



# **PUBLICATIONS OF THE VOLCANO HAZARDS PROGRAM 1998**

OPEN-FILE REPORT 99-520

*1999*

UNITED STATES DEPARTMENT OF THE INTERIOR

UNITED STATES GEOLOGICAL SURVEY

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, product or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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

Publications of the Volcano Hazards Program 1998

by

Manuel Nathenson<sup>1</sup>

OPEN-FILE REPORT 99-520

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards or with the North American Stratigraphic Code. Any use of trade, product or firm names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

<sup>1</sup>U.S. Geological Survey, 345 Middlefield Road MS 910, Menlo Park, California 94025

*1999*

The Volcano Hazards Program of the U.S. Geological Survey (USGS) is part of the Geologic Hazards Assessments subactivity as funded by Congressional appropriation. Investigations are carried out in the Geologic and Water Resources Divisions of the USGS and with cooperators at the Alaska Division of Geological and Geophysical Surveys, University of Alaska Fairbanks Geophysical Institute, University of Utah, and University of Washington Geophysics Program. This report lists publications from all these institutions.

This report contains only published papers and maps; numerous abstracts produced for presentations at scientific meetings have not been included. Publications are included based on date of publication with no attempt to assign them to Fiscal Year.

## Volcano Hazards Bibliography 1998

- Alaska Division of Geological & Geophysical Surveys, 1998, Volcanoes of Alaska: Alaska Division of Geological & Geophysical Surveys, Information Circular 38, 1 plate, scale 1:4,000,000.
- Árnadóttir, Thóra, Sigmundsson, Freysteinn, and Delaney, P. T., 1998, Sources of crustal deformation associated with the Krafla, Iceland, eruption of September 1984: *Geophysical Research Letters*, v. 25, p. 1043-1046.
- Aspinall, W. P., Miller, A. D., Lynch, L. L., Latchman, J. L., Stewart, R. C., White, F. A., and Power, J. A., 1998, Soufrière Hills eruption, Montserrat, 1995-1997: Volcanic earthquake locations and fault plane solutions: *Geophysical Research Letters*, v. 25, p. 3397-3400.
- Ball, J. W., Nordstrom, D. K., Jenne, E. A., and Vivit, D. V., 1998, Chemical analyses of hot springs, pools, geysers, and surface waters from Yellowstone National Park, Wyoming, and vicinity, 1974-1975: U.S. Geological Survey Open-File Report 98-182, 45 p.
- Barton, C. A., Hickman, Stephen, Morin, Roger, Zoback, M. D., and Benoit, Dick, 1998, Reservoir-scale fracture permeability in the Dixie Valley, Nevada, geothermal field: *Proceedings, Twenty-third Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, p. 299-306.
- Begét, J. E., and Motyka, R. J., 1998, New dates on late Pleistocene dacitic tephra from the Mount Edgecumbe volcanic field, southeastern Alaska: *Quaternary Research*, v. 49, p. 123-125.
- Bergfeld, Deborah, Goff, Fraser, Janik, C. J., and Johnson, S. D., 1998, CO<sub>2</sub> flux measurements across portions of the Dixie Valley system, Nevada: *Geothermal Resources Council Transactions*, v. 22, p. 107-111.
- Bohlen, S. R., Halley, R. B., Hickman, S. H., Johnson, S. Y., Lowenstern, J. B., Muhs, D. R., Plumlee, G. S., Thompson, G. A., Trauger, D. L., and Zoback, M. L., 1998, *Geology for a changing world: A science strategy for the Geologic Division of the U.S. Geological Survey, 2000—2010*: U.S. Geological Survey Circular 1172, 59 p.
- Borg, L. E., and Clynne, M. A., 1998, The petrogenesis of felsic calc-alkaline magmas from the southernmost Cascades, California: *Journal of Petrology*, v. 39, p. 1197-1222.
- Bracken, R. E., Grover, T. P., and Puniwai, Gary, 1998, Development and testing of a tensor magnetic gradiometer system with trial monitoring near Kilauea Volcano, Hawaii: U. S. Geological Survey Open-File Report 98-773, 163 p.
- Brantley, S. R., 1997(1998), Volcanoes of the United States: *The Earth Scientist*, v. 14, no. 4, p. 3-13.
- Buck, W. R., Delaney, P. T., Karson, J. A., and Lagabriele, Yves, eds., 1998, *Faulting and Magmatism at Mid-Ocean Ridges*: Geophysical Monograph 106, American Geophysical Union, Washington, D. C., 348 p.
- Buck, W. R., Delaney, P. T., Karson, J. A., and Lagabriele, Yves, 1998, Preface, *in* Buck, W. R., Delaney, P. T., Karson, J. A., and Lagabriele, Yves, eds., *Faulting and Magmatism at Mid-Ocean Ridges*: Geophysical Monograph 106, American Geophysical Union, Washington, D. C., p. vii.
- Champion, D. E., and Lockwood, J. P., 1998, Paleomagnetic data from basaltic lava flows of the northeast rift zone of Mauna Loa volcano, Hawaii: U.S. Geological Survey Open-File Report 98-782, 5 p.
- Child, J. K., Begét, J. E., and Werner, Al, 1998, Three Holocene tephras identified in lacustrine sediment cores from the Wonder Lake area, Denali National Park and Preserve, Alaska, U.S.A.: *Arctic and Alpine Research*, v. 30, p. 89-95.
- Chouet, B., Dawson, P., De Luca, G., Martini, M., Milana, G., Saccorotti, G., and Scarpa, R., 1998, Array analyses of seismic sources at Stromboli: *Acta Vulcanologica*, v. 10, p. 367-382.

