CURRICULUM VITAE

JOSHUA M. CURTICE
Research Associate III
Department of Marine Chemistry and Geochemistry
Woods Hole Oceanographic Institution
Woods Hole, MA 02543

EDUCATION

B.S., Mechanical Engineering, University of Massachusetts, Amherst, 1992
Cum Laude
College of Engineering Scholarship

TRAINING:

Basic Vacuum Practice – 1992, 3 day high vacuum course given by Varian Vacuum Inc.
Mastering Microsoft Visual Basic 6 Fundamentals – 2002, 5 day course given by Pinnacle Training Corporation in Braintree, MA.

PROFESSIONAL EXPERIENCE

Research Assistant II and III – Supervisor: Dempsey Lott 1992 - 1997
Department of Marine Chemistry and Geochemistry, WHOI, Woods Hole, MA 02543
Responsible for the use and maintenance of high vacuum lines for processing sea water samples. Able to diagnose vacuum system performance and sample integrity to determine whether or not to process the water samples on helium extraction lines and tritium degassing lines. Responsible for leak checking the high vacuum components used in the processing lines. Involved in all aspects of overhauling the sea-going labs, which includes: oil changes for vacuum pumps, cleaning and leak checking all of the vacuum sections; and rebuilding the vacuum processing lines. Repaired and maintained mechanical pumps, diffusion pumps, ion pumps, Neslab water chillers, and Polycold cryotraps.

Research Assistant III – Supervisor: Dr. Mark Kurz 1997-1998
Department of Marine Chemistry and Geochemistry, WHOI, Woods Hole, MA 02543
Implemented changes to the processing line of the MAP mass spectrometer. This included: designing and building a secondary vacuum system (consisting of a turbomolecular pump, rough pump, valving, and connecting hardware); assembling and mounting a low temperature cryogenic trap and a rock furnace; designing and building a rock crusher manifold; and redesigning the residual gas analyzer and aliquoting volumes configuration. Performed every aspect of helium measurements for rock samples including: breaking up large samples and separating into smaller size fractions; using a microscope to pick olivine and pyroxene minerals out of the smaller size fractions; and analyzing the minerals in a mass spectrometer, by crushing and heating under vacuum. Responsible for use and maintenance of various high vacuum equipment, including: helium leak checking; equipment bake outs; degassing of "tritium free" water for the Cosmogenic Nuclide experiment; and operation of three different mass spectrometers. Served as a Chemistry representative to the Graded and Marine Personnel Committee.

Research Associate II and III – Supervisor: Dr. Mark Kurz 1999 – Present
Department of Marine Chemistry and Geochemistry, WHOI, Woods Hole, MA 02543
Responsible for all aspects of noble gas measurements using two mass spectrometers. This includes everything in the "Research Assistant III" section above, along with troubleshooting and repairing the mass spectrometers and any related equipment. This can include electrical, plumbing, mechanical, and high vacuum repairs and fabrication. Required to supervise students and guest investigators in preparing samples for noble gas measurement.

FIELD EXPERIENCE

ONR Subduction Cruise
With supervision, became familiar with sampling techniques for helium and tritium measurements. Processed samples on the helium extraction and tritium degassing vacuum lines.

WOCE P-18, P-21, I 8, I 10, A4, and A20 Cruises
Solely responsible for sampling and processing sea water samples for helium and tritium measurements. Had to maintain and troubleshoot the equipment and high vacuum processing lines in the sea going labs.

MW 99 - I participated in a 12 day dredging cruise off the coast of Hawaii aboard the Mauna Wave to collect underwater lava flow samples for noble gas measurements. Included in this trip were 3 days of field work in the Haleakala Crater on Maui collecting rock samples for surface exposure dating. This was done in collaboration with Dave Sherrod of the USGS and Hawaii Volcano Observatory.

DRFT04 - I participated in a 32 day dredging and surveying cruise off the western edge of the Galapagos islands aboard the R/V Revelle. Submarine lava flow samples were collected for noble gas measurements. Since Mark was the chief scientist, I was responsible for most of the pre-cruise ordering and organizing of lab and sampling supplies. I assisted Dan Fornari with repairs to the Towed Digital Camera that was used on the cruise. I was responsible for supervising the three other people on my watch during dredging operations and rock processing.

