



Publications of the Volcano Hazards Program 2004

By Manuel Nathenson

2006

Open-File Report 2006-1102

**U.S. Department of the Interior
U.S. Geological Survey**

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 Geology and Hydrology Disciplines of the USGS and with cooperators at the Alaska Division of Geological and Geophysical Surveys, University of Alaska Fairbanks Geophysical Institute, University of Hawaii Hilo, 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 2004

- Anderson, E. D., and Finn, C. A., 2004, Ground magnetic data from within the Long Valley caldera, California: A website for data distribution: U.S. Geological Survey Open-File Report 2004-1096, 3 p., data files, available at <http://pubs.usgs.gov/of/2004/1096/>
- Bailey, R. A., 2004, Eruptive history and chemical evolution of the precaldera and postcaldera basalt-dacite sequences, Long Valley, California: implications for magma sources, current seismic unrest, and future volcanism: U.S. Geological Survey Professional Paper 1692, 75 p.
- Bannister, S., Bryan, C. J., and Bibby, H. M., 2004, Shear wave velocity variation across the Taupo volcanic zone, New Zealand, from receiver function inversion: *Geophysical Journal International*, v. 159, p. 291-310.
- Battaglia, Jean, Thurber, C. H., Got, Jean-Luc, Rowe, C. A., and White, R. A., 2004, Precise relocation of earthquakes following the 15 June 1991 eruption of Mount Pinatubo (Philippines): *Journal of Geophysical Research*, v. 109, B07302, doi:10.1029/2003JB002959, 19 p.
- Bergfeld, D., Howle, J. F., and Schmidt, M. E., 2004, Diffuse CO₂ degassing from summit areas on Mt. Hood, Oregon, USA, *in* Wanty, R. B., and Seal, R. R., II, eds., *Water Rock Interaction, Proceedings of the Eleventh International Symposium on Water-Rock Interaction*, Saratoga Springs, New York, July 2004: A. A. Balkema, New York, v. 1, p. 83-86.
- Brantley, S. R., Lowenstern, J. B., Christiansen, R. L., Smith, R. B., Heasler, Henry, Waite, Greg, and Wicks, Charles, 2004, Tracking changes in Yellowstone's restless volcanic system: U.S. Geological Survey Fact Sheet 100-03, 4 p., available at <http://pubs.usgs.gov/fs/fs100-03/>
- Brantley, S. R., McGimsey, R. G., and Neal, C. A., 2004, The Alaska Volcano Observatory—expanded monitoring of volcanoes yields results: U.S. Geological Survey Fact Sheet 2004-3084, 2 p., available at <http://pubs.usgs.gov/fs/2004/3084/>
- Brantley, Steve, and Swanson, Don, 2004, USGS founding vision lives on at Hawaiian Volcano Observatory: *People, Land, & Water*, v. 11, n. 1, p. 35.
- Cameron, Cheryl, 2004, The geologic database of information on volcanoes in Alaska (GEODIVA): A comprehensive and authoritative source for volcanic information: *Alaska GeoSurvey News*, v. 7, n. 1, p. 1-2, available at <http://www.dggs.dnr.state.ak.us/news.htm>
- Caplan-Auerbach, Jacqueline, Moran, S. C., Tytgat, Guy, Plucinski, T. A., McNutt, S. R., and Paskievitch, J. F., 2004, Seismic explorations in the eastern Aleutians, Alaska: *Seismological Research Letters*, v. 75, p. 8-21.
- Cashman, K. V., and Hoblitt, R. P., 2004, Magmatic precursors to the 18 May 1980 eruption of Mount St. Helens, USA: *Geology*, v. 32, p. 141-144.
- Castillo, P. R., and Newhall, C. G., 2004, Geochemical constraints on possible subduction components in lavas of Mayon and Taal volcanoes, southern Luzon, Philippines: *Journal of Petrology*, v. 45, p. 1089-1108.
- Coombs, M. L., Clague, D. A., Moore, G. F., and Cousens, B. L., 2004, Growth and collapse of Waianae Volcano, Hawaii, as revealed by exploration of its submarine flanks: *Geochemistry, Geophysics, Geosystems - G³*, v. 5, Q08006, doi:10.1029/2004GC000717, 30 p.
- Coombs, M. L., and Gardner, J. V., 2004, Reaction rim growth on olivine in silicic melts: Implications for magma mixing: *American Mineralogist*, v. 89, p. 748-759.
- Coombs, M. L., Sisson, T. W., and Kimura, Jun-Ichi, 2004, Ultra-high chlorine in submarine Kīlauea glasses: evidence for direct assimilation of brine by magma: *Earth and Planetary Science Letters*, v. 217, p. 297-313.

