

PATRICK JOSEPH LYNETT

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Curriculum Vita – 1/2022

BRIEF BIOGRAPHY

Patrick Lynett was born in New York City on March 19th, 1975. He attended Cornell University from 1993-2002, where he received three degrees from the School of Civil and Environmental Engineering. Immediately after completing his Ph.D. thesis, he started the position of Assistant Professor of Civil Engineering at Texas A&M University. His research interests are directed towards a better understanding of coastal processes, such as nearshore circulations, wave evolution from generation to the shoreline, multi-scale hydrodynamic interactions, and sediment transport. Investigations combine numerical modeling with both controlled experiments and field observations. Short time-scale coastal hazards, such as hurricanes and tsunamis, are of particular interest. Lynett was a member of the 2005 International Tsunami Survey Team to Sri Lanka, the 2005 Hurricane Katrina Coastal Impacts Survey Team sponsored by ASCE, the post-tsunami survey team in American Samoa in 2009, and numerous surveys throughout the Pacific after the 2011 Japan tsunami. Dr. Lynett has been the recipient of research grants from the National Science Foundation (NSF), the U.S. Army Corps of Engineers, the United States Geological Survey, the Nuclear Regulatory Commission, the NOAA Sea Grant Program, the Office of Naval Research, various California state agencies, and private industry. Since 2003, he has been a Primary Investigator (P.I.) or co-P.I. on research and equipment grants totaling \$9.7 million, including three large, collaborative NSF research grants of over \$1 million each, two of which he was the lead P.I.. Notable awards include the Department of the Army Commander's Award for Public Service given for Dr. Lynett's post-Katrina work, a prestigious Guggenheim Fellowship in 2010, and the ASCE Walter L. Huber Civil Engineering Research Prize in 2013.

EDUCATION:

Ph.D. Civil and Environmental Engineering, Coastal Engineering focus, Cornell University	8/02
M.E. Civil and Environmental Engineering, Hydraulics focus, Cornell University	5/98
B.S. Civil and Environmental Engineering, Environmental Eng. focus, Cornell University	5/97

POSITIONS:

Professor of Civil Engineering, University of Southern California	11/14-present
Associate Professor of Civil Engineering, University of Southern California	8/11-11/14
Visiting Fellow, Atmospheric and Ocean Sciences, Princeton University	6/10-6/11
Visiting Scientist, Geophysical Fluid Dynamics Laboratory	6/10-6/11
Associate Director, Haynes Coastal Engineering Laboratory, Texas A&M University	8/09-8/11
Associate Professor of Civil Engineering, Texas A&M University	9/08-8/11
Assistant Professor of Civil Engineering, Texas A&M University	8/02-8/08

AWARDS:

Mentoring Award for Graduate Students, USC, 2018
Outstanding Civil Engineer in Research, ASCE-Los Angeles, 2016
Outstanding Civil Engineering Advisor, ASCE-Los Angeles, 2016
Walter L Huber Civil Engineering Research Prize ASCE, 2013
John and Dorothy Shea Early Career Chair in Civil Engineering, USC, 2011
Guggenheim Fellow, Natural Sciences, 2010
Department of the Army Commander's Award for Public Service, U.S. Army Corps of Engineers, 2008
Zachry Department of Civil Engineering Award for Excellence, 2008 & 2007
Inaugural Recipient of Excellence in Research Award, Dept. of Civil Eng, Texas A&M University, 2007
Texas Engineering Experiment Station (TEES) Select Young Faculty, 2006
Best Graduate Student Paper Award given annually by the Offshore, Ocean and Arctic Division of the American Society of Mechanical Engineers (ASME), 2002

PRIMARY PROFESSIONAL SERVICE

Member, PEER Institutional Board	2/21-present
Member, State of California Tsunami Technical Advisory Panel	1/18-present
Chairman, Coastal Engineering Research Council (CERC)	5/21-present
Secretary, Coastal Engineering Research Council (CERC)	1/13-5/21
Member, Coastal Engineering Research Council (CERC)	9/09-present
Editor, Proceedings of the International Conference on Coastal Engineering (ICCE)	1/12-present
Voting Member, Tsunami Loads and Effects Committee, ASCE7 Tsunami Loads Chapter	1/12-present
Associate Editor, ASCE J. Waterway, Port, Coastal and Ocean Engr.	9/13-6/19
Associate Editor, JGR-Oceans	1/11-1/18

PUBLICATION SUMMARY

- Publications: 90 published since 2002 in peer-reviewed journals
- Total citations (taken from Scopus/Google Scholar): 3242/5307
- h-index (taken from Scopus): 33
- Top three cited papers (Scopus)
 - **298 cites:** Modeling Wave Runup with Depth-Integrated Equations, *Coastal Engineering*, 2002
 - **221 cites:** Laboratory and Numerical Studies of Wave Damping by Emergent and Near-Emergent Wetland Vegetation, *Coastal Engineering*, 2009
 - **211 cites:** Observations of the International Tsunami Survey Team in Sri Lanka, *Science*, 2005

PEER-REVIEWED JOURNAL PUBLICATIONS AND BOOK CHAPTERS IN REVERSE

CHRONOLOGICAL ORDER: (* indicates student in Lynett research group)

1. Lynett, P., McCann, M., et al (10 co-authors), “Triple Tsunami from the Hunga Tonga Volcano Eruption of January 15, 2022”, in preparation for *Nature*, 2022
2. *Cinar, E., Keen, A., and Lynett P., “Wave-Induced Dispersion of Large Debris,” in preparation for *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, 2022
3. *Keen, A., Lynett, P., et al (12 co-authors), “The Tsunami Generated by the Taan Fjord Landslide of October 2015”, in preparation for *Scientific Reports*, 2022.
4. *Kalligeris, N., and Lynett, P., “Large-scale experiments on generation and growth of a wave-induced shallow turbulent coherent structure” in preparation for *Experiments in Fluids*, 2022.
5. *Montoya, L. and Lynett, P. “Modeling Infragravity Wave Runup and Spectral Properties,” in revision for *Ocean Modeling*, 2022.

2022

6. Geertsema, M.m Menounos, B. Bullar, J., ... Lynett, P., et al. (32 co-authors), “The 28 November 2020 landslide, tsunami, and outburst flood – a hazard cascade associated with rapid deglaciation at Elliot Creek, British Columbia, Canada,” in press *Geophysical Research Letters*, 2022.
7. Kalligeris, N., Skanavis, V., Melis, N., Okal, E., Dimitroulia, A., Charalampakis, M., Lynett, P., and Synolakis, C., “The Mw = 6.6 earthquake and tsunami of south Crete on May 2, 2020,” in press *Geophysical Journal International*, 2022.
8. Kirby, J.T., Grilli, S.T., Horrillo, J., Liu, P.L.F., Nicolsky, D., Abadie, S., Ataie-Ashtiani, B., Castro, M.J., Clous, L., Escalante, C. Fine, I., ... Lynett, P., et al. (20 co-authors), “Validation and inter-comparison of models for landslide tsunami generation,” p.101943, *Ocean Modelling*, 2022.

2021

9. *Kalligeris, N., Yeulwoo, K., and Lynett, P. “Wave-induced shallow-water monopolar vortex: Large-scale experiments,” v. 910, A17. doi:10.1017/jfm.2020.980, *Journal of Fluid Mechanics*, 2021.
10. *Keen, A., Lynett, P., Eskijan, M., *Ayca, A., and Wilson, R., “Probabilistic Estimates of Tsunami Risk for Small Craft Marinas,” v. 147(1), 04020047, *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, 2021.

11. Maravelakis, N., *Kalligeris, N., Lynett, P., and Synolakis, C. “Wave Overtopping Due to Harbour Resonance,” doi: 10.1016/j.coastaleng.2021.103973, **Coastal Engineering**, 2021.
12. Yeulwoo, K., *Kalligeris, N., Hsu, T., and Lynett, P., “Large Eddy Simulation Study of a Wave-Induced Shallow-Water Monopolar Vortex.” v. 162, p.101796, **Ocean Modeling**, 2021.
13. *Ayca, A., and Lynett, P. “Modeling the Motion of Large Vessels Due to Tsunami-Induced Currents,” v. 236, p.109487, **Ocean Engineering**, 2021.
14. *Tavakkol, S. Son, S., and Lynett, P. “Adaptive Third Order Adams-Bashforth Time Stepping Scheme for 2D Extended Boussinesq Equations,” doi: 10.1016/j.cpc.2021.108006, **Computer Physics Communications**, 2021.

