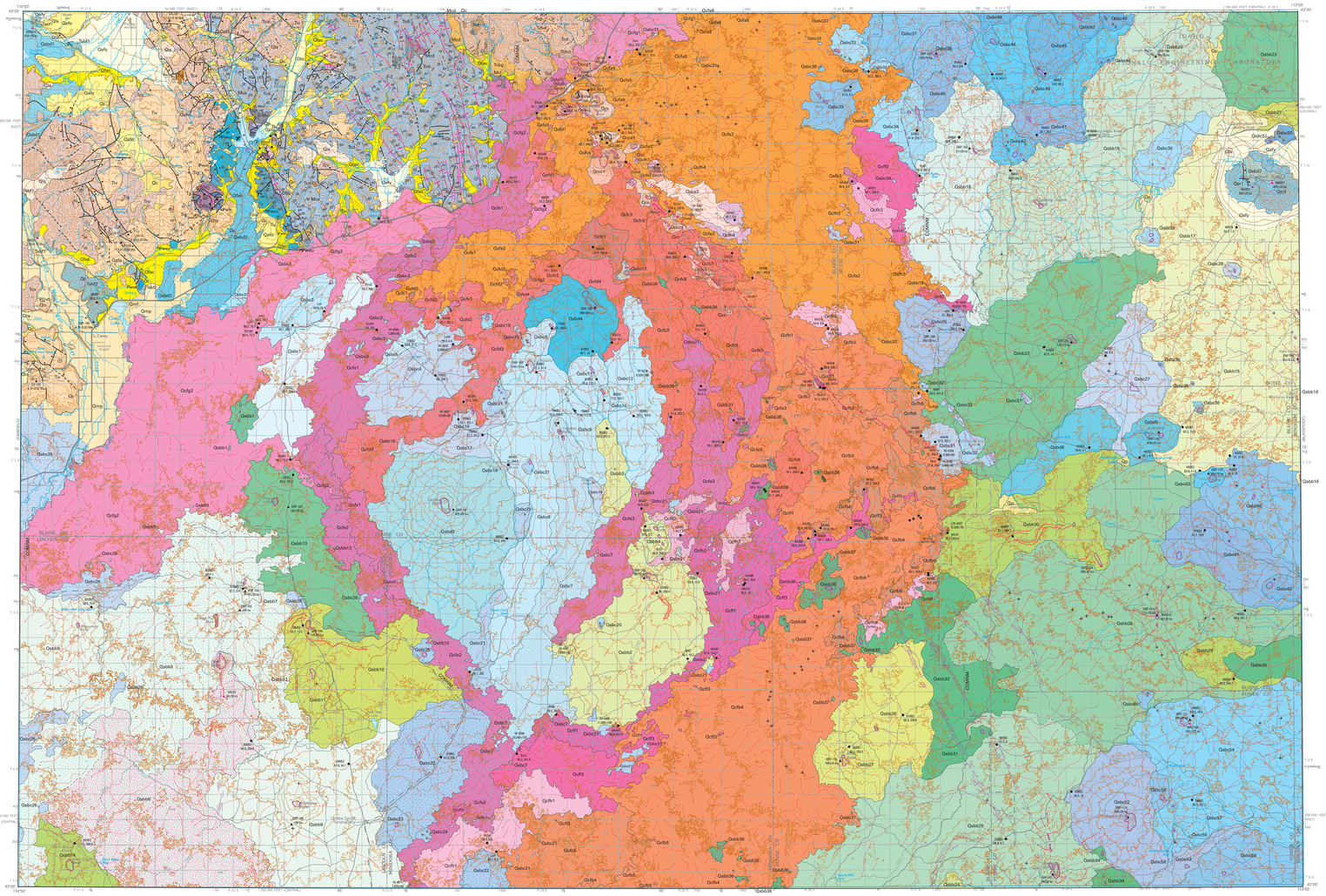
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

Prepared in cooperation with the
NATIONAL PARK SERVICE and the U.S. BUREAU OF LAND MANAGEMENT

SCIENTIFIC INVESTIGATIONS MAP 2969
Pamphlet accompanies map



Base from U.S. Geological Survey, 1978.
Projection and 10,000-m grid, zone 12, Universal Transverse Mercator.
50,000-ft grid ticks based on Idaho coordinate system, central and east zones.
1927 North American Datum

