Boase Seminar Series in Hydrology and Water Resources Engineering

Department of Civil, Environmental and Architectural Engineering



New satellite-based approaches for tracking changes in lake water resources across the

globe

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Wednesday, October 26, 2022 | 11:15 AM | ECCE 1B41 &

Zoom: https://cuboulder.zoom.us/j/95668504496

(passcode: water)

Abstract:

Lakes store the largest amount of accessible freshwater on Earth, providing many essential ecosystem services, ranging from water and food supply, wildlife habitats, cycling of pollutants and nutrients, to recreational services like boating, fishing, and landscape aesthetics. Global climate and environmental change and human activities are increasingly threatening lakes, as evidenced by record-low levels in some of Earth's largest natural lakes and reservoirs. Understanding climate and human alteration of lake water storage variability requires tracking storage changes in Earth's lakes over time, which is often challenging partially due to sparse in-situ observations. Satellite observations bring new opportunities for monitoring lake level and storage changes. However, existing satellite-based approaches are limited by spatial coverage, temporal frequency, or short period of record of satellite altimeters. In this talk, I will introduce recent advances in leveraging a synergy of satellite data to track changes in lake water



resources across the global. I will primarily focus on multi-decadal changes in lake level and reservoir sedimentation rates. New opportunities from forthcoming satellites will also be discussed.

Speaker Bios: Dr. Yao is a postdoctoral fellow in the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado Boulder. He holds a Ph.D. in Physical Geography from Kansas State University and an M.S. in Geographic Information Systems from the University of the Chinese Academy of Sciences. His research explores the impact of climate change on water resources and the associated natural hazards. He focuses on climate change alteration of the water and sediment cycles, changes in freshwater quantity and quality, as well as the impacts of climate change and human activities, e.g., damming, on geomorphic and environmental changes.





