Sylvia T. Cole

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Research Interests

I am interested in processes affecting the upper ocean and the advection and diffusion of tracers throughout the ocean. I investigate these processes using observations of turbulence, internal waves, submesoscale features, and thermohaline structure in subtropical regions and the Arctic Ocean.

Research Experience

Postdoctoral Scholar / Postdoctoral Investigator — Nov. 2010-Present
Woods Hole Oceanographic Institution

Research Assistant — 2004-2010
Scripps Institution of Oceanography

Education

Ph. D. in Physical Oceanography — 2010
Scripps Institution of Oceanography, University of California, San Diego

B. S. in Physics — 2004
University of Maryland, College Park

Publications

Cole, **S. T.,** M-L. Timmermans, J. M. Toole, R. A. Krishfield, and F. T. Thwaites, 2012: Ekman veering, internal waves, and turbulence observed under Arctic sea ice. *Submitted to J. Phys. Oceanogr.*

Timmermans, M.-L., **S. T. Cole**, and J. M. Toole, 2012: Horizontal density structure and restratification in the Arctic Ocean surface layer. *J. Phys. Oceanogr.,* Vol. 42, 659-668.

Cole, S. T., and D. L. Rudnick, 2012: The spatial distribution and annual cycle of upper ocean thermohaline structure. *J. Geophys.* Vol. 117, C02027.

Rudnick, D. L., and **S. T. Cole**, 2011: On sampling the ocean using underwater gliders. *J. Geophys. Res.,* Vol. 116, C08010.

Johnston, T. M. S., D. L. Rudnick. G. S. Carter, R. E. Todd and **S. T. Cole**, 2011: Internal tidal beams and mixing near Monterey Bay. *J. Geophys. Res.,* Vol. 116, C03017.

Cole, **S. T.,** D. L. Rudnick, and J. A. Colosi, 2010: Seasonal evolution of upper ocean horizontal structure and the remnant mixed layer. *J. Geophys. Res,* Vol. 115, C04012.

Cole, **S. T.,** D. L. Rudnick, B. A. Hodges, and J. P. Martin, 2009: Observations of tidal internal wave beams at Kauai Channel, Hawaii. *J. Phys. Oceanogr.* Vol. 39, p. 421-436.

Awards

Climate and Cryosphere Project Travel Award, Atmosphere-ice-ocean boundary layer workshop, Boulder CO, June 2012

International Arctic Science Committee Travel Award, International Polar Year Conference, Montreal Canada, April 2012

Woods Hole Oceanographic Institution Postdoctoral Scholarship, Nov. 2010 – May 2012

Europole Mer Travel Award, Europole Mer Submesoscale Conference, Brest, France, June 2010

NSF / Scripps G-K12 fellowship, June 2009 – May 2010

Teaching Experience

Partnership Education Program, Woods Hole, MA — June 2012
Co-instructed a physical oceanography unit for undergraduate science majors

NSF / Scripps Institution of Oceanography G-K12 fellowship, San Diego, CA — 2009
Instructed two 9th grade earth science classes once per week

R. H. Fleet Science Center volunteer, San Diego, CA — 2007-2009
Explained basic science concepts to the general public using hands-on demonstrations

Field Experience

Spray glider recovery and deployment off of Hawaii	Dec. 2008, Apr. 2009
SeaSoar operations off of Hawaii	Dec. 2007
Spray glider, underway CTD, and CTD rosette operations off of Taiwan	July, Oct. 2007
SeaSoar and microstructure operations off of Monterey Bay, California	Aug. 2006
CTD rosette operations for a North Pacific hydrographic cruise	Aug. 2004

Service

Reviewer: *National Science Foundation, Geophysical Research Letters, Journal of Physical Oceanography, Journal of Geophysical Research, Oceanography*

Organizer: International Meeting of Students in Physical Oceanography, 2008

Member: Woods Hole Oceanographic Institution postdoctoral association, 2012
Woods Hole Oceanographic Institution women's committee, 2012
Scripps Institution of Oceanography faculty evaluations committee, 2007
Scripps Institution of Oceanography teaching award committee, 2006 and 2007

Selected Presentations

S. T. Cole, M. L. Timmermans, J. M. Toole, R. A. Krishfield, and F. T. Thwaites: Ekman veering, inertial motions, and turbulent fluxes in Arctic surface waters under sea-ice. Oral presentation, Ocean Sciences Meeting, Salt Lake City UT, February 2012.

S. T. Cole, M.-L. Timmermans, J. M. Toole, R. A. Krishfield, F. T. Thwaites: Ekman veering, inertial motions, and turbulent fluxes under Arctic sea-ice. Oral presentation, Arctic Ocean Modeling Intercomparison Project meeting, Woods Hole MA, Nov. 2011.

S. T. Cole and D. L. Rudnick: Submesoscale seasonality in the North Pacific subtropical gyre. Poster presentation, Europol Mer Submesoscale Conference, Brest, France, June 2010.

S. T. Cole and D. L. Rudnick: Thermohaline finestructure along 22.75-34.5°N, 158°W. Poster presentation, Ocean Science Meeting, Portland OR, Feb. 2010.

S. T. Cole and D. L. Rudnick: Seasonal observations of upper ocean thermohaline structure and the relic mixed layer. Poster Presentation, AGU Fall Meeting, San Francisco CA, Dec. 2008.

S. T. Cole and D. L. Rudnick: Seasonal observations of upper ocean thermohaline structure and the relic mixed layer. Oral presentation, International Meeting of Students in Physical Oceanography, SIO, La Jolla CA, Oct. 2008.

S. T. Cole and D. L. Rudnick: Seasonal and latitudinal variations of small-scale temperature and salinity gradients in the upper ocean. Poster Presentation, Ocean Sciences Meeting, Orlando, FL, Mar. 2008.

S. T. Cole, D. L. Rudnick, B. A. Hodges, and J. P. Martin: Observations of tidal internal wave dynamics and energetics at Kauai Channel, Hawaii. Oral Presentation, International Meeting of Students in Physical Oceanography, CICESE, Ensenada Mexico, June 2007.

S. T. Cole, D. L. Rudnick, B. A. Hodges, and J. P. Martin: The influence of internal tidal beams on mixing and mean flow. Poster Presentation, Ocean Sciences Meeting, Honolulu HI, Feb. 2006.