Inventory and initiation zone characterization of debris flows on Mount St. Helens, Washington initiated during a major storm event in November, 2006

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Abstract
The heavy precipitation event of November 3-8, 2006 dropped over 60 cm of rain onto the basin southern slopes of Mount St. Helens and generated debris flows in eight of the sixteen drainages outside the 1980 debris avalanche zone. Debris flows occurred on the upper catchments of the Muddy River, Sheepeat Creek, Lone Lake, Butte Camp Dome, Blue Lake, Sheep Creek, and South Fork Toutle River. Debris flows were clustered on the west and southeast sides of the mountain. Of the eight debris flows, three were initiated by landslides in the western quadrant. The depositional area comprised about 975,000 m$^2$. The largest and longest debris flow occurred in the South Fork Toutle Drainage in the western quadrant. The depositional area comprised about 975,000 m$^2$. The largest and longest debris flow occurred in the South Fork Toutle Drainage in the western quadrant. The depositional area comprised about 975,000 m$^2$. The largest and longest debris flow occurred in the South Fork Toutle Drainage in the western quadrant.

Debris Flows
The 8 of 16 drainages that experienced a debris flow in November 2006 are located in areas with precipitations over 150 mm during the period of November 3-8, 2006. These factors predicted the 2006 debris flows.

Basin Comparisons
Debris flow inventory map showing defined drainage outlines and 2006 event flow paths. The diagrams show the decrease in glacier area and length between 1982 and 2009. The glaciers remaining are indicated with a black circle.

Glacial Change

References


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