

## Scott A. Socolofsky

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### Professional Preparation

University of Colorado at Boulder	Civil & Environmental Engineering	B.S. 1994
Massachusetts Institute of Technology	Civil & Environmental Engineering	M.S. 1997
Massachusetts Institute of Technology	Civil & Environmental Engineering	Ph.D. 2001

### Appointments

Associate Professor, Coastal and Ocean Engineering Division, Zachry Department of Civil Engineering, Texas A&M University	2009-present
Assistant Professor, Coastal and Ocean Engineering Division, Zachry Department of Civil Engineering, Texas A&M University	2003-2009
Division Director, Inst. for Hydromechanics, Environmental Fluid Mechanics Division, University of Karlsruhe, Germany	2002-2003
Research Associate, Inst. for Hydromechanics, Environmental Fluid Mechanics Division, University of Karlsruhe, Germany	2001-2002
Engineer, Wright Water Engineers, Inc., Denver, Colorado	1994

### Honors and Awards

- *IgNobel Prize in Chemistry*, Improbable Research, 2010. Awarded jointly to E. Eric Adams, Steven Masutani, and BP for “Disproving the old adage that oil and water don’t mix.”
- *Karl Emil Hilgard Hydraulic Prize*, American Society of Civil Engineers, 2009. Awarded along with co-authors F. Weitbrecht and G. H. Jirka for the best paper in the *Journal of Hydraulic Engineering* in 2008.
- *National Science Foundation CAREER Award*, “The role of turbulence, coherent structures, and intermittency for controlling transport in multiphase plumes in the environment,” Division of Chemical Transport Systems, Particulate and Multiphase Flow, 2004.

### Selected Journal Publications

27 Journal Publications, 3 invited book chapters, 1 article in an AGU Monograph, and 2 other book chapters. ISI Web of Science: H-index: 9; citations without self-citations: 201, based on 24 items found.

- Zhao, L., Boufadel, M. C., Socolofsky, S. A., Adams, E. E., King, T., and Lee, K., “Evolution of droplets in subsea oil and gas blowouts: Development and validation of the numerical model VDROD-J,” *Marine Pollution Bulletin*. In press (MPB-D-14-00174).
- Adams, E. E., Socolofsky, S. A., and Boufadel, M. (2013), “Comment on ‘Evolution of the Macondo well blowout: simulating the effects of the circulation and synthetic dispersants on the subsea oil transport.’” *Environmental Science & Technology*, **47**(20), p. 11905, doi: 10.1021/es4034099.
- Anderson, K., Bhatnagar, G., Crosby, D., Hatton, G., Manfield, P., Kuzmicki, A., Fenwick, N., Pontaza, J., Wicks, M., Socolofsky, S., Brady, C., Svedeman, S., Sum, A., Koh, C., Levine, J., Warzinski, R., Shaffer, F. (2012), “Hydrates in the ocean—Beneath, around, and above production equipment.” *Energy & Fuels*, **26**(7), pp. 4167-4176, doi: 10.1021/ef300261z.
- Bryant\*, D., Whilden\*, K. A., Socolofsky, S. A., and Chang, K.-A. (2012), “Formation of tidal starting-jet vortices through idealized barotropic inlets with finite length,” *Environmental Fluid Mechanics*, **12**(4), pp. 301-319, doi: 10.1007/s10652-012-9237-4.
- Socolofsky, S. A., Adams, E. E., and Sherwood C. R. (2011), “Formation dynamics of subsurface hydrocarbon intrusions following the Deepwater Horizon blowout,” *Geophysical Research Letters*, **38**, paper L09602, doi:10.1029/2011GL047174. Selected as a Research Highlight in *EOS*, the weekly publication of the American Geophysical Union; **92**(25), July 5, 2011.

