



Publications of the Volcano Hazards Program 2006

2008

**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 2006

- Abedini, A. A., Hurwitz, S., and Evans, W. C., 2006, USGS-NoGaDat – A global dataset of noble gas concentrations and their isotopic ratios in volcanic systems: U.S. Geological Survey Data Series 202, database, available at <http://pubs.water.usgs.gov/ds202/>
- Adams, N. K., Houghton, B. F., Fagents, S. A., and Hildreth, Wes, 2006, The transition from explosive to effusive eruptive regime: The example of the 1912 Novarupta eruption, Alaska: Geological Society of America Bulletin, v. 118, p. 620-634.
- Adams, N. K., Houghton, B. F., and Hildreth, Wes, 2006, Abrupt transitions during sustained explosive eruptions: examples from the 1912 eruption of Novarupta, Alaska: Bulletin of Volcanology, v. 69, p. 189-206.
- Adleman, J. N., 2006, USGS, NPS educate the public on the risks, wonders of Alaska's volcanoes: U.S. Department of the Interior, People, Land, and Water, available at: http://www.peoplelandandwater.gov/usgs/usgs_11-10-06_usgs-nps-educate.cfm
- Auger, Emmanuel, D'Auria, Luca, Martini, Marcello, Chouet, Bernard, and Dawson, Phillip, 2006, Real-time monitoring and massive inversion of source parameters of very long period seismic signals: An application to Stromboli Volcano, Italy: Geophysical Research Letters, v. 33, L04301, doi:10.1029/2005GL024703, 5 p.
- Bacon, C. R., and Lanphere, M. A., 2006, Eruptive history and geochronology of Mount Mazama and the Crater Lake region, Oregon: Geological Society of America Bulletin, v. 118, p. 1331-1359.
- Beget, J. E., and Kowalik, Zygmunt, 2006, Confirmation and calibration of computer modeling of tsunamis produced by Augustine Volcano, Alaska: Science of Tsunami Hazards, v. 24, n. 4, p. 257-266.
- Bergfeld, Deborah, Evans, W. C., Howle, J. F., and Farrar, C. D., 2006, Carbon dioxide emissions from vegetation-kill zones around the resurgent dome of Long Valley caldera, eastern California, USA: Journal of Volcanology and Geothermal Research, v. 152, p. 140-156.
- Blard, P.-H., Pik, R., Lavé, J., Bourles, D., Burnard, P. G., Yokochi, R., Marty, B., and Trusdell, F., 2006, Cosmogenic ^3He production rates revisited from evidences of grain size dependent release of matrix-sited helium: Earth and Planetary Science Letters, v. 247, p. 222-234.
- Brocher, T. M., Carr, M. D., Halsing, D. L., John, D. A., Langenheim, V. E., Mangan, M. T., Marvin-DiPasquale, M. C., Takekawa, J. Y., and Tiedeman, C. R., 2006, USGS science in Menlo Park—A science strategy for the U.S. Geological Survey Menlo Park Science Center, 2005-2015: U.S. Geological Survey Circular 1290, 48 p., available at <http://pubs.usgs.gov/circ/2006/1290/>
- Calvert, A. T., and Lanphere, M. A., 2006, Argon geochronology of Kilauea's early submarine history, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research, v. 151, p. 1-18.
- Calvert, A. T., Moore, R. B., McGeehin, J. P., and Rodrigues da Silva, A. M., 2006, Volcanic history and $^{40}\text{Ar}/^{39}\text{Ar}$ and ^{14}C geochronology of Terceira Island, Azores, Portugal, *in* Nunes, J. C., Tilling, R. I., and Sigvaldason, G. E., eds., Volcanic geology of the Azores Islands: Journal of Volcanology and Geothermal Research, v. 156, p. 103-115.
- Cervelli, P. F., Fournier, T., Freymueller, J., and Power, J. A., 2006, Ground deformation associated with the precursory unrest and early phases of the January 2006 eruption of Augustine Volcano, Alaska: Geophysical Research Letters, v. 33, L18304, doi:10.1029/2006GL027219, 5 p.
- Chadwick, W. W., Jr., Geist, D. J., Jónsson, Sigurjón, Poland, Michael, Johnson, D. J., and Meertens, C. M., 2006, A volcano bursting at the seams: Inflation, faulting, and eruption at Sierra Negra volcano, Galápagos: Geology, v. 34, p. 1025-1028.
- Chouet, Bernard, 2006, Modeling and understanding volcanic processes using high-quality seismological data: Géosciences, n. 4, p. 56-63.

