

**Constructing a ¹⁰Be surface-exposure chronology of Holocene glacier fluctuations in the
Bhutanese Himalaya**

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ABSTRACT: The response of Himalayan mountain glaciers to global warming is uncertain, hence challenging our knowledge of downstream effects on water availability in Earth's most populated countries. Here, we propose to approach this problem by developing a Holocene record of glacier fluctuations in the Himalaya of Bhutan based on robust and precise ¹⁰Be surface-exposure dating. Comparison of late-Holocene glacier changes to nearby tree-ring-based temperature reconstructions will allow us to assess the primary controls on glacier mass balance in this region. From this information we hope to learn more about hemispheric climate linkages, and to anticipate the sign of future South Asian water balance under continued atmospheric warming.