

CURRICULUM VITAE
David B. Clark

Applied Ocean Physics & Engineering
Woods Hole Oceanographic Institution
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Education

Ph.D., Oceanography 2010
Scripps Institution of Oceanography, UCSD

B.S., Physics 2003
University of California Santa Barbara

Professional Experience

Assistant Scientist Aug. 2013 – Present
Woods Hole Oceanographic Institution

Postdoctoral Investigator Jun. 2012 – Aug. 2013
Woods Hole Oceanographic Institution

Postdoctoral Scholar 2011 – 2012
Woods Hole Oceanographic Institution

Research Interests

Nearshore and surfzone hydrodynamics, sediment transport, coastal pollution, interactions between humans and the coastal ocean, numerical modeling, ocean mixing, field methods for oceanographic research

Fellowships and Awards

USGS / WHOI Postdoctoral Scholarship 2011 – 2012

Outstanding Student Paper Award AGU Fall Meeting 2010

NSF GK-12 Graduate Fellowship 2009 – 2010

National Defense Science and Engineering Graduate Fellowship 2006 – 2009

Doherty Graduate Fellowship 2004 – 2005

Honors UCSB Physics Department 2003

National Merit Scholar 1998 – 2002

Publications

Clark, D.B., L. Lenain, F. Feddersen, E. Boss, R.T. Guza (2014), Aerial Imaging of Fluorescent Dye in the Nearshore, *Journal of Atmospheric and Oceanic Technology*, 31, 1410–142, doi: 10.1175/JTECH-D-13-00230.1

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Clark, D.B., S. Elgar, and B. Raubenheimer (2012), ([COVER](#)) Vorticity generation by short-crested breaking waves, *Geophysical Research Letters*, 39, L24604, doi:10.1029/2012GL054034

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Clark, D.B., F. Feddersen, and R.T. Guza (2011), Modeling surfzone tracer plumes: 2. Transport and dispersion, *Journal of Geophysical Research*, 116, C11028, doi:10.1029/2011JC007211

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Feddersen, F., D.B. Clark, and R.T. Guza (2011), Modeling surfzone tracer plumes: 1. Waves, mean currents, and low-frequency eddies, *Journal of Geophysical Research*, 116, C11027, doi:10.1029/2011JC007210

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Clark, D.B., F. Feddersen, and R.T. Guza (2010), Cross-shore surfzone tracer dispersion in an alongshore current, *Journal of Geophysical Research*, 115, C10035, doi:10.1029/2009JC005683

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Omand, M.M., F. Feddersen, D.B. Clark, P.J.S. Franks, J.J. Leichter, and R.T. Guza (2009), The influence of bubbles and sand on chlorophyll-a fluorescence measurements in the surfzone, *Limnology and Oceanography Methods*, 7, 354-362, doi:10.4319/lom.2009.7.354

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Clark, D.B., F. Feddersen, M.M. Omand, and R.T. Guza (2009), Measuring fluorescent dye in the bubbly and sediment-laden surfzone, *Water Air and Soil Pollution*, 204, 103–115, 10.1007/s11270-009-0030-z

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Conference Presentations

Clark, D.B., S. Elgar, B. Raubenheimer, Surfzone Vorticity in the Presence of Extreme Bathymetric Variability, AGU Fall Meeting, December 2014

Clark, D.B., S. Elgar, B. Raubenheimer, Wave Forced Mixing In the Nearshore: Short-crested Breaking Waves, Gordon Research Conference, June 2013

Clark, D.B., S. Elgar, B. Raubenheimer, Spatial and Temporal Variation of Vorticity Generated by Individual Breaking Waves in the Surfzone, AGU Fall Meeting, December 2012

Clark, D.B., S. Elgar, B. Raubenheimer, Observations of Surfzone Vorticity, Ocean Sciences Meeting, February 2012

Clark, D.B., F. Feddersen, and R.T. Guza, Boussinesq modeling of HB06 tracer releases Part 2: Tracer plumes, AGU Fall Meeting, December 2010

Clark, D.B., F. Feddersen, and R.T. Guza, Boussinesq modeling of observed surfzone tracer plumes, Ocean Sciences Meeting, February 2010

Clark, D.B., F. Feddersen, and R.T. Guza, Field measurements of surfzone dye dispersion, International Conference on Coastal Engineering, September 2008

Clark, D.B., F. Feddersen, and R.T. Guza, Pretty in pink: Surfzone dye dispersion in varying conditions during the HB06 experiment, Ocean Sciences Meeting, March 2008