2020

15. Dai, C., Higman, B., Lynett, P., et al. (12 co-authors), “Detection and Assessment of a Large and Potentially Tsunamigenic Periglacial Landslide in Barry Arm, Alaska,” v. 47(22), e2020GL089800, **Geophysical Research Letters**, 2020.
16. Tomiczek, T., Wargula, A., Goodwin, S., Cox, D., Kennedy, A., Lomonaco, P., and Lynett, P. “Physical Model Investigation of Mid-Scale Mangrove Effects on Flow Hydrodynamics and Pressures and Loads in the Built Environment,” v. 162, 103791, doi:10.1016/j.coastaleng.2020.103791, **Coastal Engineering**, 2020.
17. Simpson, A., Haller, M., Walker, D., Lynett, P., and Honegger, D., “Wave-by-Wave Forecasting via Assimilation of Marine Radar Data,” v. 37(7), 1269-1288, **Journal of Atmospheric and Oceanic Technology** 2020.
18. Kennedy, A., Florence, M., Gurley, K., Janssen, M., Kaihatu, J., Krafft, D., Lynett, P., Pinelli, J., Owensby, M., Prevatt, D., Rogers, S., and Roueche, D., “Hurricane Michael (2018) in the Area of Mexico Beach, Florida,” **Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)**, doi:10.1061/(ASCE)WW.1943-5460.0000590, 2020.
19. *Tavakkol, S. and Lynett, P. “Celeris Base: An Interactive and Immersive Boussinesq-type Nearshore Wave Simulation Software,” **Computer Physics Communications**, doi:10.1016/j.cpc.2019.106966, 2020.
20. Borrero, J., Solihuddin, T., Fritz, H., Lynett, P., et al (20 co-authors), “Field Survey and Numerical Modelling of the December 22, Krakatau Tsunami,” **Pure and Applied Geophysics**, doi:10.1007/s00024-020-02515-y, 2020.
21. *Son, S., Lynett, P., and *Ayca, A., “Modeling Scour and Deposition in Harbors Due to Complex Tsunami-Induced Currents,” **Earth Surface Processes and Landforms**, v. 45(4), pp. 978–998, doi: 10.1002/esp.4791, 2020.

2019

22. Lynett, P., Swigler, D., *El Safty, H., *Montoya, L., *Keen, A., *Son, S., “Study of the three-dimensional hydrodynamics associated with a solitary wave traveling over an alongshore-variable, shallow shelf,” **Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)**, doi: 10.1061/(ASCE)WW.1943-5460.0000525, 2019.
23. *Ko, H.-S. and Lynett, P., “A Study on Long Wave Run-Ups On A Bi-Linear Beach Slope Induced By A Solitary And A Transient-Focused Wave Group,” **Coastal Engineering Journal**, 61(2), pp.135-151, 2019.
24. *Keen, A. S., & Lynett, P. J., “Experimental study of long wave dynamics in the presence of two offshore islands,” **Environmental Fluid Mechanics**, v. 19 (4), 941-968, 2019.

2018

25. Higman, B., Shugar, D.H., Stark, C.P., Ekström, G., Koppes, M.N., Lynett, P., Dufresne, A., Haeussler, P.J., Geertsema, M., Gulick, S. and Mattox, A. “The 2015 landslide and tsunami in Taan Fiord, Alaska,” **Scientific Reports**, 8(1), p.12993. 2018.
26. *Montoya, L. and Lynett, P. “Tsunami versus Infragravity Surge: Comparison of the Physical Character of Extreme Runup,” **Geophysical Research Letters**, 45(23), pp.12-982, 2018.

27. *El Safty, H. and Lynett, P., "Bottom Boundary Layer Motions Forced by Long and Short Free Surface Waves," *Ocean Modeling*, v.124, pp. 48-60. **2018**.

2017

28. *Tavakkol, S. and Lynett, P. "Celeris: A GPU-accelerated open source software with a Boussinesq-type wave solver for real-time, interactive simulation and visualization," *Computer Physics Communications*, v. 217, pp. 117-127, **2017**.
29. *Kalligeris, N., *Montoya, L., *Ayca, A., and Lynett, P. "An Approach for Estimating the Largest Expected Tsunami from Far Field Subduction Zone Earthquakes," *Natural Hazards*, v. 89(1), pp. 233-253, **2017**.
30. Lynett, P., et al (30 co-authors), "Inter-model Analysis of Tsunami Induced Currents," *Ocean Modeling*, v. 114, pp. 14-32, **2017**.
31. Kriebel, D., Lynett, P., Cox, D., "Energy Method for Approximating Overland Tsunami Flows," in press for *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, doi: 10.1061/(ASCE)WW.1943. **2017**.
32. *Keen, A., Lynett, P., Eskijan, M., *Ayca, A., and Wilson, R., "A Monte Carlo Based Approach to Estimate Fragility Curves of Floating Docks for Small Craft Marinas." *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, doi: 10.1061/(ASCE)WW.1943-5460.0000385. **2017**.

2016

33. *Ayca, A., and Lynett, P., "Effect of Tides and Source Location on Nearshore Tsunami-Induced Currents." *JGR-Oceans*, doi: 10.1002/2016JC012435, **2016**.
34. Chock, G., Yu, G., Thio, H., Lynett, P., "Target Structural Reliability Analysis for Tsunami Hydrodynamic Loads of the ASCE 7 Standard," *ASCE Journal of Structural Engineering*, doi:10.1061/(ASCE)ST.1943-541X.0001499, **2016**.
35. *Montoya, L., Lynett, P., Kie Thio, H., and Li, W., "Spatial Statistics of Tsunami Overland Flow Properties." *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, doi:10.1061/(ASCE)WW.1943-5460.0000363, **2016**.
36. Tae-Hwa, J., Son, S., and Lynett, P., "A Comprehensive Sensitivity Analysis of Tsunami Model System to the Parametric and Input Uncertainties." *Journal of Coastal Research*, doi: 10.2112/SI75-224.1, **2016**.
37. Lynett, P., "Precise Prediction of Coastal and Overland Flow Dynamics: A Grand Challenge or a Fool's Errand." *Journal of Disaster Research*, Vol 11.4, **2016**.
38. *Kalligeris, N., *Skanavis, V., *Tavakkol, S., *Ayca, A., *Safty, H. E., Lynett, P., & Synolakis, C., "Lagrangian flow measurements and observations of the 2015 Chilean tsunami in Ventura, CA." *Geophysical Research Letters*, doi: 10.1002/2016GL068796, **2016**.
39. Lynett, P., "Understanding the 'Harbor Wave'." *PORTSIDE Caribbean*, June/Sept, pp. 22-2, **2016**. [peer-reviewed article in non-indexed, general-audience publication]
40. Lynett, P.J., and Kaihatu, J.M. "Modeling of coastal waves and hydrodynamics" *book chapter* appearing in *Handbook of Ocean Engineering*; Dhanak, M.R., and Xiros, N. (ed.), Springer, **2016**.

2015

41. Lin, F.-C., Kohler, M., Lynett, P., *Ayca, A., Weeraratne, D., "March 11, 2011 Tohoku tsunami wavefront mapping across offshore southern California," *JGR-Solid Earth*, doi:10.1002/2014JB011524, **2015**.
42. Lovolt, F., Glimsdal, S., Lynett, P., and Pedersen, G., "Simulating tsunami propagation in fjords with long wave models," *Nat. Hazards Earth Syst. Sci.*, v. 15, 657-669, doi:10.5194/nhess-15-657-2015, **2015**.
43. Weiss, R., Lynett, P., and Wünnemann, K., "The Eltanin Impact and its Tsunami along the Coast of South America: Insights for Potential Deposits," *Earth and Planetary Science Letters*, doi:10.1016/j.epsl.2014.10.050, **2015**.
44. Borrero, J., Lynett, P., and *Kalligeris, N. "Tsunami currents in ports," *Proc. Royal Society of London A*. A373:20140372, doi: 10.1098/rsta.2014.0372, **2015**

