Kristen M. Thyng

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Education

Ph.D. Mechanical Engineering, University of Washington, June 2012.

"Numerical Simulation of Admiralty Inlet, WA, with Tidal Hydrokinetic Turbine Siting Application"

Committee: James J. Riley (chair), Alberto Aliseda, Mitsuhiro Kawase, Brian Polagye, and Dale Durran.

M.Sc. Applied Mathematics, University of Washington, 2007.

B.A. Physics, Whitman College, 2005.

Minor: Mathematics, *Honors:* Walter Brattain Scholarship, *Study Abroad:* Semester at Sea, Fall 2001.

Employment

Texas A&M University, Department of Oceanography

Postdoctoral Research Associate, Robert D. Hetland, 2012–Present.

University of Washington, Department of Mechanical Engineering

Research Assistant, James J. Riley, 2007–2012.

Prometheus Energy Co.

Jr. Scientist, John A. Barclay, Summer 2006.

Whitman College, Physics Department

Fairbank Physics Research Assistant, Kurt Hoffman, Summer 2004.

First-Year Physics Lab Assistant, Fall 2003–Spring 2004.

First-Year Physics Lab Reorganization, Mark Beck, Summer 2003.

Research

Publications

Peer-reviewed

Thyng, K. M., Hetland, R. D., Ogle, M. T., Zhang, X., Chen, F., Campbell, L. (2013). Origins of harmful algal blooms along the Texas coast. *Limnology and Oceanography: Fluids & Environment* (in review).

Thyng, K. M., Riley, J. J., & Thomson, J. (2013). Inference of turbulence parameters from a ROMS simulation using the k-ε closure scheme. *Ocean Modelling*, 72(C), 104–118. doi:10.1016/j.ocemod.2013.08.008.

Thyng, K. M. & Roc., T. (2013). Tidal current turbine power capture and impact in an idealised channel simulation. *Proceedings European Wave and Tidal Energy Conference*. Aalborg, Denmark.

Roc, T., Thyng, K. M., & Conley, D. (2011). Applying a numerical decision-making tool for tidal current turbine (TCT) planning projects to the Puget Sound estuary - Early Results. *Proceedings European Wave and Tidal Energy Conference*. Southampton, UK.

Kawase, M., & Thyng, K. M. (2010). Three-dimensional hydrodynamic modelling of inland marine waters of Washington State, United States, for tidal resource and environmental impact assessment. *Renewable Power Generation, IET*, 4(6), 568–578. doi:10.1049/iet-rpg.2009.0195.

Other

Thyng, K. M. (2012). Numerical Simulation of Admiralty Inlet, WA, with Tidal Hydrokinetic Turbine Siting Application (Doctoral dissertation).

Thyng, K. M., & Riley, J. J. (2010, September). Idealized headland simulation for tidal hydrokinetic turbine siting metrics. In OCEANS 2010 (pp. 1-6). IEEE.

Conference and Seminar Presentations

K. M. Thyng and R. D. Hetland, "Particle tracking on a structured numerical grid and applications in the Gulf of Mexico," 12th International workshop on Multi-scale (Un)-structured mesh numerical Modeling for coastal, shelf, and global ocean dynamics (IMUM), University of Texas, Austin, September 17, 2013.

Invited panelist on best practices in data visualization, SciPy Conference, Austin, TX, June 27, 2013.

K. M. Thyng, J. J. Riley, and M. Kawase, "Vorticity Dynamics in Admiralty Inlet, Puget Sound," invited speaker at the Gordon Research Seminar: Coastal Ocean Circulation, University of New England, June 9, 2013.

K. M. Thyng, R. D. Hetland, X. Zhang, L, Campbell, "Origins of Harmful Algal Blooms Along the Texas Coast," ASLO Aquatic Sciences Meeting, New Orleans, LA, February 21, 2013.

K. M. Thyng and J. J. Riley, "Turbulence Modeling in a Numerical Model for Tidal Hydrokinetic Energy Siting," invited speaker at Texas A&M University, October 13, 2011.

T. Roc, K. M. Thyng, D. Conley, "Applying a numerical decision-making tool for tidal current turbine (TCT) planning projects to the Puget Sound estuary - Early Results," 8th European Wave and Tidal Energy Conference, Southampton, 2011.

K. M. Thyng and J. J. Riley, "Site Modeling for Tidal Turbines", 2nd Annual OSU-UW Northwest National Marine Renewable Energy Center Conference, University of Washington, May 5, 2011.

K. M. Thyng and J. J. Riley, "Understanding New Admiralty Inlet Simulation", MoSSea Users Group, School of Oceanography, University of Washington, May 4, 2011.

K. M. Thyng and J. J. Riley, "Modeling for Tidal Energy Analysis", MoSSea Users Group, School of Oceanography, University of Washington, January 19, 2011.

K. M. Thyng and J. J. Riley, "Tidal Energy and Turbine Siting Metrics", Mechanical Engineering Student Seminar, University of Washington, October 11, 2010.

K. M. Thyng and J. J. Riley, "Idealized Headland Simulation for Tidal Hydrokinetic Turbine Siting Metrics", OCEANS 2010 MTS/IEEE Seattle, September 21, 2010.

K. M. Thyng and J. J. Riley, "Working Toward Numerical Simulations of Admiralty Inlet for Tidal Hydrokinetic Energy," 4th Annual INORE Symposium, Dartmouth, UK, May 12, 2010.

K. M. Thyng and J. J. Riley, "Tidal Energy in the Puget Sound", SIAM UW, April 21, 2009.

K. M. Thyng and J. J. Riley, "Tidal Energy in the Puget Sound", SIAM UW, May 29, 2008.

Poster Presentations

K. M. Thyng, T. Roc, "Tidal current turbine power capture and impact in an idealised channel simulation," 10th European Wave and Tidal Energy Conference, Aalborg, Denmark, September 2–5, 2013.

