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Born: August 11, 1948, St. Paul, Minnesota. Married with two daughters.

Education

B.S. (Geology), Michigan State University, 1970
M.A. (Geology), Princeton University, 1972
Ph.D. (Geology), Harvard University, 1976
Thesis: Chemical exchange between seawater and basalt during hydrothermal alteration of the oceanic crust (188 pp.; H.D. Holland, advisor)
Post-Doctoral Fellow, Stanford University, 1975-77

Positions Held

Oceanographic Asst., School of Oceanography, Oregon State University, 1968.
Exploration Geologist, Offshore Division, Shell Oil Company, 1970.
Teaching Assistant, Princeton University, 1971-1972.
Research Assistant, Harvard University, 1973-1975.
Research Associate, Stanford University, 1975-1977.
Assistant Scientist, Woods Hole Oceanographic Institution, 1977-1981.
Associate Scientist, Woods Hole Oceanographic Institution, 1981-1986.
Associate Geochemist, Hawaii Institute of Geophysics, 1986-1988.
Associate Professor, Dept. of Oceanography, University of Hawaii, 1988-1993.
Chairman, Department of Oceanography, 1996-1999 and 2013-2016.
Professor, Department of Oceanography, University of Hawaii, 1993-present.

Memberships

Geochemical Society
American Geophysical Union
Geological Society of America

Fellowships

National Merit Scholarship, 1966-1970.
National Science Foundation Graduate Fellowship, 1970-1972.
Harvard University Scholarship, 1972-1973.
Stanford University Postdoctoral Fellowship, 1975-1977 (Advisors J.L. Bischoff and F.W. Dickson)

Research Interests

General: Marine geochemistry, trace element and isotope geochemistry, geochemical cycles, geochemical implications of plate tectonics, experimental approaches to geochemical problems.

Specific: Interaction of seawater with the oceanic crust, especially during hydrothermal alteration at mid-ocean ridges, and the implications of this process for seawater chemistry and origin of submarine hydrothermal deposits. Fluids in subduction zones.

Cruise Experience: 973 days at sea on 30 research cruises, 1978-2010, including 7 as Chief Scientist, 9 two-month drilling legs, 8 manned submersible and 3 ROV diving cruises, and 22 submersible dives.

Publications: 102 papers (34 first-authored) and 96 abstracts, 1977-2015.

