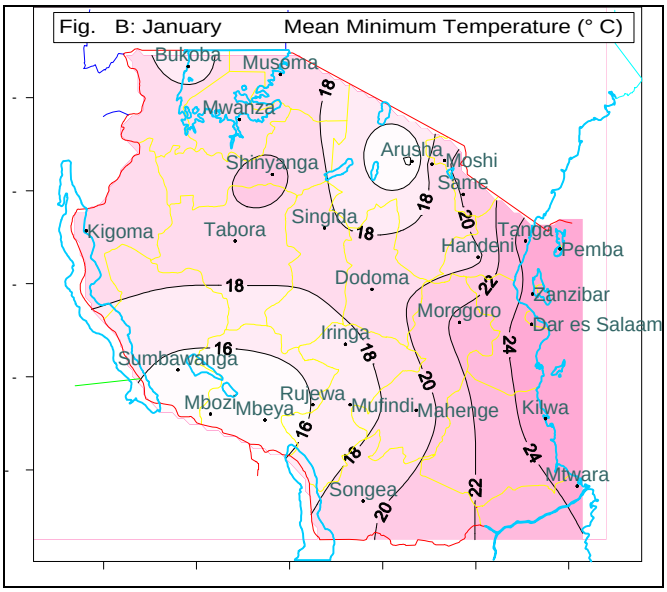
Over bimodal rainfall regime (Lake Victoria Basin, northeastern highlands and northern coast) normal seasonal dry period started, although a few areas in the region reported some odd rainfall where Zanzibar Island recorded the highest rainfall of about 180 mm in 5 days during the second dekad of the month.

MEAN AIR TEMPERATURE

Temperature conditions for the month of January were expressed as mean air maximum and



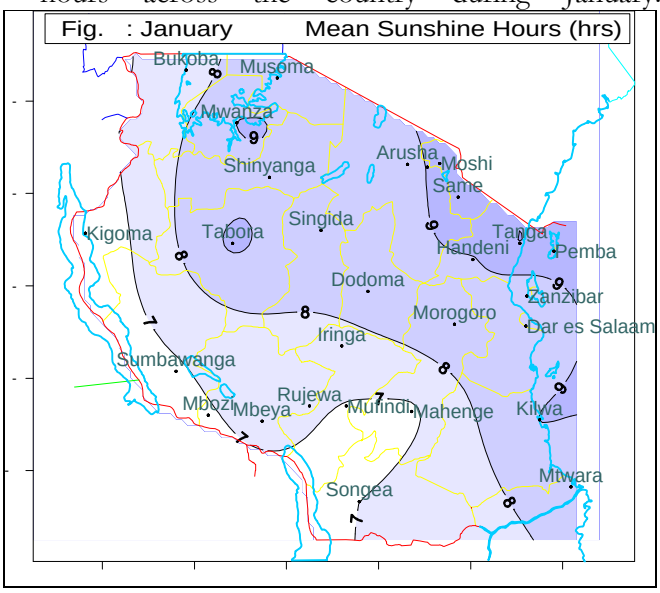
minimum temperatures as shown in Figs. 2A and 2B respectively. Observed mean maximum temperature ranged between about 25 ºC over areas in Rukwa and Mbeya regions and just above 33 ºC over Arusha, Kilimanjaro, Morogoro, Coast and Dar es Salaam regions (Fig. 2A). The highest mean maximum temperature of 34.0 ºC was observed over Kilimanjaro Airport (KIA) and Morogoro town during the third dekad of the month. The mean minimum air



temperatures ranged from just below 16 ºC to slightly above 24 ºC (Fig. 2B). The northeastern highlands (Arusha town) recorded the lowest mean minimum air temperature of about 12.7 °C during the first dekad of the month. Generally, temperature conditions for January did not change significantly from that of December 2005.

SUNSHINE HOURS

Figure 3, indicates the spread of mean sunshine hours across the country during January.