- Chouet, Bernard, De Luca, Gaetano, Milana, Giuliano, Dawson, Phillip, Martini, Marcello, and Scarpa, Roberto, 1998, Shallow velocity structure of Stromboli Volcano, Italy, derived from small-aperture array measurements of Strombolian tremor: *Bulletin of the Seismological Society of America*, v. 88, p. 653-666.
- Clynne, M. A., 1998, Book review of *Volcanoes: Crucibles of Change* by R. V. Fisher, Grant Heiken, and J. B. Hulen, Princeton University, 315 p.: *Earth Sciences History*, v. 17, p. 62-64.
- Cole, P. D., Calder, E. S., Druitt, T. H., Hoblitt, R., Robertson, R., Sparks, R. S. J., and Young, S. R., 1998, Pyroclastic flows generated by gravitational instability of the 1976-97 lava dome of Soufrière Hills Volcano, Montserrat: *Geophysical Research Letters*, v. 25, p. 3425-3428.
- Dawson, P. B., Dietel, C., Chouet, B. A., Honma, K., Ohminato, T., and Okubo, P., 1998, A digitally telemetered broadband seismic network at Kilauea Volcano, Hawaii: U.S. Geological Survey Open-File Report 98-108, 121 p.
- Dean, K., Servilla, M., Roach, A., Foster, B., and Engle, K., 1998, Satellite monitoring of remote volcanoes improves study efforts in Alaska: *Eos Transactions of the American Geophysical Union*, v. 79, p. 413, 421-423.
- Delaney, P. T., Denlinger, R. P., Lisowski, Michael, Miklius, Asta, Okubo, P. G., Okamura, A. T., and Sako, M. K., 1998, Volcanic spreading at Kilauea, 1976-1996: *Journal of Geophysical Research*, v. 103, p. 18,003-18,023.
- Dinehart, R. L., 1998, Sediment transport at gaging stations near Mount St. Helens, Washington, 1980-90. Data collection and analysis: U.S. Geological Survey Professional Paper 1573, 105 p.
- Donnelly-Nolan, J. M., 1998, Abrupt shift in  $\delta^{18}\text{O}$  values at Medicine Lake Volcano (California, USA): *Bulletin of Volcanology*, v. 59, p. 529-536.
- Driedger, C. L., 1998, Volcanoes--changing forms and attitude, *in* Kirk, Ruth, Sunrise to Paradise, The Story of Mount Rainier National Park: Northwest Interpretive Association, p. 9.
- Driedger, C. L., Faust, L., Lane, L., Smith, M., and Smith, R., 1998, Mount Rainier--the volcano in your back yard, poster and activity guide: U.S. Geological Survey Miscellaneous Publication, 2 p.
- Driedger, C. L., Wolfe, E. W., and Scott, K. M., 1998, Living with a volcano in your back yard: Mount Rainier volcanic hazards, A prepared presentation for use by public officials and educators: U.S. Geological Survey Open-File Report 98-519A, 54 p.
- Duffield, W. A., 1998, One person's story about three decades of his research on igneous rocks: *Journal of Volcanology and Geothermal Research*, v. 87, p. 1-5.
- Duffield, W. A., and Ruiz, Joaquin, 1998, A model that helps explain Sr-isotope disequilibrium between feldspar phenocrysts and melt in large-volume silicic magma systems: *Journal of Volcanology and Geothermal Research*, v. 87, p. 7-13.
- Eichelberger, J. C., 1998, Volcanology: Encyclopedia of Applied Physics, John Wiley and Sons, New York, v. 23, p. 321-353.
- Elias, Tamar, Sutton, A. J., Stokes, J. B., and Casadevall, T. J., 1998, Sulfur dioxide emission rates of Kilauea Volcano, Hawaii, 1979-1997: U.S. Geological Survey Open-File Report 98-462, 41 p.
- Evans, W. C., Sorey, M. L., Michel, R. L., Kennedy, B. M., and Hainsworth, L. J., 1998, Gas-water interaction at Mammoth Mountain volcano, California, USA, *in* Arehart, G. B., and Hulston, J. R., eds., *Water-Rock Interaction, Proceedings of the 9th International Symposium on Water-Rock Interaction*, Taupo, New Zealand, Balkema, Rotterdam, p. 443-446.
- Fierstein, Judy, Hildreth, Wes, Hendley, J. W., II, and Stauffer, P. H., 1998, Can another great volcanic eruption happen in Alaska?: U.S. Geological Survey Fact Sheet 75-98, 2 p.

