

# Response of Tibetan Plateau Lakes to Climate Change: Trends, Patterns, and Mechanisms



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**Zoom Link: [Here](#)**



**Meeting ID: 992 4969 9833**

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The wide distribution of natural lakes over the Tibetan Plateau, the highest and largest plateau on Earth, have received extensive attention due to global warming. The lake evolution, spatial patterns and driving mechanisms over the Tibetan Plateau were examined. The changes in lake area, level and volume show a slight decrease from 1976 to the mid-1990s, followed by a continuous rapid increase. The spatial patterns show an overall lake growth in the north of the inner plateau against a reduction in the south, which are accompanied by most of the lakes cooling in the north against warming in the south, and longer ice cover duration in the north compared with the south. The changes in lake temperature are negatively correlated with water level variations and lake ice duration. Enhanced precipitation is the dominant contributor to increased lake water storage, followed by glacier mass loss and permafrost thawing. The decadal lake expansion since the mid-1990s could have been driven by the positive phase of Atlantic Multidecadal Oscillation, and clear inflection points of lake area/level identified in 1997/1998 and 2015/2016 are attributed to strong El Niño events. In the near-term, the lakes will continue to expand. Future interdisciplinary lake studies are urgently required to improve understanding of climate-cryosphere-hydrosphere interactions and water resource management.



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