CURRICULUM VITAE
John R. Delaney
2008

Professor of Oceanography
Jerome M. Paros Endowed Chair in Sensor Networks
University of Washington
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Education

1977 Ph.D. Geological Sciences, University of Arizona, Tucson, Arizona
1967 M.S. Geological Sciences, University of Virginia, Charlottesville, Virginia
1964 B.A. Geology, Lehigh University, Bethlehem, Pennsylvania

Dissertation Title

Abundance and Distribution of Volatiles in the Glassy Rinds of Submarine Pillow Basalts

Employment

1988-present	**Professor**, School of Oceanography, University of Washington
1983-1988	**Associate Professor**, School of Oceanography, University of Washington
1982-1983	**Research Associate Professor**, School of Oceanography, U of Washington
1977-1982	**Research Assistant Professor**, School of Oceanography, U of Washington
1977-1980	**Visiting Scientist**, Lunar and Planetary Institute and Johnson Space Center
1968-1977	**Mineral Exploration Geologist & Graduate Student**, Tucson, Arizona
1965-1967	**Mineral Exploration Geologist**, North American Exploration, Inc., Charlottesville, VA

Scientific Expeditions

2008	Chief Scientist, R/V *Thomas G. Thompson*, AUV *Sentry*, InSite08 OOI Mapping Cruise
2005	Co-Chief Sci. R/V *Thomas G. Thompson*, ROV *Jason 2*, VISIONS05 Keck Proto-Neptune Observatory
2004	Co-Chief R/V *Thomas G. Thompson*, Keck Observatory Cruise
2003	Chief Scientist R/V *Thomas G. Thompson*, ROV *ROPOS*, Establish KECK Observatory on Endeavour
2002	Chief Scientist R/V *Western Flyer*, R/V *Tiburon*. KECK proto-Neptune Observatory Cruise-Endeavour & Nootka
	Co-Chief R/V *Thomas G. Thompson*, Mapping Endeavour to Nootka & mud volcanoes

2000 R/V *Atlantis*, HOV *Alvin*, RIDGE Observatory cruise, Endeavour Segment
R/V *Atlantis*, HOV *Alvin*, ROV *Jason*, RIDGE Observatory cruise, Endeavour Segment

1980-2000 24 cruises as Chief Scientist, including 12 using HOV *Alvin*, 7 using ROV *Jason* and 3 using the Canadian ROV *ROPOS.*

Awards and Honors:

2006 Jerome M. Paros Endowed Chair in Sensor Networks
1979-1980 Teaching Award, University of Washington
1991-1992 Distinguished Research Award, University of Washington
1995 Fellow, American Geophysical Union.

Professional Activities:

2007-present Principal Investigator and Director, Ocean Observatories Initiative Regional Scale Nodes
2005-present and Member Health and Security Panel, under the Board on Environmental Studies and Toxicology, National Research Council. (Rita Colwell/Mark Wilson, Chairs)
2004-2006 Executive Steering Committee for NSF Ocean Observatories Initiative, Member
2003-present Member NASA Science Definition Team for the Jupiter Icy Moons Orbiter Mission
2000 Testimony before the House Science Subcommittee on Basic Research and the House Science Subcommittee on Energy and the Environment, July 27, 2000,
1999-2007 NEPTUNE Program, Director
1999-2000 NASA Committee to plan the Europa Orbiter Mission.
1998-2004 Committee Dynamic Earth and Ocean Systems (DEOS), Charter Member– Designed Ocean Observatories program for NSF
1992-1994 NAE Committee on Undersea Vehicles and National Needs, Member.
1990-1994 InterRidge Founder and First - Chair. An International Oganization of >20 Nations focused Ridge Crest Research
1988-1992 RIDGE Steering Committee, First Chair.
1987 NAS Workshop on the mid-oceanic ridge: a dynamic global system, Convenor.
1985 NATO Advanced research institute on marine resource assessment.
1984-1987 NSF Oceanography panel, Marine geology and geophysics.
1985 Workshop on long-term ocean bottom observatories, Convenor.
1983-1986 JOI U.S. Science advisory committee for the Ocean Drilling Program
1983-1984 JOI U.S. Shipboard science sub-committee, Chairman.
1983-1987 JOIDES Lithosphere panel.
1982 Workshop on long-term ocean bottom observatories, Co-Convenor.

