CURRICULUM VITAE

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John Breier

ADDRESS AND TELEPHONE

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EDUCATION

Ph.D., Department of Marine Science, The University of Texas at Austin, 2006.
B.S., Mechanical Engineering, Texas A&M University, TX, 1995, cum laude.

PROFESSIONAL EXPERIENCE

Oct. 2006-Present	NSF RIDGE 2000 Postdoctoral Fellow, Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution, Woods Hole, MA.
Feb. 2006-Sep. 2006	Postdoctoral Researcher, Geological & Environmental Sciences, Stanford University, Stanford, CA.
2001-2006	Graduate Student, Department of Marine Science, The University of Texas at Austin.
2001-2003	Naval Reserve, Naval Research Laboratory Science & Technology Unit 510.
2000	Licensed as a Professional Engineer.
1996	Bettis Reactor Engineering School, DOE Bettis Atomic Power Laboratory.
1995-2000	United States Navy Officer, Nuclear Power Engineer, Naval Reactors.
1993	Lockheed Martin, Summer Engineering Intern.

AWARDS

2006	NSF RIDGE 2000 Postdoctoral Fellowship.
2004	E.J. Lund Fellowship in Marine Science, The University of Texas at Austin.
2002	Environmental Science Institute Summer Research Fellowship, The University of Texas at Austin.

RESEARCH INTERESTS

Coastal surface water and groundwater interactions; biogeochemical budgets, freshwater inflow, and saline intrusion.

Hydrothermal plume interactions with seawater and the development of *in situ* chemical sensors for studying hydrothermal plume particulates.

Radionuclides as tracers of biogeochemical processes, water circulation, and sedimentation rate. Uranium series and cosmogenic radionuclides for coastal geomorphological studies.

The marine geochemistry of ^{226}Ra, ^{228}Ra, ^{224}Ra, and ^{223}Ra and their use as tracers of coastal water circulation.

Development of chemical sensing and autonomous sampling techniques for oceanographic applications: resistivity measurements of marine sediment porewater salinity, time series suspended particulate sampling.

JOURNAL REVIEWS

Marine Chemistry
Geophysical Research Letters

PROFESSIONAL SOCIETIES

American Geophysical Union
The Geological Society of America
Institute of Electrical and Electronics Engineers

SYNERGISTIC ACTIVITIES

Session Co-Chair, Texas Bays and Estuaries 2005 meeting, The University of Texas Marine Science Institute, Meeting to inform researchers, environmental managers, and public about environmental research being conducted along the Texas coast, 21 April 2005.

Alliance for Coastal Technologies, Workshop on Groundwater-Surface Water Interactions Sensor Technology, 2005. Member of working group charged with identifying parameters that are useful in assessing groundwater-surface water (GW-SW) interactions and amenable to the development of sensor technology capable of time series data collection, 7-9 March 2005.

The University of Texas at Austin, Marine Science Institute, NSF UT GK-12 Program, Presentations to area 5th and 8th grade students on the fundamentals of navigation and the hydrologic cycle/water management, led field trip to freshwater marsh, 15 Dec. and 20 Nov. 2003.

The University of Texas at Austin, College of Natural Science, Women in Natural Science Program, Presentations to undergraduate women concerning research in marine chemistry, 13 September 2003.

PATENTS

United States Patent Application: " A Suspended Particle Rosette Sampler for Investigating Hydrothermal Plumes." Breier.

COURSES TAUGHT

Teaching Assistant, UT Course MNS307, Introduction to Oceanography Laboratory, Spring 2002.

Teaching Assistant, UT Course MNS307, Introduction to Oceanography Laboratory, Fall 2001.

PARTICIPATION IN SCIENTIFIC EXPEDITIONS

2004	R/V *Kilo Moana* Lau Basin/Pacific Ocean (6 weeks).
2002	R/V *Longhorn* Gulf of Mexico shelf transect (3 days).

GRANTS

Deep Ocean Exploration Institute Research Grant for Seafloor Observatory Science and Instrumentation, Woods Hole Oceanographic Institute. $75,000.00, 5/15/07-5/15/09. Build a novel suspended particulate rosette (SUPR) sampling system for investigating hydrothermal plumes. The SUPR sampler is designed to be compatible with *in situ* spectroscopy. co-PI.

RIDGE 2000 Postdoctoral Fellowship: Development of Raman spectroscopy for *in situ* quantification and speciation of hydrothermal Fe and Mn particulates and sediments, National Science Foundation. $129,500.00, 10/1/06-10/1/08. Develop methods for *in situ* Raman spectroscopy to investigate the fate of hydrothermal Fe and Mn discharged to the oceans. postdoctoral fellow, co-author.

E.J. Lund Fellowship in Marine Science for The University of Texas at Austin Marine Science Student Research. $24,216.00, 1/01/04-12/31/04. Student research into quantifying and contrasting submarine groundwater discharge to Nueces Bay, Copano Bay, and Baffin Bay in the coastal bend of Texas using dissolved radium isotope measurements.

