

CURRICULUM VITAE FOR ZOLTAN B. SZUTS

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PROFESSIONAL EXPERIENCE

- Jun 2014 – present Senior Oceanographer, Applied Physics Lab, University of Washington, Seattle, WA.
- Feb 2013 – May 2014 Research Associate, Applied Physics Lab, University of Washington.
- Jun 2012 – Oct 2013 Guest Investigator, Woods Hole Oceanographic Institution, Woods Hole, MA.
- Oct 2008 – Dec 2011 “Gary Comer Fellow for Abrupt Climate Change” postdoc at Max Planck Institute for Meteorology (MPI-M), Hamburg, Germany. Jochem Marotzke, supervisor.
- Jun 2002 – Aug 2008 Research Assistant, Applied Physics Lab and University of Washington.

EDUCATION

- June 2008 Ph. D. in Oceanography: *Interpretation of Motionally Induced Electric Fields in Oceans of Complex Geometry*. University of Washington, Seattle, WA. Thomas Sanford, advisor.
- June 2004 M. S. in Oceanography: *Electric Field Floats in the North Atlantic Current: Validation and Observations*. University of Washington. Thomas Sanford, advisor.
- Dec 2000 Bachelor of Arts, Oberlin College, Oberlin, OH.
Major in Biology
- 1996 – 1997 Foreign exchange year in Fribourg, Switzerland.
attended high-school at Collège Saint-Michel, classes in French.

RESEARCH EXPERIENCE

- Feb 2013 – present Independent research at APL, investigating energetics of high and low frequency internal waves at 26°N, novel implementation of electric field instruments for measuring ocean velocity and transport, quantifying the significance of mixing inside the Caribbean on transport of temperature and salt in the North Atlantic, and applied naval uses for electric field velocity measurements.
- Oct 2008 – Dec 2011 Postdoctoral research with the UK-based Rapid project, involving close collaboration and field work with colleagues at the National Oceanography Centre, Southampton, U.K. Projects include extracting wave signals from dynamic height moorings, salinity transport in the Florida Straits, and energetics of low-frequency waves.

- Jul 2004 – Jun 2008 Ph.D. research on higher-order generation of oceanic electric fields based on direct measurements across the Gulf Stream at Cape Hatteras, analytical theory, and numerical modeling.
- Jan 2002 – Jun 2004 Masters research on estuarine turbulence and on validation and scientific analysis of electrode-equipped RAFOS floats deployed in the North Atlantic Current.
- Mar 2001 – Dec 2001 Error analysis of electrode-equipped RAFOS floats and of Towed Transport Meters, supervised by T. Sanford.
- Summer 2000 Summer Student Fellowship at the Woods Hole Oceanographic Institution on the shelfbreak front in the mid-Atlantic Bight, supervised by Dr. Glen Gawarkiewicz, Woods Hole, MA.
- Summer 1999 Sea Education Association, Woods Hole, MA: an interdisciplinary 8-week program on oceanography, sailing, and maritime studies, half on land and half on the research sailing vessel SSV *Corwith Cramer*.

AWARDS AND GRANTS

- Mar 2014 – Mar 2017 NSF grant 1356383 titled “Wave processes along 26°N”, lead PI, total budget \$569,550.
- Apr 2006 – Sep 2008 NSF Grant 0552139 titled “Interpretation of Motionally Induced Electric Fields in Oceans of Complex Geometry,” self-written to fund my Ph.D. project, with T. Sanford as PI, total budget \$188,789.
- Sep 2002 – Aug 2005 National Defense Science and Engineering Graduate Fellowship, 3 years of support for graduate studies.

TEACHING EXPERIENCE

- 2012 – 2013 Volunteer at the Alexandria Seaport Foundation, which prepares at-risk youth for the construction trades through an apprentice program building wooden boats.
- 2006 – 2008 Science judge and question writer for the regional competition of the National Ocean Sciences Bowl, a marine-based quiz competition for high school students.
- Fall 2005 Teaching Assistant for *Introduction to Oceanography* (Oceanography 101), University of Washington. Prepared and taught a weekly lab, graded homework.
- 2002 – 2007 Volunteer Instructor for Ocean Inquiry Project, an experiential oceanography program that teaches high school and college students about oceanography through hands-on oceanographic day cruises.

PUBLICATIONS AND MANUSCRIPTS

- Szuts, Z.B.**, C. Meinen, M. Baringer. in prep. Decadal salinification of the Florida Current.
- Szuts, Z.B.**, K. Martini. in prep. Energy pathways of internal motion at a subtropical western boundary.
- McDonagh, E., B.A. King, H.L. Bryden, P. Courtois, **Z.B. Szuts**, M.O. Baringer, S.A. Cunningham, C.P. Atkinson, and G. McCarthy. in review, 2015. Continuous estimate of Atlantic oceanic freshwater flux at 26°N.

