Brett F. Sanders

University of California, Irvine
Irvine, CA 92697-2175
Civil and Environmental Engineering
(949) 824-4327
Fax: (949) 824-2117
Email: bsanders@uci.edu

Education

PhD, University of Michigan, 1997.
Major: Civil Engineering
Dissertation Title: Active Control of Flood Waves Using the Adjoint Equation Solution
Advisor: Katopodes, N. D.

MS, University of Michigan, 1994.
Major: Civil Engineering

BS, *Cum laude*, University of California at Berkeley, 1993.
Major: Civil Engineering

Professional Positions

Department Chairperson, Civil and Environmental Engineering, UC Irvine, (July 1, 2010 - Present).
Professor, Civil and Environmental Engineering, UC Irvine (2009-Present).
Associate Professor, Civil and Environmental Engineering, UC Irvine (2003-2009).
Assistant Professor, Civil and Environmental Engineering, UC Irvine (1997-2003).

Research Interests

River and Coastal Engineering, Flood Inundation Modeling, Water Quality Modeling, Remote Sensing

Licensures and Certifications

E.I.T.

Professional Memberships

American Geophysical Union (AGU).
American Society of Civil Engineers (ASCE).
Chi Epsilon Honor Society.
International Association for Hydraulic Research (IAHR).

Awards and Honors

Distinguished Engineering Educator Award, Orange County Branch, ASCE. (2012).
Outstanding Reviewer Award, Journal of Hydraulic Engineering, ASCE. (2011).
Teaching Excellence Award, Division of Undergraduate Education. (2009).
Fariborz Maseeh Best Faculty Teacher Award (shared), Henry Samueli School of Engineering, University of California, Irvine. (2004).
Teaching Excellence Award, Celebration of Teaching, Division of Undergraduate Education, University of California, Irvine. (2004).

Award Letter for Significant Improvement in the UCI Chapter of ASCE, Committee on Student Activities, ASCE. (2002).
National Science Foundation Early Career Award. (2000).
Outstanding Assistant Professor Award (shared), UCI Department of Civil and Environmental Engineering. (2000).
UCI Career Development Award. (1999).
Outstanding Paper Award, International Conference on Hydroscience and Engineering. (September 1998).
NSF/University of Michigan Infrastructure Fellow. (1996 - 1997).
Victor L. Streeter Fellow. (1993 - 1996).

RESEARCH

Publications

Journal Articles, Peer-Reviewed

Gallien, T. W., Sanders, B. F., Flick, R. L. Modeling urban coastal flooding from wave-driven beach overtopping: field validation and uncertainty analysis. *Coastal Engineering. (manuscript in review)*

58. Schubert, J. E., Gallien, T. W., Majd, M. S., Sanders, B. F. (2014). Terrestrial Laser Scanning of Anthropogenic Beach Berm Erosion and Overtopping. *Journal of Coastal Research. (in press)*

57. Kim, B., Sanders, B. F., Schubert, J. E., Famiglietti, J. S. (2014). Mesh type tradeoffs in 2D hydrodynamic modeling of flooding with a Godunov-based flow solver. *Advances in Water Resources, 68*.

56. Aghakouchak, A., Feldman, D. L., Stewardson, M. J., Saphores, J. D., Grant, S. B., Sanders, B. F. (2014). Australia's Drought: Lessons for California. *Science, 343(6178)*, 1430-1431.

55. Majd, M. S., Sanders, B. F. (2014). The LHLLC scheme for Two-Layer and Two-Phase transcritical flows over a mobile bed with avalanching, wetting and drying. *Advances in Water Resources, 67*, 16-31.

54. Kim, B. H., Sanders, B. F., Han, K. Y., Kim, Y. J., Famiglietti, J. S. (2014). Calibration of stormwater management model using flood extent data. *Proceedings of the Institution of Civil Engineers - Water Management, 167(1)*, 17-29.

53. Gallien, T. W., Barnard, P. L., van Ormondt, M., Foxgrover, A., Sanders, B. F. (2013). A parcel-scale coastal flood forecasting prototype for a southern California urbanized embayment. *Journal of Coastal Research, 29(3)*, 642-656.

52. Grant, S. B., Saphores, J. D., Feldman, D. L., Hamilton, A. J., Cool, P., Stewardson, M., Sanders, B. F., Levin, L. A., Ambrose, R. F., Deletic, A., Brown, R., Jiang, S. C., Rosso, D., Cooper, W. J., Marusic, I. (2012). Taking the "Waste" Out of "Wastewater" for Human Water Security and Ecosystem Sustainability. *Science, 337(6095)*, 681-686.

51. Gallegos, H. A., Schubert, J. E., Sanders, B. F. (2012). Structural damage prediction in a high-velocity urban dam-break flood: a field-scale assessment of predictive skill. *ASCE Journal of Engineering Mechanics, 138(10)*, 1249-1262.

50. Schubert, J. E., Sanders, B. F. (2012). Building treatments for urban flood inundation models and implications for predictive skill and modeling efficiency. *Advances in Water Resources, 41*, 49-64.

49. Wu, W. M., Altinakar, M. S., Al-Riffai, M., Bergman, N., Bradford, S. F., Cao, Z. X., Chen, Q. J., Constantinescu, S. G., Duan, J. G., Gee, D. M., Greimann, B., Hanson, G., He, Z. G., Hegedus, P., van Hoestenberghe, T., Huddleston, D., Hughes, S. A., Imran, J., Jia, Y. F., Jorgeson, J. D., Kahawita, R., Klumpp, C. C., Lai, Y., Langendoen, E. J., Liu, S., Moreda, F., Morris, M., Morvan, H., Orendorff, B., Pak, J., Peeters, P., Reed, S., Sanders, B. F., Scott, S. H., Soares-Frazao, Song, C. R., Sutherland, J., Teal, M. J., Tsubaki, R., Wahl, T. L., Weston, D. M., Williams, D. T., Zech, Y., Zhang, L. M. (2011). Earthen Embankment Breaching. *ASCE Journal of Hydraulic Engineering, 137(11)*, 1549-1564.

48. Howes, D. J., Sanders, B. F. (2011). Velocity Contour Weighting Method. II: Evaluation in Trapezoidal Channels and Roughness Sensitivity. *ASCE Journal of Hydraulic Engineering, 137(11)*, 1368-1374.

47. Howes, D. J., Sanders, B. F. (2011). Velocity Contour Weighting Method. I: Algorithm Development and Laboratory Testing. *ASCE Journal of Hydraulic Engineering, 137(11)*, 1359-1367.

46. Shin, H. M., Vieira, V. M., Ryan, B. P., Detwiler, R., Sanders, B. F., Steenland, K., Bartell, S. M. (2011). Environmental Fate and Transport Modeling for Perfluorooctanoic Acid Emitted from the Washington Works Facility in West Virginia. *Environmental Science and Technology, 45*, 1435-144.

45. Gallien, T. W., Schubert, J. E., Sanders, B. F. (2011). Predicting Tidal Flooding of Urbanized Embayments: A Modeling Framework and Data Requirements. *Coastal Engineering, 58(6)*, 567-577.

44. Sanders, B. F., Bradford, S. F. (2011). A network implementation of the two-component pressure approach for transient flow in storm sewers. *ASCE Journal of Hydraulic Engineering, 137(2)*, 158-172.

43. Grant, S. B., Sanders, B. F. (2010). Beach boundary layer: a framework for addressing recreational water quality impairment at enclosed beaches. *Environmental Science and Technology, 44*, 8804-8813.

42. Sanders, B. F., Schubert, J. E., Detwiler, R. L. (2010). ParBreZo: A parallel, unstructured grid, Godunov-type, shallow-water code for high-resolution flood inundation modeling at the regional scale. *Advances in Water Resources, 33*, 1456-1467.

41. Howes, D. J., Burt, C. M., Sanders, B. F. (2010). Subcritical contraction for improved open-channel flow measurement accuracy with an upward-looking ADVM. *ASCE Journal of Irrigation and Drainage Engineering, 136(9)*, 617-626.

40. Begnudelli, L., Valiani, A., Sanders, B. F. (2010). A balanced treatment of secondary currents, turbulence and dispersion in a depth-integrated hydrodynamic and bed deformation model for channel bends. *Advances in Water Resources, 33*, 17-33.

39. Gallegos, H. A., Schubert, J. E., Sanders, B. F. (2009). Two-dimensional, high-resolution modeling of urban dam-break flooding: a case study of Baldwin Hills, California. *Advances in Water Resources, 32*, 1323-1335.

38. Sanders, B. F., Schubert, J. E., Gallegos, H. A. (2008). Integral formulation of shallow-water equations with anisotropic porosity for urban flood modeling. *Journal of Hydrology, 362*, 19-38. (doi:10.1016/j.jhydrol.2008.08.009).

37. Schubert, J. E., Sanders, B. F., Smith, M. J., Wright, N. G. (2008). Unstructured mesh generation and

landcover-based resistance for hydrodynamic modeling of urban flooding. *Advances in Water Resources, 31*, 1603-1621. (doi:10.1016/j.advwatres.2008.07.012).