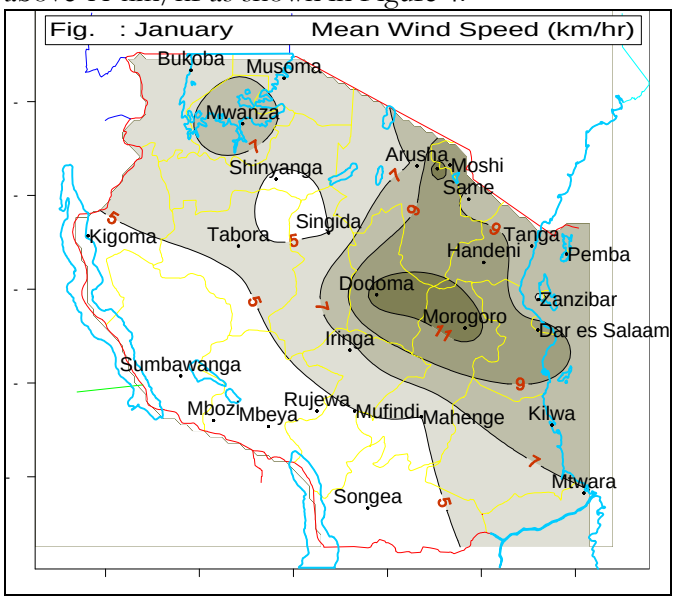


Durations of mean bright sunshine ranged between 7 hrs/day and about 9 hrs/day. The longest durations

of about 9 hrs/day dominated mainly over northern coast and northeastern highlands. The shorter durations of about half daylight hours were observed largely over the western and southwestern areas due to seasonal increase in cloudiness during this time of the year. On the other hand, the observed longer durations over northern coast and northeastern highlands of the unimodal regime were a result of declined cloudy cover which was a normal feature of the season.

MEAN DAILY WIND SPEED

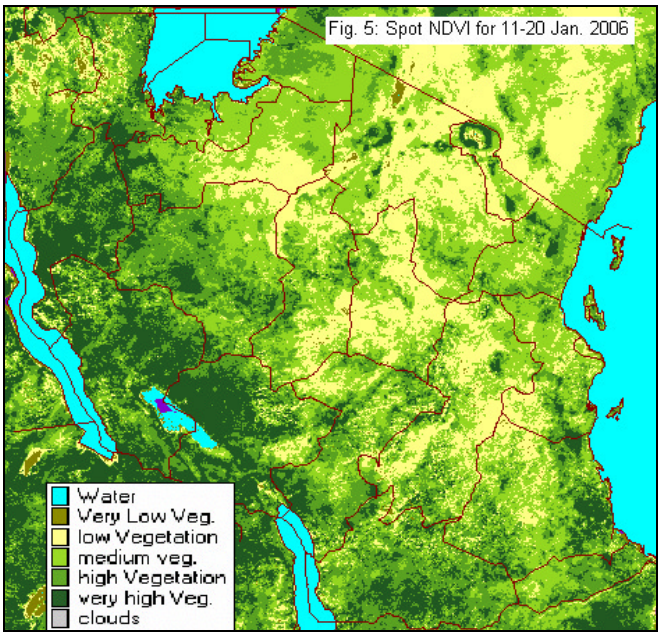
During the period, the mean wind run across the country ranged from just below 5 km/hr to just above 11 km/hr as shown in Figure 4.



The core maximum of about 11 km/hr was located over areas of Dodoma and Morogoro regions.
On the other hand, lower wind speeds of less than 5 km/hr dominated over western, southwestern highlands and southern regions. The high wind speeds led to high evaporation rates, increased presence of dust devils and enhanced wind erosion on bare grounds.

SATELLITE INFORMATION

Figure 5 depicts vegetation greenness as indicated by the Spot Normalized Difference Vegetation Index (SNDVI) from METEOSAT satellite sensor for the second dekad of January.



