

INDEX OF FLOWS

A. Debris avalanches and debris flows originating in pre-Mount Rainier rocks (selected examples)

- 1a, 1b. Mount Wow—Site of repeated debris avalanches during past several decades and centuries. Flows originated as rockfalls/rockslides from the south end of Mount Wow. Lobate distal parts flowed unknown distances down the Tahoma Creek valley. Most flows are post-Tahoma Lahar (post-A.D. 1482). The distal part of the youngest flow killed now-standing dead trees in valley (post-1988 debris flows in Tahoma Creek also killed many trees in the same area); youngest large flow from Mount Wow occurred between 1900 and 1950
2. Lake George—Site of repeated debris avalanches during the past several centuries. Flow into lake may have raised the lake level and caused overflow. Drowned, apparently standing trees suggest a previously lower lake level. However, the same trees may be floating, supported upright by the weight of debris held in their root balls; they may have rafted from a landslide at the south end of the lake and now be grounded at the north end
3. Mother Mountain—Site of repeated debris avalanches during the past several centuries. Flows originated as rockfalls/rockslides from the steep northeast end of Mother Mountain. The largest flow has a lobate foot extending almost to the Carbon River

INDEX OF FLOWS (continued)

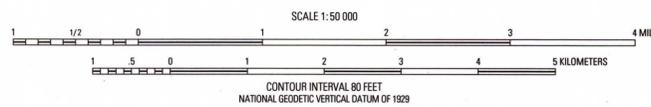
B. Debris avalanches and debris flows originating in Mount Rainier rocks

4. Willis Wall—Extensive history as source of debris avalanches on surface of the Carbon Glacier. Cover of rock debris on glacier is predominately of this origin. Additional sources of debris include Liberty Ridge and the west side of Curtis Ridge. A major triggering mechanism of flows in this group (including those below) is probably Neoglacial recession and consequent unloading of the steep lateral walls of previously ice-filled embayments
- 5a, 5b, 5c. Curtis Ridge—June 1974 (5a); August 16, 1989 (5b); October 23, 1992 (5c). Debris avalanches onto Winthrop Glacier. Avalanches originated as rockfalls/rockslides from the same general area on upper Curtis Ridge. Boundary of the 1974 avalanche (5a) is from Frank (1985<sup>1</sup>; and written commun., 1989); boundary of the 1992 avalanche (5c) is from Norris (in press)
6. Little Tahoma Peak—December 6, 1963. A series of avalanches originated as rockfalls from the side of Little Tahoma Peak facing Emmons Glacier. Debris avalanches extended to within 1.0 kilometer (0.6 mile) of the White River campground. Small debris flows, probably of a secondary, dewatering origin, extended approximately another 1 kilometer in the White River channel. Boundaries of the flows (similar to those of the deposits in this case) are from Crandell and Fahnestock (1965). Date of occurrence reinterpreted by Norris (in press) from seismic record
7. Gibraltar Rock—March 1975. A debris avalanche originated as a rockfall from the east face of Gibraltar Rock and then flowed down the Cowlitz Glacier. Description and boundary of the avalanche are from Frank (1985)
8. Tahoma Glacier—1910 to 1927. A debris avalanche originated as a slide of clay-rich, hydrothermally altered material, part of a highly altered volcanic complex exposed at the head of the Sunset Amphitheater. Dated as 1910 to 1930 by Crandell (1971); date of 1910 to 1927 is based on ground photographs. Although originating from the Sunset Amphitheater (Crandell, 1971; Frank, 1985), the flow is most commonly known as the Tahoma Glacier debris avalanche (Frank, 1985)

C. Major debris flows from glacial outburst floods and precipitation-induced glacier collapse

9. Kautz Creek—Area of recurrent inundation over last 100 to 200 years. Largest debris flows at Rainier in the 20th century occurred October 2-3, 1947. Small flows occurring as recently as 1987 reached the crossing of the Wonderland Trail. The series of 1947 flows was associated with intense precipitation and collapse of the lower 1.6 kilometers of the Kautz Glacier (Grater, 1948; Erdman and Johnson, 1953)
10. Tahoma Creek—Numerous 20th century flows. Many glacial outburst floods have occurred due to periods of hot weather and to intense precipitation. Some debris flows, such as that of June 29, 1987, were magnified by collapse and incision of areas of stagnant ice. Area shown approximates inundation by all 20th century flows combined<sup>1</sup> See accompanying pamphlet for references cited

Base from U.S. Geological Survey  
 Mt. Rainier National Park, Wash., 1971



MAP SHOWING MODERN DEBRIS AVALANCHES AND DEBRIS FLOWS AT MOUNT RAINIER, WASHINGTON  
 DEBRIS FLOW, DEBRIS AVALANCHE, AND FLOOD HAZARDS AT AND DOWNSTREAM FROM MOUNT RAINIER, WASHINGTON

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