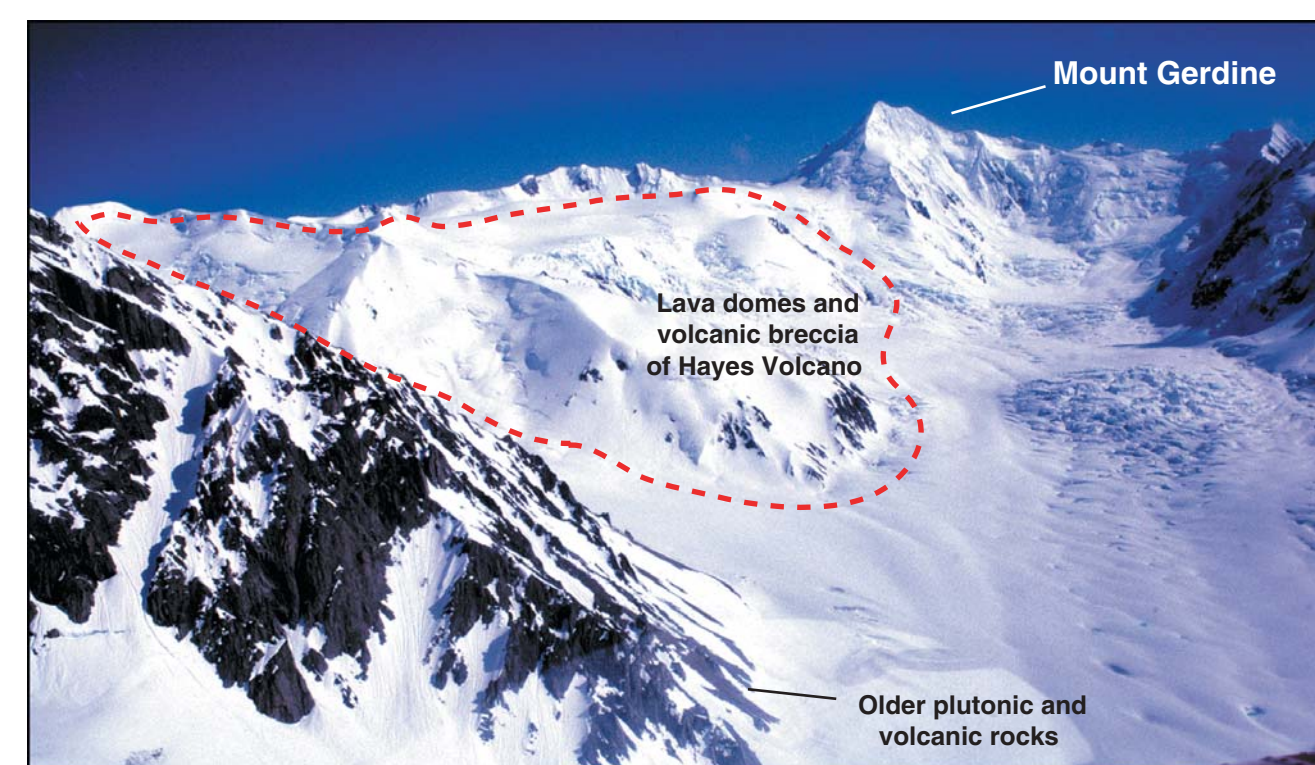
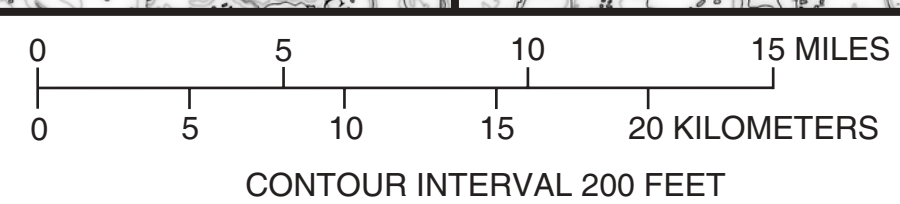
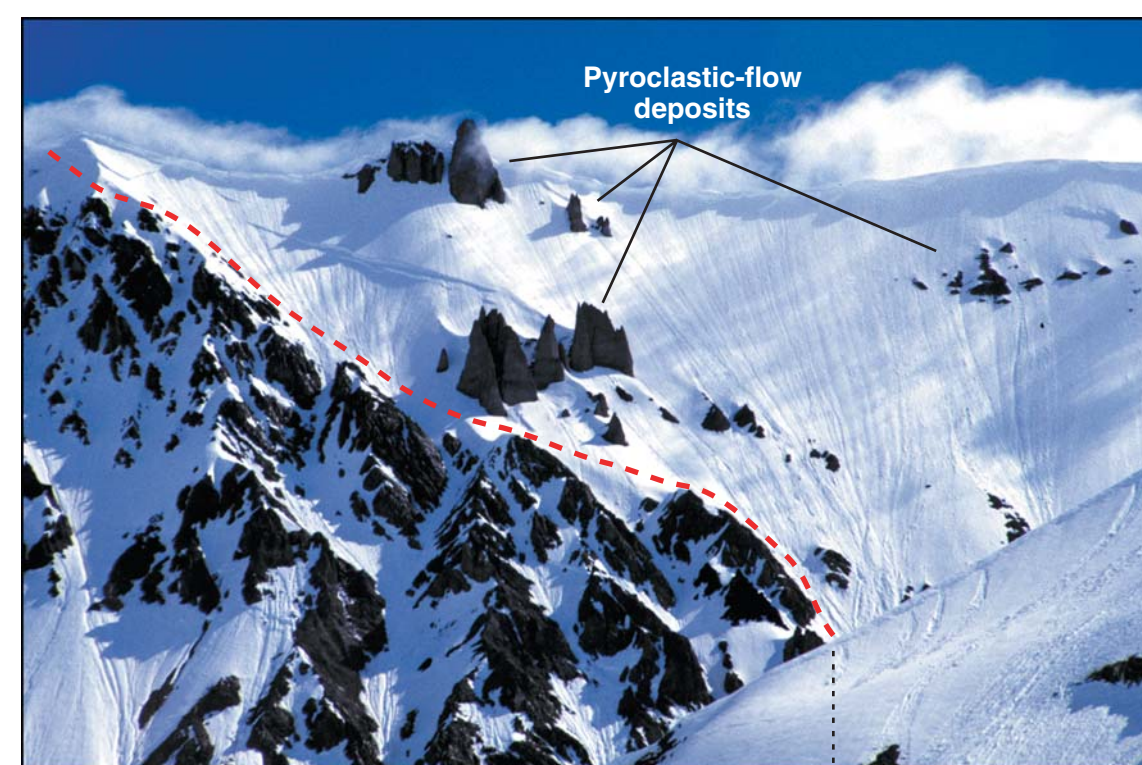


