

Utilizing NASA Earth Observations to Enhance Drought Management Decisions within Agricultural Areas of the Mekong River Basin

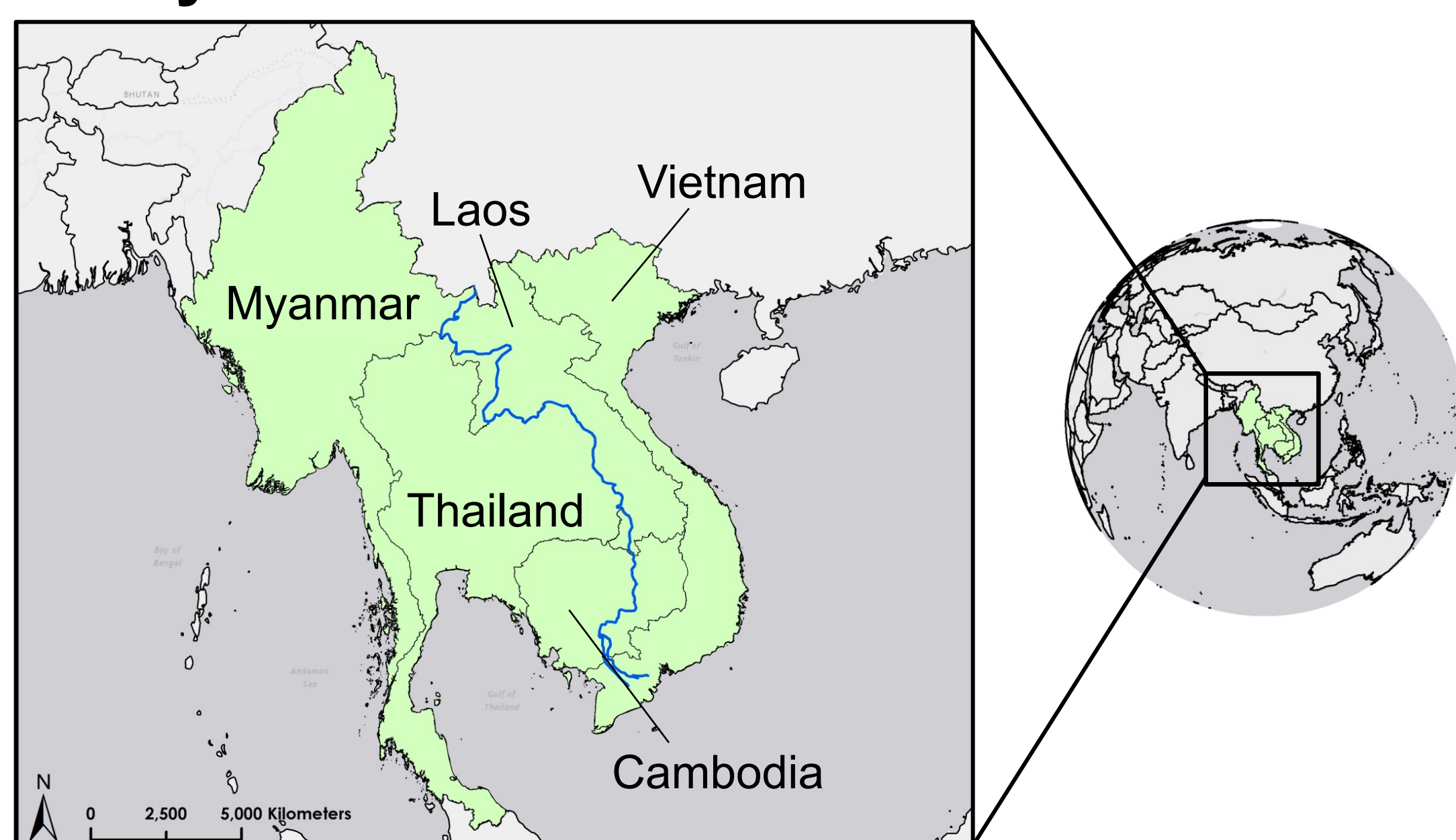
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Overview

