

Drought prediction numerical model in North - Eastern region of Kenya

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Abstract

Numerical models are essential tools applied in predicting drought on day to day basis that involves taking current observations of weather and processing the data with the models to forecast the future state of weather at the North-Eastern Region which includes Mandera, Marsabit, Turkana and Wajir counties. The poor long rains in 2016 affected more than 1.3 million Kenyans, which extended to early 2017, according to the government of Kenya which distributed relief food and cash on training, vaccination, animal feed and encouraging people to sell animals before they fall sick. The current weather observations serve as input to the numerical models through data assimilation to produce outputs of temperature, precipitation, and other meteorological elements. The model is focused to improve the techniques for predicting such droughts with some measure of accuracy. The research is aimed at aiding at reducing poverty and hunger in line with Millennium Development Goal 1 (MDG 1) and building a more sustainable and competitive agricultural system that will contribute to the Government of Kenya (GoK) goal of building a food secure and prosperous Kenya through a commercially-oriented and competitive agricultural sector. The results are represented on the graph using MATLAB software which showed that the application of numerical algorithms on past meteorological data can lead to accurate predictions of future agricultural drought so that future work can be based on designing a solution for multiple regions.