- Chouet, Bernard, Dawson, Phillip, and Nakano, Masaru, 2006, Dynamics of diffusive bubble growth and pressure recovery in a bubbly rhyolitic melt embedded in an elastic solid: *Journal of Geophysical Research*, v. 111, B07310, doi:10.1029/2005JB004174, 20 p.
- Clark, S. K., Reagan, M. K., and Trimble, D. A., 2006, Tephra deposits for the past 2600 years from Irazú Volcano, Costa Rica, *in* Rose, W. I., Bluth, G. J. S., Carr, M. J., Ewert, J. W., Patino, L. C., and Vallance, J. W., eds., *Volcanic Hazards in Central America: Geological Society of America Special Paper 412*, p. 225-234.
- Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., 2006, Growth and Collapse of Hawaiian Volcanoes: *Journal of Volcanology and Geothermal Research*, v. 151, p. 1-318.
- Coombs, M. L., Eakins, B. W., and Cervelli, P. F., 2006, Editorial; Growth and collapse of Hawaiian volcanoes, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., *Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research*, v. 151, p. vii-viii.
- Coombs, M. L., Neal, C. A., Wessels, R. L., and McGimsey, R. G., 2006, Geothermal disruption of summit glaciers at Mount Spurr Volcano, 2004–6: An unusual manifestation of volcanic unrest, *in* Haeussler, P. J., and Galloway, J. P., eds., *Studies by the U.S. Geological Survey in Alaska, 2005: U.S. Geological Survey Professional Paper 1732-B*, 33 p., available at <http://pubs.usgs.gov/pp/pp1732/pp1732b/>
- Coombs, M. L., Sisson, T. W., and Lipman, P. W., 2006, Growth history of Kilauea inferred from volatile concentrations in submarine-collected basalts, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., *Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research*, v. 151, p. 19-49.
- Davies, A. G., Chien, S., Wright, R., Miklius, A., Kyle, P. R., Welsh, M., Johnson, J. B., Tran, D., Schaffer, S. R., and Sherwood, R., 2006, Sensor web enables rapid response to volcanic activity: *Eos Transactions of the American Geophysical Union*, v. 87, n. 1, p. 1, 5.
- De Angelis, Silvio, 2006, Analyses of unusual long-period earthquakes with extended coda recorded at Katmai National Park, Alaska, USA: *Geophysical Research Letters*, v. 33, L07306, doi:10.1029/2005GL025581, 4 p.
- Dixon, J. P., Stihler, S. D., Power, J. A., Tytgat, Guy, Estes, Steve, and McNutt, S. R., 2006, Catalog of earthquake hypocenters at Alaskan volcanoes; January 1 through December 31, 2005: *U.S. Geological Survey Open-File Report 2006-1264*, 78 p., data files, available at <http://pubs.usgs.gov/of/2006/1264/>
- Donnelly-Nolan, Julie M., 2006, Chemical analyses and K-Ar ages of samples from 13 drill holes, Medicine Lake volcano, California: *U.S. Geological Survey Open-File Report 2006-1041*, 20 p., available at <http://pubs.usgs.gov/of/2006/1041/>
- Dzurisin, Daniel, Lisowski, Michael, Wicks, C. W., Poland, M. P., and Endo, E. T., 2006, Geodetic observations and modeling of magmatic inflation at the Three Sisters volcanic center, central Oregon Cascade Range, USA, *in* Poland, M. P., and Newman, Andrew, eds., *The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: Journal of Volcanology and Geothermal Research*, v. 150, p. 33-54.
- Eakins, B. W., and Robinson, J. E., 2006, Submarine geology of Hana Ridge and Haleakala Volcano's northeast flank, Maui, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., *Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research*, v. 151, p. 229-250.
- Edmonds, M., and Gerlach, T. M., 2006, The airborne lava–seawater interaction plume at Kīlauea Volcano, Hawai‘i: *Earth and Planetary Science Letters*, v. 244, p. 83-96.
- Elias, Tamar, Sutton, A. J., Oppenheimer, Clive, Horton, K. A., Garbeil, Harold, Tsanev, Vitchko, McGonigle, A. J. S., and Williams-Jones, Glyn, 2006, Comparison of COSPEC and two miniature ultraviolet spectrometer systems for SO₂ measurements using scattered sunlight: *Bulletin of Volcanology*, v. 68, p. 313-322.
- Engle, M. A., Gustin, M. S., Goff, Fraser, Counce, D. A., Janik, C. J., Bergfeld, Deborah, and Rytuba, J. J., 2006, Atmospheric mercury emissions from substrates and fumaroles associated with three hydrothermal systems in the western United States: *Journal of Geophysical Research*, v. 111, D17304, doi:10.1029/2005JD006563, 16 p.