- Coombs, M. L., Sisson, T. W., and Lipman, P. W., 2004, Major-element, sulfur, and chlorine compositions of glasses from the submarine flank of Kilauea Volcano, Hawaii, collected during 1998-2002 Japan Marine Science and Technology Center (JAMSTEC) cruises: U.S. Geological Survey Open-File Report 2004-1378, 7 p., data file, available at <http://pubs.usgs.gov/of/2004/1378/>
- Crowley, J. K., Mars, J. C., John, D. A., Muffler, L. J. P., and Clynne, M. A., 2004, Hydrothermal mineral zoning within an eroded stratocone: Remote sensing spectral analysis of Brokeoff Volcano, California, *in* King, P. L., Ramsey, M. S., and Swayze, G. A., eds., *Infrared Spectroscopy in Geochemistry, Exploration Geochemistry and Remote Sensing: Mineralogical Association of Canada Short Course 33*, London, Ontario, p. 215-226.
- Dawson, P., Whilldin, D., and Chouet, B., 2004, Application of near real-time radial semblance to locate the shallow magmatic conduit at Kilauea Volcano, Hawaii: *Geophysical Research Letters*, v. 31, n. 21, L21606, doi:10.1029/2004GL021163, 4 p.
- Dean, K. G., Dehn, Jonathan, Papp, K. R., Smith, Steve, Izbekov, Pavel, Peterson, Rorik, Kearney, Courtney, and Steffke, Andrea, 2004, Integrated satellite observations of the 2001 eruption of Mt. Cleveland, Alaska, *in* Ramsey, Michael, Flynn, Luke, and Wright, Robert, eds., *Volcanic Observations from Space: New Results from the EOS Satellite Instruments: Journal of Volcanology and Geothermal Research*, v. 135, p. 51-73.
- de Hoog, J. C. M., Hattori, K. H., and Hoblitt, R. P., 2004, Oxidized sulfur-rich mafic magma at Mount Pinatubo, Philippines: *Contributions to Mineralogy and Petrology*, v. 146, p. 750-761.
- Denlinger, R. P., and Iverson, R. M., 2004, Granular avalanches across irregular three-dimensional terrain: 1. Theory and computation: *Journal of Geophysical Research*, v. 109, no. 1, F01014, doi:10.1029/2003JF000085, 14 p.
- Dewey, J. W., White, R. A., and Hernández, D. A., 2004, Seismicity and tectonics of El Salvador, *in* Rose, W. I., Bommer, J. J., López, D. L., Carr, M. J., and Major, J. J., eds., *Natural Hazards in El Salvador: Geological Society of America Special Paper 375*, p. 363-378.
- Dixon, J. P., Stihler, S. D., Power, J. A., Tytgat, Guy, Moran, S. C., Sánchez, J. J., McNutt, S. R., Estes, Steve, and Paskievitch, John, 2004, Catalog of earthquake hypocenters at Alaskan volcanoes; January 1 through December 31, 2003: U.S. Geological Survey Open-File Report 2004-1234, 69 p., data files, available at <http://pubs.usgs.gov/of/2004/1234/>
- Evans, W. C., Lorenson, T. D., Sorey, M. L., and Bergfeld, D., 2004, Transport of injected isobutane by thermal groundwater in Long Valley caldera, California, USA, *in* Wanty, R. B., and Seal, R. R., II, eds., *Water Rock Interaction, Proceedings of the Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, July 2004: A. A. Balkema, New York*, v. 1, p. 125-129.
- Evans, W. C., van Soest, M. C., Mariner, R. H., Hurwitz, Shaul, Ingebritsen, S. E., Wicks, C. W., Jr., and Schmidt, M. E., 2004, Magmatic intrusion west of Three Sisters, central Oregon, USA: The perspective from spring geochemistry: *Geology*, v. 32, p. 69-72.
- Ewert, J. W., and Harpel, C. J., 2004, In harm's way: Population and volcanic risk: *Geotimes*, v. 49, n. 4, p. 14-17.
- Ewert, J. W., and Newhall, C. G., 2004, Status and challenges of volcano monitoring worldwide, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 9-14,*

