

**Evan A. Variano**

Professor

Civil and Environmental Engineering

University of California, Berkeley

648 Sutardja Dai Hall  
University of California  
Berkeley, CA 94720-1764

variano@berkeley.edu  
evan.variano@gmail.com

Office: (510) 642-2648  
Fax: (510) 643-5264  
Mobile: (845) 781-8803

**Academic Preparation**

---

Columbia University, Earth Institute, Postdoctoral Researcher, 2007-2008

Cornell University, Civil & Environmental Engineering, Ph.D. 2007

Cornell University, Civil & Environmental Engineering, M.S. 2005

Princeton University, Physics, B.A. with honors, 2000

**Appointments**

---

Assistant, then Associate, the Full Professor, Civil & Environmental Engineering,  
University of California, Berkeley, July 2007-present.

Lecturer, Civil & Environmental Engineering, Cornell University, May-July 2007

**Peer-reviewed publications in archival journals (advisees are underlined)**

---

Kohli, G., Lee, C.M., Fisher, J.B., Halverson, G., Variano, E., Jin, Y., Carney, D.,  
Wilder, B.A., and Kinoshita, A.M, 2020, "ECOSTRESS and CIMIS: A Comparison  
of Potential and Reference Evapotranspiration in Riverside County, California."  
*Remote Sensing*, 12, 4126. [doi.org/10.3390/rs12244126](https://doi.org/10.3390/rs12244126)

Oehmke, T. and E.A. Variano, 2020 "A New Particle for Measuring Mass Transfer in  
Turbulence," *Experiments in Fluids*, In press, [doi.org/10.1007/s00348-020-03084-5](https://doi.org/10.1007/s00348-020-03084-5).

Cáceres-Euse, A., E. A. Variano, F. M. Toro-Botero, A. Gómez-Giraldo, 2020,  
"Simplified Model for Oscillatory Flow-Submerged Canopy Interaction," *Journal of  
Hydraulic Engineering*, 146:11. [doi.org/10.1061/\(ASCE\)HY.1943-7900.0001807](https://doi.org/10.1061/(ASCE)HY.1943-7900.0001807)

Bordoloi, A.D., Variano, E.A., and Verhille, G., 2020, "Lagrangian Time Scale of  
Passive Rotation for Mesoscale Particles in Turbulence," *Frontiers in Marine Science*  
7:473. [doi.org/10.3389/fmars.2020.00473](https://doi.org/10.3389/fmars.2020.00473)

Bordoloi, A.D., Lai, C., Clark, L., Carrillo, G., and Variano, E.A., 2020, "Turbulence  
statistics in a negatively buoyant multiphase plume," *Journal of Fluid Mechanics*,  
896, A16. [doi.org/10.1017/jfm.2020.326](https://doi.org/10.1017/jfm.2020.326)

Allen, R. M., Lacy, J. R., Stacey, M. T., and Variano, E.A., 2019, "Seasonal, spring-neap,  
and tidal variation in cohesive sediment transport parameters in estuarine shallows,"  
*Journal of Geophysical Research: Oceans*, 124, 7265–7284.  
[doi.org/10.1029/2018JC014825](https://doi.org/10.1029/2018JC014825)