2014

45. Parsons, T., Geist, E., Ryan, H., Lee, H., Haeussler, P., Lynett, P., Hart, P., Sliter, R., and Roland, E., "Source and progression of a submarine landslide and tsunami: the 1964 Great Alaska earthquake at Port Valdez," *JGR-Solid Earth*, v. 119, 8502–8516, doi:10.1002/2014JB011514, **2014**.
46. *Son, S. and Lynett, P., "Interaction of Shallow Water Waves with Weakly Sheared Currents of Arbitrary Profile," *Coastal Engineering*, v(90), pp. 64-84, doi: 10.1016/j.coastaleng.2014.04.009, **2014**.
47. Geist, E. and Lynett, P. "Source Process in the Probabilistic Assessment of Tsunami Hazards," *Oceanography*, v. 27 (2), pp.86-96, **2014**
48. *Son, S., and Lynett, P., "Nonlinear and Dispersive Free Surface Waves Propagating over Fluids with Weak Vertical and Horizontal Density Variation," *Journal of Fluid Mechanics*, v (748), pp. 221-240, doi: 10.1017/jfm.2014.144, **2014**.
49. Borrero, J., *Kalligeris, N., Lynett, P., Fritz, H., Newman, A., and Covers, J., "Observations and Modeling of the August 27, 2012 Earthquake and Tsunami affecting El Salvador and Nicaragua," *Pure and Applied Geophysics*, doi: 10.1007/s00024-014-0782-2, **2014**.
50. Lynett, P., Borrero, J., *Son, S., Wilson, R., and Miller, K., "Assessment of the Tsunami-Induced Current Hazard," *Geophysical Research Letters*, doi: 10.1002/2013GL058680, **2014**.
51. Renteria*, W. and Lynett, P., "Assessment of the Chile 2010 and Japan 2011 Tsunami Events in the Galapagos Islands," *book chapter* appearing in *AGU Geophysical Monograph Series*, special issue on the Galapagos Islands,, ed. E. Mittelstaedt, **2014**.

2013

52. Park, H., Cox, D., Lynett, P., Wiebe, D., and Shin, S. "Tsunami Inundation Modeling in Constructed Environments: A Physical and Numerical Comparison of Free-Surface Elevation, Velocity, and Momentum Flux," *Coastal Engineering*, v. 79, pp. 9-21, doi: 10.1016/j.coastaleng.2013.04.002. **2013**
53. Lovolt, F., Pedersen, G., and Lynett, P. "Simulating run-up on steep slopes with operational Boussinesq models; capabilities, spurious effects and instabilities," *Nat. Hazards Earth Syst. Sci.*, v. 20, pp. 379-395, doi:10.5194/npg-20-379-2013. **2013**
54. Arcos, M., MacInnes, B., Arreaga, P., Rivera-Hernandez, F., Weiss, R., and Lynett, P., "A Meter-Thick Sedimentary Package Caused By the 2011 Tohoku Tsunami in El Garrapatero, Galapagos—A Record of Sedimentary Deposition Enabled by Tsunami Erosion," *Quaternary Research*, v.80, pp. 9-19, doi: 10.1016/j.yqres.2013.04.005. **2013**
55. Irish, J., Lynett, P., Weiss, R., Smallegan, A., and Cheng, W., "A tale of two Boroughs: Hurricane Sandy's knitting of the shore slowed by relic seawall," *Coastal Engineering*, v. 80, pp. 79-82, doi: 10.1016/j.coastaleng.2013.06.001. **2013**.
56. *Kim, D.-H. and Lynett, P., "3D σ -Coordinate Transport Model Coupled with Boussinesq-type Equations," *Environmental Fluid Mechanics*, v. 13(1), pp. 51-72, doi: 10.1007/s10652-012-9256-1, **2013**.

2012

57. Lynett, P., Weiss, R., *Renteria, W., De La Torre Morales, G., *Son, S., Arcos, M., and MacInnes, B., "Coastal Impacts of the March 11th Tohoku, Japan Tsunami in the Galapagos Islands," *Pure and Applied Geophysics*, doi: 10.1007/s00024-012-0568-3, **2012**.
58. Wilson, R., Admire, A., Borrero, J., Dengler, L., Legg, M., Lynett, P., Miller, K., Ritchie, A., Sterling, K., and Whitmore, P., "Observations and Impacts from the 2010 Chilean and 2011 Japanese tsunamis in California," *Pure and Applied Geophysics*, doi:10.1007/s00024-012-0527-z, **2012**.
59. Lynett, P., Borrero, J, Weiss, R., *Son, S., Greer, D., and *Renteria, W. "Observations and Modeling of Tsunami-Induced Currents in Ports and Harbors," *Earth and Planetary Science Letters*, v. 327/328, pp. 68-74, doi: 10.1016/j.epsl.2012.02.002, **2012**.
60. *Oaks, D., Lynett, P., and Edge, B., "Evaluation of the Structure of Levee Transitions on Wave Run-Up and Overtopping by Physical Modeling," *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, v. 138(1), pp. 53-62, doi: 10.1061/(ASCE)WW.1943-5460.0000103, **2012**.

61. *Renteria, W., Lynett, P., Weiss, R., and De La Torre Morales, G., "Informe de la investigación de campo de los efectos del tsunami de Japón marzo 2011, en las Islas Galápagos," *Acta Oceanográfica del Pacífico*, v. 17 (1), p. 177-203, **2012**

2011

62. Lynett, P., and Liu, P. L.-F., "Simulation of Complex Tsunami Behavior," *Computing in Science and Engineering Magazine*, July/August 2011, v. 13(4), pp. 50-57, doi: 10.1109/MCSE.2011.22, **2011**.
63. *Son, S., Lynett, P., and *Kim, D.-H., "Nested and Multi-Physics Modeling of Tsunami Evolution from Generation to Inundation," *Ocean Modelling*, v. 38 (1-2), p. 96-113, doi: 10.1016/j.ocemod.2011.02.007, **2011**.
64. *Kim, D.-H. and Lynett, P., "Turbulent Mixing and Scalar Transport in Shallow and Wavy Flows," *Physics of Fluids*, v. 23 (1), doi:10.1063/1.3531716, **2011**.
65. Fritz, H.M., Borrero, J.C., Synolakis, C.E., Okal, E.A., Weiss, R., Titov, V.V., Jaffe, B.E., Foteinis, S., Lynett, P., Chan, I.-C., Liu, P L.-F., "Insights on the 2009 South Pacific tsunami in Samoa and Tonga from field surveys and numerical simulations," *Earth Science Reviews*, v. 1-7 (1-2), p. 66-75, doi:10.1016/j.earscirev.2011.03.004, **2011**.
66. *Kim, D.-H. and Lynett, P., "Dispersive and Nonhydrostatic Pressure Effects at the Front of Surge," *Journal of Hydraulic Engineering*, doi:10.1061/(ASCE)HY.1943-7900.0000345, **2011**.
67. Lynett, P. "Modeling of Tsunami Inundation" *book chapter* appearing in: *Encyclopedia of Complexity and System Science: Extreme Environmental Events - Complexity in Forecasting and Early Warning*, ed. W. Lee, Springer-Verlag, doi: 10.1007/978-1-4419-7695-6_53. **2011**.

2010

68. Wu, C., Young, C.-C., Chen, Q., and Lynett, P., "Efficient Non-Hydrostatic Modeling of Nonlinear Waves from Deep to Shallow Water," *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, v. 136(2), p.104-118. **2010**.
69. Okal, E., Fritz, H., Synolakis, C., Borrero, J., Weiss, R., Lynett, P., Titov, V., Foteinis, S., Jaffe, B., Liu, P., and Chan, I., "Field Survey of the Samoa Tsunami of 29 September 2009," *Seismological Research Letters*, v. 81 (4), p. 578-592. **2010**.
70. Lynett, P., Melby, J., and *Kim, D.-H. "An Application of Boussinesq Modeling to Hurricane Wave Overtopping and Inundation," *Ocean Engineering*. v. 37, p. 135-153. **2010**.