- available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- Foulger, G. R., and Julian, B. R., 2004, Use of time-dependent MEQ tomography for monitoring producing geothermal reservoirs: *Geothermal Resources Council Bulletin*, v. 33, p. 120-126.
- Foulger, G. R., Julian, B. R., Hill, D. P., Pitt, A. M., Malin, P. E., and Shalev, E., 2004, Non-double-couple microearthquakes at Long Valley caldera, California, provide evidence for hydraulic fracturing: *Journal of Volcanology and Geothermal Research*, v. 132, p. 45-71.
- Fournier, R. O., 2004, Yellowstone caldera inflation-deflation and hydrothermal Cl flux revisited, *in* Wanty, R. B., and Seal, R. R., II, eds., *Water Rock Interaction, Proceedings of the Eleventh International Symposium on Water-Rock Interaction*, Saratoga Springs, New York, July 2004: A. A. Balkema, New York, v. 1, p. 53-58.
- Gardner, C. A., Heliker, C. C., Hill, D. P., Lowenstern, J. B., and Murray, T. L., 2004, A proposed alert-level notification scheme for aviation and ground-based hazards at U.S. volcanoes, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety*, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 37-41, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- George, Rhiannon, Turner, Simon, Hawkesworth, Chris, Bacon, C. R., Nye, Chris, Stelling, Pete, and Dreher, Scott, 2004, Chemical versus temporal controls on the evolution of tholeiitic and calc-alkaline magmas at two volcanoes in the Alaska-Aleutian Arc: *Journal of Petrology*, v. 45, p. 203-219.
- Gerlach, T. M., 2004, Comment on paper 'Morphology and compositions of spinel in Pu'u 'Ō'ō lava (1996-1998), Kilauea volcano, Hawaii' — enigmatic discrepancies between lava and gas-based fO_2 determinations of Pu'u 'Ō'ō lava: *Journal of Volcanology and Geothermal Research*, v. 134, p. 241-244.
- Gerlach, T. M., 2004, Volcanic sources of tropospheric ozone-depleting trace gases, *Geochemistry Geophysics Geosystems-G³*, v. 5, Q09007, doi:10.1029/2004GC000747, 16 p.
- Gregg, C. E., Houghton, B. F., Johnston, D. M., Paton, D., and Swanson, D. A., 2004, The perception of volcanic risk in Kona from Mauna Loa and Hualālai volcanoes, Hawai'i: *Journal of Volcanology and Geothermal Research*, v. 130, p. 179-196.
- Gregg, C. E., Houghton, B. F., Paton, Douglas, Swanson, D. A., and Johnston, D. M., 2004, Community preparedness for lava flows from Mauna Loa and Hualālai volcanoes, Kona, Hawai'i: *Bulletin of Volcanology*, v. 66, p. 531-540.
- Guffanti, Marianne, Casadevall, T. J., and Mayberry, G. C., 2004, Reducing encounters of aircraft with volcanic ash clouds, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety*, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 1 p. 17-21, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- Guffanti, Marianne, Mayberry, G. C., Wunderman, Richard, and Casadevall, T. J., 2004, Effects of volcanic activity on airports, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety*, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 5

p. 7-10, available at

<http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>

- Heliker, Christina, and Brantley, S. R., 2004, The ongoing Pu‘u ‘Ō‘ō - Kūpaianaha eruption of Kīlauea Volcano, Hawai‘i: U.S. Geological Survey Fact Sheet 2004-3085, 2 p.
- Hildreth, Wes, 2004, Volcanological perspectives on Long Valley, Mammoth Mountain, and Mono Craters: several contiguous but discrete systems: *Journal of Volcanology and Geothermal Research*, v. 136, p. 169-198.
- Hildreth, Wes, Fierstein, Judy, Siems, D. F., Budahn, J. R., and Ruíz, Joaquin, 2004, Rear-arc vs. arc-front volcanoes in the Katmai reach of the Alaska Peninsula; a critical appraisal of across-arc compositional variation: *Contributions to Mineralogy and Petrology*, v. 147, p. 243-275.
- Hildreth, Wes, Lanphere, M. A., Champion, D. E., and Fierstein, Judy, 2004, Rhyodacites of Kulshan caldera, North Cascades of Washington: Postcaldera lavas that span the Jaramillo: *Journal of Volcanology and Geothermal Research*, v. 130, p. 227-264.
- Holcomb, R. T., and Robinson, J. E., 2004, Maps of the Hawaiian Islands Exclusive Economic Zone interpreted from GLORIA Sidescan-Sonar imagery: U.S. Geological Survey Scientific Investigations Map 2824, 9 p., 1 plate, scales 1:2,000,000 and 1:4,000,000.
- Houghton, B. F., Wilson, C. J. N., Fierstein, J., and Hildreth, W., 2004, Complex proximal deposition during the Plinian eruptions of 1912 at Novarupta, Alaska: *Bulletin of Volcanology*, v. 66, p. 95-133.
- Husen, Stephan, and Smith, R. B., 2004, Probabilistic earthquake relocation in three-dimensional velocity models for the Yellowstone National Park region, Wyoming: *Bulletin of the Seismological Society of America*, v. 94, p. 880-896.
- Husen, Stephan, Smith, R. B., and Waite, G. P., 2004, Evidence for gas and magmatic sources beneath Yellowstone volcanic field from seismic tomographic imaging: *Journal of Volcanology and Geothermal Research*, v. 131, p. 397-410.
- Husen, S., Taylor, R., Smith, R. B., and Heasler, H., 2004, Changes in geyser eruption behavior and remotely triggered seismicity in Yellowstone National Park produced by the 2002 M 7.9 Denali fault earthquake, Alaska: *Geology*, v. 32, p. 537-540.
- Husen, Stephan, Wiemer, Stefan, and Smith, R. B., 2004, Remotely triggered seismicity in the Yellowstone National Park Region by the 2002 M_w 7.9 Denali Fault earthquake, Alaska, *in* Rowe, Charlotte, Christensen, Douglas, and Carver, Gary, eds., Special Issue Dedicated to the 2002 Denali Fault Earthquake Sequence: *Bulletin of the Seismological Society of America*, v. 94, n. 6B, p. S317-S331.
- Iverson, R. M., 2004, Comment on "Piezometric response in shallow bedrock at CB1: Implications for runoff generation and landsliding" by David R. Montgomery, William E. Dietrich, and John T. Heffner: *Water Resources Research*, v. 40, n. 3, W03801, doi:10.1029/2003WR002077, 3 p.
- Iverson, R.M., 2004, Debris flow, *in* Goudie, A. S., ed., *Encyclopedia of Geomorphology*, Routledge, London, p. 225.
- Iverson, R.M., 2004, Mechanics of geological materials, *in* Goudie, A. S., ed., *Encyclopedia of Geomorphology*, Routledge, London, p. 659-662.
- Iverson, R. M., Logan, Matthew, and Denlinger, R. P., 2004, Granular avalanches across irregular three-dimensional terrain: 2. Experimental tests: *Journal of Geophysical Research*, v. 109, no. 1, F01015, doi:10.1029/2003JF000084, 16 p.