JASON II – I participated in a 10 day JASON II cruise on the R/V Thompson.

SKILLS

Familiar with Windows operating systems, Excel, Microsoft Word, SigmaPlot, Photoshop, Visual Basic
Design of ultra high vacuum and sample processing equipment using AutoCad computer aided design software.
Familiar with sea water sampling techniques and ultra high vacuum equipment.

ABSTRACTS:

Title: Dynamics and Evolution of the Galapagos Hotspot From Helium Isotope Geochemistry
Author: Kurz, Mark D., J. Curtice, and D. Geist.
Submitted: June 1998, GSA Penrose Conference

Title: Helium isotopes in dust from polar ice cores.
Author: Brook, Edward J., M. Kurz, and J. Curtice.
Submitted: 1998 Fall AGU

Title: Dynamics of the Galapagos Hotspot from Helium-Isotopic Geochemistry
Author: Kurz M.D., Curtice J.M., Saal A.E., Geist D.
Submitted: V.M. Goldschmidt Conference, August 1999

Title: The Neon isotope anomaly in the mantle beneath the superfast spreading East Pacific Rise
Author: M. Moreira, M. Kurz, J. Curtice, J. Mahoney, J. Sinton
Submitted: Fall 1999 AGU Conference

Title: The Leading Edge of the Galapagos Hotspot: New Submarine Evidence from Fernandina Volcano
Author: M.D. Kurz, D. Fornari, J.M. Curtice, M. Perfit, D. Scheirer, D. Geist.
Submitted: Fall 2000 AGU Conference

Title: Helium Isotopic Evolution of Mauna Kea Volcano: New results from the 3 km Drill Core
Author: M. Kurz, J. Curtice,
Submitted: Fall 2000 AGU Conference

Title: Automation of a Mass Spectrometer and Extraction Line for the Determination of Noble Gas Isotopes in Rocks
Author: Robin Singer, Joshua Curtice, Mark Kurz, and Dempsey Lott
Submitted: OCEANS 2000 MTS/IEEE

Title: The Leading Edge of the Galapagos Hotspot: Geochemistry and Geochronology of Submarine Glasses Coupled to New Sidescan Sonar Imagery
Author: M.D. Kurz, D. Fornari , D. Geist, P. Johnson, J. Curtice, D. Lott, K. Harpp, A. Saal, U. Peckman and DRIFT Leg 4 Science Party(2001)
Submitted: Fall 2001 AGU Conference

Title: Noble Gases from the deep mantle: new evidence from oceanic volcanism
Author: Mark D. Kurz, Joshua M. Curtice, Dempsey E. Lott III, Daniel J. Fornari, and Dennis J. Geist

Submitted: September 2002 Goldschmidt Conference

Title: The Leading Edge of the Galapagos Hotspot: New Geochemistry and Geochronology from Submarine Glasses in the Context of MR1 Sonar Imagery.
Author: M.D. Kurz, D. J. Fornari, D. Geist, P. Johnson, J. Curtice, D. Lott,K. Harpp, A. Saal, U. Peckman and DRIFT Leg4 Science Party.
Submitted: EOS Trans. AGU 82 (47) F1215.

Title: Helium Isotope Signatures of peridotites and basalts from Atlantis Bank, Indian Ocean
Author: Hidenori Kumagai, Joshua M. Curtice, Mark D. Kurz, Henry J. B. Dick, and Shoji Arai
Submitted: AGU, Fall 2003

Title: Flux and size fractionation of IDP-borne He3 from Antarctic ice core samples
Author: Edward J. Brook, Mark D. Kurz, Joshua Curtice
Submitted: AGU, Fall 2003

Title: Helium and neon from the deep earth: submarine Galapagos glasses and global correlations.
Author: Kurz, M.D., D. Fornari, D. Geist, J. Curtice, and D.E. Lott
Submitted: 2004 Goldscmidt 2004 (Copenhagen) abstracts volume, Geochimica Cosmochimica Acta, 68, number 11S, A278

Title: Helium in abyssal peridotites: preliminary results from the Southwest Indian Ridge
Author: M.D. Kurz, J. Curtice, J. Warren, N. Shimizu, H. Dick
Submitted: AGU, Fall 2006

Title: , Insight on the timing of the last deglaciation in Iceland from surface exposure ages of subglacial and postglacial volcanic features
Author: Licciardi, J.M., Kurz, M.D., and Curtice, J.M.
Submitted: 2007: 37th Annual Arctic Author: Workshop, 2-5 May 2007, Skaftafell, Iceland.

