

To what extent can sub-seasonal precipitation models be leveraged to help farmers adapt in the face of extreme events?

As Ghana strives to achieve its development goals and enhance food security, it is imperative to address the agriculture sector's vulnerabilities to climate change and to bolster the resilience of farmers. With the projected increase in frequency and intensity of extreme events, interventions are urgently needed to help farmers in the developing world adapt to the heightened risk of extreme weather events. In Ghana, we need to investigate the extent to which sub-seasonal precipitation models can be leveraged to reduce the vulnerability of farmers to erratic precipitation patterns.

Policy challenge

Agriculture plays a pivotal role in the Ghanaian economy, employing over 50% of the population and contributing a fifth of the nation's total output (GSS, 2023). However, Ghanaian agriculture is mainly rainfed, with only about 2% of the arable land under irrigation. As a result, the performance of the Ghanaian economy and the livelihoods of millions of farmers depend crucially on consistent and predictable weather patterns for successful crop cultivation and livestock management. The erratic weather patterns, therefore, pose a significant risk to both food security and economic stability in Ghana (FAO, 2020).

Various interventions have already been evaluated, including **soil fertility management**, **drought-resistant crops** and **weather insurance**. Other notable initiatives include the **dissemination of weather forecasts** through mobile technology platforms and **community-based climate information services**. But, limitations to their effectiveness still exist. A major limitation of traditional short-term forecasts used in the dissemination interventions is that they allow farmers very limited lead time. Sub-monthly scales may be crucial for farm management decisions, such as when to plant,

Data

- **GMet climate data**: Seasonal forecasts of precipitation and heat in Ghana (desire to collaborate for enhanced data collection methods, validating sub-seasonal forecasts against observed weather patterns, and developing localised models)
- **Climate Research Unit (CRU)**: high resolution gridded data set of mean weather variables

Stakeholders

- Ghana Meteorological Agency (GMet)
- Ministry of Environment, Science, Technology and Innovation
- Environmental Protection Agency (EPA), Accra

For further information or to discuss project generation, please contact the IGC Ghana team at ghana@theigc.org

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