- Foulger, G. R., Malin, P. E., Shalev, E., Julian, B. R., and Hill, D. P., 1998, Seismic monitoring and activity increase in California caldera: *Eos Transactions of the American Geophysical Union*, v. 79, p. 357, 363.
- Fountain, A. G., and Walder, J. S., 1998, Water flow through temperate glaciers: *Reviews of Geophysics*, v. 36, p. 299-328.
- Gardner, C. A., Cashman, K. V., and Neal, C. A., 1998, Tephra-fall deposits from the 1992 eruption of Crater Peak, Alaska: implications of clast features for eruptive processes: *Bulletin of Volcanology*, v. 59, p. 537-555.
- Gerlach, T. M., Doukas, M. P., McGee, K. A., and Kessler, Richard, 1998, Three-year decline in magmatic CO<sub>2</sub> emissions from soils of a Mammoth Mountain tree kill: Horseshoe Lake, CA, 1995-1997: *Geophysical Research Letters*, v. 25, p. 1947-1950.
- Gerlach, T. M., McGee, K. A., Sutton, A. J., and Elias, Tamar, 1998, Rates of volcanic CO<sub>2</sub> degassing from airborne determinations of SO<sub>2</sub> emission rates and plume CO<sub>2</sub>/SO<sub>2</sub>: Test study at Pu'u O'o cone, Kilauea volcano, Hawaii: *Geophysical Research Letters*, v. 25, p. 2675-2678.
- Goff, Fraser, Janik, C. J., Bergfeld, Deborah, Counce, Dale, Bruton, C. J., and Nimz, Gregory, 1998, Geothermal chemistry/exploration investigations at Dixie Valley, Nevada, *in*, *Proceedings Geothermal Program Review XVI*, April 1-2, 1998, Berkeley, Calif., U.S. Department of Energy, DOE/EE-0188, p. 2-9-2-15.
- Goff, Fraser, Janik, C. J., Delgado, Hugo, Werner, Cindy, Counce, Dale, Stimac, J. A., Siebe, Claus, Love, S. P., Williams, S. N., Fischer, Tobias, and Johnson, L., 1998, Geochemical surveillance of magmatic volatiles at Popocatepetl volcano, Mexico: *Geological Society of America Bulletin*, v. 110, p. 695-710.
- Heliker, C. C., Mangan, M. T., Mattox, T. N., and Kauahikaua, J. P., 1998, The Pu'u O'o - Kupaianaha eruption of Kilauea, November 1991-February 1994: Field data and flow maps: U.S. Geological Survey Open-File Report 98-103, 10 p., 2 plates, scale 1:50,000.
- Heliker, C. C., Mangan, M. T., Mattox, T. N., Kauahikaua, J. P., and Helz, R. T., 1998, The character of long-term eruptions: inferences from episodes 50-53 of the Pu'u O'o - Kupaianaha eruption of Kilauea volcano: *Bulletin of Volcanology*, v. 59, p. 381-393.
- Helz, R. T., and Hearn, B. C., Jr., 1998, Compositions of glasses from the Pu'u O'o--Kupaianaha eruption of Kilauea Volcano, Hawaii January 1983 through December 1994: U.S. Geological Survey Open-File Report 98-511, 75 p.
- Hickman, Stephen, Barton, Colleen, Zoback, Mark, Morin, Roger, Benoit, Dick, and Sass, John, 1998, Fracture permeability and in situ stress in the Dixie Valley, Nevada, geothermal reservoir *in*, *Proceedings Geothermal Program Review XVI*, April 1-2, 1998, Berkeley, Calif., U.S. Department of Energy, DOE/EE-0188, p. 3-31-3-38.
- Hickman, Stephen, Zoback, Mark, and Benoit, Richard, 1998, Tectonic controls on reservoir permeability in the Dixie Valley, Nevada, geothermal field: *Proceedings, Twenty-third Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, p. 291-298.
- Hildreth, W., Singer, B., Godoy, E., and Munizaga, F., 1998, The age and constitution of Cerro Campanario, a mafic stratovolcano in the Andes of Central Chile: *Revista Geológica de Chile*, v. 25, p. 3-14.
- Hill, D. P., 1998, 1998 SSA Meeting—Presidential Address: Science, geologic hazards, and the public in a large, restless caldera: *Seismological Research Letters*, v. 69, p. 400-404.
- Hill, D. P., Sorey, M. L., Ellsworth, W. L., and Sass, John, 1998, Scientific drilling continues in Long Valley, California: *Eos Transactions of the American Geophysical Union*, v. 79, p. 429, 432.
- Hoblitt, R. P., Walder, J. S., Driedger, C. L., Scott, K. M., Pringle, P. T., and Vallance, J. W., 1998, Volcano hazards from Mount Rainier, Washington, Revised 1998: U.S. Geological Survey Open-File Report 98-428, 11 p., 2 plates, scale 1:100,000, 1:400,000.
- Ingebritsen, S. E., and Sanford, W. E., 1998, *Groundwater in Geologic Processes*: Cambridge University Press, Cambridge, 341 p.