Geological Society of America Graduate Student Research Grant in Hydrogeology, GSA Grant No. 7348-03. $1,900.00 4/24/03. Student research into submarine groundwater discharge detection using a combination of sediment resistivity profiling and dissolved radium isotope measurements.

The University of Texas at Austin Environmental Science Institute Summer Research Fellowship. $1,200.00, 5/01/02. Student research into submarine groundwater discharge detection in Nueces Bay, Texas using dissolved radium isotope measurements.

PUBLICATIONS

Breier, J. A., C. R. German, and S. N. White, A Raman spectroscopy point counting method for in situ relative quantification of the mineralogy of hydrothermal plume suspended particulates, *Applied Spectroscopy*, In Prep.

Breier, J. A., C. F. Breier, and H. N. Edmonds, Ra isotopes and methane reveal pattern in submarine discharges to three Texas Coastal Bend Bays, *Marine Chemistry*, In Prep.

Breier, J. A., N. Nidzieko, S. Monismith, W. Moore, and A. Paytan, Groundwater and surface water exchange in Elkhorn Slough, California: a coupled geochemical and hydrodynamic approach, *Limnology & Oceanography*, Submitted.

Breier, J. A. and H. N. Edmonds, 2007, High ^{226}Ra and ^{228}Ra activities in Nueces Bay, Texas indicate large submarine saline discharges, *Marine Chemistry*, 103, 131-145.

Breier, J. A., C. F. Breier, and H. N. Edmonds, 2005, Detecting submarine groundwater discharge with synoptic surveys of sediment resistivity, radium, and salinity, *Geophysical Research Letters*, 32, L23612, doi:10.1029/2005GL024639.

SELECTED ABSTRACTS

Breier, J. A., C. G. Rauch, and C. R. German, 2007, A Suspended Particle Rosette Sampler for Investigating Hydrothermal Plumes, *OCEANS 2007 MTS/IEEE Conference and Exhibition*, Abstract 070531-049.

Breier, J. A., C. F. Breier, and H.N. Edmonds, 2006, Regional-Scale Investigation of Submarine Discharge to Texas Bays, *Eos Trans. AGU*, 87(36), Ocean Sciences Meet. Suppl., Abstract OS14A-05.

Breier, J.A., Jr., and H.N. Edmonds, 2005. Continuous sediment resistivity profiling with synoptic dissolved ^{226}Ra, ^{228}Ra, ^{224}Ra, ^{223}Ra and surface salinity measurements detect and characterize submarine discharges to Nueces Bay, Texas. *The Geological Society of America*, 37, Fall Meeting, Abstract 96654.

Breier, J.A., Jr. and H.N. Edmonds, 2005. Seawater circulation in coastal sediments. *Texas Bays and Estuaries*, Annual Meeting.

Breier, J.A., Jr. and H.N. Edmonds, 2004. Radium derived groundwater fluxes and nutrient inputs to Nueces Bay, Texas. *EOS, Trans. AGU*, 84(52), 84(52), Ocean Sciences Meet. Suppl., Abstract OS21D-05.

Edmonds, H. N., C. R. German, J. A. Breier, D. P. Connelly, A. Townsend-Smalls, J. A. Resing, C. Aumack, E. T. Baker, and C. H. Langmuir, 2004. Plume mapping and shipboard chemical data used to locate new vent sites in the Lau Basin. *EOS, Trans. AGU*, 85(47), Fall Meet. Suppl., Abstract B13A-0191.

Breier, J.A., Jr., H.N. Edmonds, T.A. Villareal, 2002. Measuring groundwater inflow to Nueces Bay using natural radium isotopes as tracers. *National Estuarine Research Reserve System* 2003 Spring Symposium

Breier, J.A., Jr., H.N. Edmonds, T.A. Villareal, and L.M. Tinnin, 2002. Groundwater and nutrient infiltration in an inverse estuary. *The Geological Society of America*, 34, Fall Meeting, Abstract 45650.

Edmonds, H.N., J.A. Breier, Jr., and C.R. German, 2002. Particle geochemistry and radionuclides in the Edmond and Kairei hydrothermal plumes, Indian Ocean: Preliminary results. *EOS, Trans. AGU*, 84(4), Ocean Sciences Meet. Suppl., Abstract OS31F-103.

PUBLICATIONS (non-peer reviewed)

Breier J. A., 2006, The impact of groundwater flows on estuaries, In Aquifers of the Gulf Coast of Texas, *Report 365*, Texas Water Development Board, Austin, Texas, pp. 165-172.

Breier, J.A., H.N. Edmonds, and T.A. Villareal, 2004, Submarine groundwater discharge and associated nutrient fluxes to the Corpus Christi Bay system, *Report 2002483416*, 54 pp.,Texas Water Development Board, Austin, TX.

INVITED PRESENTATIONS

Aquifers of the Gulf Coast of Texas Conference, Texas Water Development Board, 2006. The impact of groundwater flows on estuaries.

The University of Texas at Austin, Environmental Science Institute, October 25, 2002. The Dynamics of groundwater inflow and coastal nutrient supply: A study of Nueces Bay, Texas.