Professional Societies
American Geophysical Union (AGU)
Geological Society of America (GSA)

Graduate Students Advised and Postdoctoral Scholars Hosted
Students: V. Baht, A. Daly, B. Holmen, J. Karsten, D. Kelley, D. Naidoo, J. Palmer, C. Parker, M. Rovetta, M.K. Tivey, S. Veirs, K.F. Shaw, B. Kristall, D. Glickson, K. Hoffman, K. Ludwig

Postdocs: P. Nehlig, D. Kelley

Graduate Advisor
Dr. J. Ganguly, University of Arizona

Publications

Glickson, D.A., D.S. Kelley, **J.R. Delaney,** M.J. Elend, M.D. Hannington, and J.B. Gill, **2008**, Hydrothermal and geologic characteristics of the Sasquatch Hydrothermal Field, Endeavour Segment, Juan de Fuca Ridge, in revision.

Grochow, K., M. Stoermer, D.S. Kelley, **J.R. Delaney**, E. Lazowska, **2008**, COVE: A collaborative ocean visualization environment. IEEE Transactions on Visualization and Computer Graphics, in review

Glickson, D.A., D.S. Kelley, **J.R. Delaney**, **2007**, Geology and hydrothermal evolution of the Mothra Hydrothermal Field, Endeavour Segment, Juan de Fuca Ridge. Geochem. Geophys. Geosys, 8(6), doi: 10.1029/2007GC001588.

Delaney, J.R., and A.D. Chave, **2006**, NEPTUNE: Implementation of an ocean sciences paradigm shift, *Proc. SSC06*, Dublin, Ireland, Paper SSC-024, 6 pp.

Chave, A.D., M. Arrott, L. Smarr, J.A. Orcutt, E. Lazowska, **J.R. Delaney**, and M. Abbott, **2006**, LOOKING: Cyberinfrastructure for ocean observatories, Proc. SSC06, Dublin, Ireland, Paper SSC-029, 6 pp.

Kristall, B., D.S. Kelley, M.D. Hannington, **J.R. Delaney**, **2006,** Growth history of an intermediate temperature, diffusely venting sulfide pinnacle from the Juan de Fuca Ridge: A petrological and geochemical study. *Geochemistry, Geophysics, Geosystems*, Vol. 7. Q07001, doi: 10.1029/2005GC001166

Chave, A.D., B. St. Arnaud, M. Abbott, J.R. Delaney, R. Johnson, E. Lazowska, A.R. Maffei, J.A. Orcutt, and L. Smarr, A management concept for ocean observatories based on web services, *Proc. Oceans'04/Techno-Ocean'04*, Kobe, Japan, 9-12 Nov 2004, 7 pp.

Schrenk M.O., D.S. Kelley, J.R. Delaney, J.A Baross **2003** Incidence and diversity of microorganisms within the walls of an active deep-sea sulfide chimney. *Appl. Enviro. Micro.,* 69, 3580-3592.

Delaney, J., C. Barnes, P. Beauchamp, A. Chave, J. Madden, and M. McNutt, Project NEPTUNE: An interactive, regional cabled ocean observatory in the northeast Pacific, *Proc. IEEE Oceans 2003*, San Diego, CA, 22-26 Sep 2003, 1231-1235.

Kelley, D.S., J.A. Baross, **J.R. Delaney 2002,** Volcanoes, Fluids, and Life at Mid-Ocean Ridge Spreading Centers. *Ann. Rev. Earth. Planet. Sci.,* 30, 385-491.

Karson, J.A., M.A. Tivey, and **J.R. Delaney 2002,** Internal structure of uppermost oceanic crust along the western Blanco transform scarp; implications for subaxial accretion and deformation at the Juan de Fuca Ridge. *J. Geophys. Res.,* 107, 9-17.

Kelley, D.S**., J.R. Delaney**, and D.A. Yoerger, **2001,** Geology and venting characteristics of the Mothra Hydrothermal Field, Endeavour Segment, Juan de Fuca Ridge, *Geology*, 29, 959-962.

Delaney, J.R., D.S. Kelley, E. A. Mathez, D.R. Yoerger, J. Baross, M. Schrenk, M.K. Tivey, J. Kaye, V. Robigou **2001** Edifice Rex Sulfide Recovery Project: Analysis of a Sulfide-Microbial Habitat from a Submarine Hydrothermal System, *EOS*, *Trans. Amer. Geophys. Union,* 82, 67-73.