- Iverson, R. M., Schilling, S. P., and Vallance, J. W., 1998, Objective delineation of lahar-inundation hazard zones: *Geological Society of America Bulletin*, v. 110, p. 972-984.
- Johnston, M. J. S., and Parrot, M., eds., 1998, Electromagnetic effects of earthquakes and volcanoes: *Physics of the Earth and Planetary Interiors*, v. 105, p. 109-295.
- Johnston, M. J. S., and Parrot, M., 1998, Foreword, *Electromagnetic effects of earthquakes and volcanoes*, IASPEI IUGG XXI General Assembly, Boulder, Colorado, USA. July 2-14, 1995: *Physics of the Earth and Planetary Interiors*, v. 105, p. v.
- Julian, B. R., 1998, Eruption dynamics; rumbling geysers (and volcanoes): *Nature*, v. 396, p. 311, 313.
- Julian, B. R., Miller, A. D., and Foulger, G. R., 1998, Non-double-couple earthquakes 1. Theory: *Reviews of Geophysics*, v. 36, p. 525-549.
- Julian, B. R., Pitt, A. M., and Foulger, G. R., 1998, Seismic image of a CO<sub>2</sub> reservoir beneath a seismically active volcano: *Geophysical Journal International*, v. 133, no. 1, p. F7-F10.
- Kauahikaua, Jim, Cashman, K. V., Mattox, T. N., Heliker, C. C., Hon, K. A., Mangan, M. T., and Thornber, C. R., 1998, Observations of basaltic lava streams in tubes from Kilauea Volcano, island of Hawai'i: *Journal of Geophysical Research*, v. 103, p. 27,303-27,323.
- Kauahikaua, Jim, Duarte, Ka'eo, and Foster, James, 1998, A preliminary gravity survey of the Kailua-Kona area, Hawai'i, for delineation of a hydrologic boundary: *U.S. Geological Survey Open-File Report 98-110*, 21 p.
- Kauahikaua, J., Trusdell, F., and Heliker, C., 1998, The probability of lava inundation at the proposed and existing Kulani Prison sites: *U.S. Geological Survey Open-File Report 98-794*, 21 p.
- Keszthelyi, L., and Self, S., 1998, Some physical requirements for the emplacement of long basaltic lava flows: *Journal of Geophysical Research*, v. 103, p. 27,447-27,464.
- Lescinsky, D. T., and Sisson, T. W., 1998, Ridge-forming, ice-bounded lava flows at Mount Rainier, Washington: *Geology*, v. 26, p. 351-354.
- Lowenstern, J. B., Killgore, M., Mariner, R., Blakely, R., Smith, J. G., Donnelly-Nolan, J., 1998, 3-Dimensional visualization of the Medicine Lake Highland, CA: Topography, geology, geophysics and hydrology: *U.S. Geological Survey Open-File Report 98-777*, 1 plate (URL <http://caldera.wr.usgs.gov/OF98-777>).
- Lowenstern, J. B., and Villa, Francesco, eds. and translators, 1998, *Alid Volcano in the colony of Eritrea*, translation of: Marini, Angelo, 1938, *Il vulcano Alid nella colonia Eritrea*: *L'Universo*, v. 19, p. 51-65, 131-170: *U.S. Geological Survey Open-File Report 98-218*, 94 p.
- Lu, Zhong, and Freymueller, J. T., 1998, Synthetic aperture radar interferometry coherence analysis over Katmai group, Alaska: *Journal of Geophysical Research*, v. 103, p. 29,887-29,894.
- Lu, Zhong, Mann, Dorte, and Freymueller, Jeff, 1998, Satellite radar interferometry measures deformation at Okmok Volcano: *Eos Transactions of the American Geophysical Union*, v. 79, p. 461, 467-468.
- Major, J. J., 1998, Pebble orientation on large, experimental debris-flow deposits: *Sedimentary Geology*, v. 117, p. 151-164.
- Mariner, R. H., Evans, W. C., and Huebner, M., 1998, Preliminary chemical and isotopic data for waters from springs and wells on and near Medicine Lake Volcano, Cascade Range, northern California: *U.S. Geological Survey Open-File Report 98-2*, 27 p.
- McGee, K. A., and Gerlach, T. M., 1998, Airborne volcanic plume measurements using a FTIR spectrometer, Kilauea volcano, Hawaii: *Geophysical Research Letters*, v. 25, p. 615-618.
- McGee, K. A., and Gerlach, T. M., 1998, Annual cycle of magmatic CO<sub>2</sub> in a tree-kill soil at Mammoth Mountain, California: Implications for soil acidification: *Geology*, v. 26, p. 463-466.