The Mekong River Basin is one of the world's largest contributors to the global rice production market, with rice paddies covering more than 10 million hectares of land. The production of these crops contributes significantly to the local economies and workforce within the region. The Mekong River Basin experiences seasonal flooding, as well as periods of drought, which affect rice yield. The NASA SERVIR Coordination Office located at the Marshall Space Flight Center (MSFC) partnered with the Asian Disaster Preparedness Center (ADPC) through the SERVIR Mekong Hub in order to improve climate resilience in the Mekong River Basin region. This project applied the Scaled Drought Condition Index (SDCI), an index used to identify regions of agricultural drought, throughout Thailand, Myanmar, Laos, Vietnam, and Cambodia. This index was created by using precipitation data from the Tropical Rainfall Measuring Mission (TRMM) and Global Precipitation Measurement (GPM), as well as land surface temperature and the Normalized Difference Vegetation Index (NDVI) from the Moderate Resolution Imaging Spectroradiometer (MODIS).

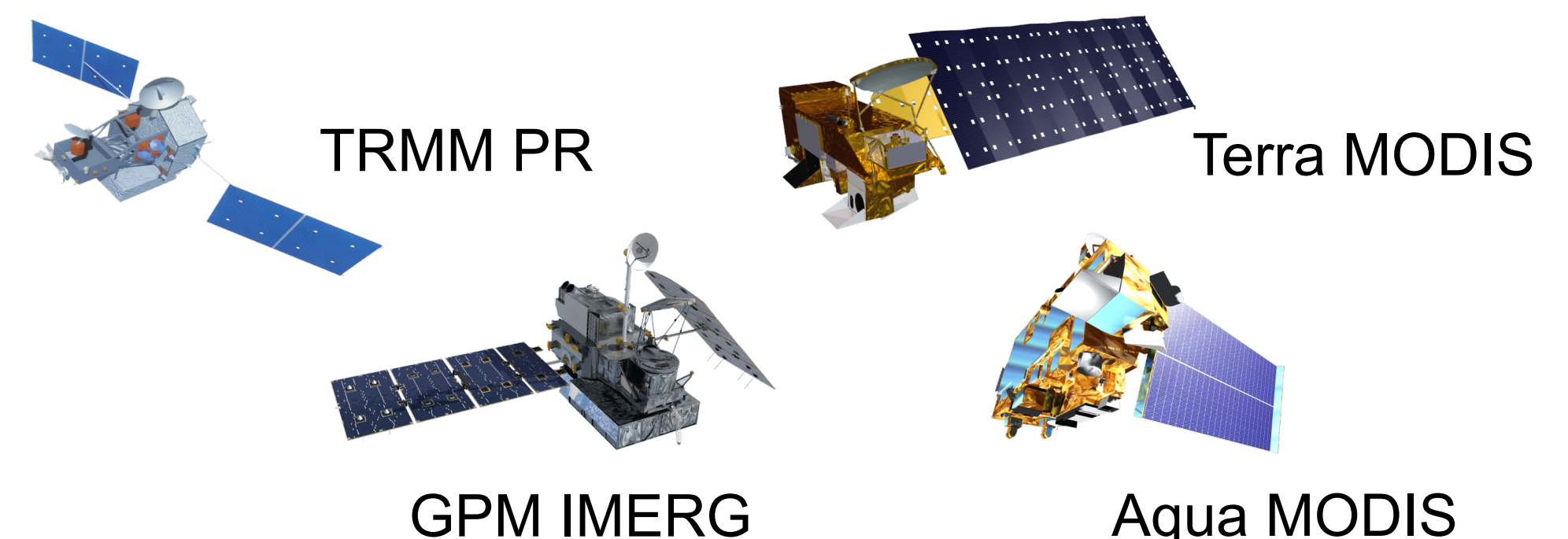
Study Area



Objectives

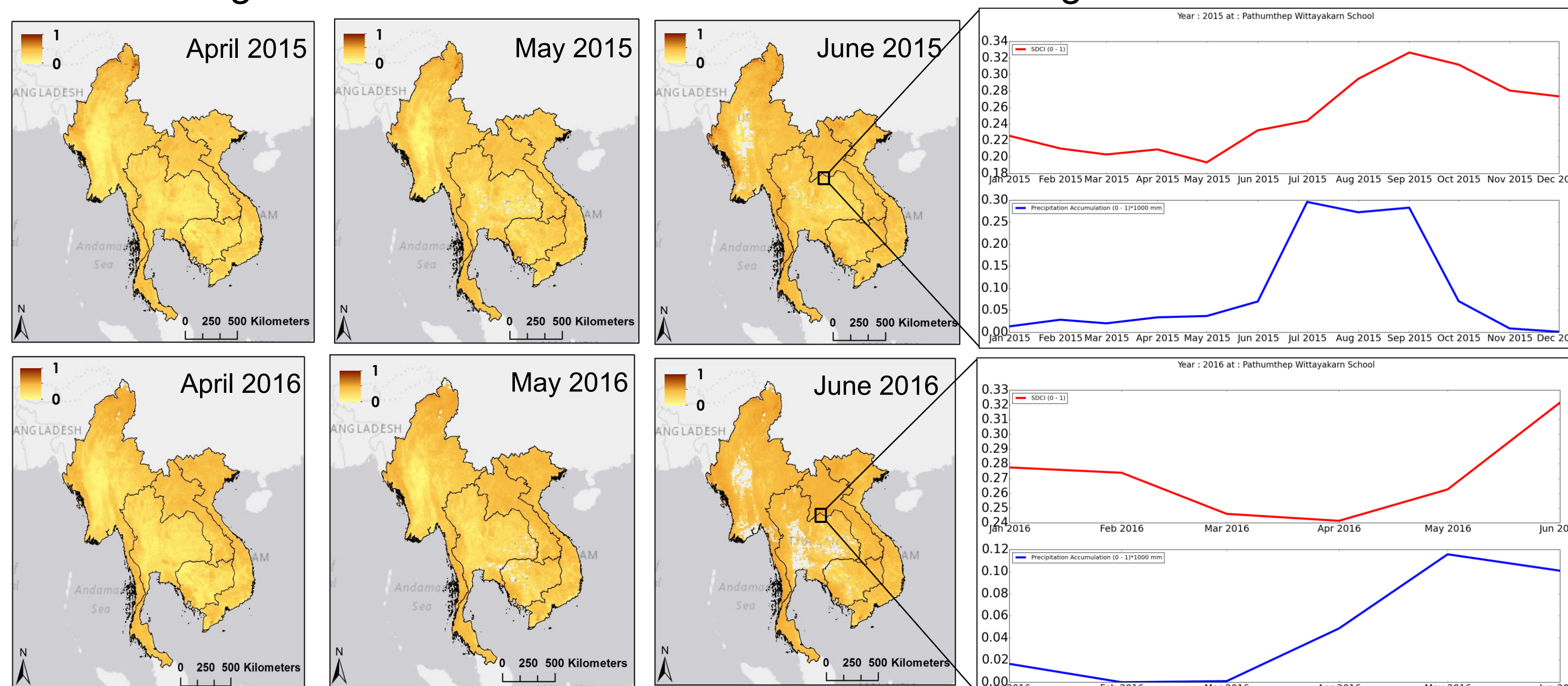
- Develop the Agricultural Drought Index Monitoring Tool (ADIM) to automate data download and processing for the SDCI
- Create and examine the SDCI from January 2000 to May 2016

