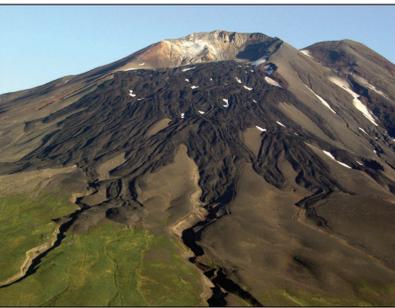
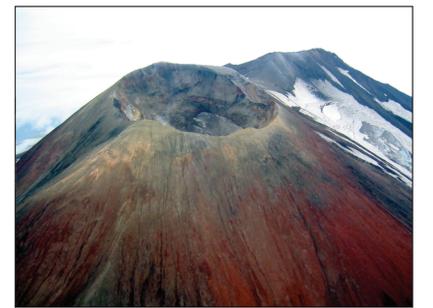


- LIST OF MAP UNITS**
- [All units on Gareloi Island are Quaternary. Map units have been organized according to age, but also according to eruptive vent—either south peak or north peak. The approximate time equivalence of units from the two vents is portrayed in the Correlation of Map Units. Units for which chemical analyses are available have been assigned rock names based on the scheme of LeMaitre (2002), with appropriate mineral modifiers. Where available, we included ranges of SiO<sub>2</sub> and total alkalis (K<sub>2</sub>O+Na<sub>2</sub>O) for each unit, in wt. percent. Descriptions of phenocrysts, which are defined as crystals ≥0.5 mm in length, were determined by observations of both hand specimens and thin sections. In addition, a subset of thin sections has been point counted.]
- SURFICIAL DEPOSITS**
- d Debris-flow deposits (historic)
  - b Beach deposits (Holocene)
  - dv Viscous debris-flow deposits (late Holocene)
- HOLOCENE VOLCANIC ROCKS—SOUTH PEAK**
- csp Altered crater rocks of south peak (Holocene)
  - psp Pyroclastic rocks of south peak (Holocene)
  - ssp Shoshonite lava-flow field of south peak crater (historic)
  - dsf Debris-flow deposits of south flank (historic)
  - d29 Debris-flow deposits (1929)
  - p29 Pyroclastic deposits (1929)
  - t29 Trachyte lava flows (1929)
  - l29 Latite lava flows (1929)
  - asp Andesite of south peak (late Holocene?)
  - isp Lavas of south peak (Holocene)
- HOLOCENE VOLCANIC ROCKS—NORTH PEAK**
- l87 Lava flow (1987)
  - pnsp Agglutinate, spatter, and pyroclastic deposits of north peak (Holocene; historic)
  - inp Sheet lava field of north peak (Holocene)
- PLEISTOCENE VOLCANIC ROCKS**
- pef Lithic pyroclastic-flow deposits of east flank (Holocene)
  - snw Shoshonite lavas of northwest flank (late Holocene)
  - sef Shoshonite lavas of east flank (late Holocene)
  - lpu Lavas of north peak, undivided (Holocene)
  - see Shoshonite of early edifice (Pleistocene?)
  - ssf Shoshonite dome of south flank (Pleistocene)
  - anf Andesite of north flank (Pleistocene)

- EXPLANATION OF MAP SYMBOLS**
- Contact—Dashed where inferred
  - Internal contact—Delineates flow margin
  - Crater rim
  - Dike—Approximately located
  - Landslide scarp
  - Ground crack
  - Normal fault—Ball and bar on downthrown block. Queried where uncertain. Arrows on cross section show relative motion
  - Flank vent
- Sample locality and number**—Prefix 03GR removed from sample numbers for clarity on map
- Rock sample locality—Sample not analyzed
  - Chemical sample locality—See appendix I
  - <sup>40</sup>Ar/<sup>39</sup>Ar sample locality—Showing age (ka)
  - <sup>1090±70</sup>MC12 <sup>14</sup>C sample locality—Showing date (yr B.P.)
  - Fumarole field
  - Crater formed during 1929 eruption



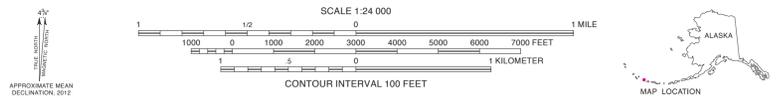
Gareloi volcano's south crater, with shoshonite lava-flow field that formed between 1950 and 1980. Gullies in foreground cut into pyroclastic sequence that formed during the 1929 eruption. The breached crater rim also formed in 1929. White portion of the crater wall is hydrothermally altered due to persistent fumarolic activity.