PUBLICATIONS

Papers

- 1977 1. Seyfried, W.E., and M.J. Mottl. Origin of submarine metal-rich hydrothermal solutions: experimental basalt-seawater interaction in a seawater-dominated system at 300°C, 500 bars. *Proceedings of the Second International Symposium on Water-Rock Interaction* (H. Paquet and Y. Tardy, eds.), Strasbourg, France, August, 1977, pp. **IV** 173-**IV** 180.
- 1978 2. Mottl, M.J., and H.D. Holland. Chemical exchange during hydrothermal alteration of basalt by seawater. I. Experimental results for major and minor components of seawater. *Geochim. Cosmochim. Acta* **42**:1103-1115.
3. Seyfried, W.E., Jr., M.J. Mottl, and J.L. Bischoff. Seawater/basalt ratio effects on the chemistry and mineralogy of spilites from the ocean floor. *Nature* **275**:211-213.
- 1979 4. Mottl, M.J., H.D. Holland, and R.F. Corr. Chemical exchange during hydrothermal alteration of basalt by seawater. II. Experimental results for Fe, Mn, and sulfur species. *Geochim. Cosmochim. Acta* **43**:869-884.
- 1980 5. Mottl, M.J., and W.E. Seyfried. Sub-seafloor hydrothermal systems: rock- vs. seawater-dominated. In *Seafloor Spreading Centers: Hydrothermal Systems* (P.A. Rona and R.P. Lowell, eds.), pp. 66-82, Dowden, Hutchinson and Ross, Inc., Stroudsburg, PA, 424 pp.
6. Mottl, M.J. Submarine hydrothermal ore deposits. *Oceanus* **23**:18-27.
- 1982 7. Seyfried, W.E., Jr., and M.J. Mottl. Hydrothermal alteration of basalt by seawater under seawater-dominated conditions. *Geochim. Cosmochim. Acta* **46**:985-1002.
8. CRRUST. Geothermal regimes of the Costa Rica Rift, East Pacific, investigated by drilling, DSDP-IPOD Legs 68, 69, and 70. *Geol. Soc. Amer. Bull.* **93**:862-875 (co-authored with 30 others).
9. Anderson, R.N., Honnorez, J. and 9 others. DSDP Hole 504B, the first reference section over 1 km through Layer 2 of the oceanic crust. *Nature* **300**:589-594.
10. Becker, K., Von Herzen, R.P., and 11 others. In situ electrical resistivity and bulk porosity of the oceanic crust Costa Rica Rift. *Nature* **300**:594-598.
- 1983 11. Mottl, M.J. Metabasalts, axial hot springs, and the structure of hydrothermal systems at mid-ocean ridges. *Geol. Soc. Amer. Bull.* **94**:161-180.
12. Mottl, M.J., R.N. Anderson, W.J. Jenkins, and J.R. Lawrence. Chemistry of waters sampled from basaltic basement in Deep Sea Drilling Project Holes 501, 504B, and 505B. In Cann, J.R., Langseth, M.G., Honnorez, J., Von Herzen, R.P., White, S.M., et al., *Init. Repts. DSDP* **69**:475-483.
13. Mottl, M.J., J.R. Lawrence, and L.D. Keigwin. Elemental and stable isotopic composition of pore waters and carbonate sediments from Deep Sea Drilling Project Sites 501/504 and 505. In Cann, J.R., Langseth, M.G., Honnorez, J., Von Herzen, R.P., White, S.M., et al., *Init. Repts. DSDP* **69**:461-473.
14. Hart, S.R., and M.J. Mottl. Alkali and Sr isotope geochemistry of waters collected from basaltic basement, Deep Sea Drilling Project Hole 504B. In Cann, J.R., Langseth, M.G., Honnorez, J., Von Herzen, R.P., White, S.M., et al., *Init. Repts. DSDP* **69**:487-494.