- Bryant\*, D. B., Seol\*, D. G., and Socolofsky, S. A. (2009), “Quantification of turbulence properties in bubble plumes using vortex identification methods.” *Physics of Fluids*, **21**(7), paper 075101, doi: 10.1063/1.3176464.
- Kim\*, D.-H., Lynett, P., and Socolofsky, S. A. (2009), “A depth-integrated model for weakly dispersive, turbulent, and rotational fluid flows.” *Ocean Modelling*, **27**(3-4), pp. 198-214, doi: 10.1016/j.ocemod.2009.01.005.
- Seol\*, D. G., Bryant\*, D. B., and Socolofsky, S. A. (2009), “Measurement of behavioral properties of entrained ambient water in a stratified bubble plume.” *Journal of Hydraulic Engineering-ASCE*, **135**(11), pp. 983-988, doi: 10.1061/(ASCE)HY.1943-7900.0000109.
- Negretti\*, M. E., Socolofsky, S. A., and Jirka, G. H. (2008), “Linear stability analysis of inclined two-layer stratified flows.” *Physics of Fluids*, **20**(9), paper 094104, doi: 10.1063/1.2980351.
- Seol\*, D.-G., and Socolofsky, S. A. (2008), “Vector post-processing algorithm for phase discrimination of two-phase PIV.” *Experiments in Fluids*, **45**(2), pp. 223-239, doi: 10.1007/s00348-008-0473-9.
- Socolofsky, S. A., Bhaumik\*, T., and Seol\*, D. G. (2008), “Double-plume integral models for near-field mixing in multiphase plumes.” *Journal of Hydraulic Engineering-ASCE*, **134**(6), pp. 772-783, doi: 10.1061/(ASCE)0733-9429(2008)134:6(772).
- Socolofsky, S. A., and Bhaumik\*, T. (2008), “Dissolution of direct ocean carbon sequestration plumes using an integral model approach.” *Journal of Hydraulic Engineering-ASCE*, **134**(11), pp. 1570-1578, doi: 10.1061/(ASCE)0733-9429(2008)134:11(1570).
- Negretti\*, M. E., Socolofsky, S. A., Rummel\*, A. C., and Jirka, G. H. (2005), “Stabilization of cylinder wakes in shallow water flows by means of roughness elements: an experimental study.” *Experiments in Fluids*, **38**(4), pp. 403-414, doi: 10.1007/s00348-004-0918-8.
- Rummel\*, A. C., Socolofsky, S. A., von Carmer\*, C. F., and Jirka, G. H. (2005), “Enhanced diffusion from a continuous point source in shallow free-surface flow with grid turbulence.” *Physics of Fluids*, **17**(7), paper 075105, doi: 10.1063/1.1949649.

### Relevant Synergistic Activities

- Technical Advisory Committee Member of the American Petroleum Institute, Subsea Effectiveness Program of the Joint Industry Task Force for Oil Spill Planning and Response, Subcommittee D3 Dispersant Effectiveness.
- Chief Scientist of the Gulf Integrated Spill Research (GISR) Consortium of the BP/Gulf of Mexico Research Initiative.
- Associate Editor for the *Journal of Hydraulic Engineering-ASCE* and *Journal of Engineering Mechanics-ASCE*.
- Division Head for Coastal and Ocean Engineering and Head of the Ocean Engineering Program, Zachry Department of Civil Engineering, Texas A&M University, 2011-present.
- Author of the open-source numerical model TAMOC: the Texas A&M Oilspill Calculator. This is a comprehensive near-field numerical plume model for oil and gas seeps or spills in the oceans. TAMOC is currently being adopted as the near-field model component of GNOME: the General NOAA Operational Modeling Environment.

### Graduate Student Advising

8 Ph.D. students as chair or co-chair: D.-G. Seol (2008), D. Bryant (2010), T. Borrowman, K. Whilden (co-chair with Dr. Chang), M. Rezvani, V. Dehkharghanian, I.-O. Jun, C. C.-K. Lai.

6 M.S. students as chair or co-chair: T. Bhaumik (2005), F. del Roure (2007), K. Whilden (2009, co-chair with Dr. Chang), M. Truong (2011), J. Allen (2013), R. Holder (2013).

2 post-doctoral scholars: A. Dissanayake (June 2014-present), B. Wang (September 2014-present).