- Evans, W. C., Bergfeld, Deborah, van Soest, M. C., Huebner, M. A., Fitzpatrick, John, and Revesz, K. M., 2006, Geochemistry of low-temperature springs northwest of Yellowstone caldera: Seeking the link between seismicity, deformation, and fluid flow: *Journal of Volcanology and Geothermal Research*, v. 154, p. 169-180.
- Ewert, John, Guffanti, Marianne, Cervelli, Peter, and Quick, James, 2006, The National Volcano Early Warning System (NVEWS): U.S. Geological Survey Fact Sheet 2006-3142, 2 p., available at <http://pubs.usgs.gov/fs/2006/3142/>
- Fedele, L., Tarzia, M., Belkin, H. E., De Vivo, B., Lima, A., and Lowenstern, J. B., 2006, Magmatic-hydrothermal fluid interaction and mineralization in alkali-syenite nodules from the Breccia Museo pyroclastic deposit, Naples, Italy, *in* de Vivo, B., ed., *Volcanism in the Campania Plain; Vesuvius, Campi Flegrei and Ignimbrites: Developments in Volcanology*, v. 9, Elsevier, p. 125-161.
- Gardner, C. A., and Guffanti, M. C., 2006, U.S. Geological Survey's alert notification system for volcanic activity: U.S. Geological Survey Fact Sheet 2006-3139, 4 p., available at <http://pubs.usgs.gov/fs/2006/3139/>
- Guffanti, Marianne, Scott, W. E., Driedger, C. L., and Ewert, J. W., 2006, Summary of the stakeholders workshop to develop a National Volcano Early Warning System (NVEWS): U.S. Geological Survey Open-File Report 2006-1224, 17 p., available at <http://pubs.usgs.gov/of/2006/1224/>
- Hammer, J. E., Coombs, M. L., Shamberger, P. J., and Kimura, Jun-Ichi, 2006, Submarine sliver in North Kona: A window into the early magmatic and growth history of Hualalai Volcano, Hawaii, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., *Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research*, v. 151, p. 157-188.
- Harris, A. J. L., Vallance, J. W., Kimberly, Paul, Rose, W. I., Matías, Otoniel, Bunzendahl, Elly, Flynn, L. P., and Garbeil, Harold, 2006, Downstream aggradation owing to lava dome extrusion and rainfall runoff at Volcán Santiaguito, Guatemala, *in* Rose, W. I., Bluth, G. J. S., Carr, M. J., Ewert, J. W., Patino, L. C., and Vallance, J. W., eds., *Volcanic Hazards in Central America: Geological Society of America Special Paper 412*, p. 85-104.
- Hill, D. P., 2006, Unrest in Long Valley Caldera, California, 1978–2004, *in* Troise, C., De Natale, G., and Kilburn, C. R. J., eds., *Mechanisms of Activity and Unrest at Large Calderas: Geological Society of London Special Publication 269*, p. 1-24.
- Horton, K. A., Williams-Jones, Glyn, Garbeil, Harold, Elias, Tamar, Sutton, A. J., Mouginitis-Mark, Peter, Porter, J. N., and Clegg, Steven, 2006, Real-time measurement of volcanic SO₂ emissions: Validation of a new UV correlation spectrometer (FLYSPEC): *Bulletin of Volcanology*, v. 68, p. 323-327.
- Ingebritsen, S. E., Sanford, W. E., and Neuzil, C. E., 2006, *Groundwater in Geologic Processes*, 2nd edition: Cambridge, Cambridge University Press, 536 p.
- Insinga, D., Calvert, A. T., Lanphere, M. A., Morra, Vincenzo, Perrotta, Annamaria, Sacchi, Marco, Scarpati, Claudio, Saburomaru, James, and Fedele, Lorenzo, 2006, The Late-Holocene evolution of the Miseno area (south-western Campi Flegrei) as inferred by stratigraphy, petrochemistry and ⁴⁰Ar/³⁹Ar geochronology, *in* de Vivo, B., ed., *Volcanism in the Campania Plain; Vesuvius, Campi Flegrei and Ignimbrites: Developments in Volcanology*, v. 9, Elsevier, p. 97-124.
- Iverson, R.M., 2006, Forecasting runout of rock and debris avalanches, *in* Evans, S. G., Mugnozza, G. S., Strom, A., and Hermanns, R. L., eds., *Landslides from Massive Rock Slope Failure*, Springer, Dordrecht, p. 197-209.