APPROXIMATE MEAN DECLINATION, 1978

SCALE 1:100 000

CONTOUR INTERVAL 20 AND 50 METERS
NATIONAL GEODETIC VERTICAL DATUM OF 1929

QUADRANGLE LOCATION

Sources of geologic mapping shown on index.
Manuscript approved for publication April 18, 2007

LIST OF MAP UNITS

UNCONSOLIDATED SURFICIAL DEPOSITS

- Qi — Lacustrine deposits (Holocene)
- Qmf — Deposits of modern flood plains (Holocene)
- Qta — Alluvium of tributary streams (Holocene and late Pleistocene)
- Qls — Landslide deposits (Holocene to early middle Pleistocene)
- Qfac — Fan deposits of alluvium and colluvium (Holocene to early middle Pleistocene)
- Qp — Playa deposits (Holocene to early Pleistocene)
- Qc — Colluvium (Holocene to early Pleistocene)
- Qmp — Deposits along main streams of Pinedale age (late Pleistocene)
- Qafy — Younger fan alluvium (late Pleistocene)
- Qt — Travertine (Pleistocene)
- Qafo — Older fan alluvium (late middle Pleistocene to early Pleistocene(?))
- QTf — Older fan gravel (Pleistocene and Pliocene)

HOLOCENE AND LATE PLEISTOCENE BASALTIC LAVA FLOWS AND RELATED CINDER CONE AND ERUPTIVE-FISSURE DEPOSITS OF THE SNAKE RIVER GROUP

Craters of the Moon lava field

Eruptive period A

- Qcfa1 — Broken Top pahoehoe basalt flow (Holocene)
- Qcca1 — Broken Top basaltic cinder cone deposits (Holocene)
- Qcfa2 — Blue Dragon pahoehoe and a'a basalt-hawaiite flows (Holocene)
- Qcca2 — Big Craters basaltic cinder cone deposits (Holocene)
- Qcea1 — Blue Dragon basaltic eruptive-fissure deposits (Holocene)
- Qcfa3 — Trench Mortar Flat pahoehoe and slab-pahoehoe basalt-hawaiite flows and near-vent tephra deposits (Holocene)
- Qcca3 — The Watchman cinder cone deposits (Holocene)
- Qcea2 — Trench Mortar Flat basaltic eruptive-fissure deposits (Holocene)
- Qcfa4 — North Crater pahoehoe basalt-hawaiite flow (Holocene)
- Qcca4 — North Crater basaltic cinder cone deposits (Holocene)
- Qcfa5 — Big Craters pahoehoe and slab-pahoehoe hawaiite flows (Holocene)
- Qcea3 — Big Craters basaltic eruptive-fissure deposits (Holocene)
- Qcfa8 — Serrate block and a'a latite flow (Holocene)
- Qcfa9 — Devils Orchard block and a'a latite flow (Holocene)
- Qcfa10 — Highway block, a'a, and pahoehoe latite flow (Holocene)
- Qccs5 — Cinder mound deposits (Holocene)

Eruptive period B

- Qcfb1 — Vermillion Chasm pahoehoe basalt flows and near-vent tephra deposits (Holocene)
- Qccb1 — Vermillion Chasm basaltic eruptive-fissure deposits (Holocene)
- Qcfb2 — Deadhorse pahoehoe basalt flows (Holocene)
- Qccb2 — Deadhorse basaltic eruptive-fissure deposits (Holocene)
- Qcfb3 — Devils Caldron pahoehoe basalt-hawaiite flow (Holocene)
- Qcfb4 — Miniidoka pahoehoe basalt flows (Holocene)
- Qcfb5 — Larkspur Park pahoehoe hawaiite flows (Holocene)
- Qcfb6 — Rangefire pahoehoe hawaiite-latite flows (Holocene)
- Qcfb7 — Black Top Butte pahoehoe hawaiite flow (Holocene)
- Qccb1 — Black Top Butte basaltic cinder cone deposits (Holocene)