- Izbekov, P. E., Eichelberger, J. C., and Ivanov B. V., 2004, The 1996 eruption of Karymsky Volcano, Kamchatka: Historical record of basaltic replenishment of an andesite reservoir: *Journal of Petrology*, v. 45, p. 2325-2345.
- Izbekov, Pavel, Gardner, J. E., and Eichelberger, J. C., 2004, Comagmatic granophyre and dacite from Karymsky volcanic center, Kamchatka: Experimental constraints for magma storage conditions: *Journal of Volcanology and Geothermal Research*, v. 131, p. 1-18.
- James, M. R., Lane, S. J., Chouet, B., and Gilbert, J. S., 2004, Pressure changes associated with the ascent and bursting of gas slugs in liquid-filled vertical and inclined conduits, *in* Mader, H. M., Manga, M., and Koyaguchi, T., eds., *The role of laboratory experiments in volcanology: Journal of Volcanology and Geothermal Research*, v. 129, p. 61-82.
- Jibson, R. W., Crone, A. J., Harp, E. L., Baum, R. L., Major, J. J., Pullinger, C. R., Escobar, C. D., Martínez, Mauricio, and Smith, M. E., 2004, Landslides triggered by the 13 January and 13 February 2001 earthquakes in El Salvador, *in* Rose, W. I., Bommer, J. J., López, D. L., Carr, M. J., and Major, J. J., eds., *Natural Hazards in El Salvador: Geological Society of America Special Paper 375*, p. 69-88.
- Johnston, M. J. S., Prejean, S. G., and Hill, D. P., 2004, Triggered deformation and seismic activity under Mammoth Mountain in Long Valley Caldera by the 3 November 2002 M_w 7.9 Denali Fault earthquake, *in* Rowe, Charlotte, Christensen, Douglas, and Carver, Gary, eds., *Special Issue Dedicated to the 2002 Denali Fault Earthquake Sequence: Bulletin of the Seismological Society of America*, v. 94, n. 6B, p. S360-S369.
- Julian, B. R., and Foulger, G. R., 2004, Microearthquake focal mechanisms: a tool for monitoring geothermal systems: *Geothermal Resources Council Bulletin*, v. 33, p. 166-171.
- Langbein, John, 2004, Noise in two-color electronic distance meter measurements revisited: *Journal of Geophysical Research*, v. 109, B04406, doi:10.1029/2003JB002819, 16 p.
- Langbein, J., and Bock, Y., 2004, High-rate real-time GPS network at Parkfield: Utility for detecting fault slip and seismic displacements: *Geophysical Research Letters*, v. 31, L15S20, doi:10.1029/2003GL019408, 4 p.
- Lanphere, M. A., Champion, D. E., Clynne, M. A., Lowenstern, J. B., Sarna-Wojcicki, A. M., and Wooden, J. L., 2004, Age of the Rockland tephra, western USA: *Quaternary Research*, v. 62, p. 94-104.
- Lipman, P. W., 2004, Chemical analyses of Tertiary volcanic rocks, central San Juan caldera complex, southwestern Colorado: U.S. Geological Survey Open-File Report 2004-1194, 7 p., data file, available at <http://pubs.usgs.gov/of/2004/1194/>
- Lu, Zhong, Rykhus, Russell, Masterlark, Tim, and Dean, K. G., 2004, Mapping recent lava flows at Westdahl Volcano, Alaska, using radar and optical satellite imagery: *Remote Sensing of Environment*, v. 91, p. 345-353.
- Macías, J. L., Capra, L., Scott, K. M., Espíndola, J. M., García-Palomo, A., and Costa, J. E., 2004, The 26 May 1982 breakout flows derived from failure of a volcanic dam at El Chichón, Chiapas, Mexico: *Geological Society of America Bulletin*, v. 116, p. 233-246.
- Major, J. J., 2004, Posteruption suspended sediment transport at Mount St. Helens: Decadal-scale relationships with landscape adjustments and river discharges: *Journal of Geophysical Research*, v. 109, no. 1, F01002, doi:10.1029/2002JF000010, 22 p.
- Major, J. J., Schilling, S. P., Pullinger, C. R., and Escobar, C. D., 2004, Debris-flow hazards at San Salvador, San Vicente, and San Miguel volcanoes, El Salvador, *in* Rose, W. I., Bommer, J. J., López, D. L., Carr, M. J., and Major, J. J., eds., *Natural Hazards in El Salvador: Geological Society of America Special Paper 375*, p. 89-108.