- Milia, A., Mirabile, L., Torrente, M. M., and Dvorak, J. J., 1998, Volcanism offshore of Vesuvius Volcano in Naples Bay: *Bulletin of Volcanology*, v. 59, p. 404-413.
- Miller, A. D., Foulger, G. R., and Julian, B. R., 1998, Non-double-couple earthquakes 2. Observations: *Reviews of Geophysics*, v. 36, p. 551-568.
- Miller, A. D., Julian, B. R., and Foulger, G. R., 1998, Three-dimensional seismic structure and moment tensors of non-double-couple earthquakes at the Hengill-Grensdalur volcanic complex, Iceland: *Geophysical Journal International*, v. 133, p. 309-325.
- Miller, A. D., Stewart, R. C., White, R. A., Luckett, R., Baptie, B. J., Aspinall, W. P., Latchman, J. L., Lynch, L. L., and Voight, B., 1998, Seismicity associated with dome growth and collapse at the Soufrière Hills Volcano, Montserrat: *Geophysical Research Letters*, v. 25, p. 3401-3404.
- Miller, M. M., Dragert, Herb, Endo, Elliott, Freymueller, J. T., Goldfinger, Chris, Kelsey, H. M., Humphreys, E. D., Johnson, D. J., McCaffrey, Robert, Oldow, J. S., Qamar, Anthony, and Rubin, C. M., 1998, Precise measurements help gauge Pacific Northwest's earthquake potential: *Eos Transactions of the American Geophysical Union*, p. 269, 275.
- Miller, T. P., and Casadevall, T. J., 1998, Hazards to aviation, Workshop on Volcanic Ash; Toulouse, France, 11-15 May 1998: *International Association of Volcanology and Chemistry of the Earth's Interior News*, no. 2, p. 6-7.
- Miller, T. P., McGimsey, R. G., Richter, D. H., Riehle, J. R., Nye, C. J., Yount, M. E., and Dumoulin, J. A., 1998, Catalog of the historically active volcanoes of Alaska : U.S. Geological Survey Open-File Report 98-582, 104 p.
- Morin, R. H., Hickman, S. H., Barton, C. A., Shapiro, A. M., Benoit, W. R., and Sasakawa, J. H., 1998, Hydrologic properties of the Dixie Valley, Nevada, geothermal reservoir from well-test analyses: *Proceedings, Twenty-third Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, p. 307-314.
- Mothes, P. A., Hall, M. L., and Janda, R. J., 1998, The enormous Chillos Valley Lahar: an ash-flow-generated debris flow from Cotopaxi Volcano, Ecuador: *Bulletin of Volcanology*, v. 59, p. 233-244.
- Mueller, R. J., and Johnston, M. J. S., 1998, Review of magnetic field monitoring near active faults and volcanic calderas in California: 1974-1995: *Physics of the Earth and Planetary Interiors*: v. 105, p. 131-144.
- Nakano, Masaru, Kumagai, Hiroyuki, Kumazawa, Mineo, Yamaoka, Koshun, and Chouet, B. A., 1998, The excitation and characteristic frequency of the long-period volcanic event: An approach based on an inhomogeneous autoregressive model of a linear dynamic system: *Journal of Geophysical Research*, v. 103, p. 10,031-10,046.
- Nakata, J. S., Tomori, A. H., Tanigawa, W. R., and Okubo, P. G., 1998, Hawaiian Volcano Observatory Summary 92: Part I Seismic data, January to December 1992, *with a section on Chronological summary*, by T. Mattox, C. Heliker, M. Mangan, and L. Keszthelyi: U.S. Geological Survey Open-File Report 98-147, 70 p.
- Nathenson, Manuel, 1998, Publications of the Volcano Hazards Program 1997: U.S. Geological Survey Open-File Report 98-618, 11 p.
- Nye, C. J., 1998, Book Review: *Volcanoes*, Third Edition, Robert and Barbara Decker: *Eos Transactions of the American Geophysical Union*, v. 79, p. 387.
- Ohminato, Takao, Chouet, B. A., Dawson, Phillip, and Kedar, Sharon, 1998, Waveform inversion of very long period impulsive signals associated with magmatic injection beneath Kilauea Volcano, Hawaii: *Journal of Geophysical Research*, v. 103, p. 23,839-23,862.
- Oliver, H. W., and Christiansen, R. L., 1998, Locations, descriptions, densities, and magnetic susceptibilities of rock samples collected for analysis of gravity and aeromagnetic anomalies in Yellowstone National Park, Wyoming, Idaho, and Montana: U.S. Geological Survey Open-File Report 98-247, 15 p.
- Pierson, T.C., 1998, An empirical method for estimating travel times for wet volcanic mass flows: *Bulletin of Volcanology*, v. 60, p. 98-109.



