

CURRICULUM VITAE

HARRY H. YEH

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ACADEMIC RANK:

Professor of Civil Engineering, Oregon State University
Adjunct Professor, College of Earth, Oceanic and Atmospheric Sciences, Oregon State University

DEGREES

Ph.D. Civil Engineering, University of California, Berkeley, 1983
M.S. Engineering, Washington State University, 1977
B.S. Agricultural Engineering, Washington State University, 1975
A.B. Economics, Keio Gijuku University, Japan, 1972

ACADEMIC POSITIONS

Professor, School of Civil & Construction Engineering, Oregon State University, Corvallis, OR, 2007-present.
Adjunct Professor, College of Oceanic and Atmospheric Sciences, Oregon State University, OR, 2007-present.
Academic Visiting Professor, Department of Civil & Environmental Engineering, National University of Singapore, 2019.
Visiting Professor, Department of Civil Engineering, University of Tokyo, Japan, 2019.
Visiting Professor, Department of Civil Engineering, University of Tokyo, Japan, 2011-2012.
Affiliate Professor, Department of Civil & Environmental Engineering, University of Washington, Seattle, WA, 2003-present.
Professor, Department of Civil, Construction, and Environmental Engineering, Oregon State University, Corvallis, OR, 2003-2007.
Professor, Department of Civil & Environmental Engineering, University of Washington, Seattle, WA, 1995-2002
Adjunct Professor, Department of Applied Mathematics, University of Washington, Seattle, WA, 1995-2002
Visiting Professor, Department of Civil Engineering, University of Tokyo, Tokyo, Japan, 1999
Visiting Professor, Disaster Prevention Research Institute, Kyoto University, Kyoto, Japan, 1997
Associate Professor, Department of Civil Engineering, University of Washington, Seattle, WA, 1989-1994
Adjunct Associate Professor, Department of Applied Mathematics, University of Washington, Seattle, WA, 1989-1994
Visiting Associate Professor, Department of Civil Engineering, Cornell University, Ithaca, NY, 1991
Visiting Associate Professor, Department of Civil Engineering, Stanford University, Stanford, CA, 1990-1991
Adjunct Assistant Professor, Department of Applied Mathematics, University of Washington, Seattle, WA, 1988-1989
Assistant Professor, Department of Civil Engineering, University of Washington, Seattle, WA, 1983-1989

NON-ACADEMIC POSITIONS

Research Specialist, Public Works Research Institute, The Japan Ministry of Construction, Tsukuba, Japan, 1998

Hydraulic Engineer, Bechtel Inc., San Francisco, CA, 1977-1983

FIELDS OF SPECIALIZATION

Fluid Mechanics

Water-Wave Hydrodynamics

Natural Hazards – Tsunamis

PROFESSIONAL ACTIVITIES**Registration**

Registered Professional Civil Engineer, State of California, #C031030

Professional Societies

American Geophysical Union

American Society of Civil Engineers

Coasts, Oceans, Ports, and Rivers Institute

Earthquake Engineering Research Institute

PUBLICATIONS**Book, Book Chapter:**

Yeh, H., Mason, H.B., and Barbosa, A. 2015. Tsunami Effects on Coastal Structures,” Encyclopedia of Complexity and System Science, Springer-Verlag., New York. DOI 10.1007/978-3-642-27737-5_623-1

Lin, Z., Yeh, H., Laramée, R.S., and Zhang, E. 2012. 2D Asymmetric Tensor Field Topology. In: Topological Methods in Data Analysis and Visualization II, Mathematics and Visualization (Ed: R. Peikert et al.), Springer-Verlag Berlin Heidelberg. 191-204.

Carrier, G.F. and Yeh, H. 2010. Tsunami Propagation, Directivity, and Pulse Persistence from a Finite Source, In: WATER WAVES: Theory and Experiment (Ed: Mahmood, M.F., Henderson, D., Segur, H.), World Science Publishing Co., Singapore, 120 – 139.

Briggs, M.J., Yeh, H., and Cox, D.T. 2010. Physical Modeling of Tsunami Waves, In Handbook of Coastal and Ocean Engineering, (Ed: Y.C. Kim), World Scientific Publishing Co., Singapore, 1073-1105.

Li, W., Yeh H., Hirata, K., and Baba, T. 2009. Ocean-bottom pressure variations during the 2003 Tokachi-Oki Earthquake. In: Nonlinear Wave Dynamics (Ed: P. Lynett), World Scientific Publishing Co., Singapore. 109-126.

Yeh, H. 2009. Tsunami Impacts on Coastlines. In: The Sea, Vol. 15 (Ed: E.N. Bernard and A.R. Robinson), Harvard University Press. 333-369.

Liu, P., Yeh, H., and Synolakis, C. (Editors) 2008. Advanced Numerical Models for Simulating Tsunami Waves and Runup, Advances in Coastal and Ocean Engineering, Vol. 10, World Scientific Publishing Co., Singapore. 344 pp.

Yeh, H., and Wada, K. 2001. Descriptive Hydrodynamics of Lock-Exchange Flows. In: Advances in Coastal and Ocean Engineering (Ed: P. L.-F. Liu), Vol. 6, World Scientific Publishing Co. 203-240.