- Mangan, Margaret, Mastin, Larry, and Sisson, Thomas, 2004, Gas evolution in eruptive conduits: combining insights from high temperature and pressure decompression experiments with steady-state flow modeling, *in* Mader, H. M., Manga, M., and Koyaguchi, T., eds., *The role of laboratory experiments in volcanology: Journal of Volcanology and Geothermal Research*, v. 129, p. 23-36.
- Mangan, M. T., Sisson, T. W., and Hankins, W. B., 2004, Decompression experiments identify kinetic controls on explosive silicic eruptions: *Geophysical Research Letters*, v. 31, n. 8, L08605, doi:10.1029/2004GL019509, 5 p.
- Marzocchi, Warner, Sandri, Laura, Gasparini, Paolo, Newhall, Christopher, and Boschi, Enzo, 2004, Quantifying probabilities of volcanic events: The example of volcanic hazard at Mount Vesuvius: *Journal of Geophysical Research*, v. 109, B11201, doi:10.1029/2004JB003155, 18 p.
- Masterlark, Timothy, and Lu, Zhong, 2004, Transient volcano deformation sources imaged with interferometric synthetic aperture radar: Application to Seguam Island, Alaska: *Journal of Geophysical Research*, v. 109, B01401, doi:10.1029/2003JB002568, 16 p.
- Mastin, L. G., Christiansen, R. L., Thornber, Carl, Lowenstern, Jacob, and Beeson, Melvin, 2004, What makes hydromagmatic eruptions violent? Some insights from the Keanakāko‘i Ash, Kīlauea Volcano, Hawai‘i, *in* Harris, Andrew, Hort, Matthias, and Ripepe, Maurizio, eds., *Conduit Processes During Explosive Basaltic Eruptions: Journal of Volcanology and Geothermal Research*, v. 137, p. 15-31.
- Mayberry, Gari, Venzke, Edward, Luhr, James, Wunderman, Richard, Seibert, Lee, and Guffanti, Marianne, 2004, Volcano-related information available on the internet: from current activity to the past 10,000 years, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety*, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 45-47, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- McGimsey, R. G., Neal, C. A., and Girina, Olga, 2004, 1999 Volcanic activity in Alaska and Kamchatka: Summary of events and response of the Alaska Volcano Observatory: U.S. Geological Survey Open-File Report 2004-1033, 45 p., available at <http://pubs.usgs.gov/of/2004/1033/>
- McGimsey, R. G., Neal, C. A., and Girina, Olga, 2004: 2001 volcanic activity in Alaska and Kamchatka: Summary of events and response of the Alaska Volcano Observatory: U.S. Geological Survey Open-File Report OF 2004-1453, 53 p., available at <http://pubs.usgs.gov/of/2004/1453/>
- McNutt, S. R., 2004, Volcanic tremor and its use in estimating eruption parameters, *in* *Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety*, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 49-50, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- McNutt, S. R., and Marzocchi, Warner, 2004, Simultaneous earthquake swarms and eruption in Alaska, fall 1996: Statistical significance and inference of a large aseismic slip event: *Bulletin of the Seismological Society of America*, v. 95, n. 5, p. 1831-1841.
- Miller, T. P., 2004, Geology of the Ugashik-Mount Peulik volcanic center, Alaska: U.S. Geological Survey Open-File Report 2004-1009, 19 p., 2 plates, scale 1:63,360, available at <http://pubs.usgs.gov/of/2004/1009>
- Moore, J. G., and Clague, D. A., 2004, Hawaiian submarine manganese-iron oxide crusts—A dating tool?: *Geological Society of America Bulletin*, v. 116, p. 337-347.
- Moran, S. C., 2004, Seismic monitoring at Cascade volcanic centers, 2004—status and recommendations: U.S. Geological Survey Scientific Investigations Report 2004-5211, 27 p., available at <http://pubs.usgs.gov/sir/2004/5211/>
- Moran, S. C., Power, J. A., Stihler, S. D., Sánchez, J. J., and Caplan-Auerbach, Jacqueline, 2004, Earthquake triggering at Alaskan volcanoes following the 3 November 2002 Denali