2009

71. *Kim, D.-H., Lynett, P., and Socolofsky, S. "A Depth-Integrated Model for Weakly Dispersive, Turbulent, and Rotational Fluid Flows." *Ocean Modeling*, v. 27 (3-4), p. 198-214, **2009**.
72. *Augustin, L. N., Irish, J. L., and Lynett, P. "Laboratory and Numerical Studies of Wave Damping by Emergent and Near-Emergent Wetland Vegetation." *Coastal Engineering*, v. 56(3), p. 332-340, **2009**.
73. *Sitanggang, K. and Lynett, P. "Multi-scale Simulation with a Hybrid Boussinesq-RANS Hydrodynamic Model." *International Journal for Numerical Methods in Fluids*, DOI: 10.1002/flid.2056, **2009**.
74. Geist, E., Lynett, P., and Chaytor, J. "Hydrodynamic Modeling of Tsunamis from the Currituck Landslide." *Marine Geology*, v. 264 (1-2), p. 41-52, **2009**.
75. He, H., Song, J., Lynett, P., and Li, S. "Determination of Fractional Energy Loss of Waves in Nearshore Waters using an Improved High-Order Boussinesq-type Model." *Chinese Journal of Oceanology and Limnology*, v. 27 (3), p. 621-629, **2009**.

2007

76. Huntington, K., Bourgeois, J., Gelfenbaum, G., Lynett, P., Jaffe, B., Yeh, H., and Weiss, R. "Sandy Signs of Tsunami Onshore Depth and Speed." *AGU EOS*, Dec 25th Cover Article, v. 88(52), p. 577-578, **2007**.
77. Korycansky, D. G. and Lynett, P., "Runup from Impact Tsunami," *Geophysical Journal International*, v. 107, p. 1076-1088, **2007**.

78. Lynett, P., "The Effect of a Shallow Water Obstruction on Long Wave Runup and Overland Flow Velocity," *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, v. 133(6), p. 455-462, **2007**.

2006

79. Goff, J., Liu, P., Lynett, P., Fernando, J., Jaffe, B., Fritz, H., Higman, B., Morton, R., and Synolakis C., "Runup and Inundation Limits in Sri Lanka from the December 26th Tsunami," *Earthquake Spectra*, **2006**, v. 22(S3), p. 155-172. **2006**; similar but more detailed paper in *Bulletin for the New Zealand Society for Earthquake Engineering*, **2006**.
80. Lynett, P., "Nearshore Modeling Using High-Order Boussinesq Equations," *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, v. 132(5), p. 348-357, **2006**.
81. Lynett, P., "Wave Breaking Velocity Effects in Depth-Integrated Models," *Coastal Engineering*, v. 53, p. 325-333. **2006**.

2005

82. Korycansky, D. and Lynett, P., "Offshore Breaking of Impact Tsunami: the Van Dorn Effect Re-Visited," *Geophysical Research Letters*, v. 32, No. 10, 10.1029/2004GL021918. **2005**.
83. Liu, P., Lynett, P., Fernando, J., Jaffe, B., Fritz, H., Higman, B., Synolakis, C., Morton, R., and Goff, J., "Observations of the International Tsunami Survey Team in Sri Lanka," *Science*, v. 308(5728), p. 1595, **June 10, 2005**.
84. *Sitanggang, K. and Lynett, P., "Parallel Computation of a Highly Nonlinear Boussinesq Equation Model through Domain Decomposition," *International Journal for Numerical Methods in Fluids*, v. 49(1), p. 57-74. **2005**.
85. Hsiao, S.-C., Lynett, P., Hwung, H.-H., and Liu, P. L.-F., "Numerical Simulations of Nonlinear Short Waves Using the Multi-Layer Model," *Journal of Engineering Mechanics*, v.131(3), p. 231-243. **2005**
86. Lynett, P., and Liu, P. L.-F., "A Numerical Study of the Runup Generated by Three-Dimensional Landslides," *JGR-Oceans*, v. 110 (C3), doi:10.1029/2004JC002443. **2005**.

2004

87. Basterretxea, G., Orfila, A., Jordi, A., Casas, B., Lynett, P., Liu, P. L.-F., Duarte, C. M., and Tintoré, J., "Evolution of an Embayed Beach with Posidonia Oceanica Seabeds (Mallorca, Balearic Islands)," *Journal of Coastal Research*, v. 20(4), p. 1155-1164. **2004**.
88. Lynett, P., and Liu, P. L.-F., "A Two-Layer Approach to Water Wave Modeling," *Proc. Royal Society of London A*, v. 460, p. 2637-2669. **2004**.
89. Lynett, P., and Liu, P. L.-F., "Linear Analysis of the Multi-Layer Model," *Coastal Engineering*, v. 51(6), p. 439-454. **2004**.

2003

90. Ryu, S., Kim, M.H., Lynett, P., "Modeling of Fully Nonlinear Wave-Current Interactions," *Computational Mechanics*, V.32, p. 336-346. **2003**.
91. Lynett, P., Borrero, J., Liu, P. L.-F., and Synolakis, C.E., "Field Survey and Numerical Simulations: A Review of the 1998 Papua New Guinea Tsunami," *Pure and Applied Geophysics*, v.160, p.2119-2146. **2003**.
92. Liu, P. L.-F., Lynett, P., and Synolakis, C.E., "Analytical Solutions for Forced Long Waves on a Sloping Beach," *Journal of Fluid Mechanics*, v. 478, p. 101-109. **2003**.
93. Cheung, K., Phadke, A., Wei, Y., Rojas, R., Douyere, Y., Martino, C., Houston, S., Liu, P. L.-F., Lynett, P., Dodd, N., Liao, S., and Nakazaki, E., "Modeling of Storm-induced Coastal Flooding for Emergency Management," *Ocean Engineering*, v. 30, p. 1352-1386. **2003**.

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94. Lynett, P., Wu, T.-R., and Liu, P. L.-F., “Modeling Wave Runup with Depth-Integrated Equations,” *Coastal Engineering*, v. 46(2), p. 89-107. **2002**.
95. Lynett, P., and Liu, P. L.-F., “A Two-Dimensional, Depth-Integrated Model for Internal Wave Propagation,” *Wave Motion*, v. (36), p. 221-240. **2002**.
96. Lynett, P., and Liu, P. L.-F., “A Numerical Study of Submarine Landslide Generated Waves and Runup,” *Proc. Royal Society of London A*, v. (458), p. 2885-2910. **2002**
97. Lynett, P., Liu, P. L.-F., Losada, I., and Vidal, C., “Solitary Wave Interaction with Porous Breakwaters,” *Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)*, v. 126, (6), p. 314-322. **2000**.
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RESEARCH GRANTS IN REVERSE CHRONOLOGICAL ORDER

Summary: \$24.1 million in total associated grants, \$6.4 million awarded to Lynett (since 2003)

1. **“USC – AltaSea – Industry Partnership to Sustainably Farm Our Oceans”**
Sponsor: USC Strategic Directions for Research Program
Total Amount: \$260,000, (Lynett lead P.I., Lynett portion: \$60,000)
Duration: 18 months; Start Date: January, 2022
2. **“COULWAVE Modeling for the Brazos River Floodgates near the GIWW”**
Sponsor: U.S. Army Corps of Engineers
Total Amount: \$50,000, (Lynett lead P.I., Lynett portion: \$50,000)
Duration: 6 months; Start Date: August, 2021
3. **“NHERI: SimCenter”**
Sponsor: National Science Foundation
Total Amount: \$10,000,000, (Lynett co-I, Lynett portion: \$60,000)
Duration: 60 months; Start Date: September, 2021
4. **“Incorporation of Landslide Tsunamis in Probabilistic Tsunami Hazard Assessment: Methodology Development”**
Sponsor: California Geological Survey
Total Amount: \$150,000, (Lynett lead P.I., Lynett portion: \$150,000)
Duration: 24 months; Start Date: April, 2020
5. **“Interactive Augmented Reality for Stakeholder Education of Coastal Hazards”**
Sponsor: National Science Foundation
Total Amount: \$280,000, (Lynett P.I., Lynett portion: \$280,000)
Duration: 24 months; Start Date: March, 2019
6. **“Incorporation of Landslide Tsunamis in Probabilistic Tsunami Hazard Assessment: Methodology Development”**
Sponsor: California Geological Survey
Total Amount: \$135,000, (Lynett lead P.I., Lynett portion: \$135,000)
Duration: 18 months; Start Date: February, 2019
7. **“Long Waves in Riverine Estuaries”**
Sponsor: National Science Foundation
Total Amount: \$830,000, (Lynett co-P.I., Lynett portion: \$400,000)
Duration: 36 months; Start Date: October, 2018
8. **“Coastal Engineering Research Roadmap Workshop”**
Sponsor: National Science Foundation
Total Amount: \$50,000, (Lynett co-P.I., travel only grant)
Duration: 12 months; Start Date: September, 2018
9. **“Tsunami Debris: Simulating Hazard and Loads”**
Sponsor: PEER
Total Amount: \$80,000, (Lynett lead P.I., Lynett portion: \$80,000)
Duration: 24 months; Start Date: January, 2018