- Power, J. A., and Iwatsubo, E. Y., 1998, Measurements of slope distances and zenith angles at Augustine Volcano, Alaska 1986, 1988, 1989: U.S. Geological Survey Open-File Report 98-145, 17 p.
- Power, J. A., Villaseñor, A., and Benz, H. M., 1998, Seismic image of the Mount Spurr magmatic system: *Bulletin of Volcanology*, v. 60, p. 27-37.
- Power, J. A., Wyss, Max, and Latchman, J. L., 1998, Spatial variations in the frequency-magnitude distribution of earthquakes at Soufrière Hills Volcano, Montserrat, West Indies: *Geophysical Research Letters*, v. 25, p. 3653-3656.
- Priest, S. S., Sass, J. H., Ellsworth, Bill, Farrar, C. D., Sorey, M. L., Hill, D. P., Bailey, Roy, Jacobson, R. D., Finger, J. T., McConnell, V. S., and Zoback, Mark, 1998, Scientific drilling in Long Valley, California—What will we learn?: U.S. Geological Survey Fact Sheet 77-98, 2 p.
- Reid, M. E., and LaHusen, R. G., 1998, Real-time monitoring of active landslides along Highway 50, El Dorado County: *California Geology*, v. 51, no. 3, p. 17-20.
- Richter, D. H., Symonds, R. B., Rosenkrans, D. S., McGimsey, R. G., Evans, W. C., and Poreda, R. J., 1998, Report on the 1997 activity of Shrub Mud Volcano, Wrangell-St. Elias National Park and Preserve, southcentral Alaska: U.S. Geological Survey Open-File Report 98-128, 13 p.
- Richter, D. H., Waythomas, C. F., McGimsey, R. G., and Stelling, P. L., 1998, Geologic map of Akutan Island, Alaska: U.S. Geological Survey Open-File Report 98-135, 22 p., 1 plate, scale 1:48,000.
- Riehle, J. R., Waitt, R. B., Meyer, C. E., and Calk, L. C., 1998, Age of formation of Kaguyak caldera, eastern Aleutian arc, Alaska, estimated by tephrochronology, *in* Gray, J. E., and Riehle, J. R., eds., *Geologic Studies in Alaska by the U.S. Geological Survey*, 1996, U.S. Geological Survey Professional Paper 1595, p. 161-168.
- Ryan, M. P., 1998, Book review of *Tectonic, Magmatic, Hydrothermal and Biological Segmentation of Mid-Ocean Ridges*, edited by C. J. MacLeod, P. A. Taylor, and C. L. Walker, Geological Society Special Publication No. 118, The Geological Society, London, 1996, 258 p.: *Tectonophysics*, v. 284, p. 175-177.
- Saccorotti, Gilberto, Chouet, Bernard, Martini, Marcello, and Scarpa, Roberto, 1998, Bayesian statistics applied to the location of the source of explosions at Stromboli Volcano, Italy: *Bulletin of the Seismological Society of America*, v. 88, p. 1099-1111.
- Sasada, Masakatsu, Doi, Nobuo, Muffler, L. J. P., and Hedenquist, J. W., 1998, Deep Geothermal Systems: Japanese National Project at Kakkonda: *Geothermics*, v. 27, p. 505-721.
- Sasada, Masakatsu, Doi, Nobuo, Muffler, L. J. P., and Hedenquist, J. W., 1998, Preface, *in* Sasada, Masakatsu, Doi, Nobuo, Muffler, L. J. P., and Hedenquist, J. W., eds., *Deep Geothermal Systems: Japanese National Project at Kakkonda: Geothermics*, v. 27, p. 505.
- Sass, John, Finger, John, and McConnell, Vicki, 1998, The Long Valley coring project: *Bulletin of the Geothermal Resources Council*, v. 27, p. 43-46.
- Scott, K. M., Wolfe, E. W., and Driedger, C. L., 1998, Mount Rainier—Living with perilous beauty: U.S. Geological Survey Fact Sheet 65-97, 4 p.
- Searcy, Craig, Dean, Ken, and Stringer, William, 1998, PUFF: A high-resolution volcanic ash tracking model: *Journal of Volcanology and Geothermal Research*, v. 80, p. 1-16.
- Silverman, S. A., 1998, Interactive display of geologic features and hazards of the Mono Basin - Long Valley region, California: U.S. Geological Survey Open-File Report 97-458, 1 CD-ROM.
- Sisson, T. W., and Bronto, S., 1998, Evidence for pressure-release melting beneath magmatic arcs from basalt at Galunggung, Indonesia: *Nature*, v. 391, p. 883-886.
- Sorey, M. L., Evans, W. C., Farrar, C. D., and Kennedy, B. M., 1998, Carbon dioxide and helium emissions from a reservoir of magmatic gas beneath Mammoth Mountain, California, *in* Arehart, G. B., and Hulston, J. R., eds., *Water-Rock Interaction, Proceedings of the 9th International Symposium on Water-Rock Interaction*, Taupo, New Zealand, Balkema, Rotterdam, p. 491-494.