Eruptive period C

- Qcfc1 — Indian Wells North a'a latite flow (Holocene)
- Qcfc2 — Indian Wells South a'a latite flow (Holocene)
- Qcfc3 — Sawtooth a'a latite flows (Holocene)
- Qcfc4 — Big Cinder Butte NW a'a latite flow (Holocene)
- Qccc1 — Big Cinder Butte basaltic cinder cone deposits (Holocene)
- Qcfc5 — South Echo pahoehoe basalt flow (Holocene)
- Qcec1 — South Echo basaltic eruptive-fissure deposits (Holocene)
- Qcfc6 — Sheep Trail Butte pahoehoe and a'a basalt flows (Holocene)
- Qccc2 — Sheep Trail Butte basaltic cinder cone deposits (Holocene)
- Qcfc7 — Fissure Butte pahoehoe and a'a basalt flows (Holocene)
- Qccc3 — Fissure Butte basaltic cinder cone deposits (Holocene)
- Qcec2 — Fissure Butte basaltic eruptive-fissure deposits (Holocene)
- Qcfc8 — The Sentinel pahoehoe and a'a basalt flow (Holocene)
- Qccc4 — The Sentinel basaltic cinder cone deposits (Holocene)

Eruptive period D

- Qcfd1 — Silent Cone latite a'a flow (Holocene)
- Qccd1 — Silent Cone basaltic cinder cone deposits (Holocene)
- Qcfd2 — Carey Kipuka hawaiite a'a flow (Holocene)
- Qcfd3 — Little Park hawaiite a'a flows (Holocene)
- Qcfd4 — Little Laidlaw Park hawaiite a'a flow (Holocene)

Eruptive period E

- Qccg1 — Grassy pahoehoe and collapse-a'a basalt flow (Holocene)
- Qccce1 — Grassy Cone basaltic cinder cone deposits (Holocene to latest Pleistocene)
- Qcfe2 — Laidlaw Lake pahoehoe and a'a basalt flows (Holocene)
- Qcfe3 — Lava Point a'a basalt flows (Holocene)

Eruptive period F

- Qcff1 — Pronghorn pahoehoe and a'a basalt flows (late Pleistocene)
- Qcff2 — Heifer Reservoir pahoehoe basalt flows (late Pleistocene)
- Qcff3 — Bottleneck Lake pahoehoe and a'a basalt flows (late Pleistocene)

Eruptive period G

- Qcfg1 — Sunset pahoehoe and slab-pahoehoe basalt-hawaiite flows (late Pleistocene)
- Qcfg2 — Carey pahoehoe and slab-pahoehoe basalt-hawaiite flows (late Pleistocene)
- Qccg1 — Sunset Cone basaltic cinder cone deposits (late Pleistocene)

Eruptive period H

- Qcfh1 — Kimama pahoehoe basalt flow (late Pleistocene)
- Qcfh2 — Bear Den Lake pahoehoe basalt flows (late Pleistocene)
- Qcfh3 — Baseline pahoehoe basalt flows (late Pleistocene)
- Qcfh4 — Little Prairie pahoehoe and a'a basalt flows (late Pleistocene)
- Qcfh5 — No Name pahoehoe basalt flow (late Pleistocene)
- Qcfh6 — Lost Kipuka pahoehoe basalt flow (late Pleistocene)
- Qcfh7 — Crescent Butte pahoehoe basalt flow (late Pleistocene)
- Qccb1 — Crescent Butte basaltic cinder cone deposits (late Pleistocene)
- Qcfh8 — Brown pahoehoe basalt flow (late Pleistocene)
- Qcc — Basaltic cones, undivided (Holocene and late Pleistocene)

PRE-HOLOCENE BASALTIC LAVA FIELDS AND ASSOCIATED FLOWS, VENTS, AND ERUPTIVE-FISSURE DEPOSITS OF THE SNAKE RIVER GROUP

[Units are grouped geographically here, whereas they are organized chronologically in Correlation of Map Units]

Basaltic lava fields of northwestern part of map area

Paddelford Flat, Carey, and Little Wood River areas

- Qabb1 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 4895 lava field (late Pleistocene)
- Qabc1 — Basaltic pahoehoe flows and pyroclastic deposits of Paddelford Flat lava field (late middle Pleistocene)
- Qabc2 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 5074 lava field (late middle Pleistocene)
- Qabc3 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabd1 — Basaltic pahoehoe flows of Campbell Reservoir-South Fork Muldoon Creek area (early middle Pleistocene)
- Qabd2 — Basaltic pahoehoe flows and pyroclastic deposits of Fish Creek Reservoir (inferred to be early middle Pleistocene)
- Tabf1 — Basaltic pahoehoe flows of upper Little Wood River and South Fork Muldoon Creek areas (early Pliocene)
- Tabf2 — Basaltic pahoehoe flows of lower Little Wood River area (early Pliocene)

