

Seasonal variations of supraglacial ponds on debris-covered glacier in the eastern Himalaya

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In the eastern Himalayas (eastern Nepal and Bhutan), large proglacial lakes have often developed gradually by connecting of small supraglacial ponds since 1950s-1960s (Ageta et al., 1998; Komori et al., 2004). The Tshojo Glacier flood of 2009 in Bhutan occurred at a debris-covered glacier without a proglacial lake (Komori et al., 2012). As characteristics of the sudden large drainage at the Tshojo Glacier, a large supraglacial pond disappeared after flooding. It is important to clarify the behavior of supraglacial lake for countermeasure of glacier lake hazards. To clarify the seasonal variations of supraglacial ponds, we investigated the area changes of supraglacial ponds on debris-covered glaciers in the Lunana region of Bhutan and Khumbu region of the eastern Nepal using Landsat8 OLI and ALOS-2 PALSAR-2 data.

Keywords: supraglacial pond, debris-covered glacier, eastern Himalaya, ALOS-2/PALSAR-2