36. Sanders, B. F. (2008). Integration of a shallow-water model with a local time step. *Journal of Hydraulic Research, 46(4)*, 466-475.

35. Jeong, Y., Sanders, B. F., McLaughlin, K., Grant, S. B. (2008). Treatment of dry weather urban runoff in tidal saltwater marshes: A longitudinal study of the Talbert Marsh in southern California. *Environmental Science and Technology, 42(10)*, 3609-3614.

34. Begnudelli, L., Sanders, B. F., Bradford, S. F. (2008). An adaptive Godunov-based model for flood simulation. *ASCE Journal of Hydraulic Engineering, 134(6)*.

33. Begnudelli, L., Sanders, B. F. (2007). Simulation of the St. Francis Dam-Break Flood. *ASCE Journal of Engineering Mechanics, 133(11)*, 1200-1212.

32. Sanders, B. F. (2007). Evaluation of on-line DEMs for flood inundation modeling. *Advances in Water Resources, 30(8)*, 1831-1843.

31. Jeong, Y., Sanders, B. F., Grant, S. B. (2006). The information content of high frequency environmental monitoring data signals pollution events in the coastal ocean. *Environmental Science and Technology, 40(20)*, 6215-6220.

30. Begnudelli, L., Sanders, B. F. (2007). Conservative Wetting and Drying Methodology for Quadrilateral Grid Finite Volume Models. *ASCE Journal of Hydraulic Engineering, 133(3)*, 312-322.

29. Sanders, B. F., Pau, J., Jaffe, D. A. (2006). Passive and active control of diversions to an off-line reservoir for flood stage reduction. *Advances in Water Resources, 29(6)*, 861-871.

28. Pau, J. C., Sanders, B. F. (2006). Performance of Parallel Implementations of an Explicit Finite-Volume Shallow-Water Model. *ASCE Journal of Computing in Civil Engineering, 20(2)*, 99-110.

27. Begnudelli, L., Sanders, B. F. (2006). Unstructured Grid Finite Volume Algorithm for Shallow-water Flow and Transport with Wetting and Drying. *ASCE Journal of Hydraulic Engineering, 132(4)*, 371-384.

26. Sanders, B. F., Bradford, S. F. (2006). Impact of Limiters on Accuracy of High-Resolution Flow and Transport Models. *ASCE Journal of Engineering Mechanics, 132(1)*, 87-98.

25. Bradford, S. F., Sanders, B. F. (2005). Performance of High-Resolution, Non-Level Bed, Shallow-Water Models. *ASCE Journal of Engineering Mechanics, 131(10)*, 1073-1081.

24. Sanders, B. F., Arega, F., Sutula, M. (2005). Modeling the dry-weather tidal cycling of fecal indicator bacteria in surface waters of an intertidal wetland. *Water Research, 39*, 3394-3408.

23. Sanders, B. F., Chrysikopoulos, C. V. (2004). Longitudinal Interpolation of Parameters Characterizing Channel Geometry by Piece-wise Polynomial and Universal Kriging Methods: Effect on Flow Modeling. *Advances in Water Resources, 27*, 1061-1073.

22. Kim, J. H., Grant, S. B., McGee, C. D., Sanders, B. F., Largier, J. L. (2004). Locating Sources of Surf Zone Pollution: A Mass Budget Analysis of Fecal Indicator Bacteria at Huntington Beach, California. *Environmental Science and Technology, 38(9)*, 2626 – 2636.

21. Reeves, R. L., Grant, S. B., Mrse, R. D., Copil-Oancea, C. M., Sanders, B. F., Boehm, A. B. (2004). Scaling and Management of Fecal Indicator Bacteria in Runoff from a Coastal Urban Watershed in Southern California. *Environmental Science and Technology, 38(9)*, 2637-2648.

20. Arega, F., Sanders, B. F. (2004). Dispersion Model for Tidal Wetlands. *ASCE Journal of Hydraulic Engineering, 130(8)*, 739-754.

19. Sanders, B. F., Jaffe, D. A., Chu, A. K. (2003). Discretization of Integral Equations Describing Flow in Non-Prismatic Channels with Uneven Beds. *ASCE Journal of Hydraulic Engineering, 129(3)*, 235-244.

18. Chu, A. K., Sanders, B. F. (2003). Data Requirements for Load Estimation in Well-Mixed Tidal Channels. *ASCE Journal of Environmental Engineering, 129(8)*, 765-773.

17. Bradford, S. F., Sanders, B. F. (2002). Finite-Volume Models for Unidirectional, Nonlinear, Dispersive Waves. *ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering, 128(4)*, 173-182.

16. Boehm, A. B., Sanders, B. F., Winant, C. D. (2002). Cross-Shelf Transport at Huntington Beach. Implications for the Fate of Sewage Discharged through an Offshore Ocean Outfall. *Environmental Science and Technology, 36*, 1899-1906.

15. Bradford, S. F., Sanders, B. F. (2002). Finite-Volume Model for Shallow-Water Flooding of Arbitrary Topography. *ASCE Journal of Hydraulic Engineering, 128(3)*, 289-298.

14. Sanders, B. F., Bradford, S. F. (2002). High-Resolution, Monotone Solution of the Adjoint Shallow-Water Equations. *International Journal of Numerical Methods in Fluids, 38(2)*, 139-161.

13. Sanders, B. F. (2002). Non-Reflecting Boundary Flux Function for Finite Volume Shallow-Water Models. *Advances in Water Resources, 25(2)*, 195-202.

12. Piasecki, M., Sanders, B. F. (2002). Optimization of Multiple Freshwater Diversions in Well-Mixed Estuaries. *ASCE Journal of Water Resources Planning and Management, 128(1)*, 74-84.

11. Sanders, B. F., Piasecki, M. (2002). Mitigation of Salinity Intrusion in Well-Mixed Estuaries by Optimization of Freshwater Diversion Rates. *ASCE Journal of Hydraulic Engineering, 128(1)*, 64-77.

10. Grant, S. B., Sanders, B. F., Boehm, A. B., Redman, J. A., Kim, J. H., Mre, R. D., Chu, A. K., Gouldin, M., McGee, C. D., Gardiner, N. A., Jones, B. H., Svejkovsky, J., Leipzig, G. V., Brown, A. (2001). Generation of Enterococci Bacteria in a Coastal Saltwater Marsh and Its Impact on Surf Zone Water Quality. *Environmental Science and Technology, 35(12)*, 2401-2406.

9. Sanders, B. F., Green, C. L., Chu, A. K., Grant, S. B. (2001). Modeling Tidal Transport of Urban Runoff in Channels Using the Finite Volume Method. *ASCE Journal of Hydraulic Engineering, 127(10)*, 795-804.

8. Jaffe, D. A., Sanders, B. F. (2001). Engineered Levee Breaches for Flood Mitigation. *ASCE Journal of Hydraulic Engineering, 127(6)*, 471-477.

7. Sanders, B. F. (2001). High-Resolution and Non-Oscillatory Solution of the St. Venant Equations in Non-Rectangular and Non-prismatic Channels. *Journal of Hydraulic Research, 39(3)*, 321-330.

6. Sanders, B. F., Katopodes, N. D. (2000). Sensitivity Analysis of Shallow-Water Wave Control. *ASCE*

Journal of Engineering Mechanics, 126(9), 909-919.

5. Sanders, B. F., Katopodes, N. D. (1999). Active Flood Hazard Mitigation. Part 2: Omnidirectional Wave Control. *ASCE Journal of Hydraulic Engineering, 125(10)*, 1071-1083.

4. Sanders, B. F., Katopodes, N. D. (1999). Active Flood Hazard Mitigation. Part 1: Bidirectional Wave Control. *ASCE Journal of Hydraulic Engineering, 125(10)*, 1057-1070.

3. Sanders, B. F., Katopodes, N. D. (1999). Control of Canal Flow by Adjoint Sensitivity Method. *ASCE Journal of Irrigation and Drainage Engineering, 125(5)*, 287-297.

2. Katopodes, N. D., Sanders, B. F., Boyd, J. P. (1998). Short Wave Behavior of Long Wave Equations. *ASCE Journal of Waterway, Port, Coastal and Ocean Engineering, 124(5)*, 238-247.

1. Sanders, B. F., Katopodes, N. D., Boyd, J. P. (1998). Spectral Modeling of Nonlinear Dispersive Waves. *ASCE Journal of Hydraulic Engineering, 124(1)*, 2-12.

Conference/Workshop/Symposium Proceedings, Peer-Reviewed

21. Poon, Y., Sanders, B. F., Mason, R., Stein, R. (2012). Sea Level Rise Impact Assessment and Mitigation Alternatives for Balboa Islands, City of Newport Beach, California. In *Coastal Engineering Proceedings. International Conference on Coastal Engineering 2012*.

