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GEOTOOLS SUPPORTING EVIDENCE BASED DECISION-MAKING IN EAST AFRICA

In order to successfully plan and cope with varied climate futures, policy makers in East Africa must be equipped with sufficient training and decision-support tools. To support adaptation in the region, the USAID/Kenya and East Africa's Planning for Resilience in East Africa through Policy, Adaptation, Research and Economic Development (PREPARED) Project in partnership with Food Early Warning Systems Network (FEWS NET) have developed a suite of climate information analytical tools that allow national and regional institutions to cope with the current and future climate uncertainties.

Over 100 individuals representing 15 regional and national institutions in the EAC Partner States have been trained in the use and application of the Geospatial Tools (GeoTools).

The trainings have provided EAC countries and regional institutions, with the pertinent technical capacities to access and use the tools and mainstreamed the outputs into climate monitoring and forecasting reports.

The IGAD Climate Application Prediction Center (ICPAC) and National Meteorological and Hydrological Services (NMHS) are currently using the high resolution gridded climate datasets developed using the GeoTools to improve seasonal forecasting and comprehensive monitoring of the climatic conditions for the EAC and IGAD regions.

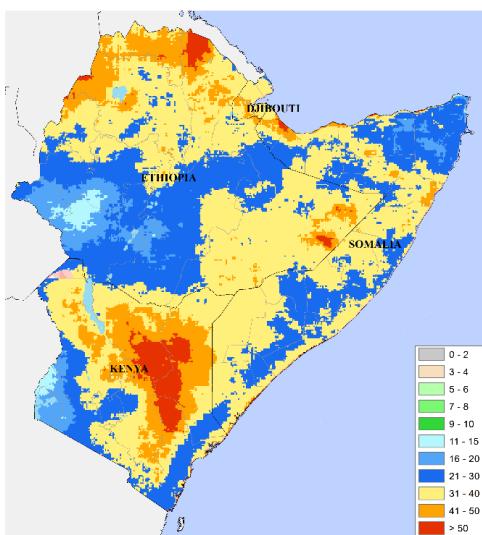
GEOSPATIAL CLIMATE (GEOCLIM)

The GeoCLIM is a spatial analysis tool designed for climatological analysis of historical (and future projections) rainfall and temperature data. The GeoCLIM provides non-scientists with an array of accessible analytical tools for climate-smart agricultural development. These user friendly tools can be used to access and analyze climate data, blend field with satellite observational data to create more accurate and comprehensive datasets, analyze and generate historical climatic trends maps create scripts to automate these analysis processes, visualize and/or edit shapefiles and raster files, and extract statistics from raster datasets to create time-series charts.

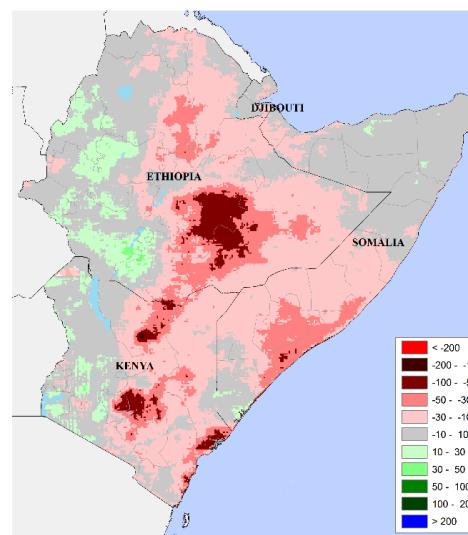
The major product from GeoCLIM is an East Africa regional historical gridded data set, at 5km by 5km, for rainfall and temperature spanning from 1982 to present. ICPAC is the custodian of these blended and gridded dataset called Climate Hazards Group Infrared and Stations (CHIRPs).