- Fault earthquake, *in* Rowe, Charlotte, Christensen, Douglas, and Carver, Gary, eds., Special Issue Dedicated to the 2002 Denali Fault Earthquake Sequence: Bulletin of the Seismological Society of America, v. 94, n. 6B, p. S300-S309.
- Nakata, J. S., 2004, Hawaiian Volcano Observatory summary 103; Part 1, Seismic data, January to December 2003, *with* a chronological summary by Heliker, C., Orr, T., and Hoblitt, R.: U.S. Geological Survey Open-File Report 2004-1242, 79 p., available at <http://pubs.usgs.gov/of/2004/1242/>
- Nathenson, Manuel, 2004, Springs on and in the vicinity of Mount Hood volcano, Oregon: U.S. Geological Survey Open-File Report 2004-1298, 43 p., available at <http://pubs.usgs.gov/of/2004/1298/>
- Nathenson, Manuel, 2004, Publications of the Volcano Hazards Program 2002: U.S. Geological Survey Open-File Report 2004-1047, 11 p., available at <http://pubs.usgs.gov/of/2004/1047/>
- National Oceanic and Atmospheric Administration, Federal Aviation Administration, and U.S. Geological Survey, 2004, Alaska interagency operating plan for volcanic ash episodes, 29 p., available at <http://www.avo.alaska.edu/downloads/classresults.php?pregen=report>
- Neal, C. A., McGimsey, R. G., and Chubarova, Olga, 2004, 2000 Volcanic activity in Alaska and Kamchatka; summary of events and response of the Alaska Volcano Observatory: U.S. Geological Survey Open-File Report 2004-1034, 34 p., available at <http://pubs.usgs.gov/of/2004/1034/>
- Neal, C. A., McGimsey, R. G., and Girina, Olga, 2004, 2002 Volcanic activity in Alaska and Kamchatka: Summary of events and response of the Alaska Volcano Observatory: U.S. Geological Survey Open-File Report 2004-1058, 59 p., available at <http://pubs.usgs.gov/of/2004/1058/>
- Newhall, Chris, 2004, Promise and pitfalls in eruption forecasting, *in* Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety, June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 3-7, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- North American Geologic-map Data Model Steering Committee Science Language Technical Team, 2004, Sedimentary materials: science language for their classification, description, and interpretation in digital geologic-map databases: North American Data Model, 595 p., available at <http://www.nadm-geo.org/sltp/products.html>
- North American Geologic-map Data Model Steering Committee Science Language Technical Team, 2004, Volcanic materials: science language for their naming and characterization in digital geologic-map databases: North American Data Model, 20 p., available at <http://www.nadm-geo.org/sltp/products.html>
- O'Neill, J. M., and Christiansen, R. L., 2004, Geologic Map of the Hebgen Lake Quadrangle, Beaverhead, Madison, and Gallatin Counties, Montana, Park and Teton Counties, Wyoming, and Clark and Fremont Counties, Idaho: U.S. Geological Survey Scientific Investigations Map 2816, 1 plate, scale 1:100,000, available at <http://pubs.usgs.gov/sim/2004/2816/>
- Patrick, Mathew, Dean, Kenneson, and Dehn, Jonathan, 2004, Active mud volcanism observed with Landsat 7 ETM+: Journal of Volcanology and Geothermal Research, v. 131, p. 307-320.
- Patrick, M. R., Dehn, J., and Dean, K., 2004, Numerical modeling of lava flow cooling applied to the 1997 Okmok eruption: Approach and analysis: Journal of Geophysical Research, v. 109, B03202, doi:10.1029/2003JB002537, 17 p.
- Peterson, Rorik, Dean, Ken, Dehn, Jonathan, Bickmeirer, Laura, and Groves, Joanne, 2004, Reanalysis of eruption clouds from the North Pacific and their impact on aircraft routes, *in* Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety,