Base from U.S. Geological Survey  
Tyonek, 1958, 1:250,000



Hayes Volcano is mostly covered by perennial ice and snow. However, a nested complex of lava domes and breccia project through the ice as small nunataks. A future eruption of Hayes Volcano would involve large amounts of snow and ice, and this would lead to the development lahars, lahar-runout flows, and floods downstream from the volcano.

Pyroclastic-flow deposits around Hayes Volcano record a major, explosive eruption of the volcano 4,400 to 3,600 years ago. These deposits are found near the terminus of Hayes Glacier, about 40 kilometers from the volcano.



- ### LAHAR HAZARDS
- Areas likely to be inundated by lahars, lahar-runout flows, and floods:
- L1 During most eruptions
  - L2 During moderate to large eruptions—Lahar and lahar-runout flows will be more common in upstream areas, whereas sediment-laden floods will be more common in downstream areas
  - L3 During large, rare eruptions—Queried where hazard uncertain

**\*Note:** Lahars are likely to be generated by pyroclastic-flow interaction with snow and ice on and around the volcano. To reduce clutter on the map, we have not shown lahar-inundation areas on glacier ice. All the glaciers emanating from the area around Hayes Volcano could be inundated by lahars during an eruption of any size.

- ### PYROCLASTIC-FLOW AND -SURGE HAZARDS
- [H, fall height of eruption column; L, runout distance]
- Extent of pyroclastic flows for  $H/L = 0.1$ —Pyroclastic flows generated by collapse of the eruption column could extend to at least this boundary during moderate to large eruptions
  - Extent of pyroclastic flows for  $H/L = 0.4$ —Pyroclastic flows generated by collapse of the eruption column could extend to at least this boundary during small eruptions
  - Possible flow paths for large pyroclastic flows and surges. During moderate-to-large eruptions, pyroclastic flows and surges could be directed along topographically low areas, such as glacial valleys and stream drainages, and could extend beyond the indicated hazard-zone boundaries in these areas
  - Pyroclastic-flow deposits formed by the last major eruption of Hayes Volcano

### NOTE ABOUT VOLCANO HAZARD-ZONE BOUNDARIES

This preliminary hazard-zonation map indicates generalized hazardous areas associated with future eruptions of Hayes Volcano. Explosive, pyroclastic eruptions are likely to initiate lahars and floods and will probably result in variable amounts of ashfall that could be several centimeters thick in some areas. Pyroclastic flows and surges may develop during most eruptions and will likely be confined to the glacial valleys. Debris avalanches are uncommon at this volcano and are unlikely to be significant hazards. The hazard-zone boundaries do not indicate a major change in the degree of hazard but are generalized approximations based on known deposits and eruptive characteristics of similar volcanoes. The degree of hazard generally decreases in a downvalley direction and as height above the valley floor increases.

### VOLCANIC-ASH HAZARDS

The hazard zone for volcanic ash is likely to be similar to the extent of ash fallout of Holocene eruptions of Hayes Volcano and other volcanoes in the Cook Inlet region. The specific area of ash fallout depends on the prevailing winds, which are generally from the west. Ash plumes could rise to 15,000 meters or more in altitude and would drift downwind as ash clouds for days to weeks after an eruption. Drifting clouds of volcanic ash would be hazardous to all aircraft in areas downwind from the volcano.

