

AGRICULTURAL AREAS MAPPING USING NDVI/MODIS TIME SERIES IN MANICA PROVINCE, MOZAMBIQUE

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ABSTRACT:

Mozambique is an essentially agricultural country that has maize as the main food crop. The variability in maize yields depends on weather conditions. So, in order to assist in decision making measures of food security risk, an agro-meteorological-spectral crop forecasting model is required. To run this kind of model, first, an identification of agricultural areas is necessary. This work presents a methodology for mapping agricultural areas through NDVI /MODIS time series analysis from 2000 to 2013. The study area involves four districts of the Manica province, where have many agricultural areas cultivated with intercrop system of corn and beans mainly. Compositions of 16 days of NDVI from MOD13Q1 MODIS product were used to construct mean profiles of NDVI for each district. This methodology involves four steps: NDVI amplitude difference image generation during the maize cycle; binary image masking agricultural field; the sum of binary images and restriction level selection based on the frequency of agricultural areas. Agricultural areas were overestimated the province official statistics. Agriculture areas map was validated overlaying two official land cover maps produced in 2008 and 2013.