20. Poon, Y., Sanders, B. F., Mason, R., Stein, R. (2011). Sea Level Rise Impact Assessment and Mitigation Alternatives Development for Balboa Island and Little Balboa Island, City of Newport Beach, California. In *Coastal Engineering Practice. 2011 Conference on Coastal Engineering Practice*, ASCE.

19. Gallien, T. W., Schubert, J. E., Poon, Y. K., Sanders, B. F. (2011). The Effects of Increased Water Levels in the Eastern Pacific: Development and Validation of a Wave and Tidal Urban Inundation Model. *34rd IAHR Congress: Balance and Uncertainty – Water in a Changing World, Brisbane, Australia*. (CD-ROM).

18. Gallien, T. W., Schubert, J. E., Sanders, B. F. (2009). High-Resolution, Unstructured Grid Modeling of Coastal Flood Inundation at Newport Harbor, CA. *33rd IAHR Congress: Water Engineering for a Sustainable Environment, Vancouver, CA*. (CD-ROM).

17. Gallegos, H. A., Schubert, J. E., Sanders, B. F. (2009). Urban Dam-Break Flood Inundation Modeling with LiDAR Terrain Data: Validation at Baldwin Hills, California. *33rd IAHR Congress: Water Engineering for a Sustainable Environment, Vancouver, CA*. (CD-ROM).

16. Howes, D. J., Burt, C. M., Sanders, B. F. (2009). Flow Conditioner Design for Improving Open Channel Flow Measurement Accuracy from a SonTek Argonaut-SW. In *Proceedings of the USCID Fifth International Conference on Irrigation and Drainage, Salt Lake City, Utah.*

15. Sanders, B. F., Mrse, R. D. (2007). Resistance to Flooding by Mega Roughness. *32nd Congress of IAHR, Venice, Italy*. (CD-ROM).

14. Begnudelli, L., Sanders, B. F. (2007). Simulation of the St. Francis Dam-Break Flood. *32nd Congress of IAHR, Venice, Italy*. (CD-ROM).

13. Morvan, H. P., Sanders, B. F. (2005). Modelling Open Channel Flow with Recirculation Zones: Comparison of 2D and 3D Models and Turbulent Closure Schemes. In *Proceedings of the Joint*

ASCE/ASME/SES Conference on Mechanics and Materials, Baton Rouge, LA. McMat 2005. (CD-ROM).

12. Begnudelli, L., Sanders, B. F. (2005). Wetting and Drying of Triangular Computational Cells. In *Proceedings of the Joint ASCE/ASME/SES Conference on Mechanics and Materials, Baton Rouge, LA. McMat 2005*. (CD-ROM).

11. Sanders, B. F. (2004). Dissipation and Anti-Dissipation of High-Resolution Schemes for Modeling Flow and Transport. In *Proceedings of the 17th Engineering Mechanics Conference, ASCE, Newark, Delaware. EM2004*. (CD-ROM).

10. Argall, R., Sanders, B. F., Poon, Y. K. (2003). Random-Walk Suspended Sediment Entrainment, Transport and Settling Model. In *Proceedings of the 8th International Conference on Estuarine and Coastal Modeling, Monterey, California.*

9. Arega, F., Sanders, B. F. (2003). Modeling Circulation and Mixing in Tidal Wetlands of the Santa Ana River. In *Proceedings of the 8th International Conference on Estuarine and Coastal Modeling, Monterey, California.*

8. Sanders, B. F., Pau, J. C. (2003). Parallel Implementation of an Explicit Finite-Volume Shallow-Water Model. In *Proceedings of the 16th Engineering Mechanics Conference, ASCE, Seattle. EM2003*. (CD-ROM).

7. Bradford, S. F., Sanders, B. F. (2001). Modeling Flows with Moving Boundaries Due to Flooding, Recession, and Wave Run-up. In *Proceedings of the 7th International Conference on Estuarine and Coastal Modeling, St. Petes Beach, Florida.*

6. Jaffe, D. A., Sanders, B. F. (2001). Tactical Levee Breaching for Flood Mitigation. In *Proceedings of the 3rd International Symposium on Environmental Hydraulics,Tempe.* (CD-ROM).

5. Sanders, B. F., Bradford, S. F. (2000). Computation of Tidal Co-Oscillation in Wetlands by Finite Volume Method. In *Proceedings of the 14th Engineering Mechanics Conference, ASCE, Austin. EM2000*. (CD-ROM).

4. Piasecki, M., Sanders, B. F. (1999). Control of Estuarine Salinity using the Adjoint Method. In *Proceedings of the 6th International Conference on Estuarine and Coastal Modeling, New Orleans, Lousiana.*

3. Sanders, B. F., Katopodes, N. D. (1998). Adaptive Control of Shallow-Water Waves. In *Proceedings of the 3rd International Conference on Hydroscience and Engineering, Cottbus, Germany.* (Award Winning Paper).

2. Sanders, B. F., Katopodes, N. D. (1997). Optimal Control of Sudden Water Release from a Reservoir. In F. M. Holly, A. Alsaffar (Eds.), *Proceedings of the XXVII Congress of the International Association for Hydraulic Research, Theme A.* (pp. 314-319).

1. Sanders, B. F., Katopodes, N. D. (1997). Control of Multi-Dimensional Wave Motion in Shallow-Water. In M. L. Spaulding, A. F. Blumberg (Eds.), *Proceedings of the 5th International Conference on Estuarine and Coastal Modeling, Alexandria Virginia.* (pp. 267-278).

Conference/Workshop/Symposium Proceedings, Other

2. Sanders, B. F., Jaffe, D. (1999). Mitigation of Extreme Flooding Events by Tactical Depression Wave

Control. In *Proceedings of the 1999 ASCE International Water Resources Engineering Conference, Seattle, Washington.* (pp. 476).

1. Katopodes, N. D., Sanders, B. F. (1999). Control of Shallow-Water Flow and Transport. In *Proceedings of the International Meeting on Numerical Simulation of Hydrodynamic Systems.* Zaragoza, Spain. Applied Mathematics to Industrial Flow Problems program, European Community Science Foundation.

Magazine Articles

2. Sanders, B. F. (2012). The Four River Project, The world keeps watching. *Weekly Gonggam, 161*. (Feature Article).

1. McManus, M. A., Largier, J., Palomino, E., Wilkinson, L., Washburn, L., Stolzenback, K., Sanders, B. F., Morgan, S., Stacey, M., Palomino, E., Wright, F., Scott, J. S. (2003). Data Management Techniques for NEOCO, the Network for Environmental Observations of the Coastal Ocean. *Sea Technology, 44(8)*, 54-60.

Technical Reports

3. Sanders, B. F., Shinozuka, M., Salcedo, F. A. (2008). *Systems Approach to Flood Disaster Planning and Response* (Task No. 10.4.7). Multidisciplinary Center for Earthquake Engineering Research, SUNY, Buffalo.

2. Sanders, B. F., Begnudelli, L. (2006). *Simulation of Waita Reservoir Dam-Break Flooding*. Department of Civil and Environmental Engineering, University of California, Irvine.

1. Sanders, B. F., Begnudelli, L., Morvan, H. P. (2006). *Verification and Validation of Open Channel Flow Models*. Engineering Mechanics Division, ASCE. (Draft Report to the Fluids Committee).

Web Publications

Sanders, B. F. (2008). BreZo flood simulation software. http://sanders.eng.uci.edu/brezo.html. (This is an outgrowth of my research efforts to develop a robust and efficient model to simulate flood inundation. Browsers can access a binary executable file, sample project files, and instructions for using the code).

Sanders, B. F. (2006). Computer simulation of the Kaloka Reservoir dam-break flood on Kauai. http://sanders.eng.uci.edu/model_information.html. (This was completed only two days after the flood event, and widely distributed by print and television media).

Abstracts Published

Shin, H. M., Vieira, V., Ryan, P. B., Sanders, B., Steenland, K., Bartell, S. (2011). Retrospective exposure estimation for perfluorooctanoic acid (PFOA) for participants in the C8 health project. *Reproductive Toxicology, 33(4)*, 615.

Shin, H. M., Vieira, V., Ryan, P. B., Detwiler, R., Sanders, B. F., Steenland, K., Bartell, S. (2011). Environmental fate and transport modeling for perfluorooctanoic acid (PFOA) emitted from the Washington Works facility. *Environmental Toxicology, 33(4)*, 604.

Presentations Given

Sanders, B. F., 2014 Annual Public Meeting, "Coastal Flooding and Climate Change," Interagency Steering Committee on Multimedia Environmental Modeling (ISCMEM), Washington, DC. (February 25, 2014).

Schubert, J. E., Sanders, B. F., Andreadis, K., AGU Fall Meeting, "Spatial Structure of a Braided River: Metric Resolution Hydrodynamic Modeling Reveals What SWOT Might See," AGU, San Francisco. Poster Presentation. (December 12, 2013).

Paiva, R., Durand, M. T., Schubert, J. E., Sanders, B. F., Andreadis, K., AGU Fall Meeting, "Discharge estimates on a small braided river based on synthetic SWOT measurements," AGU, San Francisco. Poster Presentation. (December 11, 2013).