Thomson, R.E. and **J.R. Delaney 2001**, Evidence for a weakly stratified Europan ocean sustained by seafloor heat flux, *J. Geophys. Res*., 106, 12,355-12365, 2001.

Yoerger, D.R., D.S. Kelley, and **J.R. Delaney**, **2000** Fine-Scale Three Dimensional Mapping of a Deep-Sea Hydrothermal Vent Site using the Jason ROV System, *J. International Robotics*, 19, 1000-1014.

Delaney, J.R., and A.D. Chave **2000**, NEPTUNE: A fiber-optic telescope to inner space, *Oceanus*, 42, 10-11.

Delaney, J.R., G.R. Heath, A.D. Chave, B.M. Howe, and H. Kirkham **2000**, NEPTUNE: Real-time ocean and earth sciences at the scale of a tectonic plate, Oceanography, 13, 71-83.

Veirs, S.R., R.E. McDuff, M.D. Lilley and **J.R. Delaney 1999**, Locating hydrothermal vents by detecting buoyant, advected plumes. *J. Geophys. Res.,* 104, 12, 29,239-29,247.

Delaney, J.R., D.S. Kelley, M.D. Lilley, D.A. Butterfield, J.A. Baross, R.W. Embley and M. Summit **1998**, The quantum event of oceanic crustal accretion: Impacts of diking at mid-ocean ridges, *Science*, 281, 222-230.

Delaney, J.R., 1998, Floor Show: Forged in volcanoes, nursed on sulfur, the first organisms may have evolved at the bottom of the sea-here and on other celestial bodies, *The Sciences,* July-August 1998, 27-33.

Delaney, J.R., 1998, Life on the seafloor and elsewhere in the solar system. *Oceanus,* 41 (2), 10-13.

Dengliang, G., S.D. Hurst, J.A. Karson, **J.R Delaney 1998.** Computer-aided interpretation of side-looking sonar images from the eastern intersection of the Mid-Atlantic Ridge with the Kane Transform. *J. Geophys. Res.,* 103, 9, 20,997-21,014.

Delaney, J.R., D.S. Kelley, M.D. Lilley, D.A.Butterfield, R.E. McDuff, W.S. Wilcock **1997,** The Endeavour Hydrothermal System I: Cellular circulation above an active cracking front yields large sulfide structures, "fresh" vent water, and hyperthermophilic archae, *RIDGE Events,* 11-19.

Sarrazin, J., V. Robigou, K. Juniper and **J.R. Delaney 1997**, Biological and geological dynamics over four years on a high temperature sulfide structure at the Juan de Fuca Ridge hydrothermal observatory, *Marine Ecology Progress Series*, 153, 5-24.

Wilcock, W.S. and **J.R. Delaney 1996**, Mid-ocean ridge sulfide deposits: evidence for heat extraction from magma chambers or cracking fronts? *Earth Planet. Sci. Let.,* 145, 49-64.

Robigou, V., **J. R. Delaney** and D. Stakes **1993**, The High-Rise hydrothermal vent field, Endeavour Segment, Juan de Fuca Ridge, *Geophys. Res. Lett.,* 20, 1887-1890.

Blank, J. G., **J. R. Delaney** and D.J. Des Marais **1993**, The concentration and isotopic composition of carbon in basaltic glasses from the Juan de Fuca Ridge, Pacific Ocean. *Geochim. Cosmochim. Acta,* 57, 875-887.

Lupton, J.E., D.W. Graham, **J.R. Delaney,** and H.P. Johnson **1993**, Helium isotope variations in Juan de Fuca Ridge basalts. J. Geophys. Res., 20, 1851-1854.

Delaney, J.R., V. Robigou, R. E. McDuff and M. K. Tivey **1992**, Geology of a vigorous hydrothermal system on the Endeavour Segment, Juan de Fuca Ridge, *Jour. Geophys. Res.,* v.97, p.19,663-19,682

Schultz, A., **J. R. Delaney** and R. E. McDuff **1992**, On the partitioning of heat flux between diffuse and point source seafloor venting, *Jour. Geophys. Res.,* 97, 12,299-12,314.

Thomson, R.E., **J. R. Delaney,** R. E. McDuff, D. R. Janecky and J. S. McClain **1992**, Physical characteristics of the Endeavour Ridge hydrothermal plume during July 1988, *J. Geophys. Res.,* 111, 141-154.