- Iverson, R. M., Dzurisin, Daniel, Gardner, C. A., Gerlach, T. M., LaHusen, R. G., Lisowski, Michael, Major, J. J., Malone, S. D., Messerich, J. A., Moran, S. C., Pallister, J. S., Qamar, A. I., Schilling, S. P., and Vallance, J. W., 2006, Dynamics of seismogenic volcanic extrusion at Mount St Helens in 2004-05: *Nature*, v. 444, n. 7118, p. 439-443.
- James, M. R., Lane, S. J., and Chouet, B. A., 2006, Gas slug ascent through changes in conduit diameter: Laboratory insights into a volcano-seismic source process in low-viscosity magma: *Journal of Geophysical Research*, v. 111, B05201, 10.1029/2005JB003718, 25 p.

- Kimura, Jun-Ichi, Sisson, T. W., Nakano, Natsuko, Coombs, M. L., and Lipman, P. W., 2006, Isotope geochemistry of early Kilauea magmas from the submarine Hilina bench: The nature of the Hilina mantle component, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research, v. 151, p. 51-72.
- Klein, F. W., Wright, Tom, and Nakata, Jennifer, 2006, Aftershock decay, productivity, and stress rates in Hawaii: Indicators of temperature and stress from magma sources: Journal of Geophysical Research, v. 111, B07307, doi:10.1029/2005JB003949, 26 p.
- Kwoun, Oh-Ig, Lu, Zhong, Neal, Christina, and Wicks, Charles, Jr., 2006, Quiescent deformation of the Aniakchak Caldera, Alaska, mapped by InSAR: Geology, v. 34, p. 5-8.
- Langbein, John, 2006, Evaluation of some software measuring displacements using GPS in real-time: U.S. Geological Survey Open-File Report 2006-1235, 37 p., available at <http://pubs.usgs.gov/of/2006/1235/>
- Lipman, P. W., 2006, Geologic map of the central San Juan caldera cluster, southwestern Colorado: U.S. Geological Survey Geologic Investigations I-2799, 34 p., 4 plates, scale 1:50:000, available at <http://pubs.usgs.gov/imap/i2799/>
- Lipman, P. W., and Coombs, M. L., 2006, North Kona slump: Submarine flank failure during the early(?) tholeiitic shield stage of Hualalai Volcano, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research, v. 151, p. 189-216.
- Lipman, P. W., and McIntosh, W. C., 2006, Field trip to the northeastern San Juan Mountains: North Pass and Cochetopa Park calderas: Geological Society of America Rocky Mountain Section Meeting, May 15-16, 2006, 19 p.
- Lipman, P. W., Sisson, T. W., Coombs, M. L., Calvert, Andrew, and Kimura, Jun-Ichi, 2006, Piggyback tectonics: Long-term growth of Kilauea on the south flank of Mauna Loa, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., Growth and Collapse of Hawaiian Volcanoes: Journal of Volcanology and Geothermal Research, v. 151, p. 73-108.
- Lowenstern, J. B., Charlier, B. L. A., Clynne, M. A., and Wooden, J. L., 2006, Extreme U–Th disequilibrium in rift-related basalts, rhyolites and granophyric granite and the timescale of rhyolite generation, intrusion and crystallization at Alid Volcanic Center, Eritrea: Journal of Petrology, v. 47, p. 2105-2122.
- Lowenstern, J. B., Smith, R. B., and Hill, D. P., 2006, Monitoring super-volcanoes: Geophysical and geochemical signals at Yellowstone and other large caldera systems, *in* Huppert, Herbert, and Sparks, Steve, eds., Extreme Natural Hazards: Philosophical Transactions of The Royal Society A, v. 364, p. 2055-2072.
- Lu, Zhong, 2006, Interferometric Synthetic Aperture Radar: building tomorrow's tools today: Alaska Satellite Facility News & Notes, 15th Anniversary Special Edition, p. 12-14.
- Lu, Z., Dzurisin, D., Wicks, C., and Power, J., 2006, Interferometric synthetic aperture radar (InSAR) and its applications to study volcanoes, part 2: InSAR imaging of Alaskan Volcanoes: Science of Surveying and Mapping, v. 31, no. 2, p. 36-39.
- Lu, Z., Zhang, J., and Zhang, Y., 2006, Interferometric synthetic aperture radar (InSAR) and its applications to study volcanoes, part 1: Principles of InSAR: Science of Surveying and Mapping, v. 31, no. 1, p. 51-54.
- Lundgren, Paul, and Lu, Zhong, 2006, Inflation model of Uzon caldera, Kamchatka, constrained by satellite radar interferometry observations: Geophysical Research Letters, v. 33, L06301, doi:10.1029/2005GL025181, 4 p.