ITS GETTING DRIER, HOTTER AND OVER-CROWDED

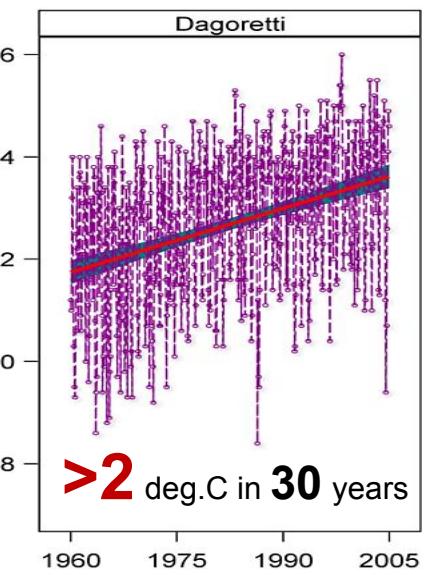
Seasonal Rainfall Variability (%)



Rainfall Trends (mm/decade)



Nairobi Temperature Trends





GEOSPATIAL MODEL (GEOMOD)

The GeoMOD, is a standalone statistical software tool used in generating area-specific future climate change scenarios. It is designed to go hand in hand with the GeoCLIM tool and the Centennial Trends (100-years) precipitation archive. The purpose of GeoMOD is to allow users to explore multiple future climate scenarios. Using GeoMOD, users can develop empirical relationships between their own climatic time series.

The tool is currently being used by institutions in East Africa to provide a range of sector specific future climatic scenario's and their potential impacts, such as increased likelihood for reduced crop yields, and increased in malaria incidences.

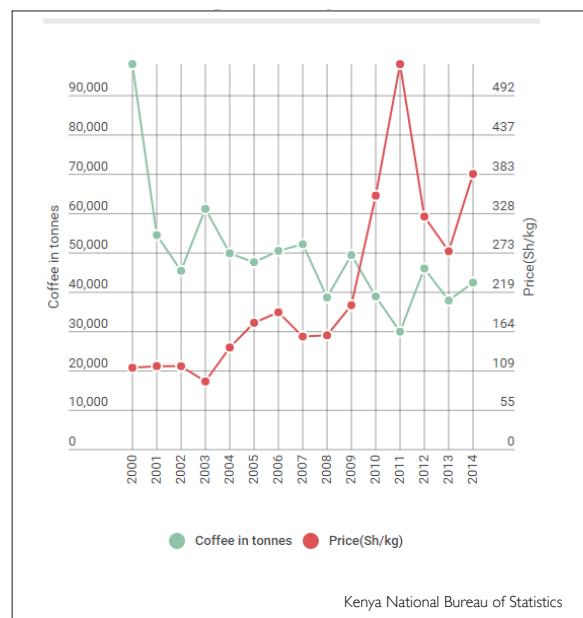
GEOSPATIAL CLIMATE OUTLOOK FORECASTING (GEOCOF)

GeoCOF is a statistical software tool for seasonal forecasting of climatic variables, such as rainfall. Through a user friendly graphical interface, it facilitates multiple-linear regression modelling between climatic predictors, such as SSTs, and the predictant, usually seasonal rainfall totals. GeoCOF is used by National Meteorological and Hydrological Services (NMHS) in all EAC and IGAD Members States to generate statistical seasonal forecasts.

GEOSPATIAL WATER REQUIREMENTS SATISFACTION INDEX (GEOWRSI)

GeoWRSI runs a simplified crop-specific water balance model for a selected region in the world, using gridded datasets as inputs. The program produces a range of outputs which can be used to assess and monitor crop conditions during the crop growing season or be regressed with yields to produce yield estimation models and yield estimates. GeoWRSI is used widely by agro-meteorological services with the NMHS's, Ministries of Agriculture in East Africa, multilateral institutions to monitor and assess cropping conditions and production estimates.

KENYA COFFEE PRODUCTION SLOWS AS GLOBAL PRICES RISE



All of the GeoTools and their supporting manuals can be downloaded at: <http://chg.geog.ucsb.edu/tools/index.html>. The GeoTools provide the information the EAC needs to use climate information to develop and support adaptation strategies for communities, governments, and landscapes.



GeoTools

GeoCLIM

Climate data-visualization and analysis tool

Climate risk mapping

GeoCOF

Statistical forecasting & Interpretation tools that allows for automated

Seasonal forecasts & Early Warning with improved spatial scale

GeoWRSI

Basic crop modeling tool for crop monitoring, forecasting and

Agricultural risk mapping

GeoMOD

Statistical tool that allows for downscaling future climate scenarios

Downscaled future climate change scenario