

NASA Satellite-based Earth Observation Systems and Hydrological Modeling Enhance Capacity Building in the Lower Mekong River Basin

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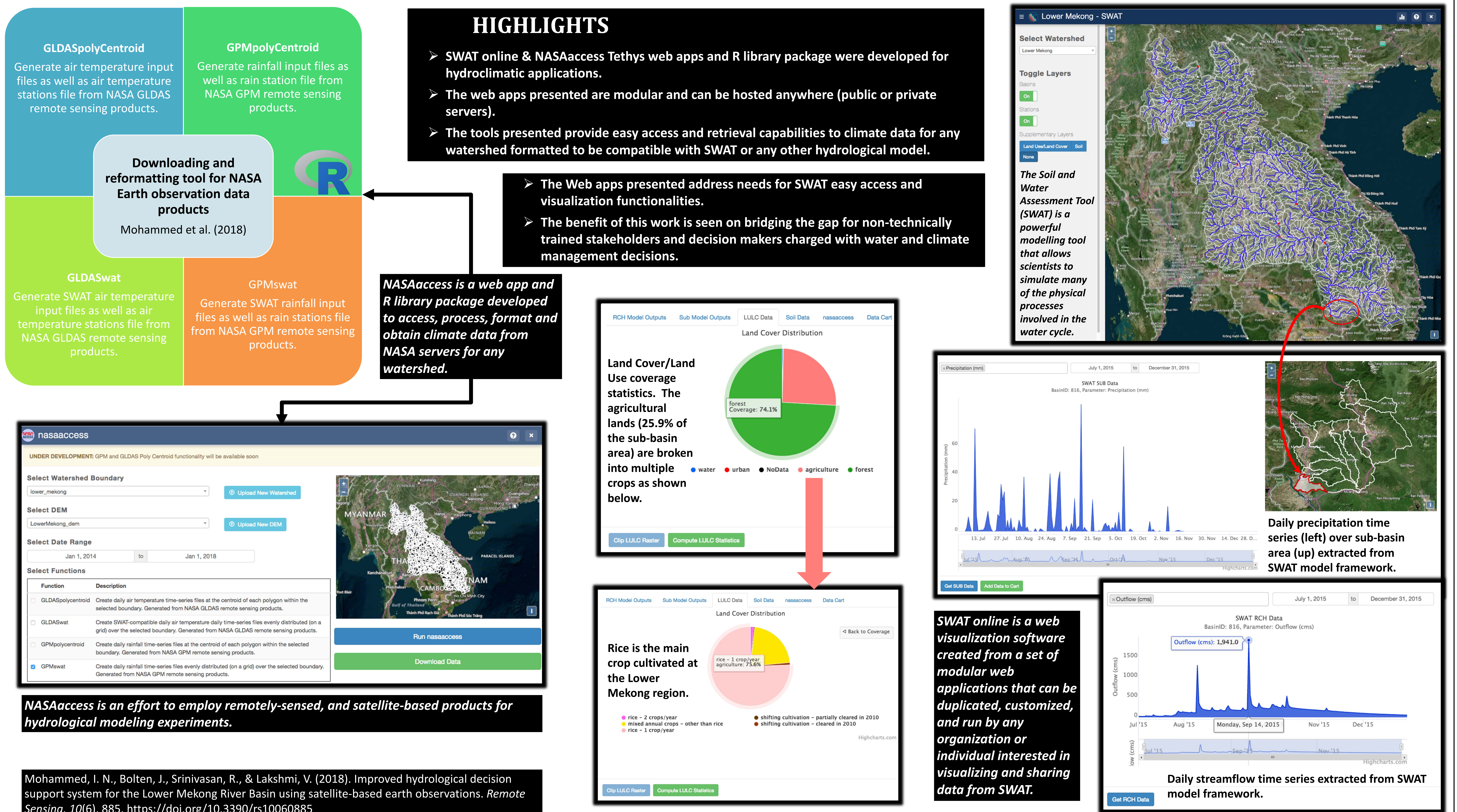
Abstract

Index Terms: 1622: Earth system modeling; 1630: Land/atmosphere interactions; 1800: Hydrology; 1836 Hydrological cycles and budgets; 1840 Hydrometeorology; 1855: Remote sensing; 1996 Web Services; 4305: Space weather; 6334: Regional Planning
This work addresses a key objective of SERVIR-Mekong Project related to integrating geospatial information in government decision-making, planning, and communication for societal good. The SERVIR-Mekong is a partnership between the U.S. Agency for International Development (USAID) and the U.S. National Aeronautics and Space Agency (NASA) formed to help regional organizations in the Lower Mekong Region to use information provided by Earth observing satellites and geospatial technologies in managing climate risks. Our work integrated multiple satellite-based earth observation systems, in-situ station data and spatial data with the Soil & Water Assessment Tool (SWAT) hydrologic model employed in the Mekong River Basin region to develop a Lower Mekong River Basin region's hydrological decision support system. Simulated hydrological fluxes of streamflow, soil moisture, and evapotranspiration at the Lower Mekong River Basin were presented utilizing our developed hydrological decision support system. Our work results have been presented via multiple Tethys platforms, Tethys is an easily customizable platform that hosts web applications, that facilitate accessing NASA satellite-based earth observation systems as well as the Lower Mekong River Basin region's hydrological decision support system. Earth observations data has provided solutions to assist people in the Lower Mekong River Basin to overcome various obstacles experienced in enhancing hydrological decisions that are related to difficult access and incompleteness, inconsistency, scarcity, as well as poor spatial representation of in situ data products.

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