African Remote Sensing Applications
(Environmental/Earth Science Methodology)

Evaluating Early Warning Systems Against Drought-Induced Crop Failures in Northern Ghana: A Methodological Approach for Yield Mitigation and Resilience Building

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Published: 05 August 2008 | **Received:** 26 April 2008 | **Accepted:** 12 July 2008

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DOI: 10.5281/zenodo.18869767

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Abstract

Drought-induced crop failures have significant impacts on food security in northern Ghana's agricultural sector. A mixed-methods approach combining meteorological data analysis with farmer surveys to assess system performance and impact. Early warning signals were accurate in predicting drought conditions, reducing crop losses by an average of 20% across surveyed regions ($n = 50\, farms$). The early warning systems significantly improved farmers' preparedness for drought, enhancing their resilience to climate shocks. Implement continuous system upgrades and integrate with local agriculture extension services to maximise benefits.

Keywords: *Sub-Saharan, GIS, Randomized Controlled Trial, Stochastic Modelling, Precision Agriculture, Data Mining, Climate Forecasting*

ABSTRACT-ONLY PUBLICATION

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