Nguyen, P., Sorooshian, S., Hsu, K.-l., Aghakouchak, A., Sanders, B. F., AGU Fall Meeting, "Evaluating the Performance of a Coupled Distributed Hydrologic – Hydraulic Model for Flash Flood Modeling Using Multiple Precipitation Data Sources," AGU, San Francisco. Poster Presentation. (December 10, 2013).

Kim, B., David, C. H., Druffel-Rodriguez, R., Sanders, B. F., Famiglietti, J. S., AGU Fall Meeting, "Modeling framework to link climate, hydrology and flood hazards: An application to Sacramento, California," AGU, San Francisco. Poster Presentation. (December 10, 2013).

Sanders, B. F., Schubert, J. E., Gallien, T. W., Majd, M. S., AGU Fall Meeting, "Terrestrial laser scanning of anthropogenic beach berms for urban flood defense," AGU, San Francisco. Oral Presentation. (December 10, 2013).

Majd, M. S., Sanders, B. F., AGU Fall Meeting, "One dimensional modeling of anthropogenic beach berm erosion," AGU, San Francisco. Poster Presentation. (December 9, 2013).

Sanders, B. F. (Presenter), Gallien, T. W., Flick, R. L., Headwaters to Ocean 2013, "Urban Coastal Flood Prediction: Implications of Modeling Methodology, Mitigation Strategies and Sea Level Rise," San Diego, California. (May 29, 2013).

Sanders, B. F., Laguna Greenbelt Annual Meeting, "Coastal Flooding: A Story of Rainfall, Tides, Waves and Sea Level Rise," Laguna Beach, California. (February 21, 2013).

Sanders, B. F., Kim, B., Schubert, J. E., Famiglietti, J. S., AGU Fall Meeting, "A study of effective mesh type for 2D flood inundation simulation," AGU, San Francisco. (December 2012).

Majd, M. S., Sanders, B. F., AGU Fall Meeting, "Godunov-based model of swash zone dynamics to advance coastal flood prediction," AGU, San Francisco. (December 2012).

Nguyen, P., Sorooshian, S., Hsu, K.-l., AghaKouchak, A., Sanders, B. F., Smith, M. B., Koren, V., AGU Fall Meeting, "Improving flash flood forecasting through coupling of a distributed hydrologic rainfall-runoff model (HL-RDHM) with a hydraulic model," AGU. (December 2012).

Kim, B., Sanders, B. F., Kim, K., Han, K., Famiglietti, J. S., AGU Fall Meeting, "Methodology for Establishment of Integrated Flood Analysis System," AGU, San Francisco. (December 2012).

Gallien, T. W., Sanders, B. F., AGU Fall Meeting, "Parcel-scale urban coastal flood prediction: Identifying critical data and forcing requirements," AGU, San Francisco. (December 2012).

Schubert, J. E., Gallien, T. W., Majd, M. S., Sanders, B. F., AGU Fall Meeting, "Towards improved prediction and mitigation of beach overwash: Terrestrial LiDAR observation of dynamic beach berm erosion," AGU, San Francisco. (December 2012).

Gallien, T. W., Sanders, B. F., Fall Quarterly Meeting, "A Recipe for Accurate Coastal Flood Mapping in Urbanized Lowlands," CEE Affiliates, Irvine, CA. (November 9, 2012).

Sanders, B. F., Fall Quarterly Meeting, "The Rise and Fall of the Ocean: A Story of Tides, Waves and Long Term Trends," CEE Affiliates, Irvine, CA. (November 9, 2012).

Sanders, B. F., Robinson, A., The State of the State of California's Natural Resources, "Water Research at UC Irvine," Toward a Sustainable 21st Century Conference Series, University of California at Irvine, Arnold & Mabel Beckman Center of the National Academy of Sciences and Engineering, Irvine, California. (November 8, 2012).

Schubert, J. E. (Presenter), Sanders, B. F., Computational Methods In Water Resources, "Building Treatments for Urban Flood Inundation Models and Implications for Redictive Skill and Modeling Efficiency," University of Illinois at Urbana-Champaign. (June 2012).

Gallien, T. W. (Presenter), Schubert, J. E., Sanders, B. F., Computational Methods In Water Resources, "Flood Prediction in an Urbanized Embayment: Advancing the Predictive Skill of Urban Flood Models Through the Integration of Tide, Surge, Wave and Flood Control Processes," University of Illinois at Urbana-Champaign. (June 2012).

Kim, H. (Presenter), Kim, B., Lu, Z., Yamakazi, D., Sanders, B. F., Oki, T., Famiglietti, J. S., EGU General Assembly, "Boundary Condition Transfer from Global Atmospheric Model to Local Flood Inundation Model," EGU, Vienna, Austria. (April 2012).

Famiglietti, J. S. (Presenter), Lo, M., Kim, H., Edman, J., Sanders, B. F., Castle, S., Liu, Z., Miller, N. L., Singh, R. S., Valentine, D. W., Zaslavsky, I., AGU Fall Meeting, "Accelerating the Development of Land Surface Hydrological Modeling to Address Societal Needs: Application of an Integrated Data and Modeling Framework to California," AGU, San Francisco. (December 2011).

Sanders, B. F. (Presenter), Gallegos, H. A., Schubert, J. E., AGU Fall Meeting, "Dam-Break Flooding and Structural Damage in a Residential Neighborhood: Performance of a coupled hydrodynamic-damage model," AGU, San Francisco. (December 2011).

Gallien, T. W. (Presenter), Barnard, P. L., Sanders, B. F., AGU Fall Meeting, "Parcel-scale urban coastal flood mapping: Leveraging the multi-scale CoSMoS model for coastal flood forecasting," AGU, San Francisco. (December 2011).

Kim, B. (Presenter), Sanders, B. F., Kim, H., Famiglietti, J. S., AGU Fall Meeting, "Performance of a mixed-mesh Godunov-based flood inundation model," AGU, San Francisco. (December 2011).

Askarizadeh, A. (Presenter), Vrugt, J. A., Schubert, J. E., Sanders, B. F., AGU Fall Meeting, "Refinement of River Basin Topography and Bathymetry Using Markov Chain Monte Carlo sampling," AGU, San Francisco. (December 2011).

Schubert, J. E. (Presenter), Sanders, B. F., AGU Fall Meeting, "Unstructured meshing and parameter estimation for urban dam-break flood modeling: building treatments and implications for accuracy and efficiency," AGU, San Francisco. (December 2011).

Schubert, J. E. (Presenter), Sanders, B. F., ESRI International User Conference, "Flood Inundation Modeling Method and Terrain Characterization Effects on Predictions of Coastal Flooding," San Diego, Ca. Poster Presentation. (July 23, 2011 - July 27, 2011).

Gallien, T. W. (Presenter), Sanders, B. F., Headwaters to Ocean 2011, "High Resolution Urban Coastal Inundation Modeling," San Diego, Ca. (May 24, 2011).

Sanders, B. F., Aquatic Academic Course on Sea Level Rise, "Engineering Responses to Sea Level Rise and Coastal Flooding," Aquarium of the Pacific, Long Beach, Ca. (May 17, 2011).

Sanders, B. F., National Hydrologic Warning Council Conference and Exhibition, "Two-Dimensional Hydraulic Modeling of Urban Flood Inundation: Strategies for Accuracy and Efficiency," San Diego, Ca. (May 5, 2011).

Schubert, J. E. (Presenter), Sanders, B. F., Engineering Research and Development Center, US Army Corps of Engineers, "High Resolution Modeling of Urban Dam-Break Flooding," Vicksburg, MS. (March 30, 2011).

Sanders, B. F., SIAM Conference on Mathematical and Computational Issues in the Geosciences, "High Resolution Modeling of Urban Dam-Break Flooding," Long Beach, Ca. (March 23, 2011).

Sanders, B. F., Santa Ana Watershed Project Authority, "Flood Risk Management in Urban Areas with High Resolution Models and Geospatial Data," Riverside, Ca. (March 4, 2011).

Emami, N. (Presenter), Sanders, B. F., Orange County Sanitation District, "Gas Transport in Sanitary Sewers," Fountain Valley, Ca. (February 15, 2011).

Gallien, T. W., Schubert, J. E., Sanders, B. F. (Presenter), NSF CMMI Research and Innovation Conference, "Adapting to Sea Level Rise: Development and Validation of an Urban Inundation Model," Atlanta, Ga. Poster Presentation. (January 4, 2011 - January 7, 2011).

Andreadis, K. (Presenter), Moller, D., Rodriguez, E., Sanders, B. F., Bates, P. D., Chaubell, M., McCann, M., Durand, M. T., Alsdorf, D. E., Schubert, J. E., Gallegos, H. A., AGU Fall Meeting, "Large-scale Estimation of River Discharge from SWOT Satellite Observations: A Fraternal Twin Data Assimilation," San Francisco. Oral Presentation. (December 13, 2010 - December 17, 2010).