15. Mottl, M.J. Hydrothermal Processes at Seafloor Spreading Centers: Application of Basalt-Seawater Experimental Results. In *Hydrothermal Processes at Seafloor Spreading Centers* (P.A.Rona, K. Bostrom, L. Laubier, and K.L. Smith, Jr., eds.), pp.199-224, Plenum, NY, 796 pp.
- 1984 16. Seyfried, W.E., Jr., D.R. Janecky, and M.J. Mottl. Alteration of the oceanic crust: implications for geochemical cycles of lithium and boron. *Geochim. Cosmochim. Acta* **48**:557-569.
17. Rona, P.A., G. Thompson, M.J. Mottl, J.A. Karson, W.J. Jenkins, D. Graham, M. Mallette, K. Von Damm, and J.M. Edmond. Hydrothermal activity at the Trans-Atlantic Geotraverse hydrothermal field, Mid-Atlantic Ridge crest at 26°N. *J. Geophys. Res.* **89**:11365-11377.
- 1985 18. Mottl, M.J., E.R.M. Druffel, S.R. Hart, J.R. Lawrence, and E. Saltzman. Chemistry of hot waters sampled from basaltic basement in Hole 504B, Deep Sea Drilling Project Leg 83, Costa Rica Rift. In Anderson, R.N., Honnorez, J., Becker, K., et al., *Init. Repts.DSDP* **83**:315-328.
19. Thompson, G., M.J. Mottl, and P.A. Rona. Morphology, mineralogy and chemistry of hydrothermal deposits from the TAG area, 26°N Mid-Atlantic Ridge. *Chem. Geol.* **49**:243-257.
20. Jannasch, H.W., and M.J. Mottl. Geo-microbiology of deep sea hydrothermal vents. *Science* **229**:717-725.
- 1986 21. McConachy, T.F., R.D. Ballard, M.J. Mottl, and R.P. Von Herzen. Geologic form and setting of a hydrothermal vent field at lat 10°56'N, East Pacific Rise: a detailed study using ANGUS and ALVIN. *Geology* **14**:295-298.
22. Palmer, D.R., P.A. Rona, and M.J. Mottl. Acoustic imaging of high-temperature hydrothermal plumes at seafloor spreading centers. *J. Acoustical Soc. Amer.* **80**:888-898.
- 1987 23. Delaney, J.R., D.W. Mogk, and M.J. Mottl. Quartz-cemented breccias from the Mid-Atlantic Ridge: samples of a high-salinity hydrothermal upflow zone. *J. Geophys. Res.* **92**:9175-9192.
24. Cole, D.R., M.J. Mottl, and H. Ohmoto. Isotopic exchange in mineral-fluid systems. II. Oxygen and hydrogen isotopic investigation of the experimental basalt-seawater system. *Geochim. Cosmochim. Acta.* **51**:1523-1538.
25. Mottl, M.J. Constraints on the formation of polymetallic sulfide deposits along the mid-ocean ridge axis. *Beitrage zur Meerestechnik*, Nr. 11, Technical University of Clausthal, F.R.G., pp. 119-138.
- 1988 26. Langseth, M.G., M.J. Mottl, M.A. Hobart, and A. Fisher. The distribution of geothermal and geochemical gradients near DSDP Site 501/504: implications for hydrothermal circulation in the oceanic crust. In Becker, K., Sakai, H., et al., *Proc. ODP, Init. Repts.* **111**:23-32.
27. Mottl, M.J., H. Sakai, H. Masuda, and H. Kawahata. Chemistry of waters from basement in Hole 504B. In Becker, K., Sakai, H., et al., *Proc. ODP, Init. Repts.* **111**:68-86.
- 1989 28. Becker, K., and 24 others. Drilling Deep into young oceanic crust, Hole 504B, Costa Rica Rift. *Rev. Geophys.* **27**:79-102.
29. Mottl, M.J. Hydrothermal convection, reaction, and diffusion in sediments on the Costa Rica Rift flank: pore-water evidence from ODP Sites 677 and 678. In Becker, K., Sakai, H., et al., *Proc. ODP, Sci. Results.* **111**:195-213.
- 1990 30. Mottl, M.J. Submarine hot springs, cold seeps, and serpentinite diapirs on the Pacific Rim. *Proceedings, Pacific Rim Congress 90*, Vol. 2:93-102 (Australian Institute of Mining and Metallurgy).