- Major, J. J., and Mark, L. E., 2006, Peak flow responses to landscape disturbances caused by the cataclysmic 1980 eruption of Mount St. Helens, Washington: Geological Society of America Bulletin, v. 118, p. 938-958.
- Mariner, R. H., Venezky, D. Y., and Hurwitz, S., 2006, Chemical and isotopic database of water and gas from hydrothermal systems with an emphasis for the western United States: U.S. Geological Survey Data Series 169, database, available at <http://pubs.usgs.gov/ds/2005/169/>
- Masterlark, Timothy, Lu, Zhong, and Rykhus, Russell, 2006, Thickness distribution of a cooling pyroclastic flow deposit on Augustine Volcano, Alaska: Optimization using InSAR, FEMs,

- and an adaptive mesh algorithm, *in* Poland, M. P., and Newman, Andrew, eds., *The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: Journal of Volcanology and Geothermal Research*, v. 150, p. 186-201.
- McCarter, R. L., Fodor, R. V., and Trusdell, F. A., 2006, Perspectives on basaltic magma crystallization and differentiation: Lava-lake blocks erupted at Mauna Loa volcano summit, Hawaii: *Lithos*, v. 90, n. 3-4, p. 187-213.
- McGee, K. A., Sutton, A. J., Elias, T., Doukas, M. P., and Gerlach, T. M., 2006, Puhimau thermal area: a window into the upper East Rift Zone of Kīlauea Volcano, Hawaii?, *in* Perez, N. M., Gurrieri, Sergio, King, Chi-Yu, and McGee, K. A., eds., *Terrestrial Fluids, Earthquakes and Volcanoes: The Hiroshi Wakita Volume I: Pure and Applied Geophysics*, v. 163, p. 837-851.
- Mirabueno, M. H. T., Okuno, M., Nakamura, T., Newhall, C. G., and Kobayashi, T., 2006, AMS radiocarbon dating of paleosols intercalated with tephra layers from Mayon Volcano, southern Luzon, Philippines: a preliminary report: *Kazan, Volcanological Society of Japan*, v. 36, n. 2, p. 23-28.
- Moore, J. G., 2006, *King of the 40th Parallel-Discovery in the American West*: Stanford University Press, Stanford, California, 384 p.
- Moran, S.C., Kwoun, O., Masterlark, T., and Lu, Z., 2006, On the absence of InSAR-detected volcano deformation spanning the 1995–1996 and 1999 eruptions of Shishaldin Volcano, Alaska, *in* Poland, M. P., and Newman, Andrew, eds., *The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: Journal of Volcanology and Geothermal Research*, v. 150, p. 119-131.
- Myren, G. D., Johnston, M. J. S., and Mueller, R. J., 2006, Borehole dilatometer installation, operation, and maintenance at sites in Hawaii: U.S. Geological Survey Open-File Report 2006-1103, 122 p., available at <http://pubs.usgs.gov/of/2006/1103/>
- Nakata, J. S., 2006, Hawaiian Volcano Observatory seismic data, January to December 2005: U.S. Geological Survey Open-File Report 2006-1231, 84 p., available at <http://pubs.usgs.gov/of/2006/1231/>
- Nathenson, Manuel, 2006, Publications of the Volcano Hazards Program 2004: U.S. Geological Survey Open-File Report 2006-1102, 12 p., available at <http://pubs.usgs.gov/of/2006/1102/>
- Nunes, J. C., Tilling, R. I., and Sigvaldason, G. E., eds., *Volcanic geology of the Azores Islands: Journal of Volcanology and Geothermal Research*, v. 156, p. 1-186.
- Perez, N. M., Gurrieri, Sergio, King, Chi-Yu, and McGee, K. A., eds., *Terrestrial Fluids, Earthquakes and Volcanoes: The Hiroshi Wakita Volume I: Pure and Applied Geophysics*, v. 163, p. 629-914.
- Petersen, Tanja, Caplan-Auerbach, Jacqueline, and McNutt, S. R., 2006, Sustained long-period seismicity at Shishaldin Volcano, Alaska: *Journal of Volcanology and Geothermal Research*, v. 151, p. 365-381.
- Petersen, Tanja, De Angelis, Silvio, Tytgat, Guy, and McNutt, S. R., 2006, Local infrasound observations of large ash explosions at Augustine Volcano, Alaska, during January 11-28, 2006: *Geophysical Research Letters*, v. 33, n. 12, L12303, doi:10.1029/2006GL026491, 5 p.
