Evaluating Drought Indices for Early Warning in East and Southern Africa

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Introduction

- Sparsely populated regions of east and southern Africa often have little ground based data to monitor drought, crops, and water resources.
- The Regional Hydrologic Extremes Assessment System (RHEAS) is a NASA supported data assimilation framework that combines both a hydrologic and crop model, which provide another monitoring approach.
- RHEAS can also be run in forecast mode, providing outlook on drought and crop yield

Methodology

- Run RHEAS from 2000 - present
- Evaluate outputs, compare soil moisture to Soil Moisture Active Passive (SMAP) satellite observations
- Compare modeled crop yield to observed yield, select appropriate cultivars
- Analyze progression of crop yield forecasts throughout the 2019 growing season

Results

- Outputs from RHEAS can enhance understanding and add to current drought monitoring efforts in the region by the National Drought Management Authority
- Yield forecasts may be useful near the end of the season, but uncertainty in weather forecasts are challenging
- Other weather forecasts will be incorporated in the future to test their usefulness

Conclusions and Future Work

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