31. Mottl, M.J., and J.M. Gieskes. Chemistry of waters sampled from oceanic basement boreholes, 1979-1988. *J. Geophys. Res.* **95**:9327-9342.
32. Fisher, A.T., K. Becker, T.N. Narasimhan, M.G. Langseth, and M.J. Mottl. Passive, off-axis convection through the southern flank of the Costa Rica Rift. *J. Geophys. Res.* **95**:9343-9370.
33. Mottl, M.J., and T.F. McConachy. Chemical processes in buoyant hydrothermal plumes on the East Pacific Rise near 21°N. *Geochim. Cosmochim. Acta* **54**:1911-1927.
- 1991 34. Mottl, M.J. Sampling and analysis of particles from buoyant hydrothermal plumes. In Hurd, D.C., and Spencer, D.W. (eds.), *Marine Particles: Analysis and Characterization*, Geophysical Monograph **63**:281-283 (American Geophysical Union).
- 1992 35. Fryer, P., and M.J. Mottl. Lithology, mineralogy, and origin of serpentinite muds recovered from Conical and Torishima forearc seamounts: results of Leg 125 drilling. In Fryer, P., Pierce, J., Stokking, L.B., et al., *Proc. ODP, Sci. Results* **125**:343-362.
36. Mottl, M.J. Pore waters from serpentinite seamounts in the Mariana and Izu-Bonin forearcs, Leg 125: evidence for volatiles from the subducting slab. In Fryer, P., Pierce, J., Stokking, L.B., et al., *Proc. ODP, Sci. Results* **125**:373-385.
37. Mottl, M.J., and J.C. Alt. Data report: minor and trace element and sulfur isotopic composition of pore waters from Sites 778 through 786. In Fryer, P., Pierce, J., Stokking, L.B., et al., *Proc. ODP, Sci. Results* **125**:683-688.
38. Davis, E.E., M.J. Mottl, A.T. Fisher (eds.), *Proceedings of the Ocean Drilling Program, Initial Reports* **139**: College Station, TX, 1026 pp.
39. Davis, E.E., D.S. Chapman, M.J. Mottl, W.J. Bentkowski, K. Dadey, C. Forster, R. Harris, S. Nagihara, K. Rohr, G. Wheat, and M. Whiticar. FlankFlux: an experiment to study the nature of hydrothermal circulation in young oceanic crust. *Canadian J. Earth Sci.* **29**:925-952.
40. Resing, J.A., and M.J. Mottl. Determination of manganese in seawater using flow injection analysis with online preconcentration and spectrophotometric detection. *Analytical Chemistry* **64**:2682-2687.
- 1993 41. Bemis, K.G., R.P. Von Herzen, and M.J. Mottl. Geothermal heat flux from hydrothermal plumes on the Juan de Fuca Ridge. *J. Geophys. Res.* **98**:6351-6365.
42. Lupton, J.E., E.T. Baker, M.J. Mottl, F.J. Sansone, C.G. Wheat, J.A. Resing, G.J. Massoth, C. Measures, and R.A. Feely. Chemical and physical diversity of hydrothermal plumes along the East Pacific Rise, 8°45'N to 11°50'N. *Geophys. Res. Lett.* **20**:2913-2916.
- 1994 43. Wheat, C.G., and M.J. Mottl. Hydrothermal circulation, Juan de Fuca Ridge eastern flank: factors controlling basement water composition. *J. Geophys. Res.* **99**:3067-3080.
44. Ginster, U., M.J. Mottl, and R.P. Von Herzen. Heat flux from black smokers on the Endeavour and Clefth segments, Juan de Fuca Ridge. *J. Geophys. Res.* **99**:4937-4950.
45. Mottl, M.J., and C.G. Wheat. Hydrothermal circulation through mid-ocean ridge flanks: fluxes of heat and magnesium. *Geochim. Cosmochim. Acta* **58**:2225-2237.

