

Twentieth century glacier change on Mount Adams, Washington, USA

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Mount Adams is a large glacier-clad stratovolcano located in southern Washington, USA. We examined the area change of the 12 glaciers on the mountain over the 20th century using historic topographic maps, and aerial photographs. The total glacier area decreased by 49% (31.51 km² to 16.18 km²) from 1904 to 2006. The glaciers showed a period of retreat during the first half of the century, followed by either a slowing of retreat or an advance from the 1960's to the 1990's. Subsequently, the glaciers resumed their rapid retreat. Glaciers on Mt. Adams show similar trends to those on both Mt. Hood and Mt. Rainier. The qualitative correlation between area change and trends in winter precipitation and summer temperature indicate largely a temperature-driven glacier shrinkage as the climate warmed since the Little Ice Age of the late 19th Century. No century-scale trends were noted in precipitation but decadal-scale variations in winter precipitation appear to enhance or buffer the effects of temperature on glacier change.