Woods, A.W. and **J.R. Delaney 1992**, The heat and fluid transfer associated with the flanges on hydrothermal venting structures, *Earth Planet. Sci. Lett.,* 112, 117-129.

Goldstein, S.J., M.T. Murrell, D.R. Janecky, **J.R. Delaney,** and D.A. Clague **1991,** Geochronology and petrogenesis of MORB from the Juan de Fuca and Gorda ridges by ^{238}U-^{230}Th disequilibrium. *Earth. Planet. Sci. Lett.,* 107, 25-41.

Karsten, J.L., **J.R. Delaney,** M.J. Rhodes, and R.A. Liias **1990**, Spatial and temporal evolution of magmatic systems beneath the Endeavour Segment, Juan de Fuca Ridge; tectonic and petrologic constraints. *J. Geophys. Res.,* 95, 19,235-19,256.

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Goldfarb, M.S and **J.R. Delaney 1988**, Influence of transport properties and phase relationships or seawater on fluid flow in submarine hydrothermal systems*, J. Geophys. Res.,* 93, 4585-4594.

Dixon, J.E., E. Stolper and **J.R. Delaney 1988.** Infrared spectroscopic measurements of CO_2 and H_2O in Juan de Fuca Ridge basaltic glasses. *Earth Planet. Sci. Lett.* 90, 87-104.

Delaney, J.R., D.W. Mogk, and M.J. Mottl **1987**, Quartz-cemented breccias from the Mid-Atlantic Ridge: Samples of a high-salinity hydrothermal upflow zone. *J. Geophys. Res.* 92:9175—92.

Delaney, J. R., F. N. Spiess, S. C. Solomon, R. Hessler, J. L. Karsten, J. A. Baross, R. T. Holcomb, D. Norton, R. E. McDuff, F. L. Sayles, J. Whitehead, D. Abbott and L. Olson **1987**, Scientific rationale for establishing long-term ocean bottom observatory/laboratory systems, *in marine Minerals Resource Assessment Strategies (eds. P.G. Teleki, M.R. Dobson, J.R. Moor and U. von Stackelberg),* 389-411.

Kelley, D. S. and J. R. Delaney, **1987**, Two-phase separation and fracturing in mid-ocean ridge gabbros at temperatures greater than 700°C, *Earth Planet. Sci. Lett.*, 83, 53-66.

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Tivey, M. K. and **J. R. Delaney 1986**, Growth of large sulfide structures on the Endeavour Segment of the Juan de Fuca Ridge, *Earth Planet. Sci. Let.,* 77, 303-317.

Rovetta., M.R., **J.R. Delaney**, and J.D. Blacic **1986,** A record of high-temperature embrittlement of peridotite in CO_2 permeated xenoliths from basalt. *J. Geophys., Res.,* 91, 3841-3848.

Lupton, J.E., **J.R. Delaney,** H.P. Johnson, and M.K., Tivey, **1985,** Entrainment and vertical transport of deep-ocean water by buoyant hydrothermal plumes. *Nature,* 316, 621-623

Tivey, M.K. and **J.R. Delaney, 1985**, Sulfide deposits from the Endeavor segment of the Juan de Fuca Ridge, *Marine Mining,* 5, 165-179.

Lapham, K.E., J.R. Holloway, and **J.R. Delaney, 1984**, Diffusion of H_2O and D_2O in obsidian at elevated temperatures and pressures, *J. of Non-Crystalline Solids,* 67, 179-191.

Eaby, J., D.A. Clague, **J.R. Delaney, 1984,** Sr isotopic variations along the Juan de Fuca Ridge, *J. Geophys. Res.,* 89, 7883-7890.

Johnson, H.P., J.L. Karsten, **J.R. Delaney**, E.E. Davis, R.G. Currie, R.L. Chase, **1983,** A detailed study of the Cobb Offset of the Juan de Fuca Ridge—Evolution of a propagating rift, *J. Geophys Res.,* 88, 2297-2315.

Normark, W.R., J.L. Morton, J.E. Lupton, **J.R. Delaney**, H.P. Johnson, R.A. Koski, D.A. Clague, J.L. Morton, **1983**, Active hydrothermal vents and sulfide deposits on the southern Juan de Fuca Ridge, *Geology,* 11, 158-163.