Little Park area

- Qabe1 — Basaltic pahoehoe flows and pyroclastic deposits of Little Park lava field (late middle Pleistocene)
- Qabe5 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 5129 lava field (late middle Pleistocene)

Laidlaw Park and Little Laidlaw Park areas

- Qabe8 — Basaltic pahoehoe flows and pyroclastic deposits of Hollow Top lava field (late middle Pleistocene)
- Qabe7 — Basaltic pahoehoe flows and pyroclastic deposits of Turnbull Butte lava field (late middle Pleistocene)
- Qabe9 — Basaltic pahoehoe flows and pyroclastic deposits of Big Blowout Butte lava field (late middle Pleistocene)
- Qabe9 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 5237 lava field (late middle Pleistocene)
- Qabe10 — Basaltic pahoehoe flows and pyroclastic deposits of Bullshot Reservoir lava field (late middle Pleistocene)
- Qabc11 — Basaltic pahoehoe flows and pyroclastic deposits of Blowout Reservoir lava field (late middle Pleistocene)
- Qabc12 — Basaltic pahoehoe flows and pyroclastic deposits of Bowl Crater lava field (late middle Pleistocene)
- Qabc13 — Pyroclastic deposits of North Laidlaw Butte cinder cone complex (inferred to be late middle Pleistocene)
- Qabc14 — Basaltic pahoehoe flows and pyroclastic deposits of Potter Butte lava field (late middle Pleistocene)
- Qabc15 — Pyroclastic deposits of Vent 5370 (late middle Pleistocene)
- Qabc16 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 5136 lava field (late middle Pleistocene)
- Qabc17 — Basaltic pahoehoe flows and pyroclastic deposits of Ant Butte lava field (late middle Pleistocene)
- Qabc18 — Basaltic pahoehoe flows and pyroclastic deposits of Cornal Butte lava field (late middle Pleistocene)
- Qabc19 — Carey Kipuka cinder cone deposits (late middle Pleistocene)
- Qabc20 — Basaltic pahoehoe flows and pyroclastic deposits (Pleistocene)
- Qabd3 — Basaltic pahoehoe flows and pyroclastic deposits of Laidlaw Butte lava field (early middle Pleistocene)
- Qabd4 — Basaltic pahoehoe flows and pyroclastic deposits of Snowdrift Crater lava field (early middle Pleistocene)

Basaltic lava fields of southwestern part of map area

- Qabb2 — Basaltic pahoehoe flows and pyroclastic deposits of Bear Den Butte lava field (late Pleistocene)
- Qabb3 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 5168 lava field (late Pleistocene)
- Qabb4 — Basaltic pahoehoe flows and pyroclastic deposits of Lava Butte lava field (late Pleistocene)
- Qabb5 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Broken Top Butte lava field (late Pleistocene)
- Qabb6 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Sand Butte lava field (late Pleistocene)
- Qabb7 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Spud Butte lava field (late Pleistocene)
- Qabb8 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of west Wildhorse Butte lava field (late Pleistocene)
- Qabb9 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Monument Butte lava field (late Pleistocene)
- Qabb10 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of The Blowout lava field (late Pleistocene)
- Qabb11 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4792 lava field (late Pleistocene)
- Qabb12 — Basaltic pahoehoe flows and near-vent pyroclastic deposits near spot elevation 4673 ft (late Pleistocene)
- Qabb13 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Wagon Butte lava field (late Pleistocene)
- Qabb14 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Black Ridge Crater lava field (late Pleistocene)
- Qabc20 — Basaltic pahoehoe flows and pyroclastic deposits of Vent 4708 lava field (late middle Pleistocene)
- Qabc22 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4645 lava field (late middle Pleistocene)
- Qabc23 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4550 lava field (late middle Pleistocene)
- Qabc24 — Near-vent pyroclastic deposits and minor basaltic pahoehoe flows of Vent 4430 lava field (late middle Pleistocene)
- Qabc25 — Minor basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4626 lava field (late middle Pleistocene)
- Qabc26 — Basaltic pahoehoe flows (late middle Pleistocene)

