

CURRICULUM VITAE

Donald M. Thomas

Personal

Born: 18 May 1948, Bethesda, Maryland

Education

B.S. Chemistry and Physics, Dickinson College (Graduated Cum Laude), 1970
M.S. Electrochemistry, Oregon Graduate Center, 1972. Thesis: The Pressure Dependence of Hydrogen Adsorption on a Platinum Electrode
Ph.D. Chemistry, University of Hawaii, 1977. Thesis: An Isotopic Profile of Gases from the Summit and Flank of Kilauea Volcano

Professional Experience

1998 to Present: Geochemist, University of Hawaii, Hawaii Institute of Geophysics.
1995 to Present: Director, Center for the Study of Active Volcanoes, University of Hawaii, Hilo Campus.
1987 to 1998: Associate Geochemist, University of Hawaii, Hawaii Institute of Geophysics.
1980 to 1987 Assistant Geochemist, University of Hawaii, Hawaii Institute of Geophysics.
1977 to 1980 Assistant Researcher, Research Corporation of the University of Hawaii.

Society Membership

American Chemical Society - Geochemistry Division
American Geophysical Union
Geothermal Resources Council
International Association of Volcanology and Chemistry of the Earth's Interior

Professional Service

Chair, Research Advisory Committee of the NELHA (Natural Energy Laboratory of Hawaii Authority) Board of Directors, 2009 - 2014

Member, Research Advisory Committee of the NELHA (Natural Energy Laboratory of Hawaii Authority) Board of Directors, 1991 - Present

Member, NELHA Board of Directors, 1991 – 2014

Member, Hawaii State Earthquake Advisory Committee, 1999 – Present

Chair, Hawaii State Earthquake Advisory Committee 2008 – 2012

Manager of Drilling, Hawaii Scientific Drilling Project 1996 - 2007

Member, Hawaii Hazards Forum, 2000 - Present

Member, Mauna Kea Environmental Advisory Committee, 2005 – Present

Board of Directors of DOSECC 1997-2004

Chair, Geothermal Technical Advisory Committee (to the Hawaii Department of Land and Natural Resources), 1992 – 1996

International Professional Service

The CSAV **International Training course in Volcano Hazards Monitoring** is offered as a service to scientists and technicians from developing countries and the international volcanological community. To date we have provided intensive volcano hazards training to more than 220 trainees, from 28 countries. The program is offered in collaboration with the Hawaiian Volcano Observatory and the USGS Volcano Disaster Assistance Program.

Public Service (through CSAV)

Teacher Training Workshop – Incorporating Tsunami, Eruption, Earthquake and Hurricane awareness into primary, intermediate, and secondary educational curricula

Earthquake Preparedness Community Outreach: Retrofitting for earthquake survival

Natural Hazards Symposia – Tsunami, Earthquake, Eruption Hazards, Hurricanes, Flash Floods

He'e Nalu: Tsunami Awareness for young adults (a video presentation)

Earthquake and Eruption Hazards on the Island of Hawaii (a video presentation for classroom use)

Lava Flow Hazards on the Island of Hawaii (a computer animation of lava flow trajectories from Hawaii's active volcanoes)

All Hazards Awareness for Students (an ongoing program of classroom visits to Hawaii Island schools)

Earthquake Retrofits for Post and Pier Structures (a web based expert system to assist homeowners in planning and executing an earthquake resistant retrofits to post and pier dwellings: http://www.hilo.hawaii.edu/~nathazexpert/expertsystem/flash_path_fix.php)

Research Interests

Geothermal exploration geochemistry: determination of chemical and isotopic composition of ground waters and soil gases as tracers of leakage from geothermal reservoirs. The application of elemental and isotopic ratios of dissolved rare gases in the characterization of geothermal reservoirs.

Geothermal production geochemistry: interpretation of the chemical and isotopic composition of geothermal production fluids in terms of reservoir production characteristics, production aquifers/fluid sources, scaling/ corrosion characteristics and potential environmental impacts and the analysis of the fluids from the Kilauea East Rift Zone as an analog of seafloor hydrothermal systems.

Deep hydrology of ocean island volcanoes: evaluation of chemical compositions of deep fluids present in ocean islands as indicators of their sources and the reactions they have undergone during their passage through the island.

Current and Recent Projects

Groundwater Hydrology in the Humu'ula Saddle Region

Spectral SP: A New Approach to Mapping Reservoir Flow and Permeability; with Drs. E. Wallin, E. Gasperikova.

