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Title: Inland Water Body Mapping with Remote Sensing Technologies

Abstract:

Understanding the spatial distribution of inland surface water bodies (e.g., rivers, lakes, reservoirs, wetlands and floodplains) and their variation through time is of high importance to both humans and ecosystems. Remote sensing technologies provide opportunities to measure historical dynamics and monitor near real-time states in surface water at continental and global scale. There are currently many active satellites observing the Earth with different types of sensors, e.g., optical, passive microwave, synthetic aperture radar (SAR) and radar and laser altimetry, and with different spatial and temporal resolutions. In this talk, I will introduce approaches to leverage different remote sensing technologies to best monitor discharge in rivers, volume in lakes (reservoirs), depth in floodplains (wetlands), and how these novel approaches contribute to Australia Climate Service (ACS) flood inundation mapping project at the Bureau of Meteorology. We also demonstrate the potential of the SAR technique in detecting flood events as its able to penetrate cloud and observe the Earth during both day and night. In addition, we emphasize the importance of enabling Australian SAR capabilities for near real-time flood mapping in the National Space Mission for Earth Observation (NSMEO).