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## Exploring potential of remotely sensed data in parameterization of hydrologic model

Navid Jadidoleslam, **Ricardo Mantilla**, and Witold Krajewski

IHR-Hydroscience & Engineering, The University of Iowa, Iowa City, USA

Recent observation-based studies have shown that satellite-based antecedent soil moisture can provide useful information on runoff production. The patterns uncovered can be used to benchmark the degree of coupling between antecedent soil moisture, rainfall totals and runoff production, and to determine if hydrologic models can reproduce these patterns for a particular model parameterization of their rainfall-runoff processes. The goal of our study is twofold; First, it derives the relationships between runoff ratio and its major controls, including rainfall total, antecedent soil moisture, and vegetation using remotely sensed data products. Second, it aims to determine if the model is capable to reproduce these relationships and use them to validate model parameters and streamflow predictions. For this purpose, SMAP (Soil Moisture Active Passive) satellite-based soil moisture, S-band radar rainfall, MODIS (Moderate Resolution Imaging Spectroradiometer) vegetation index, and USGS (United States Geological Survey) daily streamflow observations are used. The study domain consists of thirty-eight basins less than 1000 km<sup>2</sup> located in an agricultural region in the United States Midwest. For each basin, daily streamflow predictions, before and after adjustments to the hydrologic model are compared with observations. The comparisons are done for four years (2015-2018) using multiple performance metrics. This study could serve as a data-driven approach for parameterization of rainfall-runoff partitioning in hydrologic models using remotely sensed observations.