The Monkeys Forehead

Monkey summit

Sea Lion spit

mount-

Kasatochi

Peregrine peak

Shag rock

SYMBOLS AND FEATURES

----- Contacts; certain ——— Contacts; location inferred from oblique field photographs Analyzed samples ▲ Analyzed and dated samples Crater rim prior to 2008 eruption Crater rim ----- Crater lake shoreline; April 18, 2009; 10.8 m below local mean sea level ••••• Shoreline prior to 2008 eruption ——— Post-2008 eruption shoreline; maximum seaward extent Winter 2008–2009 beach bluffs — 2011 shoreline 2012 shoreline Loafing Gull lake Loafing Gull lake shoreline, 2011 Loafing Gull lake shoreline, 2012 Loafing Gull lake shoreline, maximum extent winter 2011-2012 Gullies in 2008 eruption deposits, 1–5 m wide Gullies in 2008 eruption deposits, > 5 m wide Tension cracks <u>—100</u>— Topographic contours; 5 m contour interval MAP UNITS Non-volcanic units—All postdate the 2008 eruption Beach deposits—Sand and gravel beach deposits Lag beach deposits—Boulder and cobble lag beach deposits Back-beach deposits—Muddy silt, sand, and subordinate gravel deposited behind beach Alluvial fan deposits—Sand, gravel, cobbles, and boulders derived mostly from 2008 eruption deposits deposited by streams and debris flows Talus—Accumulations of angular boulders deposited below cliffs Slump deposits—Collapsed bluffs of 2008 eruption deposits 2008 mass-flow deposits—Deposits of mud-lump debris flows derived from sloughed upper portions of 2008 pyroclastic deposits immediately after the eruption Flank units

> 2008 pyroclastic deposits—Lithic basaltic andesite to andesite pyroclastic density current and rare fall deposits; areas where the finer-grained uppermost layer sloughed immediately after the eruption are stippled

2008 pyroclastic fans—Thick fans that were formed by deposits of 2008 lithic pyroclastic density currents and falls that were channelized by local topography Luna pyroclastic deposits—Lithic basaltic andesite to andesite pyroclastic density current

Monkeys Forehead basaltic andesite—Porphyritic basaltic andesite flows and flow lobes Tundering basaltic andesite—Thick flow lobes of porphyritic basaltic andesite

Mount Kasatochi andesite—Amphibole-bearing porphyritic andesite dome or coulee

Ogres Brow basaltic andesite—A single thick porphyritic basaltic andesite flow lobe Rye basaltic andesite—Porphyritic basaltic andesite flow or flows

Rye basalt—Porphyritic basalt flows

Whiskey andesite—Porphyritic andesitic flows or flow lobes

Gregs Mighty basalt—Thin porphyritic olivine- clinopyroxene-basalt flows

Peregrine lava—Massive amphibole-rich porphyritic basaltic andesite lava

Peregrine glaciovolcanic deposits—Unbedded autobrecciated lava in the lower part and juvenile clast-bearing laharic debris flows in the upper part

Crater wall units

Qwc Colluvium—Colluvium; dominantly post-2008 eruption

2008 pyroclastic deposits—2008 pyroclastic deposits on crater wall surfaces with

Fragmental volcanic deposits—Dominantly red, orange, and gray scoriaceous breccia and

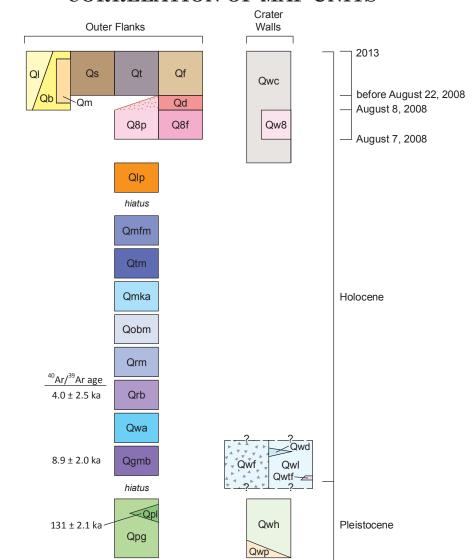
Qwl Lava—Dominantly lava flows

Qwtf Thin lava flows—Thin lava flows; morphologically unique in crater wall exposures; likely correlative with Gregs Mighty basalt

Qwh Lower crater wall deposits—Greenish-weathering bedded and massive volcaniclastic and

Qwp Thin tephra—Thinly bedded tephra-fall or fine-grained pyroclastic flow and surge deposits

CORRELATION OF MAP UNITS



GEOLOGIC MAP OF KASATOCHI VOLCANO, ALEUTIAN ISLANDS, ALASKA

Luna summit

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Location of Map Area

52°10'45" +

cabin (buried)—

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C.J. Nye¹, W.E. Scott², O.K. Neill^{3,4} C. F. Waythomas⁵, C. E. Cameron¹, A. T. Calvert⁶ SCALE 1:5000 1 KILOMETER CONTOUR INTERVAL 5 METERS VERTICAL DATUM IS KASATOCHI MEAN SEA LEVEL (KMSL)*

* KMSL is defined by the 10:21 June 15, 2009, water elevation at AVO benchmark KAS4 and tidal predictions at the Fenimore Pass subordinate tidal station (9461519). To convert KMSL to the WGS84 or ITRF2008 ellipsoids add 8.3 m. To convert KMSL to the NAD83(2011) ellipsoid add 7.3 m.

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-Gregs Mighty rock

+ 52°10'45"

-East point

10KCon03-1 10KCon03-3

+ 52°9'30"

Topographic base map from:

The topographic base map is derived from a Digital Elevation Model produced by a stereo pair of WorldView1 satellite images acquired on April 18, 2009 and orthorectified using high-precision differential GPS data acquired in June, 2009. DigitalGlobe catalog numbers are 10200100064A7100 and 10200100067E5500.Ground sample distances (GSD) for the images are 58 and 60 cm, respectively, and the sampling interval for the DEM is two meters. Topographic contours were extracted after the DEM (WGS84 datum) had been adjusted to the Kasatochi Mean Sea Level datum and shoreline artifacts had been removed. Erosion subsequent to 2009 has made portions of the topographic base, particularly the shoreline, obsolete.

Projection: Universal Transverse Mercator Zone 1 North

World Geodetic System 1984 Geologic field investigations by:

C.J. Nye¹, W.E. Scott², C. F. Waythomas⁵, and O.K. Neill^{3,4} (2009-2013) Geologic interpretation by: C.J. Nye¹, W.E. Scott², O.K. Neill^{3,4}, C. F. Waythomas⁵, C. E. Cameron¹,

A. T. Calvert⁶ (2009-2016) Geologic GIS data layers created by:

C.J. Nye^1 (2012-2016) Cartography by: P.E. Gallagher¹ (2016)

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