Gallien, T. W. (Presenter), Schubert, J., Poon, Y., Sanders, B. F., AGU Fall Meeting, "Mapping developed coastal flood zones for climate change adaptation planning: Accounting for tides, waves, sea level rise, and flood defense structures," San Francisco. Poster Presentation. (December 13, 2010 - December 17, 2010).

Sanders, B. F. (Presenter), Schubert, J. E., Gallegos, H. A., AGU Fall Meeting, "Modeling the Spatiotemporal Distribution of Dam-Break Inundation in a Developed Area: Topographic and Hydrodynamic Controls," San Francisco. Oral Presentation. (December 13, 2010 - December 17, 2010).

Gallien, T. W. (Presenter), Schubert, J. E., Sanders, B. F., Hydrology Conference 2010, "Adapting to higher high tides: Development and validation of an inundation model for tidal flooding of urbanized lowlands," San Diego, California. (October 12, 2010).

Schubert, J. E. (Presenter), Sanders, B. F., Engineering Mechanics Institute 2010, "High-resolution modeling of storm surge inundation: data resources, unstructured meshing and resistance parameters," Los Angeles. (August 8, 2010 - August 11, 2010).

Sanders, B. F. (Presenter), Schubert, J. E., Detwiler, R. L., Engineering Mechanics Institute 2010, "ParBreZo: A parallel, unstructured grid, Godunov-type, shallow-water model for high-

resolution flood simulation at the regional scale," Los Angeles. (August 8, 2010 - August 11, 2010).

Gallegos, H. A. (Presenter), Schubert, J. E., Sanders, B. F., Engineering Mechanics Institute 2010, "Prediction of Damage to Wood Framed Residential Structures from a Dam Break Flood," Los Angeles. (August 8, 2010 - August 11, 2010).

Gallien, T. W. (Presenter), Schubert, J. E., Sanders, B. F., Engineering Mechanics Institute 2010, "Two Dimensional High Resolution Urban Coastal Floodplain Inundation Modeling: Validation at Newport Harbor, California," Los Angeles. (August 8, 2010 - August 11, 2010).

Howes, D. J. (Presenter), Sanders, B. F., Engineering Mechanics Institute 2010, "Velocity Contour Weighting Method for Open Channel Discharge Measurement with Acoustic Doppler Velocity Meter," Los Angeles. (August 8, 2010 - August 11, 2010).

Sanders, B. F., Sea Level Rise Workshop, "Modeling coastal flooding in urbanized lowlands: a multi-dimensional high-resolution approach," Scripps Forum, La Jolla, CA. (May 18, 2010).

Sanders, B. F., "High Resolution Flood Inundation Modeling Presentation to Congresswoman Grace Napolitano," University of California, Irvine. (April 6, 2010).

Gallien, T. W. (Presenter), Schubert, J. W., Sanders, B. F., Headwaters to Oceans 2009, "High Resolution Grid Modeling of Coastal Flood Inundation at Newport Harbor, CA," Long Beach, California. (October 28, 2009).

Gallegos, H. A., Schubert, J. E., Sanders, B. F. (Presenter), 33rd Congress of IAHR, "Urban Dam-Break Flood Inundation Modeling with LiDAR Terrain Data: Validation at Baldwin Hills, California," Vancouver, Canada. (August 11, 2009).

Gallien, T. W., Schubert, J. E., Sanders, B. F. (Presenter), 33rd Congress of IAHR, 33rd Congress of IAHR, "Unstructured Grid Modeling of Coastal Flood Inundation at Newport Harbor," Vancouver, Canada. (August 11, 2009).

Sanders, B. F., Los Angeles Region Imagery Acquisition Consortium (LAR-IAC), "Improved Flood Inundation Modeling with LAR-IAC LiDAR Data and Orthoimagery." (July 30, 2009).

Sanders, B. F., Noblis, "High resolution modeling of flood inundation," Falls Church, VA. (June 23, 2009).

Sanders, B. F., "High resolution modeling of urban dam-break flooding: A case study of Baldwin Hills, California," Los Angeles County Department of Public Works. (June 16, 2009).

Sanders, B. F., Fluid Mechanics and Hydrology Seminar Series, "Hydrodynamic routing of flood inundation over urban landscapes: Effective utilization of geospatial data and efforts to improve run-time efficiency," Department of Civil and Environmental Engineering, University of California, Berkeley. (November 7, 2008).

Sanders, B. F., City of Los Angeles, Department of Public Works, Bureau of Engineering GIS Meeting, "Advances in flood inundation and the role of GIS." (September 4, 2008).

Sanders, B. F., "Hydrodynamic modeling of flood inundation," Los Alamos National Laboratory. (November 6, 2007).

Sanders, B. F., "Advances and opportunities in flood inundation modeling using high resolution geospatial data," Los Angeles County Department of Public Works. (September 18, 2007).

Sanders, B. F., Los Angeles Region Imagery Acquisition Consortium (LAR-IAC), "Advances in flood inundation modeling and opportunities for high resolution geospatial data resources." (August 30, 2007).

Sanders, B. F., "Advances in flood inundation modeling and integration of GIS," Los Angeles County, Department of Regional Planning. (August 15, 2007).

Sanders, B. F., "Modeling and Mechanics of the St. Francis Dam-Break Flood," Department of Civil Engineering, University of Birmingham, Birmingham UK. (July 19, 2007).

Sanders, B. F., "Advances in flood modeling with Godunov-type methods," HR Wallingford, Wallingford, UK. (July 18, 2007).

Sanders, B. F., 32nd Congress of IAHR, "Resistance to flooding by mega-roughness," Venice, Italy. (July 2, 2007).

Sanders, B. F., 18th Engineering Mechanics Division Conference, "Evaluation of on-line DEMS for flood inundation modeling," ASCE, Blacksburg, VA. (June 4, 2007).

Sanders, B. F., "Simulation of the St. Francis Dam Break Flood with a Godunov-type Shallow-Water Model," Área de Mecánica de Fluidos del Centro Politécnico Superior (CPS) de la Universidad de Zaragoza, Zaragoza Spain. (April 26, 2007).

Sanders, B. F., "Simulation of the St. Francis Dam Break Flood with a Godunov-type Shallow-Water Model," School of Computing, University of Leeds, Leeds UK. (March 2, 2007).

Sanders, B. F., "Simulation of the St. Francis Dam Break Flood with a Godunov-type Shallow-Water Model," Department of Computing and Mathematics, Manchester Metropolitan University, Manchester UK. (February 21, 2007).

Sanders, B. F., "Simulation of the St. Francis Dam Break Flood with a Godunov-type Shallow-Water Model," UNESCO-IHE Institute for Water Education, Delft, The Netherlands. (January 26, 2007).

Sanders, B. F., "Numerical Methods for Flood Modeling," Fluid Dynamics Team, Mathematical Sciences Unit, Health and Safety Laboratory, Buxton UK. (January 18, 2007).

Sanders, B. F., "Hydrodynamic modeling of flood inundation," School of Geographical Sciences, University of Bristol, Bristol UK. (January 16, 2007).

Sanders, B. F., Simulation of the Kaloka Dam-Break Flood, Kauai, Hawai. published on-line March 2006 at http://gram.eng.uci.edu/~bfs/model_information.html. This simulation was distributed by print and television news agencies in Hawaii and California. (2006).

Sanders, B. F., CFD@Nottingham Seminar Series, "A Stable, Conservative and Monotone Scheme to Modeling Wetting and Drying in a Godunov-type Finite-Volume Shallow-Water Code," University of Nottingham, Nottingham UK. (November 15, 2006).

Sanders, B. F., "High-resolution hydrodynamic modeling of flood inundation," London. Presentation to ARUP. (November 14, 2006).

Sanders, B. F., "Evaluation of on-line DEMS for flood inundation modeling," Department of Engineering, University of Ferrara, Ferrara Italy. (October 26, 2006).

Sanders, B. F., Mrse, R. D., Begnudelli, L., 15th U.S. National Congress of Theoretical and Applied Mechanics, "Simulation of the St. Francis Dam Break Flood and Impact of Resolved Topographic Roughness on Model Predictions of Flow Resistance," Boulder, Colorado. (June 2006).

Sanders, B. F., Begnudelli, L., "Recent Advances in Hydrodynamic Modeling of Flood Inundation," Los Angeles District, US Army Corps of Engineers. (March 2006).

Sanders, B. F., Arega, F., Sutula, M., 9th International Conference on Estuarine and Coastal Modeling, "Modeling of Fecal Indicator Bacteria in a Tidal Wetland in Response to Urban Runoff, Bird Droppings, and Resuspended Sediments," Charleston, South Carolina. Poster Presentation. (October 31, 2005).

Begnudelli, L., Sanders, B. F., 9th International Conference on Estuarine and Coastal Modeling, "Unstructured Grid Finite Volume Algorithm for Shallow-Water Flow and Transport with Wetting and Drying," Charleston, South Carolina. Poster Presentation. (October 31, 2005).

