

EGU2020-21902

<https://doi.org/10.5194/egusphere-egu2020-21902>

EGU General Assembly 2020

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## Impact of climate change and variability on maize yield in Tropical Africa

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Tropical Africa has been experiencing a long term drying trend for the last two decades. Climate change and variability has an influence on rain-fed agriculture under the Tropics. Many studies have investigated on the role of climate change and variability on crop yields, but with a limited number of predictors. We use detailed gridded crop statistics time series data to examine how recent climate inter-annual variability led to variations in maize yields. The added-value of this study is, that it integrates for the first time different sets of variables on different spatial scales, 107 in total: local, regional and global. A cross-validated model output statistics (MOS) approach is applied to choose physically motivated predictors. Both climate variables and maize yields were de-trended. The results revealed that inter-annual climate variability accounts for globally more than 35 percent of the observed maize variability in Tropical Africa. Our study uniquely illustrates spatial patterns in the relationship between climate variability and maize yield variability, highlighting where variations in different group of predictors interact and explain maize yield variability. Overall, temperature and precipitation principal component variables are preferably selected by the model. The next step of the study will consist of using the MOS equation to forecast future maize yield changes based on climate model output. The implication of the study is that, it will generate policy interventions towards buffering future crop production from climate variability.