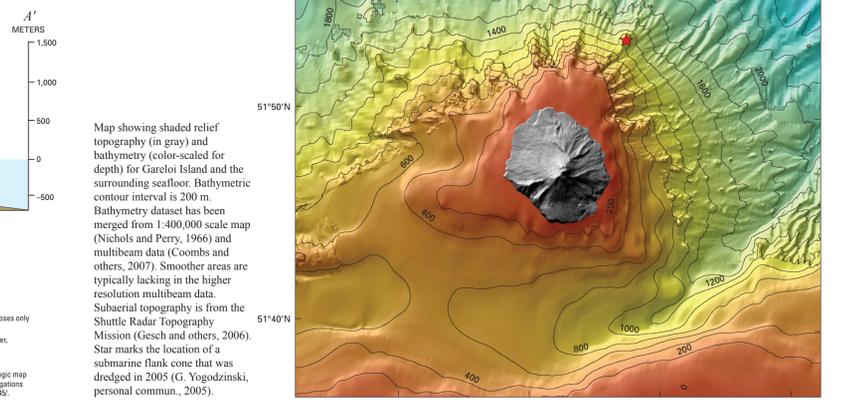
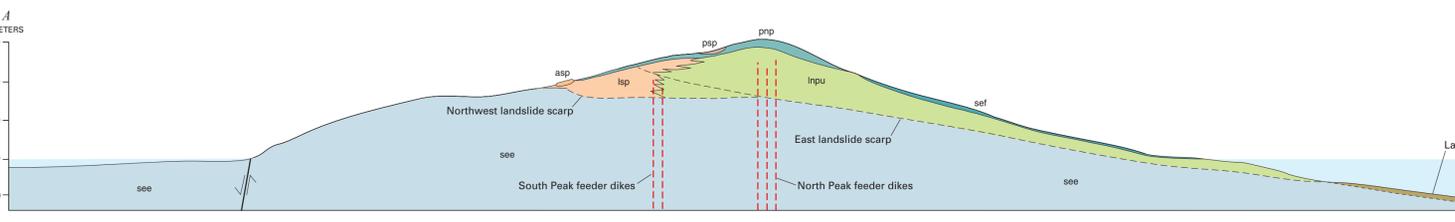
Gareloi volcano's north crater, with north rim of south crater in background. Dark deposit that flows down from low point on the eastern (left) rim is lava flow that likely formed in 1987. Persistent ice field seen at right of photograph.

Base from Army Map Service (1:25,000), Corps of Engineers, compiled in 1952 by photogrammetric methods from aerial photography dated September 1948 and field surveys in June 1950. Universal Transverse Mercator Projection, Zone 1 North. North American Datum of 1983.

**NOTE: THIS MAP IS NOT INTENDED FOR NAVIGATION**



Geology mapped by M.L. Coombs, B.L. Browne, and R.G. McGimsey. Geologic map compiled 2003–2006 by M.L. Coombs in ArcGIS. Final map prepared in Adobe Illustrator by M.L. Coombs and E.E. Thoms in 2008–2010. Edited by J.L. Ziegler; digital cartographic production by Kathryn Nimz. Manuscript approved for publication May 25, 2010.



Map showing shaded relief topography (in gray) and bathymetry (color-scaled for depth) for Gareloi Island and the surrounding seafloor. Bathymetric contour interval is 200 m. Bathymetry dataset has been merged from 1:400,000 scale map (Nichols and Perry, 1966) and multibeam data (Coombs and others, 2007). Smoother areas are typically lacking in the higher resolution multibeam data. Subaerial topography is from the Shuttle Radar Topography Mission (Gesch and others, 2006). Star marks the location of a submarine flank cone that was dredged in 2005 (G. Yogodzinski, personal commun., 2005).

# Geologic Map of Mount Gareloi, Gareloi Island, Alaska

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