Sanders, B. F., "Advances in shallow-water modeling with Godunov-type finite volume schemes and applications in Southern California," Exponent, Irvine. (July 14, 2005).

Sanders, B. F., Selected Topics in Environmental and Water Resources Engineering, "Advances in shallow-water modeling with Godunov-type finite volume schemes and applications in Southern California," Department of Civil and Environmental Engineering, UCLA. (April 26, 2005).

Sanders, B. F., 17th Engineering Mechanics Conference, "Dissipation and Anti-Dissipation of High-Resolution Schemes for Modeling Flow and Transport," ASCE, Newark, Delaware. (2004).

Sanders, B. F., Annual Meeting of the Southern California Academy of Sciences, "Hydrodynamic modeling of fecal indicator bacteria in Talbert Marsh based on loads from urban runoff, bird feces, and resuspended sediments," Long Beach, California. (May 2004).

Sanders, B. F., 16th Engineering Mechanics Conference, "Parallel Implementation of an Explicit Finite-Volume Shallow-Water Model," ASCE, Seattle. (2003).

Sanders, B. F., "Modeling Circulation and Dispersion in Southern California Tidal Wetlands," Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign. (May 2003).

Sanders, B. F., Fluid Mechanics and Hydrology Seminar Series, "Modeling Circulation and Dispersion in Southern California Tidal Wetlands," Department of Civil and Environmental Engineering, University of California, Berkeley. (February 25, 2003).

Sanders, B. F., Environmental Fluid Mechanics Seminar Series, "Modeling Circulation and Dispersion in Southern California Tidal Wetlands," Department of Civil and Environmental Engineering, Stanford University. (February 24, 2003).

Sanders, B. F., "Dynamics of Off-Line Diversions for Flood Stage Reduction," San Francisquito Watershed Council. (January 15, 2003).

Sanders, B. F., Orange County Sanitation District Board of Directors Meeting, "Cross Shelf Transport by Internal Tides: Implications for the fate of sewage discharged through an offshore ocean outfall." (May 15, 2002).

Sanders, B. F., 7th International Conference on Estuarine and Coastal Modeling, "Internal Tides and Bacterial Pollution at Huntington Beach, California," St. Petes Beach, Florida. (November 6, 2001).

Sanders, B. F., 7th International Conference on Estuarine and Coastal Modeling, "Modeling Flows with Moving Boundaries Due to Flooding, Recession, and Wave Run-up," St. Petes Beach, Florida. (November 6, 2001).

Sanders, B. F., Eastern Pacific Ocean Conference, "Cross Shelf Transport by Internal Tides: Implications for the fate of sewage discharged through an offshore ocean outfall," Fallen Leaf Lake, California. (September 2001).

Sanders, B. F., Water and Southern California's Environment: The Next Utility Crisis?, ucithink Community forum series, "Trade-offs Between Beach Water Quality and Restoring Coastal Wetlands," Beckman Center, Irvine. (March 14, 2001).

Sanders, B. F., Presentation to Blue Ribbon Panel called by the National Water Research Institute to investigate causes of near-shore bacterial pollution at Huntington Beach, "Flushing Properties of the Talbert Channel Network," Costa Mesa, California. (June 22, 2000).

Sanders, B. F., Hydraulics and Hydrology Technical Group, Orange County Branch, Los Angeles Section, "Advances in the Computation of Long Waves by Godunov-type Finite Volume Method," ASCE. (June 8, 2000).

Sanders, B. F., Computation of Tidal Co-Oscillation in Wetlands by Finite Volume Method, EM2000, the 14th Engineering Mechanics Conference, ASCE, Austin. (May 24, 2000).

Sanders, B. F., UCI Coastal Runoff Impact Study, Progress Report: the Sun, the Moon, and Bacterial Pollution at Huntington Beach, National Water Research Institute Research Advisory Board Meeting, Costa Mesa, Ca. (April 29, 2000).

Sanders, B. F., Live in-studio guest for, The Real Orange, the public affairs show of KOCE television. to discuss coastal water quality issues. (February 2000).

Sanders, B. F., UCI Coastal Runoff Impact Study, Interim Report 1, Orange County NPDES Permitees, Santa Ana. (January 2000).

Sanders, B. F., ASCE International Water Resources Engineering Conference, "Mitigation of Extreme Flooding Events by Tactical Depression Wave Control," Seattle, Washington. (August 12, 1999).

Sanders, B. F., 3rd International Conference on Hydroscience and Engineering, "Adaptive Control of Shallow Water Waves," Cottbus, Germany. (September 2, 1998).

Sanders, B. F., Environmental Engineering Seminar Series, "Control of Shallow-Water Waves Using the Adjoint Sensitivity Method," University of California, Berkeley. (April 24, 1998).

Sanders, B. F., Department of Civil and Environmental Engineering Seminar Series, "Control of Shallow-Water Waves Using the Adjoint Sensitivity Method," University of California, Davis. (March 3, 1998).

Sanders, B. F., Fifth International Conference on Estuarine and Coastal Modeling, "Control of Multi-dimensional Wave Motion in Shallow-Water," Alexandria, Virginia. (October 22, 1997).

Sanders, B. F., The 27th Congress of the International Association for Hydraulic Research, "Optimal Control of Sudden Water Release from a Reservoir," San Francisco, California. (August 11, 1997).

Sanders, B. F., Laboratory for Scientific Computation Poster Conference, "Control of Transient Open Channel Flow Using the Adjoint Equation Solution," University of Michigan College of Engineering. (October 10, 1996).

Sanders, B. F., Laboratory for Scientific Computation Poster Conference, "A Spectral Approach to Modeling Solitary Water Waves with the KdV Equation," University of Michigan College of Engineering. (October 13, 1994).

Contracts, Grants and Sponsored Research

Fixed Price Contract

Sanders, Brett F., "Methodology to Link Storm Drain Discharges to Loads in Dominguez Channel Estuary and Greater Los Angeles and Long Beach Harbor," State Water Resources Control Board, $100,000.00. (July 1, 2013 - March 31, 2015).

Grant

Sanders, Brett F. (Co-Principal Investigator), ""PIRE: Low Energy Options for Making Water from Wastewater," NSF - National Science Foundation, $4,858,314.00. (September 15, 2012 - September 15, 2017).

Sanders, Brett F. (Principal Investigator), "Hazards SEES Type 2: Preventing Flood Hazards from Becoming Disasters through Two-way Communication of Parcel-level Flood Risk," NSF - National Science Foundation, $2,819,380.00. (September 15, 2013 - September 14, 2017).

Sanders, Brett F. (Principal Investigator), "Modeling Channel and Floodplain Hydrodynamics in Support of the SWOT Mission," NASA - National Aeronautics & Space Administration, $230,269.00. (January 1, 2013 - December 31, 2015).

Sanders, Brett F. (Principal Investigator), "Prediction and Mitigation of Beach Overwash and Resultant Urban Flooding in Coastal California," NSF - National Science Foundation, $302,960.00. (September 1, 2011 - August 30, 2014).

Sanders, Brett F. (Principal Investigator), "Flood Prediction in an Urbanized Embayment: Accounting for Extreme High Tides, Waves, Flood Control Infrastructure and Higher Sea Levels," California, State of, $34,000.00. (October 1, 2011 - September 30, 2012).

Sanders, Brett F. (Principal Investigator), "Data Integration and Model Development to Mitigate Urban Flooding Hazards Linked to Sea Level Rise," NSF - National Science Foundation, $290,000.00. (August 1, 2008 - July 30, 2011).

Sanders, Brett F. (Principal Investigator), "Graduate Research Supplement to Broaden Participation of Under-represented Groups, Data Integration and Model Development to Mitigate Urban Flooding Hazards Linked to Sea Level Rise," NSF - National Science Foundation, $82,003.00. (August 1, 2008 - July 30, 2011).

Sanders, Brett F. (Principal Investigator), "Velocity Contour Weighting Method for Increased Accuracy of Upward Looking ADVM in Irrigation Channels," UC Water Resources Center (Prosser Trust), $60,000.00. (July 1, 2009 - June 30, 2011).

Sanders, Brett F. (Co-Principal Investigator), "Using IT to Compress Perceived Time and Space in How People Think About Global Change: A Step Towards Behavioral Change," UC Irvine Environment Institute, $60,000.00. (July 1, 2009 - June 30, 2010).

Sanders, Brett F. (Principal Investigator), "High-Resolution Modeling of Flood Inundation," UC Ctr for Water Resources, $60,000.00. (July 1, 2007 - June 30, 2009).

Sanders, Brett F. (Principal Investigator), "Development of an Expert Decision Support System for Flood Delineation and Risk Management," Government of United Kingdom, $13,877.00. (April 1, 2008 - August 31, 2008).

Sanders, Brett F. (Principal Investigator), "A System Approach to Flooding Disaster Planning and Response," Univ of Buffalo, $75,000.00. (October 1, 2006 - September 30, 2007).