Evaluation of Geothermal Resource Potential of DOD Lands at Pohakuloa Using Magnetotelluric and Audiomagnetotelluric Surveys; with Dr. E. Wallin and B. Lienert

Magnetotelluric and Audiomagnetotelluric Surveys of Department of Hawaiian Home Lands, Humu'ula Hawaii; with Drs. E. Wallin, B. Lienert, and H. Pierce.

MT Surveys of Hualalai Volcano; with Drs. N. Lautze, E. Wallin, and B. Lienert

Relevant Publications

Thomas, D.M., E. Wallin, N. Lautze, and B. Linert, 2014, A Blind Hydrothermal System in an Ocean Island Environment: Humu'ula Saddle Hawaii Island, Abstract V21A-4731, 2014 Fall Meeting, AGU, San Francisco, CA.

Lienert, B.R., E. Wallin, and D. Thomas, 2014, Preliminary Results of a Magnetotelluric Survey in the Center of Hawaii Island, Abstract GP33A-3702, 2014 Fall Meeting, AGU, San Francisco, CA.

Thomas, D.M. and E.C. Haskins, 2013, Analysis of the hydrologic structures within an ocean island volcano using diamond wireline core drilling, Abstract H11I-1263, 2013 Fall Meeting, AGU, San Francisco, CA, 9-13 Dec.

Publications

- Pierce, H.A. and Thomas, D.M., 2009, Magnetotelluric and Audiomagnetotelluric Groundwater Survey Along the Humu'ula Portion of Saddle Road Near and Around the Pohakuloa Training Area, Hawaii. U.S. Geol. Survey Open File Report 2009-1135, 164 pp.
- Stolper, E.M., D.J. DePaolo, and D. M. Thomas, 2009, Deep Drilling into a Mantle Plume Volcano: The Hawaii Scientific Drilling Project. *Scientific Drilling Journal*, No.7, pp. 4-14.
- Edwards, H. K., Tripp, D., Castile, T., Bevens, D., **Thomas, D.**, 2007 Software Engineering Projects for Public Safety – Modeling Lava Flows on the Big Island. Proceedings of the 2007 Conference on Software Engineering Research and Practice. Las Vegas, Nevada, United States. CSREA Press. ISBN 1-60132-033-7. Pages 159-165. June 2007.
- Edwards, K.E., Puckett, R., **Thomas, D.**, 2005, Updating Scientific Legacy Systems to Bridge the Digital Divide: A Case Study. Proceedings of the 2005 Conference on Software Engineering Research and Practice. Las Vegas, Nevada, United States.
- D.J. DePaolo. E. Stolper, **D. Thomas**, 2001, Deep Drilling into a Hawaiian Volcano; The Hawaiian Scientific Drilling Project *EOS, Transactions, AGU*, 82, 154–155.
- Thomas, D.M., 1998, Geothermal Resources, Invited contribution to Atlas of Hawaii, University of Hawaii Press, Honolulu, HI, pp. 47-48.
- Conrad, M.E., **D.M. Thomas**, S. Flexser, and T.W. Vanneman, 1997, Fluid flow and water-rock interaction in the East Rift Zone of Kilauea Volcano, Hawaii, *J. Geophys. Res.*, v. 102, no. B7, pp. 15,021-15,037.
- Guillou, H., L. Turpin, F. Garnier, S. Charbit, **D.M. Thomas**, 1997, Unspiked K-Ar dating of Pleistocene tholeiitic basalts from the deep core SOH-4, Kilauea, Hawaii, *Chemical Geology*, 140 (1-2), p. 81-88.
- Garnier, F., E. Herrero-Bervera, C. Laj, H. Guillou, C. Kissel, **D.M. Thomas**, 1996, Geomagnetic field intensity over the last 42,000 years from core SOH-4, Big Island, Hawaii; *Journal of Geophysical Research, B, Solid Earth and Planets*, 101 (1), p. 585-600.
- Stolper, E.M, D.J. DePaolo, and **D.M. Thomas**, 1996, Introduction to special section: Hawaii Scientific Drilling Project, *J. Geophys Res.*, V. 101, No. B5, pp. 11,593-11,598.
- DePaolo, D. J., Stolper, E., **Thomas, D.**, Albarede, Francis, Chadwick, O., Clague, D., Feigenson, M. D., Frey, F. A., Garcia, M. O., Hofmann, A. W., Ingram, B. L., Kennedy, B. M., Kirschvink, J., Kurz, M. D., Laj, Carlo, Lockwood, J. P., Ludwig, K. R., McEvelly, T. V., Moberly, R., Moore, G. F., Moore, J. C., Morin, R., Paillet, F., Renne, P., Rhodes, M., Tatsumoto, M., Taylor, H., Walker, G., Wilkins, R., 1996, Hawaii Scientific Drilling Project; summary of preliminary results, *GSA Today*, 6 (8), p. 1-8.