- Poland, M. P., 2006, InSAR captures rifting and volcanism in East Africa: *Alaska Satellite Facility News and Notes*, v. 3, n. 2, p. 1, 3.
- Poland, Michael, Bürgmann, Roland, Dzurisin, Daniel, Lisowski, Michael, Masterlark, Timothy, Owen, Susan, and Fink, Jonathan, 2006, Constraints on the mechanism of long-term, steady subsidence at Medicine Lake volcano, northern California, from GPS, leveling, and InSAR, *in* Poland, M. P., and Newman, Andrew, eds., *The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: Journal of Volcanology and Geothermal Research*, v. 150, p. 55-78.
- Poland, Michael, Hamburger, Michael, and Newman, Andrew, 2006, The changing shapes of active volcanoes: History, evolution, and future challenges for volcano geodesy, *in* Poland, M. P., and Newman, Andrew, eds., *The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: Journal of Volcanology and Geothermal Research*, v. 150, p. 1-13.

- Poland, M. P., and Newman, Andrew, eds., 2006, The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: *Journal of Volcanology and Geothermal Research*, v. 150, p. 1-328.
- Poland, Michael, and Newman, Andrew, 2006, Editorial dedication: Robert Decker 1927—2005, *in* Poland, M. P., and Newman, Andrew, eds., The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: *Journal of Volcanology and Geothermal Research*, v. 150, p. vii-viii.
- Poland, Michael, and Newman, Andrew, 2006, Editorial dedication: Daniel J. Johnson 1959—2005, *in* Poland, M. P., and Newman, Andrew, eds., The Changing Shapes of Active Volcanoes - Recent Results and Advances in Volcano Geodesy: *Journal of Volcanology and Geothermal Research*, v. 150, p. ix-x.
- Power, J. A., Nye, C. J., Coombs, M. L., Wessels, R. L., Cervelli, P. F., Dehn, J., Wallace, K. L., Freymueller, J. T., and Doukas, M. P., 2006, The reawakening of Alaska's Augustine Volcano: *Eos Transactions of the American Geophysical Union*, v. 87, n. 37, p. 373, 377.
- Pressling, Nicola, Laj, Carlo, Kissel, Catherine, Champion, Duane, and Gubbins, David, 2006, Paleomagnetic intensities from ¹⁴C-dated lava flows on the Big Island, Hawaii: 0–21 kyr: *Earth and Planetary Science Letters*, v. 247, p. 26-40.
- Richter, D. H., Preller, C. C., Labay, K. A., and Shew, N. B., compilers, 2006, Geologic map of the Wrangell-Saint Elias National Park and Preserve, Alaska: U.S. Geological Survey Scientific Investigations Map 2877, 15 p., 1 plate, scale 1:350,000, available at <http://pubs.usgs.gov/sim/2006/2877/>
- Robinson, J. E., Dutton, D. R., Ramsey, D. W., Lipman, P. W., and Felger, T. J., 2006, Database for the Geologic map of the central San Juan caldera cluster, southwestern Colorado: U.S. Geological Survey Geologic Investigations I-2799, 1 CD-ROM, available at <http://pubs.usgs.gov/imap/i2799/>
- Robinson, J. E., and Eakins, B. W., 2006, Calculated volumes of individual shield volcanoes at the young end of the Hawaiian Ridge, *in* Coombs, M. L., Eakins, B. W., and Cervelli, P. F., eds., Growth and Collapse of Hawaiian Volcanoes: *Journal of Volcanology and Geothermal Research*, v. 151, p. 309-317.
- Robinson, J. E., Eakins, B. W., Kanamatsu, Toshiya, Naka, Jiro, Takahashi, Eiichi, Satake, Kenji, Smith, J. R., Clague, D. A., and Yokose, Hisayoshi, 2006, JAMSTEC multibeam surveys and submersible dives around the Hawaiian Islands: A collaborative Japan-USA exploration of Hawaii's deep seafloor: U.S. Geological Survey Data Series 171, 1 DVD-ROM, also available at <http://pubs.usgs.gov/ds/2006/171/>
- Robinson, J. E., Hamer, M. R., Stevenson, A. J., Lucky, Harry, Degnan, C. H., Wong, F. L., and Holcomb, R. T., 2006, Digital data for maps of Hawaiian Islands Exclusive Economic Zone interpreted from GLORIA sidescan-sonar imagery: U.S. Geological Survey Geologic Investigations Map 2824, data files, available at <http://pubs.usgs.gov/sim/2004/2824/>
- Roeder, Peter, Gofton, Emma, and Thornber, Carl, 2006, Cotectic proportions of olivine and spinel in olivine-tholeiitic basalt and evaluation of pre-eruptive processes: *Journal of Petrology*, v. 47, p. 883-900.