- Byron, M.L., Yiheng Tao, Houghton, I.A., and Variano, E.A., 2019, “Slip velocity of large low-aspect-ratio cylinders in homogeneous isotropic turbulence,” *International Journal of Multiphase Flow*, 121, 103120. doi.org/10.1016/j.ijmultiphaseflow.2019.103120.
- Lihao Zhao, Challabotla, N.R., Andersson, H.I., and Variano, E.A., 2019, “Mapping spheroid rotation modes in turbulent channel flow: effects of shear, turbulence and particle inertia” *Journal of Fluid Mechanics*, 876, 19–54. doi.org/10.1017/jfm.2019.521
- Pujara, N., Voth, G.A., and Variano, E.A., 2018, “Scale-dependent alignment, tumbling, and stretching of slender rods in isotropic turbulence,” *Journal of Fluid Mechanics*, 860, 465–486. doi.org/10.1017/jfm.2018.866
- Yu, K., Chen, Y., Zhu, D., Variano, E.A., Lin, J., 2018, “Development and performance of a 1D-2D coupled shallow water model for large river and lake networks,” *Journal of Hydraulic Research*, 57:6, 852-865. doi.org/10.1080/00221686.2018.1534286
- Pujara, N., Oehmke, T. B., Bordoloi, A. D., and Variano, E. A., 2018, “Rotations of Large Inertial Cubes, Cuboids, Cones, and Cylinders in Turbulence,” *Physical Review Fluids*, 3(5). doi.org/10.1103/PhysRevFluids.3.054605
- Pujara, N., Koehl, M. and Variano, E.A., 2018, “Rotations and accumulation of ellipsoidal microswimmers in isotropic turbulence,” *Journal of Fluid Mechanics*, 838, 356–368. doi.org/10.1017/jfm.2017.912.
- Allen, R.M., Simeonov, J.A., Calantoni, J., Stacey, M., and Variano, E.A., 2018, “Turbulence in the presence of internal waves in the bottom boundary layer of the California inner shelf,” *Ocean Dynamics*, 68: 627. doi.org/10.1007/s10236-018-1147-7
- Foster-Martinez, M.R. and Variano, E.A., 2018, “Biosolids as a marsh restoration amendment,” *Ecological Engineering*, 117, 165–173. doi.org/10.1016/j.ecoleng.2018.02.012.
- Foster-Martinez, M.R., J.R. Lacy, M.C. Ferner, and Variano, E.A., 2018, “Wave attenuation across a tidal marsh in San Francisco Bay,” *Coastal Engineering*, 136, 26–40. doi.org/10.1016/j.coastaleng.2018.02.001.
- Pujara, N., and Variano, E. A., 2017, “Rotations of Small, Inertialess Triaxial Ellipsoids in Isotropic Turbulence,” *Journal of Fluid Mechanics*, 821, 517–538.
- Bordoloi, A.D., and Variano, E. A., 2017, “Rotational kinematics of large cylindrical particles in turbulence,” *Journal of Fluid Mechanics*, 815, 199–222.
- Poindexter, C. M., Baldocchi, D. D., Matthes, J. H., Knox, S. H., and Variano, E. A., 2016, “The Contribution of an Overlooked Transport Process to a Wetland’s Methane Emissions,” *Geophysical Research Letters*, 43(12), 2016GL068782. dx.doi.org/10.1002/2016GL068782
- Lambert, R. A., and Variano, E.A., 2016, Collision of oil droplets with marine aggregates: Effect of droplet size, *Journal of Geophysical Research: Oceans*, special issue on Deepwater Horizon Oil Spill, 121, 3250–3260.
- Foster-Martinez, M. R., and Variano, E. A., 2016, “Air-water Gas Exchange by Waving Vegetation Stems,” *Journal of Geophysical Research: Biogeosciences*, 121(7), 1916–1923. doi.org/10.1002/2016JG003366