Use of Satellites

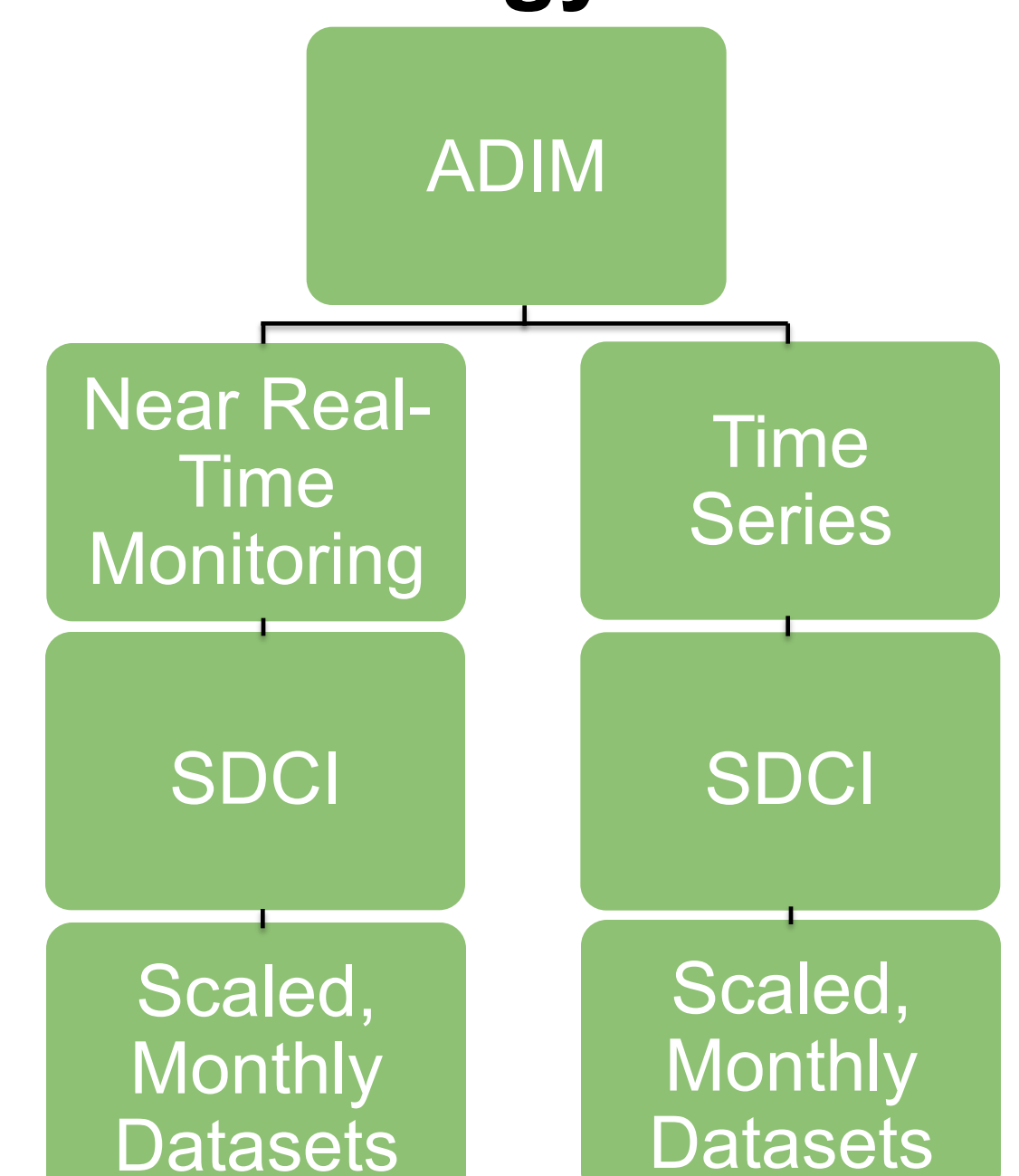


Results

Scaled Drought Condition Index: values < 0.5 indicate drought



Methodology



Acknowledgements

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Conclusions

- Monthly SDCI outputs follow rain accumulation trends
- Overall accuracy of the SDCI is difficult to calculate
- Higher resolution products will allow for a finer spatial resolution of SDCI outputs to help pinpoint areas of agricultural drought
- ADIM allows for a faster calculation of the SDCI for both time series and near real-time analyses