46. Butterfield, D.A., R.E. McDuff, M.J. Mottl, M.D. Lilley, G.J. Massoth, and J.E. Lupton. Gradients in the composition of hydrothermal fluids from the Endeavor segment vent field: phase separation and brine loss. *J. Geophys. Res.* **99**:9561-9583.
47. Mottl, M.J., Davis, E.E., Fisher, A.T., and Slack, J.F. (eds.). *Proceedings of the Ocean Drilling Program, Scientific Results* **139**: College Station, TX, 772 pp.
48. Wheat, C.G., and M.J. Mottl. Data Report: trace metal composition of pore water from Sites 855 through 858, Middle Valley, Juan de Fuca Ridge. *Proc. ODP, Sci. Results* **139**:749-755.
49. Wheat, C.G., J. Boulegue, and M.J. Mottl. A technique for obtaining pore-water chemical composition from indurated and hydrothermally altered sediment and basalt: the Ground Rock Interstitial Normative Determination (GRIND). *Proc. ODP, Sci. Results* **139**:429-437.
50. Mottl, M.J., C.G. Wheat, and J. Boulegue. Timing of ore deposition and sill intrusion at Site 856: evidence from stratigraphy, alteration, and sediment pore water composition. *Proc. ODP, Sci. Results* **139**:679-693.
51. Baker, E.T., R.A. Feely, M.J. Mottl, F.T. Sansone, C.G. Wheat, J.A. Resing, and J.E. Lupton. Hydrothermal plumes along the East Pacific Rise, 8°40' to 11°50'N: Plume distribution and relationship to the apparent magmatic budget. *Earth Plan. Sci. Lett.* **128**:1-17.
- 1995 52. Seyfried, W.E., Jr., and M.J. Mottl. Geologic setting and chemistry of deep-sea hydrothermal vents. In *Microbiology of Deep-Sea Hydrothermal Vents* (D.M. Karl, ed.), pp. 1-34, Telford Press, New Jersey, 299 pp.
53. Mottl, M.J., F.T. Sansone, C.G. Wheat, J.A. Resing, E.T. Baker, and J.E. Lupton. Manganese and methane in hydrothermal plumes along the East Pacific Rise, 8°40' to 11°50'N. *Geochim. Cosmochim. Acta* **59**:4147-4165.
54. Fryer, P., M. Mottl, L. Johnson, J. Haggerty, S. Phipps, and H. Maekawa. Serpentine bodies in the forearcs of western Pacific convergent margins: origin and associated fluids. In *Active Margins and Marginal Basins of the Western Pacific* (B. Taylor and J. Natland, eds.), pp. 259-279, Geophysical Monograph **88**, Amer. Geophys. Union, Wash., D.C., 417 pp.
- 1996 55. Wheat, C.G., R.A. Feely, and M.J. Mottl. Phosphate removal by oceanic hydrothermal processes: an update of the phosphate budget in the oceans. *Geochim. Cosmochim. Acta* **60**:3593-3608.
- 1997 56. Wheat, C.G., M.J. Mottl, E.T. Baker, R.A. Feely, J.E. Lupton, F.J. Sansone, J.A. Resing, G.T. Lebon, and N.C. Becker. Chemical plumes from low-temperature hydrothermal venting on the eastern flank of the Juan de Fuca Ridge. *J. Geophys. Res.* **102**:15433-15446.
57. Fujimoto, H., K. Tamaki, M.J. Mottl, T. Yamazaki, C. Honsho, T. Kodera, and H. Yamamoto. Diving and geophysical survey of the Mariana Forearc and the Mariana Trough—Yokosuka Mariana Cruise 1996 Leg 1. *JAMSTEC J. of Deep Sea Res.* **13**:95-101.
58. Fryer, P., and M.J. Mottl, M.J. *Shinkai 6500* investigations of a resurgent mud volcano on the southeastern Mariana forearc. *JAMSTEC J. of Deep Sea Res.* **13**:103-114.
- 1998 59. Mottl, M.J., G. Wheat, E. Baker, N. Becker, E. Davis, R. Feely, A. Grehan, D. Kadko, M. Lilley, G. Massoth, C. Moyer, and F. Sansone. Warm springs discovered on 3.5 Ma oceanic crust, eastern flank of the Juan de Fuca Ridge. *Geology* **26**:51-54.