- Zhao, L. Challabotla, N. R. Andersson, H. I. and Variano, E. A., 2015, "Rotation of Nonspherical Particles in Turbulent Channel Flow," *Physical Review Letters*, 115(24), 244501.
- Drozd, G. T. Worton, D. R. Aeppli, C. Reddy, C. M. Zhang, H. Variano, E. and Goldstein, A. H., 2015, "Modeling comprehensive chemical composition of weathered oil following a marine spill to predict ozone and potential secondary aerosol formation and constrain transport pathways," *Journal of Geophysical Research: Oceans*, 120(11), 7300–7315.
- Andersson, H. I. Zhao, L. and Variano, E. A., 2015, "On the Anisotropic Vorticity in Turbulent Channel Flows," *Journal of Fluids Engineering*, 137(8), 084503–084503.
- Byron, M. Einarsson, J. Gustavsson, K. Voth, G. Mehlig, B. and Variano, E. A., 2015, "Shape-dependence of particle rotation in isotropic turbulence," *Physics of Fluids*, 27(3), 035101.
- Pepper, R. E. Jaffe, J. S. Variano, E. and Koehl, M. A. R., 2015, Zooplankton in flowing water near benthic communities encounter rapidly fluctuating velocity gradients and accelerations. *Marine Biology*, 162(10), 1939–1954.
- Ortega-Jimenez, V. M. Sapir, N. Wolf, M. Variano, E. A. and Dudley, R., 2014, Into turbulent air: size-dependent effects of von Kármán vortex streets on hummingbird flight kinematics and energetics. *Proceedings of the Royal Society of London B: Biological Sciences*, 281(1783), 20140180. doi: 10.1098/rspb.2014.0180
- Segalini, A. Bellani, G. Sardina, G. Brandt, L. and Variano, E. A. (2014), Corrections for one- and two-point statistics measured with coarse-resolution particle image velocimetry. *Experiments in Fluids*, 55(6), 1–12. doi: 10.1007/s00348-014-1739-z
- Bellani, G and E.A. Variano (2014), Homogeneity and isotropy in a laboratory turbulent flow, *Experiments in Fluids*, 55(1), doi: 10.1007/s00348-013-1646-8.
- Variano, E.A., and E.A. Cowen (2013), Turbulent transport of a high-Schmidt-number scalar near an air-water interface, *Journal of Fluid Mechanics*, 731, 259–287. doi:10.1017/jfm.2013.273
- Poindexter, C.M. and E.A. Variano (2013), Gas Exchange in Wetlands with Emergent Vegetation: the Effects of Wind and Thermal Convection at the Air-Water Interface, *Journal of Geophysical Research: Biogeosciences*, 118, 1–10. doi:10.1002/jgrg.20099
- Tse, I. C. and Variano, E. A. (2013) Lagrangian measurement of fluid and particle motion using a field-deployable Volumetric Particle Imager (VoPI). *Limnology and Oceanography: Methods*, 11, 225–238.
- Bellani, G, M.A. Nole, and E.A. Variano (2013), Turbulence modulation by large ellipsoidal particles: concentration effects, *Acta Mechanica*, 224(10), 2291–2299, doi:10.1007/s00707-013-0925-z.
- Meyer, C.M., M.L. Byron, and E.A. Variano (2013), Rotational Diffusion of Particles in Turb July 24ulence, *Limnology and Oceanography: Fluids and Environments*, 3, 89–102, doi: 10.1215/21573689-2326592.
- Byron, M.L. and E.A. Variano (2013), Refractive-index-matched hydrogel materials for measuring flow-structure interactions, *Experiments in Fluids*, 54(2), 1–6, doi:10.1007/s00348-013-1456-z.

- Bellani, G. and E.A. Variano (2012), Slip velocity of large neutrally buoyant particles in turbulent flows, *New Journal of Physics*, 14(12), 125009, doi:10.1088/1367-2630/14/12/125009.
- Bellani, G., M.L. Byron, A.G. Collignon, C.R. Meyer, and E.A. Variano (2012), Shape effects on turbulent modulation by large nearly neutrally buoyant particles, *Journal of Fluid Mechanics*, 712, 41–60, doi:10.1017/jfm.2012.393.
- Sukop, M.C., H. Huang, P.F. Alvarez, E. Variano, and K.J. Cunningham (2012), Evaluation of permeability and non-Darcy flow in vuggy macroporous limestone aquifer samples with Lattice Boltzmann methods, *Water Resources Research*, 49(1), 216-230, doi:10.1029/2011WR011788.
- Poindexter, C.M., P. J. Rusello, and E.A. Variano (2010), Acoustic Doppler velocimeter-induced acoustic streaming and its implications for measurement, *Experiments in Fluids*, 50(5), 1429-1442, doi:10.1007/s00348-010-1001-2.
- Cowen, E.A., Dudley, R.D., Liao, Q., Variano, E.A., Liu, P.L.-F (2009), An Insitu Borescopic Quantitative Imaging Profiler (BQUIP) for the Measurement of High Concentration Sediment Velocity, *Experiments in Fluids*, 49(1), 77-88, doi:10.1007/s00348-009-0801-8.
- Variano, E.A., Ho, D.T., Engel, V., Schmieder, P., and Reid, M.C. (2009), Flow and mixing dynamics in a patterned wetland: Kilometer-scale tracer releases in the Everglades, *Water Resources Research*, 45(8), W08422 doi:10.1029/2008WR007216.
- Ho, D. T., V. C. Engel, E. A. Variano, P. J. Schmieder, and M. E. Condon (2009), Tracer studies of sheet flow in the Florida Everglades, *Geophysical Research Letters*, 36 (9), L09401.
- Variano, E.A. and Cowen, E.A. (2008). A Random–Jet–Stirred Turbulence Tank. *Journal of Fluid Mechanics*, 604, 1-32.
- Variano, E.A. and Taylor, K. (2006). Inquiry in Limnology Lessons. *The Science Teacher*, 73(6), 36-39.
- Donev, A., Cisse, I., Sachs, D., Variano, E.A., Stillinger, F.H., Connelly, R., Torquato, S., Chaikin, P.M. (2004). Improving the Density of Jammed Disordered Packings using Ellipsoids. *Science*, 303, 990-993.
- Variano, E.A., McCoy, J.H., and Lipson, H. (2004). Networks, Dynamics, and Modularity, *Physical Review Letters*, 92(18), 188701.
- Variano, E.A., Bodenschatz, E., and Cowen, E.A. (2004). A Random Synthetic Jet Array Driven Turbulence Tank, *Experiments in Fluids*, 37(4), 613-615.