Basaltic lava fields of northeastern part of map area

- Qabb15 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Rock Corral Butte lava field (late Pleistocene)
- Qabb16 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5438 lava field (late Pleistocene)
- Qabb17 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5494 lava field (late Pleistocene)
- Qabb18 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Fingers Butte lava field (late Pleistocene)
- Qabb19 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Quaking Aspen Butte lava field (late Pleistocene)
- Qabb20 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Coyote Butte lava field (late Pleistocene)
- Qabb21 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5159 lava field (late Pleistocene)
- Qabb22 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Serviceberry Butte lava field (late Pleistocene)
- Qabb23 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5206 lava field (late Pleistocene)
- Qabc27 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5328 lava field (late middle Pleistocene)
- Qabc28 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5359 lava field (late middle Pleistocene)
- Qabc29 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5119 lava field (late middle Pleistocene)
- Qabc30 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5244 lava field (late middle Pleistocene)
- Qabc31 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabc32 — Near-vent pyroclastic deposits and pahoehoe basalt flows of Vent 5149 and Rattlesnake Butte eruptive fissures (late middle Pleistocene)
- Qabc33 — Near-vent pyroclastic deposits and pahoehoe basalt flows of Saddle Butte lava field (late middle Pleistocene)
- Qabc34 — Near-vent pyroclastic deposits and pahoehoe basalt flows of Cruthers Butte lava field (late middle Pleistocene)
- Qabc35 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Pratt Butte lava field (late middle Pleistocene)
- Qabc36 — Near-vent pyroclastic deposits of China Cup cinder cone (late middle Pleistocene)
- Qar1 — Massive, aphyric, white rhyolite of Big Southern Butte (late middle Pleistocene)
- Qsr2 — Dacitoffelsi, flow-banded rhyolite flows, and sugary-textured rhyolite of Big Southern Butte (late middle Pleistocene)
- Qabc37 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5571 lava field (late middle Pleistocene)
- Qabc38 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of east Wildhorse Butte lava field (late middle Pleistocene)
- Qabc39 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Huddles Hole lava field (late middle Pleistocene)
- Qabc40 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of southeast Wildhorse Butte lava field (late middle Pleistocene)
- Qabc41 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5549 lava field (late middle Pleistocene)
- Qabc42 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5575 lava field (late middle Pleistocene)
- Qabc43 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5609 lava field (late middle Pleistocene)
- Qabc44 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5337 lava field (late middle Pleistocene)
- Qabc45 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Tin Cup Butte lava field (late middle Pleistocene)
- Qabc46 — Basaltic pahoehoe flows of Steinile Butte lava field (late middle Pleistocene)
- Qabc47 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Teakettle Butte lava field (late middle Pleistocene)
- Qabc48 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabc49 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5128 lava field (late middle Pleistocene)
- Qabc50 — Near-vent pyroclastic deposits and shelly-pahoehoe basalt flows of Shadow cinder cone (late middle Pleistocene)
- Qabc51 — Near-vent pyroclastic deposits and shelly-pahoehoe basalt flows of Vent 5265 cinder cone (late middle Pleistocene)
- Qabc52 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Antelope Butte lava field (early middle Pleistocene)
- Qabc53 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5221 lava field (early middle Pleistocene)
- Qabc54 — Basaltic lava flows on north face of Big Southern Butte (late middle and early middle Pleistocene)

Basaltic lava fields of southeastern part of map area

- Qabc24 — Basaltic pahoehoe flows of Vent 5108 lava field (late Pleistocene)
- Qabc25 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Horse Butte lava field (late Pleistocene)
- Qabc26 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4946 lava field (late Pleistocene)
- Qabc27 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Mule Butte lava field (late Pleistocene)
- Qabc28 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Split Top lava field (late Pleistocene)
- Qabc29 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5317 lava field (late Pleistocene)
- Qabc30 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5252 lava field (late Pleistocene)
- Qabd31 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4902 lava field (late middle Pleistocene)
- Qabc32 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabc33 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 4892 lava field (late middle Pleistocene)
- Qabc34 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5329 lava field (late middle Pleistocene)
- Qabc35 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabc36 — Near-vent pyroclastic deposits and basaltic pahoehoe flows (Pleistocene)
- Qabc37 — Basaltic pahoehoe flows (late middle Pleistocene)
- Qabc52 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Mosby Butte lava field (late middle Pleistocene)
- Qabc53 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5083 lava field (late middle Pleistocene)
- Qabc54 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Rock Lake lava field (late middle Pleistocene)
- Qabc55 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5179 lava field (late middle Pleistocene)
- Qabc56 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Gasten Beattie lava field (late middle Pleistocene)
- Qabc57 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5365 lava field (late middle Pleistocene)
- Qabc58 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Mosby Well lava field (late middle Pleistocene)
- Qabc59 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Streiffing lava field (late middle Pleistocene)
- Qabc60 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5358 lava field (late middle Pleistocene)
- Qabc61 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5374 lava field (late middle Pleistocene)
- Qabc62 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Vent 5183 lava field (late middle Pleistocene)
- Qabc63 — Basaltic pahoehoe flows and near-vent pyroclastic deposits of Pucksaddle Butte lava field (late middle Pleistocene)

