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FLOOD MAPPING AND IMPACT ASSESSMENT OF CLIMATE CHANGE INDUCED FLOODING IN KEBBI STATE USING SAR DATA AND GOOGLE EARTH ENGINE.

Abstract

Synthetic aperture radar (SAR) sensors are critical data source for decision makers, flood disaster planners and responders, due to their inherent ability to capture the image of the Earth's surface in any weather condition and at any time of the day. This combined with the emergence of cloud computing platforms like the Google Earth Engine (GEE), has presented a tremendous opportunity to the disaster response community, for whom rapid access to flood data is critically needed to provide effective flood disaster response, management and mitigation strategies. The heavy rains behind the recent devastating floods that occurred in Kebbi State North West Nigeria has been directly linked to human induced climate change by experts. In this study flood extent maps were produced using SAR images and GEE. Change detection technique was utilized in producing the flood extent maps by comparing before and after flood event SAR images. The produced flood extent maps displayed information about agricultural croplands and human settlements affected by the flood. This information would help in assessing the impact and extent of the flooding on human settlements and agricultural crop lands and thus, provide critically needed information to decision makers for effective flood disaster mitigation, response and management activities.