### **Peer-reviewed publications in conference proceedings**

---

- Variano, E.A., Sukop, M. C., Ho, D. T., Anwar, S., and Engel, V. C. (2010). “Velocity variations in a patterned wetland from lattice-Boltzmann flow modeling.” In: H. O. Andradottir (Ed.), Proceedings of the 14th International Workshop on Physical Processes in Natural Waters, June 28 - July 1, Reykjavík, Iceland.
- Gamarra, J.G.P., Variano, E.A., and Bain, M. B. (2010). “Scaling plankton persistence in complex flow networks.” In: H. O. Andradottir (Ed.), Proceedings of the 14th International Workshop on Physical Processes in Natural Waters, June 28 - July 1, Reykjavík, Iceland.

Variano, E.A. & Cowen, E.A. (2007). "Quantitative Imaging of CO<sub>2</sub> Transfer at an Unsheared Free Surface." In: Garbe, Handler, and Jähne, B (eds) *Transport at the Air Sea Interface - Measurements, Models and Parameterizations*. Springer Verlag.

### **Courses Taught**

---

UC Berkeley CE219 – Fluid Flow in Environmental Processes (graduate level)  
UC Berkeley CE200C – Transport and Mixing in the Environment (graduate level)  
UC Berkeley CE190 – Writing fluidly about flow (technical writing class w/ workshops)  
UC Berkeley CE101 – Fluid Mechanics of Rivers, Streams, and Wetlands  
UC Berkeley CE100 – Elementary Fluid Mechanics (including lab section)  
UC Berkeley CE98 – Research Skills Seminar for Undergraduate Researchers  
UC Berkeley CE92 – Introduction to Civil and Environmental Engineering  
UC Berkeley CE24 – Waves: Ideal, Real, and in Between  
Cornell University CEE331 – Fluid Mechanics (including lab section)  
Special courses such as independent research (194H,199,299) and DeCal advising

### **Honors and Awards**

---

Appointed Inaugural Vice Chair for Equity and Inclusion, Department of Civil and Environmental Engineering, 2020  
UC Berkeley Laboratory Safety Award 2018 (physical sciences category)  
Faculty Award for Excellence in Postdoctoral Mentoring (one per year) 2018  
UC Berkeley Presidential Chair Teaching Fellow 2009 & 2012  
American Society of Civil Engineers, UC Berkeley Student Chapter: Most Involved Professor 2009  
National Science Foundation Graduate Fellowships: GK-12 and IGERT  
Allen Shenstone Prize for Outstanding Research in Physics at Princeton University

### **Selected Press**

---

"Biogeochemistry: Nocturnal Escape Route for Marsh Gas," *Nature*, 535, July 21, 2016.  
"Pioneers: A flood of interest" *Science*, 307(5710) February 4, 2005.  
"After Packing M&M's Together, Scientists Like What They See" *The New York Times*, February 13, 2004.

### **Seminars and Conference Presentations**

---

Roughly 130 (including those by students) since earning Ph.D. in Fall 2007

### **Service (professional)**

---

Session co-convener, "How Microbial Dispersal and Shape Determine Local Structure and Functioning of Aquatic Assemblages," American Society of Limnology and Oceanography Summer Meeting 2018.  
Co-Organizer of the first "Summer School in Particle-Turbulence Interactions in the Plankton." This NSF-funded outreach event led interdisciplinary classes and discussions with 15 scientists within  $\pm 3$  years of their Ph.D. who study plankton biology and/or turbulence physics, June 2015.  
Session chair and proceedings organizer, Interdisciplinary Turbulence Initiative.