10. **“DESIMAR: Parametric Design for Marine and Coastal Structures”**
 Sponsor: Turkish National Research Agency
 Total Amount: \$400,000, (Lynett co- P.I., Lynett portion: \$50,000)
 Duration: 36 months; Start Date: January, 2018
11. **“Development of an Immersive Coastal Hydrodynamic Simulation Environment”**
 Sponsor: ONR
 Total Amount: \$223,000, (Lynett lead P.I., Lynett portion: \$223,000)
 Duration: 24 months; Start Date: September, 2017
12. **“Wave, Surge, and Tsunami Overland Hazard, Loading and Structural Response for Developed Shorelines”**
 Sponsor: National Science Foundation
 Total Amount: \$1,050,000, (Lynett co- P.I., Lynett portion: \$250,000)
 Duration: 36 months; Start Date: August, 2017
13. **“Development of Damage Prediction Tools for Coastal Infrastructure in a Multi-Hazard Framework”**
 Sponsor: California Geological Survey
 Total Amount: \$120,000, (Lynett lead P.I., Lynett portion: \$112,000)
 Duration: 24 months; Start Date: February, 2017
14. **“NHRI: Computational Modeling and Simulation Center”**
 Sponsor: National Science Foundation
 Total Amount: \$10,900,000, (Lynett co-I, Lynett portion: \$60,000)
 Duration: 60 months; Start Date: September, 2016
15. **“Recording Tsunami Impacts from the Taan Fjord, Alaska Landslide of October 17th, 2015”**
 Sponsor: National Science Foundation
 Total Amount: \$40,000, (Lynett lead P.I., Lynett portion: \$40,000)
 Duration: 12 months; Start Date: August, 2016
16. **“Development of GuideSpecs for Tsunami Loads on Bridges”**
 Sponsor: PEER
 Total Amount: \$110,000, (Lynett lead P.I., Lynett portion: \$110,000)
 Duration: 36 months; Start Date: April, 2015
17. **“Nonlinear Long Wave Amplification in the Shadow Zone of Offshore Islands”**
 Sponsor: National Science Foundation
 Total Amount: \$1,050,000, (Lynett co- P.I., Lynett portion: \$300,000)
 Duration: 12 months; Start Date: August, 2015
18. **“Assessment and Application of Tools for Tsunami-Induced Maritime Damage Analysis”**
 Sponsor: California Geological Survey
 Total Amount: \$112,000, (Lynett lead P.I., Lynett portion: \$102,000)
 Duration: 24 months; Start Date: February, 2015
19. **“Assimilation of Wave Imaging Radar Observations for Real-time Wave-by-Wave Forecasting”**
 Sponsor: Department of Energy
 Total Amount: \$120,000, (Lynett co- P.I., Lynett portion: \$120,000)
 Duration: 24 months; Start Date: December, 2014
20. **“Development of a High-Control Jet-Array Wavemaker”**
 Sponsor: National Science Foundation
 Total Amount: \$65,000, (Lynett lead P.I., Lynett portion: \$65,000)
 Duration: 12 months; Start Date: September, 2014
21. **“Simulation Confidence in Tsunami-Driven Overland Flow”**
 Sponsor: PEER
 Total Amount: \$64,500, (Lynett lead P.I., Lynett portion: \$64,500)
 Duration: 12 months; Start Date: May, 2014
22. **“Faster than Real-Time Coastal Wave Visualization with a Phase-Resolving Boussinesq-type Model”**
 Sponsor: ONR
 Total Amount: \$104,000, (Lynett lead P.I., Lynett portion: \$104,000)

- Duration: 18 months; Start Date: May, 2014
23. **“Simulation of Tsunami-Induced Currents for Hazard Assessment and Mapping”**
Sponsor: California Geological Survey
Total Amount: \$95,000, (Lynett lead P.I., Lynett portion: \$70,000)
Duration: 18 months; Start Date: October, 2013
 24. **Tsunami Modeling in Support of the USGS Application for Risk Reduction Project”**
Sponsor: USGS
Total Amount: \$150,000, (Lynett lead P.I., Lynett portion: \$150,000)
Duration: 12 months; Start Date: September, 2013
 25. **“Development of a “Spot-Application” Tool for Rapid, High-Resolution Simulation of Wave-Driven Nearshore Hydrodynamics”**
Sponsor: ONR
Total Amount: \$197,000, (Lynett lead P.I., Lynett portion: \$197,000)
Duration: 24 months; Start Date: June, 2013
 26. **“Tsunami Modeling in Support of the USGS Application for Risk Reduction Project”**
Sponsor: USGS
Total Amount: \$90,000, (Lynett lead P.I., Lynett portion: \$90,000)
Duration: 12 months; Start Date: September, 2012
 27. **"Simulation of Complex Tsunami Currents for Use in Hazard Mapping"**
Sponsor: California Geological Survey
Total Amount: \$125,000, (Lynett lead P.I., Lynett portion: \$50,000)
Duration: 12 months; Start Date: September, 2012
 28. **"Data Generation for Determination of Safe Depths near Ports, Harbors, and Marinas During Tsunamis"**
Sponsor: California Emergency Management Agency (CalEMA)
Total Amount: \$35,000, (Lynett lead P.I., Lynett portion: \$25,000)
Duration: 12 months; Start Date: August, 2012
 29. **"NEESR: Tsunami Induced Coherent Structures and their Impact on our Coastal Infrastructure"**
Sponsor: National Science Foundation
Total Amount: \$1,350,000, (Lynett co-P.I., Lynett portion: \$380,000)
Duration: 48 months; Start Date: September, 2011
 30. **“NUREG: Development of Guidelines for Tsunami Hazard Assessment of Nuclear Power Facilities”**
Sponsor: Nuclear Regulatory Commission
Total Amount: \$800,000 (Lynett co-P.I., Lynett portion: \$50,000)
Duration: 24 months; Start Date: September, 2011
 31. **“High-Resolution Simulations of Tsunami Flooding in Southern California”**
Sponsor: USGS
Total Amount: \$100,000 (Lynett co-P.I., Lynett portion: \$50,000)
Duration: 24 months; Start Date: September, 2011
 32. **“RAPID: Observations Of Sediment Scour And Deposition In The Vicinity Of Ports And Harbors From The 11 March 2011 Japan Tsunami”**
Sponsor: National Science Foundation
Total Amount: \$98,000 (Lynett co-P.I., Lynett portion: \$20,000)
Duration: 12 months; Start Date: April, 2010
 33. **“Probabilistic Assessment of Tsunami Hazard for Nuclear Power Facilities”**
Sponsor: Nuclear Regulatory Commission through USGS
Total Amount: \$600,000 (Lynett co-P.I., Lynett portion: \$50,000)
Duration: 48 months; Start Date: October, 2010
 34. **“Efficient Non-Hydrostatic Modeling of Rotational, Turbulent, Dispersive, and Variable-Density Flows in the Vicinity of River Mouths and Inlets: Validation and Field Support”**
Sponsor: Office of Naval Research