VOLCANIC ROCKS ALONG NORTHWEST MARGIN OF EASTERN SNAKE RIVER PLAIN

- Tiv — Idavada Volcanics (Miocene)
- Tg — Gravel (Miocene)
- Tj — Jasmondai (Oligocene? and Eocene?)
- Tg — Gossan (pre-Miocene and post-Permian)

Challis Volcanic Group (Eocene)

- Tcd — Rhyolite, leucogranite, and granite pegmatite and aplite dikes
- Tctg — Biotite granite of Cottonwood Creek
- Tchd — Hornblende diorite of Little Cottonwood Creek
- Tcv — Dacitic and andesitic volcanic rocks
- Tcc — Basal conglomerate

SEDIMENTARY ROCKS

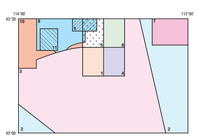
Sun Valley Group
Wood River Formation (Lower Permian to Middle Pennsylvanian)

- Pww — Wilson Creek Member (Lower Permian)
- PIPewu — Eagle Creek Member (Lower Permian to Middle Pennsylvanian)
- Pwwl — Upper part (Lower Permian to Upper Pennsylvanian)
- Pwwl — Lower part (Upper to Middle Pennsylvanian)
- IPwh — Hailey Member (Middle Pennsylvanian)

Copper Basin Group (Mississippian)

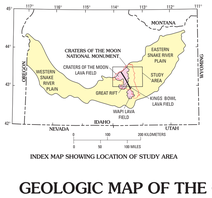
- Mca — Argosy Creek Formation (Upper and Lower Mississippian)
- Mcd — Drummond Mine Limestone (Lower Mississippian)
- Mcl — Little Copper Formation (Lower Mississippian)
- Dp — Picabo Formation (Upper Devonian)
- Dj — Jefferson Formation (Upper and Middle Devonian)
- Dc — Carey Dolomite (Middle to Lower Devonian)
- DSrm — Roberts Mountains Formation (Lower Devonian and Upper Silurian)
- DSs — Silnstone (Devonian? and Silurian)
- St — Trail Creek Formation (Middle to Lower Silurian)
- SOp — Phi Kappa Formation (Middle Silurian to Lower Ordovician)

- Contact—Dashed where approximately located
- Flow line—Linear flow features and lava tubes; arrows show flow direction. Circular openings on flow lines are skylights in lava tubes
- Lava channel—Arrow shows direction of flow within lava channel
- Narrow—Channels <10 m wide
- Wide—Channels >10 m wide
- Crater—Outline of crater rim on volcanic vent. Barbs point toward central depression; barbs not shown on smaller craters
- Small cone—Small lava cone, cinder cone, or spatter cone
- Roofless vent—Secondary source of lava not directly related to conduit to deep magma reservoir. Most are openings in lava tubes
- Covered vent—Small vent that is remnant of larger vent now covered by flow that ponded in a central vent depression
- Lava pond—Basalt-filled depression surrounded by levees that are shown by hachured line. Ticks point toward lava pond
- Non-eruptive fissure—Fractures in rock through which lava has not erupted. Width generally <1 m
- Eruptive fissure—Fractures in rock through which lava has erupted. Width 1–2 m. Some eruptive fissures in Craters of the Moon lava field (Qcea1–3, Qcefc1–2, Qcec1–2) are mapped as specific units because they were studied in some detail. Other eruptive fissures, such as those in pre-Holocene, mostly loess-covered fields, are mapped as general features
- Normal and (or) oblique-slip fault—Dashed where approximately located; dotted where concealed. Bar and ball on downthrown side where relative motion known. Arrows indicate relative lateral movement
- Thrust fault of Antler age (post-Devonian to pre-Middle Pennsylvanian)—Dotted where concealed. Solid teeth on upper plate
- Thrust fault of Mesozoic age—Dotted where concealed. Open teeth on upper plate. Probably has later normal movement down to west
- Anticline—Dashed where approximately located
- Overturned anticline
- Syncline—Dashed where approximately located; dotted where concealed
- Strike and dip of beds in sedimentary rocks and volcanic tuffs
  - Inclined
  - Vertical
  - Horizontal
- Strike and dip of eutaxitic structures in welded ash-flow tuffs
  - Inclined
  - Vertical
- Fossil locality
- Radiocarbon dating sample locality—Charcoal- or carbon-bearing sediment. Showing laboratory number and age in ^{14}C yr B.P. See table 1
- $^{40}Ar/^{39}Ar$ age determination sample locality—Showing field number and age. See table 2
- K-Ar age determination sample locality—Showing field number and age. See table 2
- Paleomagnetic data sample locality—Showing site number and remanent inclination and declination. See table 3
- Boundary of the Craters of the Moon National Monument (CRMNM)