September 2014 Conference on turbulence and workshop on turbulence out of classical equilibrium in nature and engineering and multiscale-generated flows. This small conference/workshop asks the ‘big questions’ about how to connect the latest results on turbulence to engineering practice.

Host and co-organizer for the first workshop on Subsea Blowout Modeling.

November 2012. This 2-day workshop on the dynamics of oil and gas released in deep water. brought together 39 people, representing industry, academics, and government agencies.

Session co-convenor, “Advances in Field and Laboratory Measurement Methodologies for Quantifying Geophysical Flows.”

December 2012 American Geophysical Union Fall Meeting.

Event co-convenor, “Fluids education discussion group”

2008-2013, at the American Physical Society Division of Fluid Dynamics.

Session chair, American Physical Society Division of Fluid Dynamics annual meeting 2009 and 2010.

Session co-convenor, “Transport and Mixing in Flows Through Aquatic Vegetation.”  
March 2008 Ocean Sciences Meeting:

Peer reviewer for National Science Foundation and top journals in fluid mechanics, environmental engineering, and measurement methodology.

### **Service (university)**

---

Vice Chair for Equity and Inclusion (2020-present), UC Berkeley, Department of Civil and Environmental Engineering. For this, I am defining the responsibilities of this role and reforming the communication systems in the department so that we can address systemic racism.

Committee chair (2013-2014, 2015-present) and member (2008-present), UC Berkeley, Department of Civil and Environmental Engineering, Outreach and Enrollment Committee. For this, I worked to develop the CEE Professional Development Certificate Program, CEE Undergraduate Research Opportunity Program, and CEE recruiting materials. Gave the department overview and admissions pitch at Cal Day 2017.

Advisory Board member, The Art of Writing Program in the Townsend Center for the Humanities. For this, I provide a perspective on how students in STEM fields can best benefit from courses in the humanities.

Undergraduate Advisor, University of California Berkeley, 2008-present.

Committee member, UC Berkeley, College of Engineering, Engineering Science Committee, Fall 2012-present. Evaluated candidates for admission to Environmental Engineering Science program.

Committee member, UC Berkeley, College of Engineering, Junior Transfer Admissions, Spring 2016-present. Adjudicated admissions decisions to Civil and Environmental Engineering.

Faculty advisor to the ASCE Environmental Competition Team, Fall 2009-Spring 2013.

Technical advisor to the ASCE Environmental Competition Team, AY 2008-2009.

Technical advisor to the ASCE Concrete Canoe Team, AY 2009-10.

## **Service (outreach)**

---

Advised the educational organization 'I look like a Civil Engineer' whose goal is to help people realize that CEE is a field of diverse applications that welcomes people from many backgrounds.

Supported my graduate students as they led a research experience in my lab for underrepresented high school students as part of the SMASH program: 2011, 2012, and 2013, plus tours in 2015.

Gave special lectures for Cal Day in 2009 ("surf report"), 2010 ("virtual tour of San Francisco Bay") and 2013 ("a bubble's view of oil spill science").

Research Advisor in the California Alliance for Minority Participation in S.T.E.M., summer 2010.

Developed mobile web-based interactive tools for large lecture classes with Mobile Commons Inc., New York, NY, 2008-2009.

Supported and performed engineering projects with Engineers for a Sustainable World, including outreach on emerging technologies and sustainable enterprise, 2006-2007.

Organized and advised week-long independent research projects for 20 women interested in engineering, through the CURIE Academy, Cornell University, 2006.

Taught outreach lessons to local schools via the Cornell Science Inquiry Partnership, forty 1-hour lessons were provided during academic year 2004-2005.