Sinton, J.M., D.S. Wilson, D.M. Christie, R.N. Hey, **J.R. Delaney, 1983,** Petrologic consequences of rift propagation on oceanic spreading ridges, *Earth Planet. Sci. Let.,*62, 193-207.

Normark, W.R., J.W. Murray, J.E. Lupton, **J.R. Delaney,** H.P. Johnson, R.A. Koski, D.A. Clague, J.L. Morton, **1982,** Polymetallic sulfide deposits and water-column of active hydrothermal vents on the southern Juan de Fuca Ridge, *Mar. Tech. Soc. Journ.,* 16, 46-53.

Delaney, J.R., B.A. Cosens, **1982,** Boiling and metal deposition in submarine hydrothermal systems, *Mar. Tech. Soc. Journ.,* 16, 62-66.

Koski, R.A., W.R. Normark, J.L. Morton, **J.R. Delaney, 1982,** Metal sulfide deposits on the Juan de Fuca Ridge, *Oceanus,* 25, 42-48.

Mehegen, J.M., P.T. Robinson, **J.R. Delaney, 1982**, Secondary mineralization and hydrothermal alternation in the Reydarfjordur drill core, eastern Iceland, *J. Geophys. Res.,* 87, 6511-6524.

Karsten, J.L., J.R. Holloway, **J.R. Delaney, 1982**, Ion microprobe studies of water in silicate melts—temperature-dependent water diffusion in obsidian, *Earth Planet. Sci. Lett.,* 59, 420-428.

Mathez, E.A., **J.R. Delaney**, **1981**, The nature and distribution of carbon in submarine basalts and periodotite nodules, *Earth Planet. Sci. Lett.,* 56, 217-232.

Delaney, J.R., H.P. Johnson, J.L. Karsten, **1981**, The Juan de Fuca Ridge hotspot propagating rift system —new tectonic, geochemical, and magnetic data, *J. Geophys. Res.,* 86, 1747-1750.

Jones, C.J., H.P. Johnson, **J.R. Delaney**, **1981**, Distribution of hydrothermal manganese over the Juan de Fuca Ridge, *Geophys. Res. Ltrs.,* 8, 873-876.

Delaney, J.R., J.L. Karsten, **1981**, Ion microprobe studies of water in silicate melts—concentration-dependent water diffusion in obsidian, *Earth Planet. Sci. Lett.,* 52, 191-202.

Delaney, J.R., D.W. Muenow and M.O. Garcia **1978.** Abundance and distribution of water, carbon and sulfur in the glassy rims of submarine pillow basalts. *Geochim. Cosmochim. Acta*. 42, 581-94.

Recent Research Grants

Principal Investigator and Director, Funding Agency: National Science Foundation via Cooperative Agreement with Consortium for Ocean Leadership. **Title**: Implementing Organization for the Regional Scale Nodes of the Ocean Observatories Initiative. **Date Initiated**: 2007. This project involves the design, engineering and construction of a cabled ocean observatory encompassing five scientifically significant sites on the Juan de Fuca tectonic plate in the Northeast Pacific Ocean. **Outreach website:** www.ooi.washington.edu

Lead PI, Funding Agency: NSF-OCE 0428483 **Title:** ITR: Collaborative Research: Designing the Next Generation Cyber-infrastructure to Operate Interactive Ocean Observatories **Dates:** 10.01.2004-09.30.2008 **UW Amount $2,000,000** This project involves research and experimentation with cyberinfrastructure components to prototype new approaches to information technology for ocean observing systems. The goal is to develop and test ways of managing data from ocean observatories as well as mechanisms for facilitating the operation of ocean observatories.

Lead PI, Funding Agency: W.M. Keck Foundation **Title:** A Proto-type Experiment for NEPTUNE Phase II: Interactive Seafloor Studies of Episodic Deformation, Fluid Venting and Microbial Productivity at Plate Margins **Dates:** 7.15.01-7.14.06 **UW Amount: $5,000,000** Five-year, 4 field season program supporting 3 graduate students, using robotic vehicles Tiburon, Jason 2 and Ropos, Chief Scientist or Co-Chief on all field programs. Establishment of first integrated, interdisciplinary mid-ocean ridge observatory with > 40 *in situ* instruments/sensors in and on the seafloor. **Web Site:** www.wmkeck.org/impact/project_neptune.html