- Sorey, M. L., Evans, W. C., Kennedy, B. M., Farrar, C. D., Hainsworth, L. J., and Hausback, B., 1998, Carbon dioxide and helium emissions from a reservoir of magmatic gas beneath Mammoth Mountain, California: *Journal of Geophysical Research*, v. 103, p. 15,303-15,323.
- Sorey, M. L., and Farrar, C. D., 1998, Hydrologic and chemical data from the Long Valley Hydrologic Advisory Committee monitoring program in Long Valley Caldera, Mono County, California, 1988-1997: U.S. Geological Survey Open-File Report 98-70, 49 p.
- Sorey, M. L., and Farrar, C. D., 1998, Changes in surficial features associated with geothermal development in Long Valley caldera, California, 1985-1997: *Geothermal Resources Council Transactions*, v. 22, p. 61-63.
- Stanley, W. D., Benz, H. M., Walters, M. A., Villaseñor, Antonio, and Rodriguez, B. D., 1998, Tectonic controls on magmatism in The Geysers-Clear Lake region: Evidence from new geophysical models: *Geological Society of America Bulletin*, v. 110, p. 1193-1207.
- Symonds, R. B., 1998, Compositions, origins, emission rates and atmospheric impacts of volcanic gases: U.S. Geological Survey Open-File Report 98-776, 12 p.
- Symonds, R. B., and Gerlach, T. M., 1998, Modelling the interaction of magmatic gases with water in active volcanoes, *in* Arhant, G. B., and Hulston, J. R., eds., *Water-Rock Interaction, Proceedings of the 9th International Symposium on Water-Rock Interaction*, Taupo, New Zealand, Balkema, Rotterdam, p. 495-498.
- Turrin, B. D., Champion, D. E., Fleck, R. J., Curtis, G. H., and Drake, R. E., 1998, K-Ar ages and paleomagnetic directions from the Lathrop Wells volcanic center, southwestern Nevada: An evaluation of polycyclic volcanism: U.S. Geological Survey Open-File Report 98-44, 32 p.
- Turrin, B. D., Christiansen, R. L., Clynne, M. A., Champion, D. E., Gertsel, W. J., Muffler, L. J. P., and Trimble, D. A., 1998, Age of Lassen Peak, California, and implications for the ages of late Pleistocene glaciations in the southern Cascade Range: *Geological Society of America Bulletin*, v. 110, p. 931-945.
- Valet, Jean-Pierre, Tric, Emmanuel, Herrero-B, Emilio, Maynadier, Laure, and Lockwood, J. P., 1998, Absolute paleointensity from Hawaiian lavas younger than 35 ka: *Earth and Planetary Science Letters*, v. 161, p. 19-32.
- Voight, B., Hoblitt, R. P., Clarke, A. B., Lockhart, A. B., Miller, A. D., Lynch, L., and McMahon, J., 1998, Remarkable cyclic ground deformation monitored in real-time on Montserrat, and its use in eruption forecasting: *Geophysical Research Letters*, v. 25, p. 3405-3408.
- Wagner, T. P., Clague, D. A., Hauri, E. H., and Grove, T. L., 1998, Trace element abundances of high-MgO glasses from Kilauea, Mauna Loa and Haleakala volcanoes, Hawaii: *Contributions to Mineralogy and Petrology*, v. 131, p. 13-21.
- Walder, J. S., and O'Connor, J. E., 1998, Methods for predicting peak discharge of floods caused by failure of natural and constructed earthen dams: *Water Resources Journal*, v. 197, p. 43-56.
- Waythomas, C. F., Dorava, J. M., Miller, T. P., Neal, C. A., and McGimsey, R. G., 1998, Preliminary volcano-hazard assessment for Redoubt Volcano, Alaska: U.S. Geological Survey Open-File Report 97-857, 40 p., 1 plate.
- Waythomas, C. F., and Neal, C. A., 1998, Tsunami generation by pyroclastic flow during the 3500-year B.P. caldera-forming eruption of Aniakchak Volcano, Alaska: *Bulletin of Volcanology*, v. 60, p. 110-124.
- Waythomas, C. F., Power, J. A., Richter, D. H., and McGimsey, R. G., 1998, Preliminary volcano-hazard assessment for Akutan Volcano east-central Aleutian Islands, Alaska: U.S. Geological Survey Open-File Report 98-360, 36 p., 1 plate.
- Waythomas, C. F., and Waitt, R. B., 1998, Preliminary volcano-hazard assessment for Augustine Volcano, Alaska: U.S. Geological Survey Open-File Report 98-106, 39 p., 1 plate.
- Wells, R. E., Weaver, C. S., and Blakely, R. J., 1998, Fore-arc migration in Cascadia and its neotectonic significance: *Geology*, v. 26, p. 759-762.

