Charles Geoffrey Wheat

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Education:

1986-90	Ph.D. (Oceanography), University of Washington
1983-86	M.S. (Oceanography), University of Washington.
1979-83	B.S. (Mathematics), University of New Hampshire.

Honors:

2009	Fellow of the Geological Society of America
1983-84	Egtvedt Scholarship
1983	David Drew Award
1982	Phi Beta Kappa Honor Society

Professional Experience:

2004-	Research Professor	University of Alaska Fairbanks
1999-	Adjunct Scientist	Monterey Bay Aquarium Research Institute
1995-	Affiliate Graduate Faculty	University of Hawaii
1994-	Regional Coordinator	West Coast and Polar Regions Undersea Research Center (NURP)
1999-2004	Research Associate Professor	University of Alaska Fairbanks
1999	Visiting Professor	Université Paul Sabatier, Toulouse, France
1994-99	Research Assistant Professor	University of Alaska Fairbanks
1993-95	Research Assistant Professor	University of Hawaii
1993-95	Marine Coordinator (SOEST)	University of Hawaii
1991-93	Post-Doctoral Fellow	University of Hawaii

Professional Societies:

American Geophysical Union	Geological Society of America
Marine Technology Society	Oceanography Society

Research Interests:

Use chemical tracers to elucidate water-rock processes in different physical, geochemical, and biological settings, examine effects of fluid flow on diagenetic processes and develop transport-reaction models for these geochemical processes, determine mechanisms of diagenetic reactions, evaluate geochemical cycles and crustal evolution, and conceive experimental approaches to solve geochemical problems.

Peer-Reviewed Publication:

In the last three years I have 16 peer-reviewed publications of which 5 were first authored. I have published 75 peer-reviewed manuscripts.

Scientific Expeditions:

I have participated in 65 expeditions, six of which involved the deep ocean drilling (ODP Legs 139 and 168 and IODP Legs 301, 315, 327, 322); 40 of which included a submersible component.

Five Publications Most Closely Related to This Project:

Wheat, C. G., H. W. Jannasch, A. T. Fisher, K. Becker, J. Sharkey, and S. Hulme. 2010. Subseafloor seawater basalt microbe reactions: Continuous sampling of borehole fluids in a ridge flank environment, Geochem. Geophys. Geosyst., 11, Q07011, doi:10.1029/2010GC003057.

Fisher, A. T., and **C. G. Wheat**. 2010. Seamounts as conduits for massive fluid, heat, and solute fluxes on ridge flanks, *Oceanography*, 23 (1), 74-87.

Wheat, C. G., P. Fryer, A. T. Fisher, S. Hulme, H. Jannasch, M. J. Mottl, K. Becker. 2008. Borehole observations of fluid flow from South Chanorro Seamount, an active serpentinite mud volcano in the Mariana forearc, Earth, Planet. Sci. Lett., 267, 401-409, doi:10.1016/j.epsl.2007.11.057.

Wheat, C. G., and A. T. Fisher. 2008. Massive, low-temperature hydrothermal flow from a basaltic outcrop on 23 Ma seafloor of the Cocos Plate: Chemical constraints and implications, Geochem. Geophys. Geosyst., 9, Q12O14, doi:10.1029/2008GC002136.

Edwards, K. J., **C. G. Wheat**, J. H. Sylvan. 2011. Under the sea: microbial life in volcanic oceanic crust, *Nature Rev. Microbiology*, 9, 1-10, doi:10.1038/nrmicro2647.

Five Other Significant Publications:

Edwards, K.J., A. T. Fisher, and **C. G. Wheat**. 2012. The deep subsurface biosphere in igneous ocean crust: frontier habitats for microbiological exploration, *Frontiers in Microbiology*, 3, 1-11, doi: 10.3389/fmicb.2012.00008.

Wheat, C.G., Jannasch, H.W., Kastner, M., Hulme, S., Cowen, J., Edwards, K.J., Orcutt, B.N., and Glazer, B., 2011. Fluid sampling from oceanic borehole observatories: design and methods for CORK activities (1990-2010). *In* Fisher, A.T., Tsuji, T., Petronotis, K., and the Expedition 327 Scientists, *Proc. IODP,* 327: Tokyo (Integrated Ocean Drilling Program Management International, Inc.). doi:10.2204/ iodp.proc.327.109.2011

Orcutt, B. N., W. Bach, K. Becker, A. T. Fisher, M. Hentscher, B. M. Toner, **C. G. Wheat**, and K. J. Edwards. 2010. Colonization of subsurface microbial observatories deployed in young ocean crust, The *ISME J*., 1-12, doi:10.1038/ismej.2010.157

Cowen, J. P., D. A. Copson, J. Jolly, C.-C. Hsieh, H.-T. Lin, B. T. Glazer, and **C. G. Wheat**. 2012. Advanced Instrument System for Real-Time and Time-Series Microbial Geochemical Sampling of the Deep (Basaltic) Crustal Biosphere, Deep sea Research I, 61, 43-56, doi:10.1016/j.dsr.2011.11.004.

Kitts, C. W. Kirkwood, and **C. G. Wheat**. 2010. An interdisciplinary, marine robotics research and education program, *Current, the J. of Marine Education*, 26 (3), 7-10.

Other Scientific Collaborators Over the Past Four Years

K. Becker (U Miami), E. Davis (PGC, Canada), K, Edwards (USC), A. T. Fisher (UCSC), P. Fryer (UH), P Girguis (Harvard), H. Jannasch (MBARI), D. Kelley (U WA); J. McManus (OSU), J. Seewald (WHOI), M. Tivey (WHOI)

Graduate Advisor: Russell E. McDuff (U WA) Postdoc. Advisor: Michael J. Mottl (U HI)

Doctoral students (unofficially): Samuel Hulme (MLML)

Post Doctoral Fellows: Katie Inderbitzen (Current)

Synergistic Activities:

A combination of my work and A. Fisher's work on ridge flank hydrothermal systems provides the foundation for a graduate level course "Topics in Hydrogeology" at UCSC. H. Jannasch, P. Girguis, and I are developing a variety of continuous water samplers. Modifications to the sampler are now being tested in rivers and estuaries and for microbial processes. I have been involved in the NSF's REU, MBARI's Summer Intern, and MATE's Intern Programs, all of which included women and minority students. I am actively developing educational modules for K-8 (RETINA) that focus on hands-on technological applications to scientific advances. I participate regularly at several K-8 schools and I am in the process of formalizing the modules and making them available on the web.