- Roman, D. C., Cashman, K. V., Gardner, C. A., Wallace, P. J., and Donovan, J. J., 2006, Storage and interaction of compositionally heterogeneous magmas from the 1986 eruption of Augustine Volcano, Alaska: *Bulletin of Volcanology*, v. 68, p. 240-254.
- Rose, W. I., Bluth, G. J. S., Carr, M. J., Ewert, J. W., Patino, L. C., and Vallance, J. W., eds., 2006, Volcanic Hazards in Central America: Geological Society of America Special Paper 412, 276 p.
- Sano, Hiroki, Sherrod, D. R., and Tagami, Takahiro, 2006, Youngest volcanism about 1 million years ago at Kahoolawe Island, Hawaii: *Journal of Volcanology and Geothermal Research*, v. 152, p. 91-96.
- Schilling, S. P., Ramsey, D. W., Messerich, J. A., and Thompson, R. A., 2006, Rebuilding Mount St. Helens: U.S. Geological Survey Scientific Investigations Map 2928, 1 plate, available at <http://pubs.usgs.gov/sim/2006/2928/>

- Scott, William, Gardner, Cynthia, Devoli, Graziella, and Alvarez, Antonio, 2006, The A.D. 1835 eruption of Volcán Cosigüina, Nicaragua: A guide for assessing local volcanic hazards, *in* Rose, W. I., Bluth, G. J. S., Carr, M. J., Ewert, J. W., Patino, L. C., and Vallance, J. W., eds., *Volcanic Hazards in Central America: Geological Society of America Special Paper 412*, p. 167-187.
- Segall, Paul, Desmarais, E. K., Shelly, David, Miklius, Asta, and Cervelli, Peter, 2006, Earthquakes triggered by silent slip events on Kīlauea volcano, Hawaii: *Nature*, v. 442, n. 7098, p. 71-74.
- Segall, Paul, Desmarais, E. K., Shelly, David, Miklius, Asta, and Cervelli, Peter, 2006, Corrigendum; Earthquakes triggered by silent slip events on Kīlauea volcano, Hawaii: *Nature*, v. 444, n. 7116, p. 235.
- Sherrod, D. R., Hagstrum, J. T., McGeehin, J. P., Champion, D. E., and Trusdell, F. A., 2006, Distribution, ¹⁴C chronology, and paleomagnetism of latest Pleistocene and Holocene lava flows at Haleakalā volcano, Island of Maui, Hawai‘i: *Journal of Geophysical Research*, v. 111, B05205, doi:10.1029/2005JB003876, 24 p.
- Siebert, Lee, Alvarado, G. E., Vallance, J. W., and van Wyk de Vries, Benjamin, 2006, Large-volume volcanic edifice failures in Central America and associated hazards, *in* Rose, W. I., Bluth, G. J. S., Carr, M. J., Ewert, J. W., Patino, L. C., and Vallance, J. W., eds., *Volcanic Hazards in Central America: Geological Society of America Special Paper 412*, p. 1-26.
- Simkin, Tom, Tilling, R. I., Vogt, P. R., Kirby, S. H., Kimberly, Paul, and Stewart, D. B., 2006, *This dynamic planet: world map of volcanoes, earthquakes, impact craters, and plate tectonics*, 3rd edition: U.S. Geological Survey Geologic Investigations Series Map I-2800, 1 two-sided sheet, scale 1: 30,000,000.
- Tabor, R. W., Hagerud, R. A., Hildreth, Wes, and Brown, E. H., 2006, Database for the geologic map of the Mount Baker 30-minute by 60-minute quadrangle, Washington (I-2260): U.S. Geological Survey Data Series 205, data files, available at <http://pubs.usgs.gov/ds/2006/205/>
- Trusdell, F. A., and Moore, R. B., 2006, Geologic map of the Middle East Rift Geothermal Subzone, Kīlauea Volcano, Hawai‘i: U.S. Geological Survey Geologic Investigations Series I-2614, 1 plate, scale 1:24,000, available at <http://pubs.usgs.gov/imap/2614/>
- Trusdell, F. A., Moore, R. B., and Sako, M. K., 2006, Preliminary geologic map of Mount Pagan Volcano, Pagan Island, Commonwealth of the Northern Mariana Islands: U.S. Geological Survey Open-File Report 2006-1386, 32 p., 1 plate, available at <http://pubs.usgs.gov/of/2006/1386/>
- Trusdell, F. A., Wolfe, E. W., and Morris, Jean, 2006, Digital database of the geologic map of the island of Hawai‘i: U.S. Geological Survey Data Series 144, data files, available at <http://pubs.usgs.gov/ds/2005/144/>
- Tusa, Giuseppina, Brancato, Alfonso, Gresta, Stefano, and Malone, S. D., 2006, Source parameters of microearthquakes at Mount St. Helens (USA): *Geophysical Journal International*, v.166, p. 1193-1223.
