Abstract Title:
Patterns of Lake-level change in Tibetan Plateau from 1972 to 2010, investigated using Landsat images and LiDAR

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Abstract:
The Tibetan Plateau is treated as an ideal area for global environment and climate change study. There are more than one thousand lakes located in Tibetan Plateau and many of these lakes are now experiencing rapid changes. Lake level change is an important indicator of climate and environment change in this area. Due to the low population density, lake changes here are primarily driven by natural processes, and independent from anthropogenic influence. Here, by using Landsat images (MSS, TM, ETM+) from 1972-2010, we present the lake level change in detail. The result indicates that some lakes appear to be increasing in size (Selin Co), while lakes in other areas are shrinking. The changes may associate with the increase of glacial melting or ground water evaporation. LiDAR provides a significant way to measure the lake elevation accurately. The LiDAR data are derived from Geoscience Laser Altimeter System (GLAS) attached in Ice Cloud and Elevation Satellite (ICESat). They can present the lake elevation change from 2003-2009, and we can get better understand of lake level change by conducting regression analysis between lake area and lake elevation. All these records can serve to be an important dataset to conduct detailed climate change study in the future.

Keywords:
Lake level change, Tibetan Plateau, Climate change, GLAS