Worked with Cornell University press office as point person for stories about our research on Tsunamis, providing lab tours and interviews for print, television, and radio in the aftermath of the 2004 Indian Ocean Tsunami

Hosted design challenge for the Cornell University Engineering Graduate Student Organization

## **Work Experience**

---

**September 2000-June 2001** Associate Consultant in Corporate Strategy and Finance  
*Marakon Associates, New York, NY.*

## **Research Experience**

---

**July 2008-Present** Group Leader & Graduate Student Advisor  
*Engineering Laboratory for Fluid Motion in the Environment, UC Berkeley*

**August 2007-June 2008** Postdoctoral Fellow  
*Everglades National Park and Columbia University's Earth Institute*

**August 2001-July 2007** Graduate Research Assistant and Fellow  
*DeFrees Hydraulics Laboratory, Cornell University*

**May 2005-September 2005** Measurement Team Leader  
*O.H. Hinsdale Wave Research Laboratory, Oregon State University*  
*CROSSTEX-05 Cross-Shore Sediment Transport Experiment*

**June 6-19, 2004** Summer Institute Fellowship Awardee  
*Center on Global Change, Duke University*  
*Institute in Uncertainty and Variability in Ecological Inference, Forecasting, and Decision Making - An Introduction to Modern Statistical Computation*

**May 2002-August 2002** Graduate Research Assistant

*Lake Ontario Biocomplexity Project (NSF OCE-0083625)*  
**September 2001-May 2003** Graduate Fellow  
*IGERT program in Nonlinear Systems, Center for Applied Math, Cornell University (NSF DGE-9870631)*  
**September 1999-May 2000** Undergraduate Researcher  
*Gravity Group, Princeton University*  
**September 1998-September 1999** Undergraduate Researcher  
*Borexino Collaboration, Princeton University*  
**January 1998-May 1999** Undergraduate Researcher  
*Experimental Condensed Matter Group, Princeton University*  
**June 1998-Sept. 1998** Undergraduate Research Fellow  
*Laboratory of Nuclear Studies, Cornell University (NSF REU)*  
**June 1995-August 1995** Undergraduate Research Fellow  
*Experimental Condensed Matter Group, Binghamton University (NSF REU)*

### **Professional Affiliations**

---

American Geophysical Union, since 2003, Hydrology Section and Section of Earth and Planetary Surface Processes  
American Physical Society, since 2002, Division of Fluid Dynamics

### **Research Supervision (postdoctoral scholars)**

---

Dr. Gabriele Bellani, January 2012 – November 2012, “Turbulent suspensions in marine environments: effect of particle size and shape.”  
Dr. Rachel Pepper, September 2011 – July 2014, “Plankton behavior in turbulent flow.”  
Dr. Ruth Lambert, January 2013 – July 2014, “Oil droplets in marine environments: effect of chemical dispersants on collisional scavenging.”  
Dr. Ankur Bordoloi, February 2015 – March 2016 “Interstitial turbulence in dense particle-laden plumes”  
Dr. Nimish Pujara, January 2016 – present, “Kinematics of anisotropic and active particles in turbulence”

### **Research Supervision (Ph.D. theses)**

---

Cristina Poindexter, May 2010-April 2014, “Mixing and transport in wetland surface water as applied to management for Carbon Sequestration.”  
Ian Tse, August 2009-December 2014, “Lagrangian dynamics of natural particles in turbulent flow.”  
Gabriele Bellani, November 2010-May 2011, “Experimental studies of complex flows through image-based techniques.” Co-advised in partnership with KTH mechanics, Stockholm, Sweden,  
Margaret Byron, September 2010-May 2015, “Shape effects in turbulence-particle interaction.”  
Rachel Allen, September 2012-May 2018 “Intermittent turbulent transport in bay margins” (co-advised with professor Mark Stacey).  
Madeline Foster, September 2012-December 2017 “Options for augmenting wetland soil elevation as part of restoration work.”  
Kimberly Huynh, September 2015-present “Methane emissions from wetlands”



Theresa Oehmke, May 2016-present “Mass transfer of particles in turbulence”

### **Research Supervision (short-term graduate projects)**

---

Audric Collignon, July 2008-May 2010, “Method for simultaneous measurements of 3D particle rotation vector and fluid velocity fields.”

Megan Williams, September 2008-May 2009, “Vegetative flow resistance in flood waves in the Brazilian Pantanal.”

Cristina Poindexter, May 2009-May 2010, “Acoustic streaming in acoustic Doppler velocimetry.”