60. Karsten, J.L., N. Becker, M.J. Mottl, and C.G. Wheat. Petrology of Baby Bare and Mama Bare Lavas. *Geophys. Res. Lett.* **25**:117-120.
61. Sansone, F.J., M.J. Mottl, E.J. Olson, C.G. Wheat, and M.D. Lilley. CO₂-depleted fluids from mid-ocean ridge-flank hydrothermal springs. *Geochim. Cosmochim. Acta* **62**:2247-2252.
- 1999 62. Fryer, P., C.G. Wheat, and M.J. Mottl. Mariana blueschist mud volcanism: implications for conditions within the subduction zone. *Geology* **27**:103-106.
63. Elderfield, H., C.G. Wheat, M.J. Mottl, C. Monnin, and B. Spiro. Fluid and geochemical transport through oceanic crust: a transect across the eastern flank of the Juan de Fuca Ridge. *Earth Plan. Sci. Lett.* **172**:151-165.
- 2000 64. Wheat, C.G., and M.J. Mottl. Composition of pore and spring waters from Baby Bare: global implications of geochemical fluxes from a ridge flank hydrothermal system. *Geochim. Cosmochim. Acta* **64**:629-642.
65. Wheat, C.G., H. Elderfield, M.J. Mottl, and C. Monnin. Chemical composition of basement fluids within an oceanic ridge flank: implications for along-strike and across-strike hydrothermal circulation. *J. Geophys. Res.*, **105**:13437-13447.
66. Becker, N.C., C.G. Wheat, M.J. Mottl, J.L. Karsten, and E.E. Davis. A geological and geophysical investigation of Baby Bare, locus of a ridge flank hydrothermal system in the Cascadia Basin. *J. Geophys. Res.* **105**:23557-23568.
67. Mottl, M.J., C.G. Wheat, C. Monnin, and H. Elderfield. Data Report: trace elements and isotopes in pore water from Sites 1023 through 1032, eastern flank of the Juan de Fuca Ridge. *Proc. ODP, Sci. Results* **168**:105-115.
- 2001 68. Monnin, C., B. Dupre, H. Elderfield, M.J. Mottl, and C.G. Wheat. Barium geochemistry in sediment pore waters and formation waters of the oceanic crust on the eastern flank of the Juan de Fuca Ridge (ODP Leg 168). *Geochemistry, Geophysics, Geosystems* **2** (1/8/01): paper no. 2000GC000073 at www.g-cubed.org.
69. Rudnicki, M.D., H. Elderfield, and M.J. Mottl. Pore fluid advection and reaction in sediments of the eastern flank, Juan de Fuca Ridge, 48°N. *Earth Plan. Sci. Lett.* **187**:173-189.
70. Butterfield, D.A., B.K. Nelson, C.G. Wheat, M.J. Mottl, and K.K. Roe. Evidence for basaltic Sr in midocean ridge-flank hydrothermal systems and implications for the global oceanic Sr isotope balance. *Geochim. Cosmochim. Acta* **65**:4141-4153.
- 2002 71. Wheat, C.G., M.J. Mottl, and M Rudnicki. Trace element and rare-earth element composition of a low-temperature ridge-flank hydrothermal spring. *Geochim. Cosmochim. Acta* **66**:3693-3705.
- 2003 72. Mottl, M.J. Partitioning of energy and mass fluxes between mid-ocean ridge axes and flanks at high and low temperature. In *Energy and Mass Transfer in Marine Hydrothermal Systems* (P.E.Halbach, V. Tunnicliffe, and J.R. Hein, eds.), pp. 271-286, Dahlem University Press, Berlin, 365 pp.
73. Fisher, A.T., E.E. Davis, M. Hutnak, V. Spiess, L. Zuhlsdorff, A. Cherkaoui, L. Christiansen, K. Edwards, B. Macdonald, H. Villinger, M.J. Mottl, C.G. Wheat, and K. Becker. Hydrothermal recharge and discharge across 50 km guided by seamounts on a young ridge flank. *Nature* **421**:618-621.
74. Wheat, C.G., J. McManus, M.J. Mottl, and E. Giambalvo. Oceanic phosphorus imbalance: the magnitude of the ridge-flank hydrothermal sink. *Geophys. Res. Letters* **30**(17):1895, doi:10.1029/2003GL017318.