- June 21-24, 2004, Alexandria, Virginia: Office of the Federal Coordinator for Meteorological Services and Supporting Research, session 3 p. 81-87, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- Power, John, 2004, Renewed unrest at Mount Spurr Volcano, Alaska: *Eos Transactions American Geophysical Union*, v. 85, n. 43, p. 434.
- Power, J. A., Stihler, S. D., White, R. A., and Moran, S. C., 2004, Observations of deep long-period (DLP) seismic events beneath Aleutian arc volcanoes; 1989–2002: *Journal of Volcanology and Geothermal Research*, v. 138, p. 243-266.
- Prejean, S. G., Hill, D. P., Brodsky, E. E., Hough, S. E., Johnston, M. J. S., Malone, S. D., Oppenheimer, D. H., Pitt, A. M., and Richards-Dinger, K. B., 2004, Remotely triggered seismicity on the United States West Coast following the M_w 7.9 Denali Fault earthquake, *in* Rowe, Charlotte, Christensen, Douglas, and Carver, Gary, eds., Special Issue Dedicated to the 2002 Denali Fault Earthquake Sequence: *Bulletin of the Seismological Society of America*, v. 94, n. 6B, p. S348-S359.
- Price, E. J., 2004, Dynamic deformation of Seguam Island, Alaska, 1993–2000: Implications for magmatic and hydrothermal processes: *Journal of Geophysical Research*, v. 109, B04202, doi:10.1029/2003JB002671, 15 p.
- Ramsey, D. W., Gardner, J. V., Robinson, J. E., Bacon, C. R., and Dartnell, Peter, 2004, Crater Lake Revealed: *Geospatial Solutions*, v. 14, n. 12, p. 58.
- Ramsey, D. W., Robinson, J. E., and Dartnell, Peter, 2004, Crater Lake Revealed: *ArcUser*, v. 7, n. 2, p. 67-69.
- Ramsey, Michael, and Dehn, Jonathan, 2004, Spaceborne observations of the 2000 Bezymianny, Kamchatka eruption: the integration of high-resolution ASTER data into near real-time monitoring using AVHRR: *Journal of Volcanology and Geothermal Research*, v. 135, p. 127-146.
- Reid, M. E., 2004, Massive collapse of volcano edifices triggered by hydrothermal pressurization: *Geology*, v. 32, p. 373-376.
- Roeder, P. L., Thornber, C., and Grant, A., 2004, Reply to comment on paper ‘Morphology and compositions of spinel in Pu‘u ‘Ō‘ō lava (1996-1998), Kilauea volcano, Hawaii’ — enigmatic discrepancies between lava and gas-based fO_2 determinations of Pu‘u ‘Ō‘ō lava: *Journal of Volcanology and Geothermal Research*, v. 134, p. 245-248.
- Roman, D. C., Moran, S. C., Power, J. A., and Cashman, K. V., 2004, Temporal and spatial variation of local stress fields before and after the 1992 eruptions of Crater Peak vent, Mount Spurr Volcano, Alaska: *Bulletin of the Seismological Society of America*, v. 94, p. 2366-2379.
- Roman, D. C., Power, J. A., Moran, S. C., Cashman, K. V., Doukas, M. P., Neal, C. A., and Gerlach, T. M., 2004, Evidence for dike emplacement beneath Iliamna Volcano, Alaska in 1996: *Journal of Volcanology and Geothermal Research*, v. 130, p. 265-284.
- Rose, W. I., Bommer, J. J., López, D. L., Carr, M. J., and Major, J. J., eds., 2004, *Natural Hazards in El Salvador: Geological Society of America Special Paper 375*, 502 p.
- Rowe, C. A., Thurber, C. H., and White, R. A., 2004, Dome growth behavior at Soufriere Hills Volcano, Montserrat, revealed by relocation of volcanic event swarms, 1995-1996: *Journal of Volcanology and Geothermal Research*, v. 134, p. 199-221.
- Rybin, A.V., Karagusov, Y.V., Izbekov, Pavel, Terentyev, N. S., Guryanov, V. B., Neal, Christina, and Dean, Ken, 2004, Status of monitoring active volcanoes of the Kurile Islands: Present and future, *in* Proceedings of the 2nd International Conference on Volcanic Ash and Aviation Safety, June 21-24, 2004, Alexandria, Virginia: Office of the

