**EARTH OBSERVATION RAINFALL FORECAST DATASETS**

Earth observation (EO) seasonal rainfall forecast datasets provide significant benefits due to their enhanced accuracy and ease of access. By integrating data from multiple models and satellite observations, these datasets offer reliable predictions, reducing uncertainties in weather forecasting. This accuracy supports informed decision-making in agriculture, disaster preparedness, water resource management, and climate research. Additionally, the easy access to these datasets allows a wide range of users, from governments to farmers, to quickly obtain and utilize vital information for planning and response activities. The combination of precise data and accessibility ultimately helps mitigate the impacts of climate variability and fosters more resilient and sustainable communities**.**

Below are some of the freely available EO data;

1. [**North American Multi-Model Ensemble**](https://www.cpc.ncep.noaa.gov/products/NMME/)**(NMME)**

The Experimental Seasonal Forecasts discussed here originate from the North American Multi-Model Ensemble (NMME) project (Kirtman et al., 2014) and are sourced from the IRI data library. The NMME project comprises 9 models, totaling 118 ensemble members. The Climate Hazards Center processes these forecasts into seasonal percentiles and Standardized Precipitation Index (SPI), then visualizes them on maps for easy interpretation and use. The NMME forecasts are updated between the 5th and 10th of each month, with a spatial resolution of 1 degree by 1 degree and a monthly temporal resolution. Maps are available for the following regions: Global, Africa, East Africa, Southern Africa, West Africa, Central America, Southeast Asia, and Central Asia. These maps display the probability of seasonal precipitation or temperature for the upcoming 6 seasons (3-month periods) beginning from the month the forecasts are released (e.g., March-May forecasts released in March). Seasonal precipitation forecast probabilities are presented using percentile-based categories (scale 0 to 100) and SPI (scale <-3 to >+3), while seasonal temperature forecast probabilities are shown using percentiles. A GAMMA distribution is applied for seasonal precipitation, and a normal distribution is used for temperature.

**Links to data access: https://ftp.cpc.ncep.noaa.gov/International/nmme/monthly\_nmme\_forecast\_in\_cpt\_format/**

1. **CHIRPS GEFS**

CHIRPS-GEFS is a bias-corrected and downscaled version of the NCEP Global Ensemble Forecast System (GEFS) version 12 precipitation forecasts, designed to be spatially compatible with the Climate Hazards Center InfraRed Precipitation with Stations (CHIRPS) data. The CHIRPS-GEFS dataset provides precipitation forecasts for the next 5 to 15 days, updated daily, at a global spatial resolution of approximately 5 km. This dataset integrates key precipitation observation and forecast resources to enhance situation assessments and early hazard warnings. CHIRPS-GEFS forecasts are made to have compatible spatial characteristics and statistical distributions with CHIRPS, enabling seamless integration. This compatibility helps users generate timely impact assessments of forecasted rainfall amounts and anomalies and evaluate potential changes in agro-climatological or hydrological conditions monitored with CHIRPS data.

**Link to data access: https://data.chc.ucsb.edu/products/EWX/data/forecasts/CHIRPS-GEFS\_precip\_v12/**