- Umino, Susumu, Nonaka, Miyuki, and Kauahikaua, Jim, 2006, Emplacement of subaerial pahoehoe lava sheet flows into water: 1990 Kūpaianaha flow of Kilauea volcano at Kaimū Bay, Hawai‘i: *Bulletin of Volcanology*, v. 69, p. 125-139.
- U.S. Geological Survey, 2006, *Volcanic hazards—a national threat*: U.S. Geological Survey Fact Sheet 2006-3014, 2 p., available at <http://pubs.usgs.gov/fs/2006/3014/>
- Vergnolle, Sylvie, and Caplan-Auerbach, Jacqueline, 2006, Basaltic thermals and subplinian plumes: Constraints from acoustic measurements at Shishaldin volcano, Alaska: *Bulletin of Volcanology*, v. 68, p. 611-630.
- Waite, G. P., Smith, R. B., and Allen, R. M., 2006, V_p and V_s structure of the Yellowstone hot spot from teleseismic tomography: Evidence for an upper mantle plume: *Journal of Geophysical Research*, v. 111, B04303, doi:10.1029/2005JB003867, 21 p.
- Wanless V. D., Garcia, M. O., Trusdell, F. A., Rhodes, J. M., Norman, M. D., Weis, D., Fornari, D. J., Kurz, M. D., and Guillou, H., 2006, Submarine radial vents on Mauna Loa Volcano,

- Hawai'i: G3 Geochemistry, Geophysics, Geosystems, v. 7, Q05001, doi:10.1029/2005GC001086, 28 p.
- Waythomas, C. F., Miller, T. P., and Mangan, M. T., 2006, Preliminary volcano hazard assessment for the Emmons Lake volcanic center, Alaska: U. S. Geological Survey Scientific Investigations Report 2006-5248, 41 p., 1 plate, available at <http://pubs.usgs.gov/sir/2006/5248/>
- Waythomas, C. F., Watts, P., and Walder, J. S., 2006, Numerical simulation of tsunami generation by cold volcanic mass flows at Augustine Volcano, Alaska: *Natural Hazards and Earth System Science*, v. 6, p. 671-685.
- Webster, J. M. , Clague, D. A., Braga, J. C., Spalding, Heather, Renema, Willem, Kelley, Christopher, Applegate, Bruce, Smith, J. R., Paull, C. K., Moore, J. G., and Potts, D., 2006, Drowned coralline algal dominated deposits off Lanai, Hawaii; carbonate accretion and vertical tectonics over the last 30 ka: *Marine Geology*, v. 225, p. 223-246.
- Wicks, C. W., Thatcher, Wayne, Dzurisin, Daniel, and Svarc, Jerry, 2006, Uplift, thermal unrest and magma intrusion at Yellowstone caldera: *Nature*, v. 440, n. 7080, p. 72-75.
- Williams-Jones, Glynn, Horton, K. A., Elias, Tamar, Garbeil, Harold, Mouginiis-Mark, P. J., Sutton, A. J., and Harris, A. J. L., 2006, Accurately measuring volcanic plume velocity with multiple UV spectrometers: *Bulletin of Volcanology*, v. 68, p. 328-332.
- Wilson, C. R., Olson, J. V., Szuberla, C. A. L., McNutt, Steve, Tytgat, Guy, and Drob, D. P., 2006, Infrasonic array observations at I53US of the 2006 Augustine Volcano eruptions: *Inframatics*, no. 13, p. 11-25.
- Wynn, Jeff, Dzurisin, Daniel, Finn, C. A., Kauahikaua, J. P., and LaHusen, R. G., 2006, Application of geophysical methods to volcano monitoring: *Proceedings Symposium for the Application of Geophysical Methods to Environmental & Engineering Problems, Environmental and Engineering Geophysical Society Annual Meeting, Seattle, WA, April 2-6, 2006*, p. 174-183.
- Yellowstone Volcano Observatory, 2006, Volcano and earthquake monitoring plan for the Yellowstone Volcano Observatory, 2006-2015: U.S. Geological Survey Scientific Investigations Report 2006-5276, 17 p., available at <http://pubs.usgs.gov/sir/2006/5276/>