- Federal Coordinator for Meteorological Services and Supporting Research, session 2 p. 61-66, available at <http://www.ofcm.noaa.gov/ICVAAS/Proceedings2004/ICVAAS2004-Proceedings.htm>
- Sánchez, J. J., and McNutt, S. R., 2004, Intermediate-term declines in seismicity at Mt. Wrangell and Mt. Veniaminof Volcanoes, Alaska, following the 3 November 2002 M_w 7.9 Denali Fault earthquake, *in* Rowe, Charlotte, Christensen, Douglas, and Carver, Gary, eds., Special Issue Dedicated to the 2002 Denali Fault Earthquake Sequence: Bulletin of the Seismological Society of America, v. 94, n. 6B, p. S370-S383.
- Sánchez, J. J., and McNutt, S. R., 2004, Unexpected response of Mt. Wrangell Volcano, Alaska, to the shaking from a large regional earthquake: A puzzle for intermediate-term earthquake-volcanoes interactions: Earth Sciences Research Journal, v. 8, n. 1, p. 34-44.
- Sánchez, J. J., McNutt, S. R., Power, J. A., and Wyss, M., 2004, Spatial variations in the frequency-magnitude distribution of earthquakes at Mount Pinatubo Volcano: Bulletin of the Seismological Society of America, v. 94, p. 430-438.
- Sánchez, J. J., Wyss, Max, and McNutt, S. R., 2004, Temporal-spatial variations of stress at Redoubt volcano, Alaska, inferred from inversion of fault plane solutions: Journal of Volcanology and Geothermal Research, v. 130, p. 1-30.
- Sass, John, and Duffield, Wendell, 2004, Geothermal Energy: Geotimes, v. 49, n. 7, p. 32-33.
- Schilling, S. P., Carrara, P. E., Thompson, R. A., and Iwatsubo, E. Y., 2004, Posteruption glacier development within the crater of Mount St. Helens, Washington, USA: Quaternary Research, v. 61, p. 325-329.
- Scott, W. E., 2004, Quaternary volcanism in the United States, *in* Gillespie, A. R., Porter, S. C., and Atwater, B. F., eds., The Quaternary period in the United States: Developments in Quaternary Science, Elsevier, v. 1, p. 351-380.
- Sherrod, D. R., Taylor, E. M., Ferns, M. L., Scott, W. E., Conrey, R. M., and Smith, G. A., 2004, Geologic map of the Bend 30- X 60-minute quadrangle, central Oregon: U.S. Geological Survey Geologic Investigations Series I-2683, 48 p., 2 plates, scale 1:100,000, available at <http://pubs.usgs.gov/imap/i2683/>
- Soule, S. A., Cashman, K.V., and Kauahikaua, J. P., 2004, Examining flow emplacement through the surface morphology of three rapidly emplaced, solidified lava flows, Kīlauea Volcano, Hawai‘i: Bulletin of Volcanology, v. 66, p. 1-14.
- van Soest, M. C., Evans, W. C., Mariner, R. H., and Schmidt, M. E., 2004, Chloride in hot springs of the Cascade volcanic arc – The source puzzle, *in* Wanty, R. B., and Seal, R.R., II, eds., Water Rock Interaction, Proceedings of the Eleventh International Symposium on Water-Rock Interaction, Saratoga Springs, New York, July 2004: A. A. Balkema, New York, v. 1, p. 209-213.
- Vergniolle, S., Boichu, M., and Caplan-Auerbach, J., 2004, Acoustic measurements of the 1999 basaltic eruption of Shishaldin volcano, Alaska 1. Origin of Strombolian activity, *in* Harris, Andrew, Hort, Matthias, and Ripepe, Maurizio, eds., Conduit Processes During Explosive Basaltic Eruptions: Journal of Volcanology and Geothermal Research, v. 137, p. 109-134.
- Vergniolle, S., and Caplan-Auerbach, J., 2004, Acoustic measurements of the 1999 basaltic eruption of Shishaldin volcano, Alaska 2. Precursor to the Subplinian phase, *in* Harris, Andrew, Hort, Matthias, and Ripepe, Maurizio, eds., Conduit Processes During Explosive Basaltic Eruptions: Journal of Volcanology and Geothermal Research, v. 137, p. 135-151.
- Waite, G. P., and Smith, R. B., 2004, Seismotectonics and stress field of the Yellowstone volcanic plateau from earthquake first motions and other indicators: Journal of Geophysical Research, v. 109, B02301, doi:10.1029/2003JB002675, 14 p.

- Webster, J. M., Clague, D. A., Riker-Coleman, Kristin, Gallup, Christina, Braga, J. C., Potts, Donald, Moore, J. G., Winterer, E. L., and Paull, C. K., 2004, Drowning of the -150 m reef off Hawaii: A casualty of global meltwater pulse 1A?: *Geology*, v. 32, p. 249-252.
- White, R. A., Ligorria, J. P., and Cifuentes, I. L., 2004, Seismic history of the Middle America subduction zone along El Salvador, Guatemala, and Chiapas, Mexico: 1526-2000, *in* Rose, W. I., Bommer, J. J., López, D. L., Carr, M. J., and Major, J. J., eds., *Natural Hazards in El Salvador: Geological Society of America Special Paper 375*, p. 379-396.
- Williams, D. A., Kadel, S. D., Greeley, Ronald, Leshner, C. M., and Clyne, M. A., 2004, Erosion by flowing lava; geochemical evidence in the Cave Basalt, Mount St. Helens, Washington: *Bulletin of Volcanology*, v. 66, p. 168-181.
- Wolfe, C. J., Okubo, P. G., Ekström, Göran, Nettles, Meredith, and Shearer, P. M., 2004, Characteristics of deep (≥ 13 km) Hawaiian earthquakes and Hawaiian earthquakes west of 155.55°W : *Geochemistry, Geophysics, Geosystems - G³*, v. 5, Q04006, doi:10.1029/2003GC000618, 28 p.
- Yokose, Hisayoshi, and Lipman, P. W., 2004, Emplacement mechanisms of the South Kona slide complex, Hawaii Island: sampling and observations by remotely operated vehicle Kaiko: *Bulletin of Volcanology*, v. 66, p. 569-584.