- Total Amount: \$142,000 (Lynett lead P.I., Lynett portion: \$142,000)
Duration: 24 months; Start Date: October, 2010
35. **“Efficient Non-Hydrostatic Modeling of Rotational, Turbulent, Dispersive, and Variable-Density Flows in the Vicinity of River Mouths and Inlets”**
Sponsor: Office of Naval Research
Total Amount: \$86,000 (Lynett lead P.I., Lynett portion: \$86,000)
Duration: 12 months; Start Date: February, 2010
36. **“Electromagnetic Scattering Effects of Sea on the Radar Cross Section (RCS) of Small Boats in Littoral and Deep Ocean Environments”**
Sponsor: U.S. Navy
Total Amount: \$100,000 (Lynett co-P.I., Lynett portion: \$25,000)
Duration: 12 months; Start Date: October, 2009
37. **“Field and Numerical Investigations of Tidal Vortices for Exchange Flows Through Inlets on the Texas Coast”**
Sponsor: Texas Sea Grant
Total Amount: \$197,000 (Lynett co-P.I., Lynett portion: \$20,000)
Duration: 24 months; Start Date: October, 2008
38. **“Evaluation of the Structure of Levee Transitions on Wave Runup and Overtopping”**
Sponsor: U.S. Army Corps of Engineers
Total Amount: \$194,000 (Lynett lead P.I., Lynett portion: \$150,000)
Duration: 12 months; Start Date: October, 2008
39. **“Numerical Modeling in Support of Review of Various Nuclear Power Plant License Applications”**
Sponsor: Nuclear Regulatory Commission through USGS
Total Amount: \$490,000 (Lynett lead P.I., Lynett portion: \$490,000)
Duration: 60 months; Start Date: September, 2008
40. **“Hydraulic Model Studies On The Performance Of Armor Protection For The Northstar Island For Long Term Slope Protection”**
Sponsor: PND Engineers Inc.
Total Amount: *confidential* (Lynett co-P.I.)
Duration: 8 months; Start Date: June, 2008
41. **“Development of Numerical Tsunami Prediction and Assessment Capabilities for Oman”**
Sponsor: Lighthouse R & D Enterprises, Inc
Total Amount: *confidential* (Lynett lead P.I.)
Duration: 40 months; Start Date: November, 2007
42. **“A Virtual Organization to Develop Complex, Multi-scale Models Addressing the Impact of Inundation on Natural and Man-made Environments”**
Sponsor: National Science Foundation
Total Amount: \$200,000 (Lynett co-P.I., Lynett portion: \$20,000)
Duration: 24 months; Start Date: September, 2007
43. **“Numerical Tool Development in Support of Risk-Based Engineering Models”**
Sponsor: U.S. Army Corps of Engineers
Total Amount: \$80,000 (Lynett lead P.I., Lynett portion: \$80,000)
Duration: 24 months; Start Date: July, 2007
44. **“Creation of a Levee Overtopping Lookup Database”**
Sponsor: U.S. Army Corps of Engineers
Total Amount: \$40,000 (Lynett lead P.I., Lynett portion: \$40,000)
Duration: 12 months; Start Date: January, 2007
45. **“Boussinesq Modeling of Directional Spectra and Surge Overtopping of Levees”**
Sponsor: U.S. Army Corps of Engineers
Total Amount: \$75,000 (Lynett lead P.I., Lynett portion: \$75,000)
Duration: 6 months; Start Date: September, 2006

- 46. "NEESR-SG: TSUNAMOS: A Validated, Multi-Scale Tsunami Model for Hybrid Numerical-Experimental Simulation"**
 Sponsor: National Science Foundation
 Total Amount: \$1,100,000, (Lynett lead P.I., Lynett portion: \$432,000)
 Duration: 60 months; Start Date: September, 2006
- 47. "Laboratory Studies of Mixing Processes in Estuaries and Coastal Flows on the Texas Coast"**
 Sponsor: Texas Sea Grant
 Total Amount: \$204,000 (Lynett co-P.I., Lynett portion: \$35,000)
 Duration: 24 months; Start Date: September, 2006
- 48. "Packery Channel, Texas, Numerical Modeling: Calculating Morphology Change at a New Inlet by Process-Based Modeling"**
 Sponsor: U.S. Army Corps of Engineers through TAMU-CC
 Total Amount: \$45,000 (Lynett lead P.I., Lynett portion: \$45,000)
 Duration: 12 months; Start Date: December, 2005
- 49. "Modeling of the Wave Forces on New Orleans Area Levees during Hurricane Katrina"**
 Sponsor: U.S. Army Corps of Engineers
 Total Amount: \$80,000 (Lynett lead P.I., Lynett portion: \$80,000)
 Duration: 12 months; Start Date: December, 2005
- 50. "Collaborative Research-ITR: Coastal Modeling and Management"**
 Sponsor: National Science Foundation
 Total Amount: \$1,000,000, TAMU lead institution (Lynett lead P.I., Lynett portion: \$210,000)
 Duration: 48 months; Start Date: September, 2004
- 51. "Parallel Processing for Coastal Engineering Simulations"**
 Sponsor: Research Innovation Program, CE Department, TAMU
 Total Amount: \$18,000 (Lynett lead P.I., Lynett portion: \$18,000)
 Duration: 12 months; Start Date: September, 2003
- 52. "MRI: Acquisition of a Multidirectional Random Wavemaker for the Coastal Engineering Laboratory Wave Basin"**
 Sponsor: National Science Foundation
 Total Amount: \$800,000 (Lynett co-P.I., Lynett portion: \$0)
 Duration: 36 months; Start Date: August, 2003

GRADUATE STUDENTS

A. M.S.

- Lauren Augustin, "Bottom Vegetation Effects on Waves and Surge", graduated Dec 2007. Last employment as a Coastal Engineer at HDR-Shiner Moseley, Corpus Christi, TX
- David Swigler, "Laboratory Experiments of 3D Tsunami Breaking", graduated May 2009. Currently a Coastal Engineer at Coastal Planning & Engineering, Boca Raton, FL
- Drake Oaks, "Modeling of the Transition Between a Levee and Floodwall", graduated May 2010. Currently an Ocean Engineer at Exxon Research, Houston, TX
- Arturo Jimenez, "Probabilistic Assessment of Tsunami Generation Potential by Landslide", August, 2011. Currently a Coastal & Ocean Engineer at Moffatt & Nichol, Houston, TX

B. Ph.D.

- Khairil Irfan Sitanggang, "Computational modeling of very large scale 3D ocean and coastal problems", graduated May 2008. Currently a Naval Architect at Wolsey-Parsons, Houston, TX; also a faculty member at Bandung Institute of Technology, Indonesia
- Dae-Hong Kim, "Coupling of Shallow Flow Turbulence with Wind Waves", graduated August 2009. Currently an Associate Professor at University of Seoul, Korea.
- Sangyoung Son, "Wave Induced Hydrodynamic Complexity and Transport in the Nearshore", May 2012. Currently an Associate Professor at Korea University, Korea

- Haeng-Sik Ko, “A Hydraulic Control System Wavemaker”, graduated December 2016. Currently a Senior Researcher at the Korea Institute of Ocean Science & Technology
- Nikos Kalligeris, “Tsunami-Induced Nearshore Dynamics,” graduated January 2017. Currently a Tenured Research at National Observatory of Athens.
- Hoda El-Safty, “Interaction of Long and Short Wave Motions”, graduated January 2017. Currently an Assistant Professor at the University of Cairo.
- Aykut Ayca, “Probabilistic Assessment of Tsunami Currents in Harbors,” graduated August 2018. Currently a Senior Scientist at FM Global.
- Sasan Tavakkol, “Interactive and Immersive Coastal Simulation,” graduated December 2018. Currently a software engineer at Google.
- Luis Montoya, “Simulation Confidence in Overland Flow,” graduated May 2019. Currently a hazard modeler at RMS
- Adam Keen, “Stochastic Analysis of Coastal Hazards,” graduated May 2020. Currently a Coastal Business Class Leader at HDR
- Ezgi Cinar, “Debris Generation and Transport by Extreme Events,” expected December 2022
- Zili Zhou, “Uncertainty Quantification in Landslide Tsunamis,” expected August 2022
- Maile McCann, “Coastal Resilience,” expected August 2024
- Behzad Ebrahimi, “Fluid-Structure Interaction Modeling Coastal Ecosystem Engineering,” expected August 2024
- Wellington Renteria, “Understanding Coastal Hazards and Risk in a Changing Climate,” expected August 2025

TEACHING

- CE 599 – Shallow Water Hydrodynamics (USC)
- CE 599 – Metocean Data Analysis and Modeling (USC)
- CE 516 – Geohydrology (USC)
- ENE 512 – Environmental Fluid Mechanics (USC)
- ENE 410 – Environmental Fluid Mechanics (USC)
- CE 499 – Basic Coastal Engineering (USC)
- CE 309 – Fluid Mechanics (USC)
- CVEN 302 – Fluid Dynamics (Texas A&M)
- CVEN 311 – Numerical Methods for Engineers (Texas A&M)
- OCEN 400 – Basic Coastal Engineering (Texas A&M)
- OCEN 407 – Coastal Engineering Capstone Design (Texas A&M)
- OCEN 682 – Sediment Transport Processes (Texas A&M)
- OCEN 683 – Estuary Hydrodynamics (Texas A&M)

