

Satellite-observed lake dynamics across the Tibetan Plateau and beyond

A UCSB Geography Colloquium Presentation by

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[*Abstract*] The Tibetan Plateau is one of the world's most vulnerable areas to global warming. Ice core records indicate that the last 50 years have been the warmest in 1,000 year, and meteorological records from 1955 to 1996 show that the mean annual temperature of the plateau has increased 0.16°C per decade, but only half of the rate in winter. The plateau is home to the world's largest group of high-altitude lakes. Covering ~3.5% of the landscape, Tibetan lakes serve as a sensitive indicator of regional climate and water cycle variability. These lakes have shrunk significantly since the late Pleistocene, and are currently continuing to experience changes in their distribution and inundation area. Long-term lake changes, which have been poorly observed, are expected to drive an array of significant physical and ecological changes in the region. This research explores both paleo and recent lake dynamics across this broad plateau, covering an area over 1 million km². Summarizing from a NASA-funded project that uses the longest possible satellite remote sensing archive and geographic information technologies together with intensive fieldwork, this presentation reports a regional-scale assessment of lake dynamics across the plateau and investigates the driving mechanisms in the context of global warming.

[*Bio-sketch*] Dr. Sheng is a scientist in the field of Geospatial Information Systems and Technologies (GIST) with research interests in photogrammetry, remote sensing, geographic information systems (GIS), and their applications in large-area environmental monitoring and assessment. He obtained his Ph.D. in Environmental Science, Policy and Management in 2000 from University of California, Berkeley. He is an Associate Professor at UCLA Geography Department. He has published ~40 journal papers, including three in *Science*. His current research projects include pan-Arctic assessment of decadal terrestrial water storage change, paleo and recent lake dynamics on the Tibetan Plateau.