75. Mottl, M.J., S.C. Komor, P. Fryer, and C.L. Moyer. Deep-slab fluids fuel extremophilic *Archaea* on a Mariana forearc serpentinite mud volcano: Ocean Drilling Program Leg 195. *Geochemistry, Geophysics, Geosystems* **4**(11):9009, doi:10.1029/2003GC000588, 14pp.
- 2004 76. Spinelli, G.A., L. Zuehlsdorff, A.T. Fisher, C.G. Wheat, M. Mottl, V. Spieß, and E.R. Giambalvo. Hydrothermal seepage patterns above a buried basement ridge, eastern flank of the Juan de Fuca Ridge. *J. Geophys. Res.* **109**:B01102, doi:10.1029/2003JB002476, 19pp.
77. Wheat, C.G., and M.J. Mottl. Geochemical fluxes through mid-ocean ridge flanks. Ch. 19, pp.627-658, in *Hydrogeology of the Oceanic Lithosphere* (E.E. Davis and H.E. Elderfield, eds.), Cambridge University Press, 706p.
78. Mottl, M.J., C.G. Wheat, P. Fryer, J.Gharib, and J.B. Martin. Chemistry of springs across the Mariana forearc shows progressive devolatilization of the subducting plate. *Geochim. Cosmochim. Acta* **68**:4915-4933.
79. Wheat, C.G., M.J. Mottl, A.T. Fisher, D. Kadko, E.E. Davis, and E. Baker. Heat flow through a basaltic outcrop on a sedimented young ridge flank. *Geochemistry, Geophysics, Geosystems* **5**(12):Q12006, doi:10.1029/2004GC000700, 18pp.
- 2005 80. Savov, I.P., S. Guggino, J.G. Ryan, P. Fryer, and M.J. Mottl. Geochemistry of serpentinite muds and metamorphic rocks from the Mariana forearc, ODP Sites 1200 and 778-779, South Chamorro and Conical Seamounts. *Proc. ODP, Sci. Results* **195**:1-49 (online at http://www-odp.tamu.edu/publications/195_SR/103/103.htm).
81. Mottl, M.J. Data report: composition of pore water from Site 1202, Southern Okinawa Trough. *Proc. ODP, Sci. Results* **195** (online at http://www-odp.tamu.edu/publications/195_SR/107/107.htm).
82. Komor, S.C., and M.J. Mottl. Data report: stable isotope compositions of dissolved inorganic carbon, methane, sulfate, and sulfide in pore water from the South Chamorro serpentinite mud volcano, Mariana subduction complex. *Proc. ODP, Sci. Results* **195** (online at http://www-odp.tamu.edu/publications/195_SR/109/109.htm).
- 2006 83. Komor, S.C., and M.J. Mottl. Data report: Pore Water Chemical and Isotopic Compositions from the West Philippine Basin, Ocean Drilling Program Site 1201. *Proc. ODP, Sci. Results* **195** (online at http://www-odp.tamu.edu/publications/195_SR/110/110.htm).
84. Fryer, P., J. Gharib, K. Ross, I. Savov, and M.J. Mottl. Variability in serpentinite mudflow mechanisms and sources: ODP drilling results on Mariana forearc seamounts. *Geochemistry, Geophysics, Geosystems* **7**(8):Q08014, doi:10.1029/2005GC001201, 15 pp.
- 2007 85. Mottl, M.J., B.T. Glazer, R.I. Kaiser, and K.J. Meech. Water and Astrobiology. *Chemie der Erde* **67**:253-282.
- 2008 86. Wheat, C.G., P. Fryer, A.T. Fisher, S. Hulme, H. Jannasch, M.J. Mottl, and K. Becker. Borehole observations of fluid flow from South Chamorro Seamount, an active serpentinite mud volcano in the Mariana forearc. *Earth Planet. Sci. Lett.* **267**:401-409.
87. Bickford, M.E., D.I. Siegel, M.J. Mottl, B.M. Hill, and J. Shosa. Strontium isotopic relations among pore fluids, serpentine matrix, and harzburgite clasts, South Chamorro Seamount, Mariana forearc. *Chem. Geol.* **256**:24-32.
- 2009 88. Mottl, M.J. (2009) Highest pH? *Geochemical News* 141 (Oct.), 3 pp.

<http://www.geochemsoc.org/publications/geochemicalnews/gn141oct09/highestph.htm>.

- 2010 89. Hulme, S., C.G. Wheat, P. Fryer, and M.J. Mottl. Pore-water chemistry of the Mariana serpentinite mud volcanoes: a window to the seismogenic zone. *Geochemistry, Geophysics, Geosystems* **11**:1, doi:10.1029/2009GC002674.
90. Expedition 313 Scientists. New Jersey Shallow Shelf: shallow-water drilling of the New Jersey continental shelf: global sea level and architecture of passive margin sediments. *IODP Prel. Rept.*, **313**. doi:10.2204/iodp.pr.313.2010
91. Mountain, G., Proust, J.-N., and the Expedition 313 Science Party. The New Jersey margin scientific drilling project (IODP Expedition 313): untangling the record of global and local sea-level changes. *Sci. Drill.*, **10**:26–34. doi:10.2204/iodp.sd.10.03.2010
92. Mountain, G., Proust, J.-N., McInroy, D., Cotterill, C., and the Expedition 313 Scientists. *Proc. IODP*, **313**: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/iodp.proc.313.2010
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TOTALS: 103 papers (34 first-authored) in 39 years from 1977-2015 = 2.64/yr.
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96 abstracts (42 first-authored) in 39 years from 1974-2013 = 2.5/yr.

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