PROFESSIONAL SERVICE

Affiliations

- Member, American Society of Civil Engineers (ASCE) 1998 – present
- Member, American Geophysical Union, 1998 – present
- Member, Association of Coastal Engineers, 2003 – present
- Member, International Association of Hydraulic Engineering and Research, 2003 – present
- Member, Earthquake Engineering Research Institute, 2005 – present

Organized Workshops & Meetings

- Nonlinear Wave Dynamics: Workshop Held in Honor of Philip Liu’s 60th Birthday, Ithaca, NY, September, 2008 (organized with Jerry Lennon and Kuang-An Chang)

- ISEC Community Workshop: Simulation & Large-Scale Testing of Nearshore Wave Dynamics, Corvallis, OR, July, 2009 (organized with Cherri Pancake, Tony Dalrymple, and Harry Yeh)
- The 26th International Conference of Seaports & Maritime Transport, Alexandria, Egypt, Feb 2010 (member of Conference Technical Committee)
- Tsunami Workshop for Port and Marina Operators, Mayaguez, Puerto Rico, October 2010 (organized with Aurelio Mercado)
- NTHMP Tsunami Currents Benchmark Workshop, Portland, Oregon, February, 2015
- USGS Powell Center Workshop on Alaska Tsunami Sources, Fort Collins, CO, October, 2018
- NSF Coastal Engineering Roadmap Workshop, Arlington, VA, December, 2018
- USGS Powell Center Workshop on Caribbean Tsunami Sources, Fort Collins, CO, October, 2019
- virtual International Conference on Coastal Engineering, September, 2020

Invited Speaker/Participant at Workshops & Roundtables (not up to date)

- Workshop on Research with NEES (Network for Earthquake Engineering Simulation) Tsunami Facility, NSF; invited participant; Seattle, WA, September 2002
- Workshop on Tsunami Model Benchmarking and Validation, NSF; invited speaker; Honolulu, HI, May 2003
- Workshop on Research with NEES Tsunami Facility: Development of Integrated Tsunami Scenario Simulations, NSF; invited participant; Corvallis, Oregon, August 2003
- Workshop on Research with NEES: Community Workshop on Computational Simulation and Visualization Environment For NEES, NSF; invited participant; Lawrence, Kansas, December 2003
- Caribbean Tsunami Workshop, NSF; invited speaker; San Juan, Puerto Rico, March 2004
- Long-Wave Runup Workshop, NSF; invited speaker; Catalina Island, CA, June 2004.
- Workshop on Research with NEES (Network for Earthquake Engineering Simulation) Tsunami Facility, NSF; invited speaker; San Francisco, CA, September 2004.
- Workshop on Understanding Tsunami Sediment Deposits, NSF; invited speaker; Seattle, WA, June 2005.
- NAS Natural Hazards Roundtable; invited speaker; Washington D.C., June 2005.
- Workshop on Developing a Strategic Tsunami Research Plan, NOAA; invited participant; Corvallis, OR, July 2006.
- Workshop on Research with NEES Tsunami Facility; NSF; invited speaker; Corvallis, Oregon, July 2006.
- Workshop on Research with NEES Tsunami Facility; NSF; invited speaker; Corvallis, Oregon, July 2006.
- Roundtable Discussion on Near and Onshore Tsunami Effects, invited speaker, Hannover, Germany, April 2007.
- Workshop on the Inversion of Tsunami Sediment Deposits; invited speaker, Friday Harbor, WA, May 2007.
- ISEC Community Workshop: Simulation & Large-Scale Testing of Nearshore Wave Dynamics; invited speaker, Corvallis, OR, July, 2009
- Workshop on Tsunami Research, DHS; invited speaker; Raleigh, NC, October 2009.
- Submarine Mass Movements and Their Consequences Conference; invited keynote speaker, Austin, TX, Nov 2009.
- The 26th International Conference of Seaports & Maritime Transport; invited keynote speaker, Alexandria, Egypt, Feb 2010.
- Tsunami Effects in Southern California; invited speaker, Long Beach, CA, December 2010
- Workshop on Tsunami Hydrodynamics in a Large River; invited speaker, Corvallis, OR, August 2011
- Probabilistic Approaches for Landslide Tsunami Hazard; invited speaker, Woods Hole, MA, August 2011
- Coastal Tsunami Hazard; invited speaker at SCSTW-10, Singapore, October, 2018

Natural Disaster Investigations

- Member of International Tsunami Survey team, visiting tsunami-devastated coastlines of Sri Lanka, January 2005.
- Numerous regional, national, and international TV, radio, and print appearances discussing the 2004 Indian Ocean tsunami, January 2005-present, including:
 - Local TV stations KBTX, KMAY, and KRHD
 - Regional newspaper and radio stations from Houston to Austin to Dallas
 - Interview for NPR: <http://www.theworld.org/worldfeature/earthquake/index.shtml> (June 9)
 - Magazine interviews for Nature, Prism, and others
- Member of the ASCE-sponsored Hurricane Katrina Coastal Impacts Survey team, visiting coastal areas of Mississippi and Alabama
- Member of the US Army Corps of Engineers Interagency Performance Evaluation Taskforce (IPET), working on detailed hydrodynamic modeling of the canal and levee system failures in New Orleans due to Hurricane Katrina. Received the *Commander's Award for Public Service*, the fourth highest public service honorary award that may be granted to a private citizen, for the efforts related to this work.
- Member of International Tsunami Survey team, visiting tsunami-devastated coastlines of American Samoa, October 2009.
- Member of International Tsunami Survey team, visiting tsunami-devastated coastlines throughout the Pacific after the 2011 Japan tsunami, Spring/Summer 2011.
- Member of NSF-sponsored RAPID team to coastlines of New York and New Jersey, recording physical impacts to the coast after Hurricane Sandy, November 2013.
- Co-leader of NSF sponsored tsunami RAPID team to survey the Taan Fjord landslide, Spring-Summer, 2016
- Member of NSF-sponsored RAPID team to coastlines of Florida, recording physical impacts to the coast after Hurricane Michael, November 2018.
- Member of State-Supported Response Team to Newport, CA, recording physical impacts to the coast after a strong swell and tide event, July 2020.

Invited Seminars and Lectures to Technical Audiences (not up to date)

- "Numerical Modeling Of Tsunami Generation By Subaerial And Submerged Landslides," presented at Workshop on Tsunami Model Benchmarking and Validation, Honolulu, 2003.
- "Deep-water Advancements in Depth-Integrated Modeling," presented at Tainan Hydraulics Laboratory, National Cheng Kung University, Taiwan. 2004.
- "Observations of Tsunami Damage in Sri Lanka from the 2004 Sumatra Earthquake," presented at ASCE geotechnical conference Geo-Frontiers in Austin, TX. 2005
- "Damage in Sri Lanka from the 2004 Indian Ocean Tsunami," presented at EERI annual meeting in Ixtapa, Mexico. 2005
- "A Review of the Indian Ocean Tsunami," presented to the L.T. Jordan International Students Organization of TAMU in College Station, TX. 2005
- "Observations of Tsunami Damage in Sri Lanka from the 2004 Sumatra Earthquake," presented at the ASCE monthly meeting in College Station, TX. 2005
- "A Review and Comparison of Recent Coastal Disasters," presented to the Southeast section of ASCE in Tyler, TX. 2005.
- "Nearshore Hydrodynamic Modeling: Current Research and Future Direction," presented to the U.S Army Corp Engineering Research and Development Center, Coastal Hydraulics Laboratory in Vicksburg, MS. 2005.
- "Tsunami Runup Modeling," presented at Workshop on Understanding Tsunami Sediment Deposits, Seattle, WA, June 2005.

