

# Assessment of the impacts of Tropical Cyclones Fantala to the Tanzania Coastal line: the case of Zanzibar

Kombo H Kai <sup>1\*</sup> and Masoud M Faki<sup>2</sup>

<sup>1,2</sup>Tanzania Meteorological Agency (TMA), Zanzibar office P. O. Box 340, Kisauni Zanzibar, Tanzania  
E mail: \* [kaikombo@yahoo.com](mailto:kaikombo@yahoo.com) or [kai@ims.udsm.ac.tz](mailto:kai@ims.udsm.ac.tz)

## Abstract

The study investigated the impacts of tropical cyclone (TC) Fantala (11<sup>th</sup> to 27<sup>th</sup> April, 2016) to the coastal areas of Tanzania, Zanzibar in particular. Daily reanalysis data consisting of wind speed, sea level pressure (slp), sea surface temperatures (SSTs) anomaly, and relative humidity from the National Centers for Environmental Prediction/ National Center for Atmospheric Research (NCEP/ NCAR) were used to analyze the variation in strength of Fantala as it was approaching the Tanzania coastal line. In addition observed rainfall from Zanzibar stations, Global Forecasting System (GFS) rainfall estimates and satellite images were used to visualize the impacts of tropical cyclone Fantala to Zanzibar. The results revealed that, the TC Fantala was associated with deepening/decreasing in slp around the northwestern Madagascar, whereas the mean SSTs was greater than 28°C and an SSTs anomaly ranged from 0 to 2.3°C. The vertical wind shear ridged at Mozambican Channel and over north eastern Madagascar was small enough to support the intensifying of Fantala. The thermodynamic and dynamic conditions of Fantala influenced heavy rainfall of greater than 170 mm over most stations in Zanzibar. Moreover, Fantala disrupted the temporal variability of 2016 March to May (MAM) seasonal rainfall. Besides, more than 420 people were homeless, at least 3,330 houses were destroyed, and about 2 people died. Since strong TCs like Fantala had great impacts to the Tanzania coasts, there is a need to extensively examine the TCs rainfall impacts and their contribution during our OND and MAM seasonal forecasts.