Kurt Nelson, May 2010-June 2010, “Refraction-index matching for imaging in dense slurry flows.”

John Erickson, September 2010-March 2011, “Mixing dynamics and particle separation for arsenic removal.”

Rachel Allen, September 2012-December 2012, “Turbulent Prandtl number in estuarine flows.”

Madeline Foster, September 2012-December 2012, “Wind-driven stirring of wetlands via ‘honami’ waves.”

Elizabeth Jones, January 2013-May 2013, “Evaporation of oil at turbulent air-water interfaces.”

Michelle Hummel, September 2014- May 2015, “Interstitial dynamics in sediment and oil plumes.”

Stephen Clark, September 2014-May 2015, “Mass transport from non-spherical particles suspended in turbulence.”

### **Research Supervision (Externships)**

---

Arranged externship opportunity for masters students in partnership with Autodesk Inc., focusing on tools for visualization and simulation of turbulent and wetland flows.

### **Research Supervision (Undergraduate Research)**

---

About 30 undergraduates (2 per semester) have worked in my laboratory on research projects that last for several months or more. A similar number have participated in 6- to 12-hour research experiences that require minimal training. I work together with PhD and postdoctoral students to advise each of these undergraduates.

### **Federal Research Grants (funds listed are only those accrued to my research group)**

---

“Aerosol and Indoor Air Quality Science to Strengthen the Understanding of Airborne Disease Transmission and Improve Guidance for Health Professionals and the Public,” US Department of Energy, in partnership with Lawrence Berkeley National Lab, Co-PI, 07/01/20 – present; \$50,000

“Effects of Particle Shape and Fluid Shear on the Kinematics and Mass Transfer of Large Particles in Turbulent Flow,” NSF – Fluid Mechanics Program, PI, 09/01/16 - 08/31/19; \$310,000

“Turbulence, Symmetry, and the Role of Organism Shape in Perception” Army Research Laboratory – biomathematics program. 01/01/16 - 12/31/18; \$359,996

“Collaborative Research: Trajectories and Spatial Distributions of Diatoms at Dissipation Scales of Turbulence,” NSF - Biological Oceanography Program, Co-PI. 09/01/13 - 08/31/16; \$315,869.

“Gulf Integrated Spill Response Consortium: Petroleum Evaporation at Water Surface and Droplet Dynamics in Turbulence,” Gulf of Mexico Research Institute, Co-PI. 09/01/11 - 12/31/14; \$458,310

**Campus Research Grants** (funds listed are only those accrued to my research group)

“Droplet transport controlling airborne disease transmission,” CITRIS Center, Co-PI. 06/01/2020 - 09/01/2020; \$10,000.

“Fluid Dynamics Visualization in 3D+time,” Student Technology Fund Spring 2017; \$2,000.00

“Rotation Dynamics in Turbulent Suspensions,” Peder Sather Center for Advanced Study, Co-PI. 07/01/13 – 07/01/15; \$25,000.

“A Wetland Mixing Sensor to Support Water Quality Management,” Center for Information Technology in the Interest of Society, Co-PI. 07/1/11 - 6/30/12; \$70,742.

“Developing 3D Imaging and Velocimetry for Coastal and Riverine Sediment Motion,” Hellman Family Faculty Fund, PI. Awarded 07/1/09-07/1/10; \$47,000.

**Corporate Partnerships** (funds listed are only those accrued to my research group)

“Droplet transport controlling airborne disease transmission in cleanrooms” LAM Electronics, Inc., Co-PI. 06/01/2020 - 09/01/2020; \$50,000.

“Optimal Methods for Interfacial Mixing,” Autodesk, Inc., PI. 03/01/2010 - 08/01/2011; \$18,965.

**Graduate Fellowships awarded to my students**

NSF IGERT in Biomechanics: Ian Tse (1 year), Margaret Byron (2 years)

NSF Graduate Research Fellowship (3 years): Margaret Byron, Madeline Foster

Churchill Fellowship (1 year): Colin Meyer

Chateaubriand Fellowship (2 years): Theresa Oehmke

Bay Area Water Quality Fellowship (1 semester): Rachel Allen

Philomathia Graduate Fellowship in the Environmental Sciences (1 year): Cristina Poindexter

Hildebrand Fellowship (1 year): Kimberly Huynh