Clark, D.B., B. Woodward, W.A. Boyd, F. Feddersen, and R.T. Guza, Pink water: Surfzone dye measurements at Huntington Beach, CA, AGU Fall Meeting, December 2006

Clark, D.B., F. Feddersen, B. Woodward, W.A. Boyd, and R.T. Guza, Measuring dye dispersion in the surfzone, Ocean Sciences Meeting, February 2006

Invited Talks

Wave generated vorticity in the surfzone: helicopters, mega cusps, and the Ring of Doom, SMAST – University of Massachusetts, Dartmouth, December 2013

Field Experience

Ring Of Doom Super-EXperiment, Duck, NC, Sept – Oct 2013

- (chief scientist) Deployed the Ring of Doom surfzone vorticity sensor, with collocated video measurements, and pressure and velocity arrays to measure vertical vorticity and eddies generated by short-crested breaking waves, wave groups, and shear waves.

Duck, NC, July 2012

- (chief scientist) Designed and deployed an ultra-wide angle high-resolution imaging system to measure breaking crest lengths in the surfzone over a range of incident wave conditions.

RIVET Experiment, New River Inlet, NC, May 2012

- (chief scientist) Imaged waves in a tidal inlet to measure the effect of inlet bathymetry and flows on breaking crest length.

VORTEX Experiment, Duck, NC, May 2011

- (chief scientist) Designed and deployed a surfzone vorticity meter, with collocated video measurements to identify vorticity generated by short-crested breaking

IB09 Experiment, Imperial Beach, CA, Sept-Nov 2009

- (chief scientist) Designed and implemented 8 nearshore/surfzone dye-tracer dispersion experiments, using two dye sampling jet skis, frame mounted fluorometers, and an aerial dye-tracer imaging system
- (co-chief scientist with Guza and Feddersen) Deployed/maintained/recovered a 6 frame cross-shore array of velocity, pressure, and dye fluorescence sensors, including a 3 position vertical array

SIO08 Experiment, Scripps Beach, CA, Sept-Oct 2008

- (co-chief scientist with Guza and Feddersen) Deployed/maintained/recovered a vertical array of velocity, pressure and dye-tracer sensors to test array designs and measure vertical tracer dispersion in the surfzone

HB06 Experiment, Huntington Beach, CA, Sept-Oct 2006

- (co-chief scientist with Guza and Feddersen) Deployed, maintained, and recovered a 7 frame cross-shore array of velocity, pressure, and dye tracer sensors in the surfzone and nearshore
- (chief scientist) Designed and implemented 5 surfzone dye-tracer dispersion experiments utilizing a dye sampling jet ski and fixed position fluorometers

AAUS certified diver since 2005, with more than 100 surfzone dives

Research Funding (as lead PI)

NSF, *Short-crested Breaking Waves and Surfzone Vorticity*, \$849,955
with co-PIs Elgar and Raubenheimer, 09/2012 – 08/2015

ONR, *Short-crested Breaking Waves and Vorticity*, \$125,400
with co-PIs Elgar and Raubenheimer, 03/2012 – 12/2013

Coastal Ocean Institute, *Modeling Vorticity Generated by Short Crested Breaking Waves*,
\$69,944, 07/2014 – 06/2016

Synergistic Activities

The Future of Nearshore Processes Research, white paper contributor, 2014

Panel referee for US Department of Energy

Referee, National Science Foundation

Referee, Journal of Geophysical Research

Professional Societies

American Geophysical Union

Educational Outreach

Weekly science lectures at Kearny Mesa High School, bringing scientific frontiers to the classroom, 2009 – 2010

Kearny Mesa High School Earth Sciences fieldtrip demonstrating fieldwork at Imperial Beach, 2009

Ocean Institute Teen Surf Science fieldtrips demonstrating fieldwork at Imperial Beach (2009), and ongoing projects at SIO (2010, and 2008)

Grunion lectures, Rancho Santa Fe Elementary: June 2008 and 2009

Talks on pollution and mixing in the nearshore environment, Ocean Institute, Dana Point, 2007

Teaching Experience

Coastal Physical Oceanography (graduate), MIT-WHOI Joint Program, Fall 2014

MIT Teaching Certificate Program, Summer 2014

NSF-GK12 Guest Lecturer, Kearny Mesa High School, 2009-2010:

Weekly lectures and labs on oceanography, physics, earth science, coastal geomorphology, and nearshore pollution