Clément*, L., E. Frajka-Williams, **Z.B. Szuts**, and S.A. Cunningham. in press, 2015. Vertical structure of eddies and Rossby waves, and their effect on the Atlantic meridional overturning circulation at 26.5°N. *J. Geophys. Res.: Oceans*, **119**, doi:10.1002/2014JC010146.

Szuts, Z.B. and C. Meinen. 2013. Salinity transport in the Florida Straits. *J. Atmos. Ocean. Tech.*, **5**: 971–983. doi:10.1175/JTECH-D-12-0133.1

Szuts, Z.B. and T. Sanford. 2013. Vertically-averaged velocities in the North Atlantic Current from field trials of electromagnetic Lagrangian floats. *Deep Sea Res. II*, **85**: 210–219. doi:10.1016/j.dsr2.2012.07.022.

Szuts, Z.B. 2012. Using motionally-induced electric fields to indirectly measure oceanic velocity: instrumental and theoretical developments. *Prog. Oceanogr.*, **96**: 108–127. doi:10.1016/j.pocean.2011.11.014.

Szuts, Z.B., J.R. Blundell, M.P. Chidichimo*, and J. Marotzke. 2012. A vertical-mode decomposition to investigate low-frequency internal motion across the Atlantic at 26°N. *Ocean Sci.*, **8**: 345–367. doi:10.5194/os-8-345-2012.

Szuts, Z.B. 2010. The relationship between ocean velocity and motionally-induced electrical signals, part 1: in the presence of horizontal velocity gradients. *J. Geophys. Res.: Oceans*, **115**: C06003. doi:10.1029/2009JC006053.

Szuts, Z.B. 2010. The relationship between ocean velocity and motionally-induced electrical signals, part 2: in the presence of sloping topography. *J. Geophys. Res.: Oceans*, **115**: C06004. doi:10.1029/2009JC006054.

You, Y., T. Sanford, C.-T. Liu, P. Sigray, M. Koga, W. Pandoe, J. H. Lee, N. Palshin, **Z. Szuts** and K. Taira. 2009. The First PACSWIN Submarine Cable Workshop. *CLIVAR Exchange*, **14**(4): 11–13.

Szuts, Z.B. 2008. The Interpretation of Motionally Induced Electric Fields in Oceans of Complex Geometry. Ph.D. thesis published as Technical Report 0803. Applied Physics Lab, University of Washington, Seattle, WA. 172 pp.

Szuts, Z.B. 2004. Electric Field Floats in the North Atlantic Current: Validation and observations. M.S. thesis published as Technical Report 0405. Applied Physics Lab, University of Washington, Seattle, WA. 76 pp.

Birmingham, J.T., **Z.B. Szuts***, L.F. Abbott, and E. Marder. 1999. Encoding of muscle movement on two time scales by a sensory neuron that switches between spiking and bursting modes. *Journal of Neurophysiology*, **82**: 2786–2797.

(* indicates student author)

INVITED PRESENTATIONS

US-AMOC Science Team Meeting (poster), Seattle, WA, USA. Sep 9–11, 2014.

Horn Point Lab, University of Maryland, Cambridge, MD, USA. Oct 16, 2013.

US-AMOC International Science Meeting (poster), Baltimore, MD. Jul 16–19, 2013.

Ocean Sciences Conference, Salt Lake City, UT. Feb 20–24, 2012.

IfM GEOMAR, Kiel, Germany. Nov 14, 2011.

WCRP Open Science Conference, Denver, CO, USA. (poster). Oct 24–28, 2011.