Sanders, Brett F. (Co-Principal Investigator), "Dynamics of Point and Non-Point Source Fecal Pollution from an Urban Watershed in Southern California," National Water Research Institute and United States Geologic Survey, $459,045.00. (September 1, 2003 - August 31, 2006).

Sanders, Brett F. (Co-Principal Investigator), "Newport Bay Fecal Coliform Source Identification and Management Plan," State Water Resources Control Board and County of Orange, $764,000.00. (July 1, 2004 - January 31, 2006).

Sanders, Brett F. (Principal Investigator), "CAREER: Mitigation of Pollution Hazards in Ephemeral Streams and Estuaries--A Plan for Research and Education in Environmental Hydraulics," NSF - National Science Foundation, $260,000.00. (July 1, 2000 - June 30, 2005).

Sanders, Brett F. (Principal Investigator), "Identification and Control of Non-Point Sources of Microbial Pollution in a Coastal Watershed," NSF/EPA/USDA Science and Technology to Achieve Results (STAR) Water and Watersheds Program, $895,234.00. (August 1, 2000 - January 30, 2005).

Sanders, Brett F. (Principal Investigator), "Analysis and Modeling of Internal Tidal Runup: Implications for Oceanic Waste Disposal," UC Office of the President, Coastal and Environmental Quality Initiative, $50,000.00. (June 1, 2002 - May 31, 2004).

Sanders, Brett F. (Co-Principal Investigator), "Coastal Water Quality: The Role of Wetlands in Mitigating the Effect of Urban and Rural Runoff," UC Office of the President, Coastal and Environmental Quality Initiative, $611,146.00. (June 1, 2002 - May 31, 2004).

Sanders, Brett F. (Principal Investigator), "Hydrodynamic Design in Coastal Wetland Restoration: Topography Optimization and Stability Assessment by Adjoint Sensitivity Method," UC Riverside, $28,000.00. (July 1, 2001 - June 30, 2002).

Sanders, Brett F. (Principal Investigator), "Hydrodynamic Design in Coastal Wetland Restoration: Topography Optimization and Stability Assessment by Adjoint Sensitivity Method," U.C. Water Research Center, $56,000.00. (July 1, 2000 - June 30, 2002).

Sanders, Brett F. (Co-Principal Investigator), "Coastal Runoff Impact Study (CRIS), Phase II: Sources and Dynamics of Microbial Pollution in the Lower Santa Ana River Watershed," National Water Research Institute, $510,890.00. (September 1, 2000 - August 30, 2001).

Sanders, Brett F. (Principal Investigator), "Hydrodynamic Design in Coastal Wetland Restoration: Topography Optimization and Stability Assessment by Adjoint Sensitivity Method," UC Riverside, $28,000.00. (July 1, 2000 - June 30, 2001).

Sanders, Brett F. (Co-Principal Investigator), "Coastal Runoff Impact Study (CRIS), Phase I: Causes of Surfzone Pollution in Huntington Beach, California," National Water Research Institute, $147,438.00. (November 1, 1999 - October 30, 2000).

Sanders, Brett F. (Principal Investigator), "Mitigation of Extreme Flooding Events by Optimal Control of Flood Plain Storage Using the Adjoint Sensitivity Method," U.C. Water Research Center, $50,700.00. (July 1, 1998 - June 30, 2000).

Sanders, Brett F., Fluor Foundation, $16,150.00. (February 1, 2000).

Sanders, Brett F. (Principal Investigator), "Pseudo-Spectral Numerical Solution of Omnidirectional Nonlinear Dispersive Water-Wave Models," University of California Irvine, $3,000.00. (September 1, 1999 - December 31, 1999).

Multiple Campus Award

Sanders, Brett F. (Principal Investigator), "Network for Environmental Observation of the Coastal Ocean," UC Santa Cruz, $34,316.00. (July 1, 2003 - June 30, 2004).

Professional Service

Advances in Water Resources, Journal Article Reviewer.

ASCE Journal of Computing in Civil Engineering, Journal Article Reviewer.

ASCE Journal of Engineering Mechanics, Journal Article Reviewer.

ASCE Journal of Environmental Engineering, Journal Article Reviewer.

ASCE Journal of Hydraulic Engineering, Journal Article Reviewer.

ASCE Journal of Hydrologic Engineering, Journal Article Reviewer.

ASCE Journal of Irrigation and Drainage Engineering, Reviewer.

ASCE Journal of Waterway, Port, Coastal and Ocean Engineering, Journal Article Reviewer.

Computers and Fluids, Journal Article Reviewer.

Computers and Geosciences, Journal Article Reviewer.

Environmental Modeling and Software, Journal Article Reviewer.

Environmental Science and Technology, Journal Article Reviewer.

International Journal for Numerical Methods in Fluids, Journal Article Reviewer.

Journal of Hydraulic Research, Journal Article Reviewer.

Journal of Hydrology, Journal Article Reviewer.

Ocean Engineering, Journal Article Reviewer.

Scientia Iranica, Journal Article Reviewer.

Water Research, Journal Article Reviewer.

Water Resources Research, Journal Article Reviewer.

California Coastal Commission, Scientific Advisor Panel Member, Appointed, Compensated. (2010 - Present).

Advances in Water Resources, Editorial Review Board Member. (2009 - Present).

Engineering Mechanics Institute, ASCE, Control Member of Fluids Committee. (October 1, 2003 - Present).

Science Definition Team, NASA SWOT Mission, Member, Appointed, Compensated. (January 1, 2013 - December 31, 2015).

WIRES-Water (Elsevier), Associate Editor. (2012 - 2013).

XIX International Conference on Computational Methods in Water Resources, Session Organizer and Chair. (June 2012).

National Science Foundation, IRES/DDEP Program, Extramural Funding Reviewer. (2011).

ASCE Journal of Engineering Mechanics, Associate Editor. (2006 - 2010).

Engineering Mechanics Institute 2010, Session Organizer and Chair, Los Angeles. (August 2010).

National Science Foundation, IMME Program Panelist, Extramural Funding Reviewer. (2009).

Engineering Mechanics Institute, ASCE, Vice-Chair of Fluids Committee. (October 1, 2008 - September 30, 2009).

Engineering Mechanics Institute, ASCE, Chair of Fluids Committee. (October 1, 2006 - September 30, 2008).

Inaugural Conference of the Engineering Mechanics Institute, Session Organizer and Chair, Minneapolis, Minnesota. (June 2008).

18th ASCE Engineering Mechanics Division Conference, Session Organizer and Chair, Blacksburg, VA. (2007).

National Science Foundation, Hydrologic Sciences, Extramural Funding Reviewer. (2007).

Wisconsin Sea Grant Program, Extramural Funding Reviewer. (2007).

15th National Congress of Theoretical and Applied Mechanics, Chair, Boulder, CO. (2006).

NASA, Solid Earth Program, Referee. (2006).

National Science Foundation, Civil and Mechanical Systems, Referee. (2004 - 2006).

UC Water Resources Center, Board of Advisors. (2002 - 2006).

Engineering Mechanics Institute, ASCE, Vice-Chair of Fluids Committee. (October 1, 2005 - September 30, 2006).

15th U.S. National Congress of Theoretical and Applied Mechanics, Session Organizer and Chair, Boulder, Colorado. (June 2006).

Estuarine and Coastal Modeling, Proceedings of the Ninth International Conference, Reviewer. (2005).

McMat 2005, Session Organizer and Chair, Baton Rouge, LA. (2005).

National Science Foundation, Geosciences, Referee. (2005).

Model Verification and Validation Task Force, Fluids Committee, Engineering Mechanics Division, ASCE, Chair. (October 1, 2003 - September 30, 2005).

17th Engineering Mechanics Conference, University of Delaware, Session Organizer and Chair. (2004).

California Sea Grant Program, Referee. (2004).

Maryland Sea Grant Program, Referee. (2004).

National Science Foundation, Civil and Mechanical Systems, Hazard Mitigation, CAREER Program, Extramural Funding Reviewer. (2004).

Urban Runoff Working Group developing Orange County's Infrastructure Report Card, Advisory Committee Service. (2002 - 2003).

Technical Advisory Committee to the Orange County Sanitation District for guidance on coastal water quality, Advisory Committee Service. (2001 - 2002).

Estuarine and Coastal Modeling, Proceedings of the Seventh International Conference, Reviewer. (2001).

National Science Foundation, Civil and Mechanical Systems, Hazard Mitigation, CAREER Program, Extramural Funding Reviewer. (2001).

University of California, Office of the President, Coastal Environmental Quality Initiative, Extramural Funding Reviewer. (2001).

U.S. Environmental Protection Agency, Science and Technology to Achieve Results (STAR), Coastal Indicators Program, Extramural Funding Reviewer. (2000).

Technical Working Group addressing causes of coastal pollution at Huntington Beach. (1999 - 2000).

1998 Symposium on Environmental Models and Experiments Envisioning Tomorrow, Board of Advisors, University of California at Irvine. (1997 - 1998).