During the period, areas over Morogoro and Shinyanga regions, central and northeastern highlands depicted low (indices) vegetation cover due to prolonged dry period that has been experienced in those areas. However, over the western sector of the country there was more vegetation greening (mainly perennials) as a result of improved soil moisture conditions from ongoing seasonal rains.

AGROMETEOROLOGY

Soil moisture deficits were observed over most areas except over the regions in the western and southwestern highlands of the country where soil moisture replenishment was realized. Such deficits hampered most cropping activities including planting and weeding, and subsequent crop growth and development as observed across the unimodal sector. Over the western part covering Kigoma, Rukwa and Tabora (west) regions maize crop was at tasseling stage with moderate state. For southwestern highlands (Iringa south) maize was reported at vegetative stage and in good state. For the remaining areas of this sector maize crop during the month performed poorly following an increased soil moisture stress. As such wilting of crops was evident particularly over Morogoro lowlands, except for Mahenge and Kilombero districts that reported crop state as being comparatively fair. A similar threat also hit over central (Dodoma and Singida regions), northern Iringa, southern (Ruvuma region) and southern coast (Lindi and Mtwara regions) where most fields though

ploughed have not been planted mainly due to poor soil moisture conditions for cropping.

For areas in the bimodal sector, mainly over few areas in the Lake Victoria Basin, besides poor crop yields expected, harvesting of *Vuli* crop was coming to an end, while land preparations for long rains (*Masika)* season started although at low pace.

Pasture conditions have continued to deteriorate over most areas and land encroachment by livestock/wild animals have continued over the northeastern highlands and central region.

Cases of animals dying from lack of pastures and water have been reported over Shinyanga region, Central areas and northeastern highlands.

HYDROMETEOROLOGY

Water levels in rivers, dams and lakes fell even further during the period. Water for industrial and domestic purposes should be used very sparingly.

ENVIRONMENTAL

The warm/hot conditions and high evaporation rates are being experienced in many parts of the country.

EXPECTED SYNOPTIC SITUATION DURING FEBRUARY

The Siberian and Azores anticyclone over the northern hemisphere are expected to remain intense while over the southern hemisphere, the Mascarene and St. Helena anticyclones are expected to weaken. The position of the ITCZ is expected to be further south over southern Tanzania. The meridional arm of the ITCZ is expected to remain active with considerable east /westward oscillations at times. The low level convergence of westerly wind flow from Congo basin with northeasterly wind flow from western Indian Ocean is expected to persist over southern Tanzania and therefore rainfall activities are expected to increase slightly over southwestern highlands and southern areas of the country.

EXPECTED WEATHER SITUATION DURING FEBRUARY

The western parts of the country (Kigoma region) and Lake Victoria Basin (Kagera region) are expected to feature partly cloudy conditions with isolated cases of thundershowers and sunny periods. Southwestern highlands (Sumbawanga and Mbeya regions), southern areas (Ruvuma region) and southern coast (Lindi and Mtwara regions) are expected to experience partly cloudy to cloudy conditions with thundershowers over few areas and sunny periods. Northeastern highlands (Arusha, Manyara and Kilimanjaro regions), central areas (Dodoma and Singida regions) and Morogoro region will feature partly cloudy conditions and sunny periods. The northern coast (Coast, Dar es Salaam and Tanga regions, and Pemba and Zanzibar Islands) will feature partly cloudy conditions with occasional morning light rains followed by sunny periods.

Prepared by
TANZANIA METEOROLOGICAL AGENCY
3rd , 4th & 10th Floors - Ubungo Plaza – Morogoro Road.
P.O. Box 3056 Tel. 255 -(0) 22 – 2460706 - 8 ; Fax: 255 - (0) 22 – 2460718 E-mail: (1) met@meteo.go.tz (2) agromet_tz@meteo.go.tz
Dar-es-Salaam UNITED REPUBLIC OF TANZANIA