- Paillet F., and **D.M. Thomas**, 1996, Hydrogeology of the KP-1 Borehole, Part I: Hydraulic conditions adjacent to the well bore, *J. Geophys Res.*, V. 101, No. B5, pp. 11,675-11,682.
- Thomas, D.M., F. Paillet and M. Conrad, 1996, Hydrogeology of the KP-1 Borehole, Part II: Fluid geochemistry and regional flow patterns, *J. Geophys Res.*, V. 101, No. B5, pp. 11,683-11,694.
- Garnier, F., E. Herrero-Bevera, C. Laj, H. Guillou, C. Kissel, and **D.M. Thomas**, 1996, Geomagnetic field intensity over the last 42,000 years obtained from core SOH-4, Big Island, Hawaii, *J. Geophys Res.*, V. 101, No. B1, pp. 585-600.
- C. Laj, F. Garnier, E. Herrero-Bevera, C. Kissel, and **D.M. Thomas**, 1996, Preliminary determinations of the geomagnetic field intensity for the last 450 kyr from Hawaii Scientific Drilling Project core, Big Island, Hawaii, *J. Geophys Res.*, V. 101, No. B5, pp. 11,625-11,632.
- Chen, C., R.E. Green, **D.M. Thomas**, and J.A. Knuteson, 1995, Modelling 1,3-Dichloropropene fumigant volatilization with vapor phase advection in the soil profile, *Envir. Sci. Tech.*, V. 29, pp. 1816-1821.
- Chen, C., **D.M. Thomas**, and R.E. Green, 1995, Modelling of radon transport in unsaturated soil, *J. Geophys. Res.*, V. 100, No. B8, pp. 15,517-15,525.
- Chen, C., R.E. Green, **D.M. Thomas**, and R. Schneider, Testing and assessment analysis of pesticide volatilization in unsaturated soils by LEACHV, submitted to *Pesticide Science*.
- Chen, C., R.E. Green, and **D.M. Thomas**, Model LEACHV for gas transport in unsaturated soil (User's manual)
- Chen, C. and **D.M. Thomas**, 1994, Analysis of volatile phase transport using natural radon gas as a tracer, *Jour. Env. Quality*, v. 23 no. 1, pp. 173-179.
- Chen, C., **D.M. Thomas**, R.E. Green, and R.J. Wagenet, 1993, Two-domain estimation of hydraulic properties in macropore soils, *Soil Sci. Soc. J. Am.*, v. 57, no. 3, pp. 680-686.
- Thomas, D.M., J.M. Cotter, and D. Holford, 1992, Experimental design for soil gas radon monitoring, *Jour. Radioanal. Nuc. Chem.*, v. 161, no. 2, pp.313-323.
- DePaolo, D.J., E.M. Stolper, and **D.M. Thomas**, 1991, Physics and chemistry of mantle plumes, *EOS, Transactions, American Geophysical Union*, v. 27, no. 21, pp. 236-237.
- Thomas, D.M., 1990, Radon gas as a tracer for volcanic processes (Invited paper), in: *Radon Monitoring in Radiation Protection, Environmental Radioactivity and Earth Sciences, Proceedings of an International Workshop held by the Int.l Center for Theoretical Physics, Trieste, Italy*, pp. 295-314.

- Thomas, D.M. and J.S. Gudmundsson, 1989, Recommendations for future research directions in solids deposition, *Geothermics*, v. 18 Nos. 1/2.
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- Thomas, D.M., 1987, A geochemical model of the Kilauea East Rift Zone, Chapter 56 in U.S. Geological Survey Professional Paper 1350: Volcanism in Hawaii, R. Decker, T. Wright, and P. Stauffer eds., pp. 1507-1525.
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- Thomas, D.M., M.E. Cox, D. Erlandson, and L. Kajiwarra, 1979, Potential geothermal resources in Hawaii: A preliminary regional survey, Hawaii Institute of Geophysics Technical Report HIG-79-4, 103 pp.
- Thomas, D.M., and J.J. Naughton, 1979, He/CO₂ ratios as premonitors of volcanic activity, *Science*, v. 204, p. 1195.
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- Naughton, J.J., V. Lewis, **D.M. Thomas**, and J.B. Finlayson, 1975, Fume compositions found at various stages of activity at Kilauea volcano, Hawaii, *J. Geophys. Res.*, v. 80, no. 21, pp. 2963-2966.