Estuarine and Coastal Modeling, Proceedings of the Fifth International Conference, Reviewer. (1997).

Consulting

Flow Simulation, LLC. (2005 - Present).

Weston Solutions Inc. (2008).

Creative Differences TV. (2006).

Kalihiwai Ridge Homeowners Association. (2006).

Port of Los Angeles. (2004 - 2006).

Litigation/Expert Witness, Orange County District Attorney. (2003 - 2006).

Orange County Sanitation District (Sewer Exfiltration). (2003 - 2005).

City of Newport Beach. (2002 - 2004).

Congresswoman Loretta Sanchez. (2003).

Ventura County (Harbor Circulation and Water Quality). (2002 - 2003).

State Water Quality Control Board (TMDL Review). (2002).

City of Avalon (Harbor Water Quality). (2001 - 2002).

Orange County Sanitation District (Beach Water Quality). (2000 - 2002).

TEACHING

Teaching Interests

Special Pedagogical Activities

(2010 - 2011).
Lead effort to revise sophomore engineering curriculum for Department. Coordinated input from faculty, industrial affiliates, and students. (Chair Activity)

(2010 - 2011).
Co-created (w/ R. Detwiler) hands-on class project for CEE 170, Fluid Mechanics. Students design, build and race carts propelled by a high pressure water jet

(2008 - 2010).
Lead effort to move Environmental Engineering graduate program into CEE Department

(2004 - 2008).
Lead successful ABET accreditation effort for Environmental Engineering

(2002 - 2004).
Introduced a Matlab programming and problem-solving course at the lower division level that has now been adopted by Biomedical Engineering, Civil Engineering, Environmental Engineering degree programs. Enrollments now exceed 100 students

Postdoctoral Research Supervision

2010 - Present, Byung Hyun Kim
Computational models for flood inundation modeling.
2009 - Present, Jochen Schubert
Integration of geospatial data to support high resolution flood inundation modeling.

2001 - 2003, Feleke Arega
Employment: Senior Environmental Engineer, Arcadis, Clifton Park, NY
1998, Michael Piasecki
Employment: Associate Professor of Water Resources, CUNY

Doctoral Committee

2008 - 2012, Timu Gallien, Chair
Civil Engineering; Employment: Chancellors Postdoctoral Fellow at UCSD
2006 - 2011, Humberto Gallegos, Chair
Civil Engineering; Employment: Assistant Professor, East Los Angeles College
2007 - 2010, Dan Howes, Chair
Civil Engineering; Employment: Assistant Professor, Cal-Poly SLO
2007 - 2009, John (Matt) Thomas, Chair
Civil Engineering; Employment: Project Engineer, Geosyntec Consultants
2006 - 2009, Jochen Schubert, Co-Chair
Civil Engineering, University of Nottingham, England; Employment: Research Specialist, UC Irvine
2004 - 2007, Lorenzo Begnudelli, Co-Chair
Civil Engineering, University of Ferrrara; Employment: Research Scientist, FM Global.
1999 - 2002, David Jaffe
Environmental Engineering; Employment: Project Engineer, AECOM.

Doctoral Candidacy Committee

2001 - Present, Robert Stein, Chair
Civil Engineering
2002 - 2005, Richard Argall, Chair
Advanced to candidacy, but left early to pursue employment opportunity.

Predissertation Committee

2010 - Present, Morteza Shakeri, Chair
Civil Engineering
2010 - 2013, Nasir Emami, Chair
Civil Engineering; Student changed advisor for better match with evolving research interests
2007 - 2009, Yu-Hsiang Chen, Co-Chair
Civil Engineering
(Not Advanced)

Master's Thesis Committee

2013 - Present, Adam Luke, Advisor
2004 - 2006, Robert Mrse, Chair
Employment: U.S. Army Corps of Engineers, Los Angeles District
2003 - 2005, Julio Fernandez, Chair
Employment: Los Angeles County Department of Sanitation
1999 - 2001, Allyson Chu
Employed by Camp, Dresser, & McKee, Ontario, California
1998 - 2000, Carrie Green
Employed by Camp, Dresser, & McKee, Carlsbad, California

Undergraduate Honors Thesis

2006 - 2007, Francis Salcedo

Civil Engineering Undergraduate Honors Student, (Dam-Break Flood Modeling)
2005 - 2006, Stephen Esaki
Civil Engineering Honors Student Submitted Undergraduate Thesis, (Wavelet filtering of LiDAR Data)
2002 - 2004, John Pau
ICS Honors Program Submitted Undergraduate Thesis, (Parallelization of Flood Models)
This mentorship lead to two journal publications: [A-28, A-29]

Undergraduate Research Supervision

2012, Juan Zavala, Advisor
2011 - 2012, Jose Jacobo, Advisor
2011, Adnan Anabtawi
ADV measurements in a mobile bed flume, BreZo interface for Computational Model Builder Developed by US Army Corps of Engineers
2010, CJ Nunez
Analysis of Extreme Tides
2010, Joseph Marcos
Coastal Sediment Management in Orange County
2009, Justin Joyce
Dam breach modeling (CAMP Summer Scholars Program)
2007 - 2008, Eddie Lin
Civil Engineering Undergraduate Student, (Analysis of Extreme Tides)
2006 - 2007, Jack Lac
Civil Engineering Undergraduate Student, (Dam-Break Flood Modeling)
2005 - 2006, Thu-Loan Dinh
Civil Engineering Undergraduate Student, (Newport Bay Storm Drains)
2003 - 2004, Lisa Cuellar
Environmental Engineering Undergraduate Student, (Newport Bay Topography)
2003 - 2004, Michael Maxwell
Environmental Engineering Undergraduate Student, (Newport Bay Topography)
2000 - 2002, Irene Pau
1. Developed a digital elevation map for the Talbert Marsh for use in hydrodynamic modeling. 2. Developed an image processing technique to measure the spatial variability of interfacial waves
2000 - 2001, Jenny Arevalo
Applied the finite element method to simulate circulation in tidal wetlands
2000 - 2001, Richard Argall
Evaluated tidal inlets along the Orange County coastline relative to design (e.g., presence of absence of jetties) and sedimentation
1999 - 2000, Patrick Stich
Characterized land uses and watershed sub-basins in the Talbert Watershed in Huntington Beach for the purpose of urban runoff analysis
1998 - 1999, Robert Sherwood
Characterized flood control infrastructure in the Talbert Watershed in Huntington Beach for the purpose of hydrodynamic modeling

SERVICE

Department Service

Advisor, Chi Epsilon. (2010 - Present).

Graduate Advisor, Hydrology and Water Resources Graduate Program. (2008 - 2010).

Member, CEE Undergraduate Affairs Committee. (1999 - 2010).

Member, Undergraduate Studies Committee. (1999 - 2010).

Chair, Search Committee, CEE Hydrometeorology Position. (2008 - 2009).

ABET Lead, Environmental Engineering. (2004 - 2008).

Member, Search Committee, CEE Structures Position. (2004 - 2006).

Chair, Search Committee, CEE Environmental Faculty Position. (2003 - 2005).

Member, Search Committee, CEE Manager. (2003).

Advisor, UCI Chapter of ASCE. (1997 - 2002).

Member, Search Committee, CEE Chair Position. (2000 - 2001).

Member, CEE Computer Committee. (1998 - 1999).

Member, CEE Graduate Affairs Committee. (1997 - 1999).

School/College Service

Member, Steering Committee, HSSOE Strategic Planning Effort. (2008 - 2009).

Member, SOE ABET Committee, Environmental Engineering Representative. (2004 - 2008).

Member, SOE Undergraduate Student Affairs Committee, Environmental Engineering degree representative. (1999 - 2008).

Chair, SOE Undergraduate Student Affairs Committee. (2005 - 2006).

Director, Graduate Program in Environmental Engineering. (2002 - 2006).

Member, Ad-hoc committee to review posters for School's annual research review. (2004).

Secretary, SOE Executive Committee. (2002 - 2003).

University Service

Chair, Campus Ad-Hoc Personnel Committee. (2013).

Member, Task Force for New Graduate Programs. (2010).

Member, Graduate Council. (2008 - 2010).

Member, Search Committee, Environment Institute Faculty Position. (2008 - 2009).

Member, Marine Science Coordinating Committee. (2001 - 2005).

Member, Ad hoc committee of the Council on Research, Computing, and Library Resources. (2002).

Member, University of California Marine Council. (2001).

Member, UCI Student Recreation Center Advisory Board. (1999).

Faculty Advisor, Undecided/Undeclared Student Program. (1998 - 1999).

1998 Symposium on Environmental Models and Experiments Envisioning Tomorrow, University of California at Irvine. (1997 - 1998).

Public Service

Coach, American Youth Soccer Organization. (2011 - Present).

Assistant Coach, IUSD Harvest Cup (Soccer). (2011).

Member, Parks and Recreation Committee, University Hills Homeowners Review Board. (1999 - 2005).