- Wessells, Steve, 1998, At risk: Volcano Hazards from Mount Hood, Oregon: U.S. Geological Survey Open-File Report 98-492, VHS video, 14 min.
- White, R. A., Miller, A. D., Lynch, Lloyd, and Power, John, 1998, Observations of hybrid seismic events at Soufrière Hills Volcano, Montserrat: July 1995 to September 1996: *Geophysical Research Letters*, v. 25, p. 3657-3660.
- Wicks, Charles, Jr., Thatcher, Wayne, and Dzurisin, Daniel, 1998, Migration of fluids beneath Yellowstone caldera inferred from satellite radar interferometry: *Science*, v. 282, p. 458-462.
- Williams, C. F., and Grubb, F. V., 1998, Thermal constraints on the lateral extent of The Geysers vapor-dominated reservoir: *Proceedings, Twenty-third Workshop on Geothermal Reservoir Engineering*, Stanford University, Stanford, California, p. 83-89.
- Wilson, C. J. N., and Hildreth, Wes, 1998, Hybrid fall deposits in the Bishop Tuff, California: a novel pyroclastic depositional mechanism: *Geology*, v. 26, p. 7-10.
- Wright, T. L., and Takahashi, T. J., 1998, Hawaii bibliographic database: *Bulletin of Volcanology*, v. 59, p. 276-280.
- Young, S. R., Francis, P. W., Barclay, J., Casadevall, T. J., Gardner, C. A., Darroux, B., Davies, M. A., Delmelle, P., Norton, G. E., Maciejewski, A. J. H., Oppenheimer, C. M. M., Stix, J., and Watson, I. M., 1998, Monitoring SO<sub>2</sub> emission at the Soufrière Hills volcano: Implications for changes in eruptive conditions: *Geophysical Research Letters*, v. 25, p. 3681-3684.