INDEX TO SOURCES OF GEOLOGIC MAPPING

1. Champion and others (1989)
2. Kuntz, M.A., unpublished mapping, 1977, 1992, 2002
3. Kuntz and others (1988)
4. Kuntz and others (1993)
5. Kuntz and others (1989a)
6. Kuntz and others (1989b)
7. Kuntz, Skipp, and 11 others (1992)
8. Larson (1974)
9. Safie (1979)
10. Skipp, Betty, unpublished mapping, 1975, 1977, 1979, 1991–1994.
11. Skipp and Hall (1975)



INDEX MAP SHOWING LOCATION OF STUDY AREA

GEOLOGIC MAP OF THE CRATERS OF THE MOON 30' X 60' QUADRANGLE, IDAHO

By

Mel A. Kuntz[1], Betty Skipp[1], Duane E. Champion[1], Philip B. Gans[2], D. Paco Van Sistine[1], and Scott R. Snyders[1]

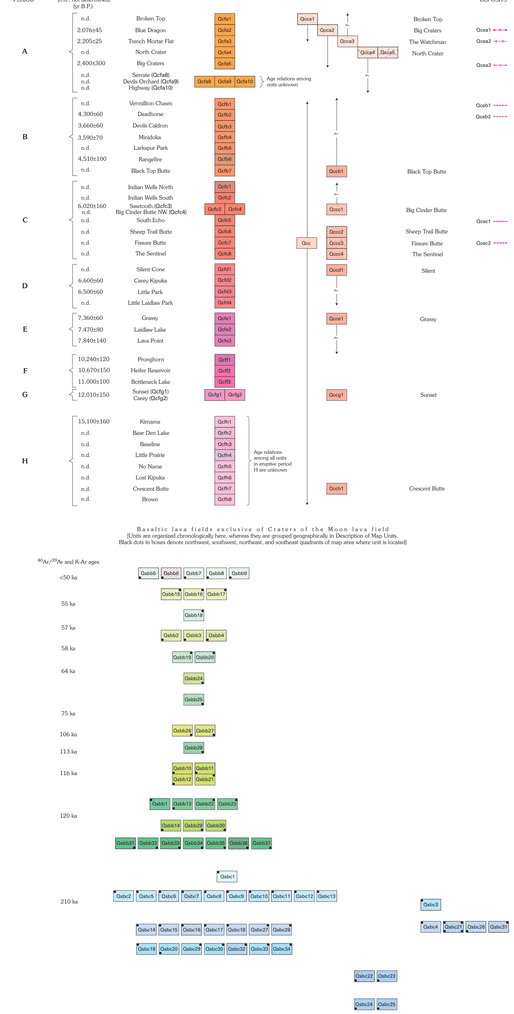
2007

[1]U.S. Geological Survey
[2]Department of Geological Sciences, University of California, Santa Barbara, Calif.