K. M. Thyng, J. J. Riley, and M. Kawase, "Vorticity Dynamics in Admiralty Inlet, Puget Sound," Gordon Research Conference: Coastal Ocean Circulation, University of New England, June 9–14, 2013.

ROMS Turbulence Parameter Comparisons with Field Data, The Physics of Estuaries and Coastal Seas (PECS) Symposium, 12–16 August 2012, New York City.

Nested ROMS Model of a Complex Estuarine Channel, Puget Sound, WA. Gordon Research Conference: Coastal Ocean Modeling, Mt. Holyoke College, South Hadley, MA, June 26–July 1, 2011.

Site Modeling for Tidal Turbines. Graduate and Professional Student Senate Science and Policy Summit, University of Washington, May 13, 2011.

Numerical Modeling for Tidal Hydrokinetic Turbine Siting. 4th Annual INORE Symposium, Dartmouth, UK, May 9, 2010.

Estuary Modeling for Tidal Energy in Puget Sound, WA. 3rd Annual INORE Symposium, Gent, Belgium, May 26, 2009.

Funding Received

7th U.S. Harmful Algae Symposium travel award ($500) based on statement (2013).

International Collaboration Incentive Scheme grant, a collaborative research grant through the International Network for Offshore Renewable Energy (INORE) (2011).

Travel funding from the Graduate School Fund for Excellence and Innovation (GSFEI), University of Washington (2010).

Professional Activities

Member, Society for Industrial and Applied Mathematics, 2008–Present.

Member, American Geophysical Union, 2010–Present.

Member, Institute of Electrical and Electronics Engineers, 2010–Present.

Member, Association for the Sciences of Limnology and Oceanography, 2012–Present.

Conferences and Workshops Attended

Pattullo Conference for women in physical oceanography, Airlie Center, Warrenton, Virginia, October 6–9, 2013.

The 12th International workshop on Multi-scale (Un)-structured mesh numerical Modeling for coastal, shelf, and global ocean dynamics (IMUM), University of Texas, Austin, September 16–19, 2013.

Gordon Research Seminar and Gordon Research Conference: Coastal Ocean Circulation, University of New England, June 9–14, 2013.

Association for the Sciences of Limnology and Oceanography (ASLO) 2013 Aquatic Sciences Meeting, February 17–22, 2013, New Orleans, Louisiana.

Gulf Of Mexico: Oil Spill & Ecosystem Science Conference, January 21–23, 2013, New Orleans, Louisiana.

Subsea Blowout Modeling Workshop, University of California, Berkeley, November 27–28, 2012.

The Physics of Estuaries and Coastal Seas (PECS) Symposium, 12-16 August 2012, New York City.

Gordon Research Conference: Coastal Ocean Modeling, Mt. Holyoke College, South Hadley, MA, June 26–July 1, 2011.

OCEANS 2010 MTS/IEEE, Seattle, September 20–23, 2010.

4th Annual International Network of Offshore Renewable Energy researchers (INORE) Symposium, Dartmouth, UK, May 9–14, 2010.

2010 Ocean Sciences Meeting, Oregon Convention Center, February 22–26, 2010.

Eleventh International Conference on Estuarine and Coastal Modeling, Seattle, WA, November 4–6, 2009.

3rd Annual International Network of Offshore Renewable Energy researchers (INORE) Symposium, Gent, Belgium, May 24–28, 2009.

U.K. Energy Research Council (UKERC) Energy Summer School 2008, Roehampton, London, UK, June 23–27, 2008.

Teaching Experience

Texas A&M University, Department of Oceanography

Guest Lecturer: Python for Geoscientists (OCNG 689), Department of Oceanography, Texas A&M University, Fall 2013, graduate class.

Guest Lecturer: Introduction to Physical Oceanography (OCNG 410), Department of Oceanography, Texas A&M University, Spring 2013, undergraduate class.

University of Washington, Department of Mechanical Engineering

Teaching Assistant, Thermodynamics, ME 323, Phil Malte, Fall 2007.

Tutoring

Trigonometry and physics, November - December 2007.

Algebra, geometry and trigonometry, January - March 2007.

AP Calculus BC exam, March - May 2007.

Calculus, June - July 2007.

Honors & Awards

SciPy John Hunter Excellence in Plotting Competition 2013: 2nd place.

Outstanding Female Award, Mechanical Engineering. Society of Women Engineers, University of Washington. January 25, 2012.

Best Symposium Poster, INORE Symposium, 2010.

Walter Brattain Scholarship, 2001-2005.

Service

Referee, NSF: Division of Ocean Sciences

Organizer and fund raiser for Women in Scientific Computing event, June 27, 2013.

Referee, Ocean Dynamics

Referee, International Conference on Ocean, Offshore and Arctic Engineering (OMAE) 2013

Referee, National Oceanic and Atmospheric Administration

Referee, European Wave and Tidal Energy Conference

Math and Science Fair, Lockwood Elementary School, March 15, 2011.

Math and Science Fair, Lockwood Elementary School, December 15, 2010.

Math and Science Fair, Emerson Elementary School, June 8, 2010.

An Introduction to Tidal Energy Research in the Puget Sound. UW Robinson School Summer Challenge, July 19, 2010.

Volunteer at 3rd Annual Global Marine Renewable Energy Conference, Bell Harbor International Convention Center, April 14–15, 2010.

Skills

Extensively utilized SUNTANS and ROMS ocean modeling codes.

Proficiency in Python, FORTRAN, C, MatLab, and LaTeX.

Linux system administration.

Experience using a cluster and parallel computing.

Experience with HTML.

Last updated: October 21, 2013