- “Observations of Tsunami Damage from the 2004 Sumatra Earthquake,” NAS Natural Hazards Roundtable; Washington D.C., June 2005
- “Physics and Application of Depth-Integrated Models,” presented at the Symposium Held in Honor of Philip L-F Liu's 60th Birthday, Ithaca, NY, September, 2006.
- "Innovations in Multi-Scale Hydrodynamic Simulation with Parallel and Hybrid Approaches," presented at the Technical University of Braunschweig, 2007.
- “Numerical Modelling of Wave Effects due to Extreme Events such as Tsunami and Hurricane,” presented at the Technical University of Braunschweig, 2007.
- “Detailed Hydrodynamic Modeling of Wave Overtopping of Hurricane Protection,” presented to representatives of the U.S Army Corp Engineering Research and Development Center, FEMA, New Orleans Corps District, New Orleans, LA. 2007.
- “Tsunami Inundation,” presented to the Civil Engineering Department of Oregon State University, Corvallis, OR, March 2007.
- “Parallel and hybrid approaches to tsunami modelling (ongoing research) and understanding the hydrodynamic information contained in tsunami sediment deposits (planned research),” presented at Roundtable Discussion on Near and Onshore Tsunami Effects, Hannover, Germany, April 2007.
- “Engineering-type Approaches to Modeling Sediment Transport due to Tsunami,” presented at Workshop on the Inversion of Tsunami Sediment Deposits; Friday Harbor, WA, May 2007.
- “Using the Boussinesq Wave Model to Estimate Run-up and Overtopping of Levees and Seawalls,” FEMA Mapping Team Meeting, Forth Worth, Texas, November 2007.
- “Some Uncertainties in the Inversion of Sediment Deposits to an Incident Tsunami Waveform,” invited speaker, AGU Fall Meeting, San Francisco, Dec. 2007.
- "Theory and Examples of Boussinesq Modeling,” ASBPA Texas Chapter Winter Meeting, College Station, February 2008
- “Modeling Tsunami and Storm Wave Impacts using the COULWAVE Model,” presented at the University of Puerto Rico-Mayaguez, April, 2008.
- “Some Uncertainties in the Modeling of Nearshore Waves and Transport over Variable Bathymetry and Bottom Roughness,” presented to the Civil Engineering Department of Oregon State University, Corvallis, OR, February 2008.
- “Tsunamis,” presented to the Oceanography Department of Texas A&M University, April 2009.
- “Nearshore Dynamics of Tsunamis,” presented to the Civil Engineering Department of The Johns Hopkins University, Baltimore, MD, October 2009.
- “Tsunami Transport,” presented to the Geophysics and Geology of Department of Texas A&M University, April 2010.
- “Numerical, Physical, and Field Studies of Nearshore Ocean Waves During Extreme Events,” presented to the Oceanography Program of Princeton University, June 2010.
- “Tsunami Interaction with Nearshore Infrastructure,” presented to the Civil Engineering Department at the University of Southern California, June 2011.
- “A Probabilistic Approach for the Waves Generated by a Submarine Landslide,” invited speaker, AGU Fall Meeting, San Francisco, Dec. 2011.
- “Complex Tsunami Evolution in Shallow Water,” presented to the Hellenic Centre for Marine Research, Greece, March 2012.
- “Tsunami Impacts in Ports and Harbors,” presented at the University of Santa Maria, Valparaiso, Chile, July 2012
- “Modeling Nonlinear and Dispersive Waves,” presented at the University of Oslo, Norway, August 2012
- “Understanding Extreme Coastal Events,” presented at Virginia Tech University, November 2012.
- “Overland Tsunami Flow through Complex Topography,” invited speaker, AGU Fall Meeting, San Francisco, Dec. 2012.
- “Dynamic, tsunami-induced nearshore currents,” invited speaker at Nonlinear Waves--Theory and Applications, Beijing, China, June 2013

- “Tsunami Hazard Assessment in Ports and Harbor,” invited keynote speaker at the International Tsunami Symposium, Goecek, Turkey, September 2013
- “Maritime Hazard Assessment in California,” invited speaker, AGU Fall Meeting, San Francisco, Dec. 2013
- “Second-Order Corrections to Long Wave Models,” invited keynote speaker at TsuMaMoS 2014, Malaga, Spain April 2014.
- “Bridge Design for Tsunamis,” invited speaker, PEER Annual Meeting, Berkeley, CA., Jan. 2018.
- “Tsunami Hazard in Ports,” invited speaker, 11NCEE, Los Angeles, CA., July. 2018.
- “Incorporation of Landslide Tsunamis in Multi-Source Probabilistic Tsunami Hazard Assessment”, invited speaker, AGU Fall Meeting, Washington D.C., Dec. 2018.

Invited Seminars and Lectures to Broad or Non-Technical Audiences

- "A Review of Tsunamis and the Indian Ocean Tsunami," presented to the Society of Professional Journalists (SPJ) in Bryan, TX. 2005
- “Tsunami,” presented to the Texas A&M Women’s Club in College Station, TX. 2005
- "A Review of Tsunamis and the Impact of the Indian Ocean Tsunami on the Offshore Industry," presented to the Institute of Marine Engineering, Science and Technology (IMarEST) in Houston, TX. 2005
- "A Review of the Indian Ocean Tsunami," presented to the L.T. Jordan International Students Organization of TAMU in College Station, TX. 2005
- “Tsunami,” presented to the Research Experiences for K-12 Teachers, summer program, College Station, TX. 2006”
- “Waves on the Ocean,” presented at WeatherQuest at the Brownsville Childrens Museum in Brownsville, Texas, 2007.
- “A Little Bit about Wave Theory,” presented at SurfRiders Texas Chapter Meeting in Houston, Texas, February 2008.
- “Coastal Erosion and Engineering Responses,” presented during community meeting in Crete, Greece, March 2012
- “Water Wave Modeling,” six-hour lecture series taught at the University of Santa Maria, Valparaiso, Chile, Jan 2013
- “State of California Tsunami Maritime Hazard Mapping,” given at numerous locations throughout California, 2012-2014
- “Tsunami Modeling for the USGS SAFRR Project,” given at numerous locations throughout California, 2013-14

Journal and Proposal Reviews

- Pure and Applied Geophysics
- Journal of Engineering Mechanics
- Journal of Fluid Mechanics
- Wave Motion
- Journal of Waterway, Port, Coastal, and Ocean Engineering
- Coastal Engineering
- Ocean Engineering
- Natural Hazards
- Journal of Coastal Research
- Computers and Geosciences
- Journal of Computational Physics
- International Journal for Numerical Methods in Fluids
- EERI Spectra

- Sedimentary Geology
- Applied Mathematical Modeling
- Remote Sensing of Environment
- Journal of Hydraulic Engineering
- NSF proposals, Geoenvironmental Engineering and GeoHazards Mitigation, Physical Oceanography, Sedimentology, Pan-American Advanced Studies Institutes
- Sea Grant proposals
- Member of NSF review panel, NEESR
- Member of NSF review panel, Chemical and Transport Systems
- Member of NSF review panel, Graduate Research Fellowships Program

SUPPLEMENTARY INFORMATION:

Publication Summary (as of 2/21):

- Publications: 90 published since 2002 in peer-reviewed journals
- Total citations (taken from Scopus/Google Scholar): 3242/5307
- h-index (taken from Scopus): 33
- Top three cited papers (Scopus)
 - **298 cites:** Modeling Wave Runup with Depth-Integrated Equations, *Coastal Engineering*, 2002
 - **221 cites:** Laboratory and Numerical Studies of Wave Damping by Emergent and Near-Emergent Wetland Vegetation, *Coastal Engineering*, 2009
 - **211 cites:** Observations of the International Tsunami Survey Team in Sri Lanka, *Science*, 2005

Journal Information:

- Impact Factors (Science-focused journals, from 2012 Journal Citation Reports, 5-Year IF)
 - Science: **33.6**
 - Earth-Science Reviews: **8.8**
 - Earth and Planetary Science Letters: **4.6**
 - Geophysical Research Letters: **4.1**
 - JGR-Oceans: **3.5**
 - Oceanography: **3.5**
 - Marine Geology: **3.0**
 - Geophysical Journal International: **2.8**
 - Seismological Research Letters: **2.8**
 - Quaternary Research: **2.8**
 - Journal of Fluid Mechanics: **2.6**
 - Ocean Modeling: **2.6**
 - Proc. Royal Society of London A.: **2.2**
 - Physics of Fluids: **2.0**
 - Environmental Fluid Mechanics: **1.6**
 - Wave Motion: **1.7**
 - Pure and Applied Geophysics: **1.7**
- Impact Factors (Engineering-focused journals, from 2012 Journal Citation Reports, 5-Year IF)
 - Coastal Engineering: **2.6**
 - Earthquake Spectra: **2.5**
 - Computational Mechanics: **2.3**
 - Journal of Hydraulic Engineering: **1.7**
 - Ocean Engineering: **1.5**
 - International Journal of Numerical Methods in Fluids: **1.4**
 - Journal of Engineering Mechanics: **1.2**
 - Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE): **1.2**
 - Computing in Science & Engineering Magazine: **0.9**
 - Journal of Coastal Research: **0.8**