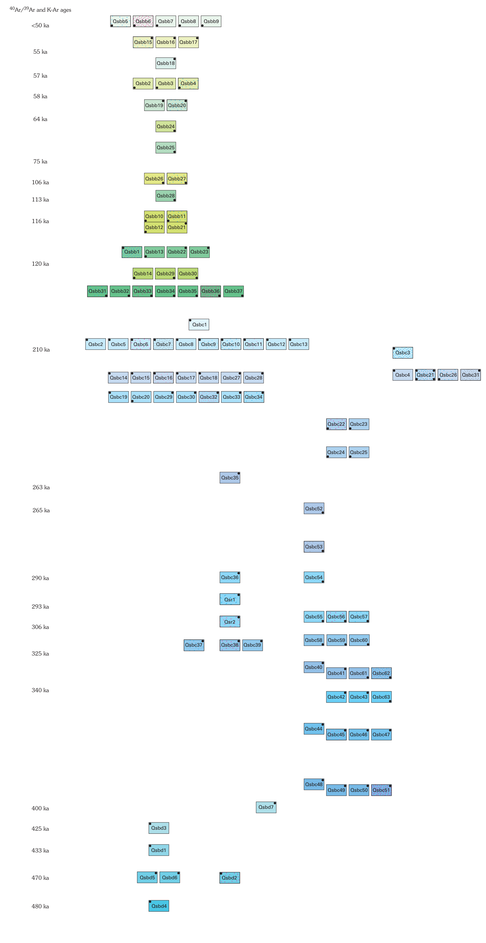
CORRELATION OF MAP UNITS

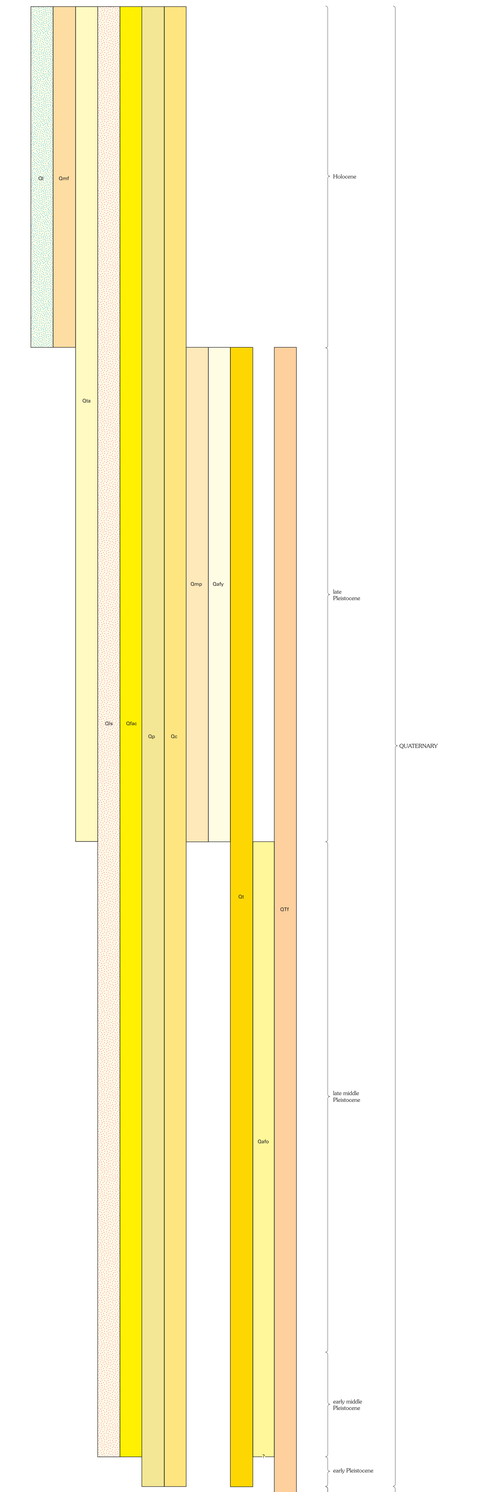
FLOWS, CONES, AND ERUPTIVE-FISSURE DEPOSITS OF THE SNAKE RIVER GROUP

Craters of the Moon lava field



Basaltic lava fields exclusive of Craters of the Moon lava field
[Units are organized chronologically here, whereas they are grouped geographically in Description of Map Units. Black dots in boxes denote northwest, southwest, northeast, and southeast quadrants of map area where unit is located]





ISBN 978-1-411-13118-6

Any use of trade names is for descriptive purposes only and does not imply endorsement by the U.S. Government

For sale by U.S. Geological Survey Information Services
Box 25286, Federal Center, Denver, CO 80225
1-888-ASK-USGS
Ancillary coverages and a PDF for this map are available at http://pubs.usgs.gov

Printed on recycled paper