Title: Insight on the timing of the last deglaciation in Iceland from surface exposure ages of subglacial and postglacial volcanic features.
Author: Licciardi, J.M., Kurz, M.D., and Curtice, J.M., 2007,:
Submitted: 2nd Volcano-Ice Interaction on Earth and Mars Conference, 19-22 June 2007, Univ. British Columbia, Canada.

Title: Argon isotopic compositions of deep undegassed mantle: New constraints from the western Galapagos.
Author: Kurz MD, Yamamoto J, Curtice J, et al. (2009)
Published: GEOCHIMICA ET COSMOCHIMICA ACTA Volume: 73 Issue: 13 Pages: A709-A709 Suppl. S

Title: Noble gas tracers of mantle processes beneath the Galápagos archipelago.
Author: Kurz MD, Harpp K, Geist D, Fornari D, Curtice J, Lott D, Jenkins W
Submitted: AGU 2010

Title: Noble gases in the oceanic crust: preliminary results from ODP hole 1256 D
Author: Kurz MD, Curtice J, IODP Expedition 335 Science Party.
Submitted: AGU 2011

Title: Noble gas isotopic composition of mantle xenoliths in a kimberlite
Author: Junji Yamamoto, Mark D. Kurz, Hidemi Ishibashi, Joshua Curtice
Submitted: Goldschmidt 2011. Online abstracts

PUBLICATIONS

E. J. Brook, M.D. Kurz, J. Curtice, and S. Cowburn (2000) Accretion of interplanetary dust in polar ice, Geophysical Research Letters

M. Moreira, C. Gautheron, K. Breddam, J. Curtice and M. D. Kurz (2000) Solar neon in the Icelandic mantle: new evidence for an undegassed lower mantle, Earth and Planetary Science Letters

Kurz, M.D., J. Curtice, D.E. Lott, and A. Solow (2004). Rapid helium isotopic variability in Mauna Kea shield lavas from the Hawaiian Scientific Drilling Project. Geochem. Geophysics. Geosystems (G-cubed), AGU. 5, Q04G14, doi:10.1029/2002GC000439.

Kurz, M.D., M. Moreira, J. Curtice, D.E. Lott, J.J. Mahoney, and J.M. Sinton (2004) Correlated helium, neon and melt production on the super-fast spreading East Pacific Rise near 17 S. Earth and Planetary Science Letters/232, 125-142

Licciardi, J. M., M.D. Kurz, and J.M. Curtice. Cosmogenic 3He production rates from Holocene lava flows in Iceland. Published in Earth and Planetary Science Letters 4/06.

Licciardi, J. M., M.D. Kurz, and J.M. Curtice. Glacial and volcanic history of Icelandic table mountains from cosmogenic 3He exposure ages. Quaternary Science Reviews, 26 (11), p.1529-1546, Jun 2007

Mark D. Kurz, Scott K. Rowland, Joshua Curtice, Alberto Saal, and Terry Naumann. Eruption rates at Fernandina volcano, Galapagos archipelago, from cosmogenic helium. Submitted to Geology 9/06.

Mark D. Kurz, Jessica M. Warren, and Joshua Curtice (2008) Mantle deformation and noble gases: helium and neon in oceanic mylonites. *Chemical Geology* 266, 10-18

Kurz M.D., J. Curtice, D. Fornari, D. Geist, and M. Moreira (2009) Primitive neon from the center of the Galápagos hotspot. Earth Planet. Sci. Lett. 286, 23-34.

Brook, E.J, M.D. Kurz, and J. Curtice (2009) Flux and size fractionation of 3He in interplanetary dust from Antarctic ice core samples. Earth Planetary Science Letters 286, 565-569.

MEETING PRESENTATION (oral and poster)
Title: Hotspot influence at the Galapagos spreading center: inferences from Galapagos island seafloor morphology and geochemistry
Authors: M.D. Kurz, D. Fornari, J. Curtice, D.E. Lott, D. Geist, K. Harpp, and P. Johnson
Submitted: Inter-Ridge Planning meeting on Plume-Ridge Interaction at Brest, France, Sept. 2003