RAPID/USAMOC International Science Meeting (poster), Bristol, U.K. July 12–15, 2011.
ZMAW seminar series, Hamburg, Germany. Mar 1, 2011.
NOCS (Physical Oceanography Seminar), Southampton, UK. Feb 18, 2010.
WHOI (Physical Oceanography Seminar), Woods Hole, MA. Sep 14, 2010.
University of Rhode Island, Kingston, RI. Sep 15, 2010.
University of Bremen (Inst. of Environmental Physics Seminar), Bremen, Germany. Dec 7, 2010.
RAPID Annual Meeting, Exeter, UK. July 14–16, 2010.
US-AMOC Annual Meeting, Miami, FL. June 7–9, 2010.
EGU General Assembly (poster), Vienna, Austria. May 2–7, 2010.
AOML/NOAA, Miami, USA. Nov 19, 2009.
OceanObservations 2009 (poster), Venice, Italy. Sep 21–25, 2009.
PACSWIN (PACific Source Water INvestigation) Cable Workshop, Taipei, Taiwan. Sep 9–10, 2009.
RAPID Annual Meeting, Edinburgh, Scotland. July 8, 2009.
WHOI (PO seminar), Woods Hole, USA. Sep 9, 2008.
ZMAW/MPI-M, Hamburg, Germany. Feb 18, 2009.
IFREMER, Brest, France. Sep 4, 2007.
LOCEAN, Paris, France. Sep 6, 2007.
NOCS, Southampton, England. Sep 10, 2007.
AGU 2006 Fall General Assembly, San Francisco, CA, USA. Dec 14, 2006.
Department of Meteorology at Stockholm University (MISU), Stockholm, Sweden. Apr 26, 2006.
Swedish Defense Research Agency (FOI), Stockholm, Sweden. Apr 24, 2006.
Marine Electrodynamics Conference (Marelec), Amsterdam, the Netherlands. Apr 19, 2006.
AGU 2004 Ocean Sciences conference, Portland, OR, USA. Jan 27, 2004.
ASLO Aquatic Sciences 2001 Conference (poster), Albuquerque, NM, USA. Feb 13, 2001.

FIELD EXPERIENCE

Mar–Apr 2012 (21 days), R/V *Atlantis* At20-01A. Chief scientist: R. Curry; co-chief scientist: **Z.B. Szuts**. Clivar/Carbon repeat hydrographic transect of section A22 (66°W) in the Atlantic.
Sep 2011 (7 days), R/V *Wecoma* W1109C. Co-chief scientists: **Z.B. Szuts** and S. Hardy. NSF-funded program to train chief scientists, for which I prepared and coordinated all interdisciplinary sampling in addition to collecting data for a self-designed project.
Mar–Apr 2010 (13 days), R/V *Oceanus* OC459. Recover and redeploy moorings at the western boundary of the RAPID-MOC transect.
Oct–Nov 2009 (29 days), RRS *Discovery* D344. Recover and redeploy moorings across the entire RAPID-MOC transect.
Oct–Nov 2008 (29 days), RRS *Discovery* D334. Recover and redeploy moorings at the eastern boundary and Mid-Atlantic Ridge of the RAPID-MOC transect at 26°N in the Atlantic.

Aug 2006 (10 days), R/V *Point Sur* 0624/0625. AESOP cruise in Monterey Canyon to measure the generation of internal waves from barotropic tides.

Aug 2006 (6 days), R/V *New Horizon*. PLUSNet recovery leg, recovery and technical support of bottom-mounted EF sensors.

Sep 2002 (20 days), R/V *Wecoma*. Hawaiian Ocean Mixing Experiment (HOME), nearfield cruise, measuring the transfer of barotropic tidal energy to internal waves along the Hawaiian Ridge with profiling electromagnetic instruments.

Aug–Sep 2001 (12 days), R/V *Henderson*. Testing an electromagnetic vorticity meter and using it to investigate Langmuir circulation, Puget Sound, WA.

Jul 1999 (25 days), SSV *Corwith Cramer*. Sea Education Association (SEA) cruise along the NE US coastline.

COMMUNITY ACTIVITIES AND SERVICE

Contributor to the NASA workshops “Using ‘green’ submarine cable systems in the ocean observing system”, Oct 2014 and May 2015.

Member of the US-Clivar Atlantic Meridional Overturning Circulation (US-AMOC) working group, Task Team 2 (AMOC State, Variability, and Change) since Mar 2014.

Met with Washington State Senators and Representatives to advocate for science funding, American Geophysical Union Congressional Visit Day (Sep 17–18, 2013).

Advisory panel member for Louis Clément, National Oceanography Centre, Southampton, UK.

Reviewer for National Science Foundation, *Geophysical Research Letters*, *Journal of Atmospheric and Oceanic Technology*, *Journal of Physical Oceanography*, *Geophysical Journal International*, ASEE SMART Scholarships (American Society for Engineering Education Science, Mathematics, and Research for Transformation); internal reviewing of articles at MPI-M.

Group meeting coordinator, Ocean in the Earth System Department, MPI-M.

Organizer for two seminar series, Ocean in the Earth System Department, MPI-M.

Web content manager for the Director’s Research Group and the Ocean in the Earth System Department, MPI-M.

Graduate student representative for the Physical Oceanography Department at faculty meetings, 2006–2008, School of Oceanography, University of Washington.

COMPUTER PROGRAMS

Matlab, L^AT_EX, Mac OS X, Linux, Adobe Photoshop and Illustrator, Microsoft Office

Jan 22, 2015