Co-PI, Funding Agency: NSF-OCE OCE0426109 **Title:** Collaborative Research: Determining the Limits to Life in Submarine Hydrothermal Systems: Active Sulfide Deposits as Natural Laboratories **Dates:** 10.1.04-9.30.07 **UW Amount: $864,796 Total Grant:** $1.2M 3-year grant, 2 field seasons using the ROV Jason, 2 graduate students supported, Co-Chief Scientist **Outreach Web Site:** www.visions05.washington.edu/

Lead PI, Funding Agency: NSF-OCE SGER Title: High-Bandwidth Ocean Telepresence: An iGrid Prototype**: Dates** 07.01.05-06.31.06 **Amount: $180,000** One-year grant for purchase of a Zeus high-definition underwater video camera from Insite Pacific for the UWTV/ResearchChannel production associated with VISIONS05 Expedition; resulted in first HD video streamed live from the seafloor. **Outreach Web Site**: www.researchchannel.org/visions05/multimedia.asp

Co-PI, Funding Agency: NSF OCE0221900 **Title:** Field Testing of a New Sensor to Monitor Environmental Conditions within the Walls of Active Sulfide Structures **Dates:** 11.15.02-11.14.07 **Amount: $227,414** Co-Chief Scientist One field season with the remotely operated vehicle J2.

Co-PI, Funding Agency: NSF-OCE 0228142 **Title:** REVEL 2002-2005 (Research and Education - Volcanoes, Exploration and Life) **Dates:** 11.15.02-10.31.06 **UW Amount $335,297** This award provides funding for the "REVEL Project", an outreach and teacher professional development program that builds on a pilot program initiated at the University of Washington (UW) in 1996.

Representative Prior Grants

Lead PI, Funding Agency: American Museum of Natural History, New York. **Title:** Edifice Rex Sulfide Recovery Project **Dates:** 1997-1999 **UW Amount: $3,000,000.** Project to recover four 2-meter portions of intact black smokers to examine sulfide microbial habitats. Pieces of all four chimneys are on display in the Hall of the Planet Earth. Was the focus of NOVA and BBC Discovery specials (see www.pbs.org/wgbh/nova/abyss/; www.amnh.org/nationalcenter/expeditions/blacksmoker/) Resulted in recovery of the highest temperature organism currently known on Earth.

Lead PI, Funding Agency: National Oceanographic Partnership Program (NOPP) N00014-99-1-0129 **Title:** NEPTUNE Fiber-Optic Cabled Observatory Feasibility Study and NEPTUNE Office **Dates:** 11.01.98-06.30.05. **Amount: $2,382,766** Grant provided funding for NEPTUNE Feasibility Study, published in June 2000 and for support of the NEPTUNE office, located at the University of Washington.

Lead PI Funding Agency: NSF OCE9820105 **Title:** Collaborative Research: *In Situ* Time Series Experiments Defining the Thermal and Compositional Variability in Tidally Perturbed Submarine Hydrothermal Systems **Dates:** 8.1.99-1.31.03 **UW Amount: $972,145** This program explored the interactive physical-chemical processes at play in gradient driven submarine environments using pressure sensors, fluid samplers, and temperature probes in high temperature hot springs. Involved Alvin and the robotic vehicle Jason.

Lead PI, Funding Agency: NSF OCE9817065 **Title:** SGER: Temperature Arrays for Investigation of Active Sulfide Structures **Dates:** 11.15.98-10.31.99 **Amount: $98,591** Grant provided funding for prototype camera system and *in situ* caged array of temperature probes to document conditions of chimney growth.

Lead PI, Funding Agency: NSF-OCE 9406965 Title: Are Upflow Zones Boundaries Between Adjacent Hydrothermal Systems? Geological and Geochemical Tests **Dates:** 8.1.1994-1.31.2000 **UW Amount: $1,140493** A 30 dive ALVIN program on the Juan de Fuca Ridge to examine gradients of temperature and salinity across the 380°C Main Endeavour field, to define the spacing for all active sites of high temperature discharge, and to establish which chemical characteristics of fluids are shared on a segment scale.

Lead PI, Funding Agency: NSF-OCE 9633572 **Title:** Impact of Diking–Eruptive Events on the CoAxial System, Juan de Fuca Ridge **Dates:** 2.15.1997-1.31.2000 **Amount:** $**199,310** Data work up for the first response by the ocean community to an underwater eruption off the Washington-Oregon Coast. Program involved Alvin dives, work published in Science in 1998.