Yeh, H., Liu, P., and Synolakis, C. (Editors) 1996. Long-Wave Runup Models, World Scientific Publishing Co., Singapore. 403 pp.

Yeh, H. 1994. Free-Surface Dynamics. In: Advances in Coastal and Ocean Engineering (Ed: P. L.-F. Liu), Vol 1, World Scientific Publishing Co. 1-75.

Archival Journal Papers:

Yeh, H, Ko, H., Knowles, J. and Harry, S. 2019. Solitary waves perturbed by a broad sill. Part 2. Propagation along the sill. J. Fluid Mech., **883**, A26.

Ko, H. T.-S. & Yeh, H. 2019. Solitary waves perturbed by a broad sill. Part 1. Propagation across the sill. J. Fluid Mech., **880**, 916-934.

Exton, M., Harry, Kutter, B., Mason, B., and Yeh, H. 2019. Simulating tsunami inundation and soil response in a large centrifuge. Scientific Reports, **9** (1):11138.

Harry, S., Exton, M. and Yeh, H. 2019. Boulder pick up by tsunami surge. J. Earthquake and Tsunami, **13**, 1941006 (15 pages).

Khan, F., Roy, L., Zhang, E., Qu, B., Hung, S.-H., Yeh, H., Laramée, R.S., and Zhang, Y. 2019. Multi-scale topological analysis of asymmetric tensor fields on surfaces. IEEE transactions on visualization and computer graphics, **26**(1), pp.270-279.

Knowles, J. and Yeh, H. 2019. Four-fold amplification of solitary waves, J. Fluid Mech., **861**, 517-523.

Knowles, J. and Yeh, H. 2018. On shoaling of solitary waves, J. Fluid Mech., **848**, 1073-1097 .

Ko, H. and Yeh, H. 2018. On the splash-up of tsunami bore impact. Coastal Engineering, **131**, 1 – 11.

Yang, W., Li, Q., and Yeh, H. 2017. Calculation method of hydrodynamic forces on circular piers during earthquakes. J. Bridge Eng., **22** (11): 04017093.

Yeh, H. and Sato, S. 2016. Tsunami effects on buildings and coastal structures. J. Disaster Res., **11** (4), 662-669.

Keon, D., Yeh, H., Pancake, C.P., and Steinberg, B. 2016. Performance-based tsunami engineering via a web-based GIS Data Explorer. J. Disaster Res., **11** (4), 624-633.

Kodama, Y. and Yeh, H. 2016. The KP theory and Mach reflection. J. Fluid Mech., **800**, 766-786.

Mason, H.B. and Yeh, H. 2016. Sediment liquefaction: A pore-water pressure gradient viewpoint. Bulletin of the Seismological Society of America, **106**, (4), 1908-1913

Pujara, N., Liu, P. L.-F., and Yeh, H. 2016. An integral treatment of friction during a swash uprush. Coastal Engineering, **114**, 295-300.

Palacios, J., Yeh, H., Wang, W., Zhang, Y., Laramée, R.S., Sharma, R., Schultz, T., and Zhang, E. 2016. Feature surfaces in symmetric tensor fields based on eigenvalue manifold. IEEE TVCG, **22** (3), 1248-1260.

Keon, D., Pancake, C.M., and Yeh, H. 2015. Protecting our shorelines: modeling the effects of tsunamis and storm waves. Computer, November 2015, 23 – 32.

Pujara, N., Liu, P. L.-F., and Yeh, H. 2015. An experimental study of the interaction of two successive solitary waves in the swash: a strongly interacting case and a weakly interacting case. Coastal Engineering, **105**, 66-74.

Pujara, N., Liu, P. L.-F., and Yeh, H. 2015. The swash of solitary waves on a plane beach: flow evolution, bed shear stress and run-up. J. Fluid. Mech., **779**, 556-597.

- Wei, Z., Dalrymple, R.A., Hérault, A., Bilotta, G., Rustico, E., and Yeh, H. 2015. SPH modeling of dynamic impact of tsunami bore on bridge piers. Coastal Engineering, 104, 26-42.
- Adityawan, M.B., Tanaka, H., and Yeh, H. 2014. An estimation of land subsidence due to the 2011 Earthquake using measured water level data. Journal of Japan Society of Civil Engineering, Ser. B2 (Coastal Engineering), 70 (2), I_216-I_220.
- Kim, T., Yeh, H., Kim, S., and Choi, M. 2015. Estimation of overflow-induced pressure and velocity on a mound-type sea dike. J. Korean Geo-Env. Soc., 16 (3), 5 – 13. (Korean)
- Chen, Y.S., Zhang, E., and Yeh, H. 2014. Laboratory experiments on counter-propagating collisions of solitary waves. Part 2: flow field. J. Fluid Mech., 755, 463-484.
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- Keon, D.B., Steinberg, B.M., Yeh, H., Pancake, C.M., and Wright, D.J. 2014. Web-based simulation modeling and visualization of tsunami inundation and potential human response. International Journal of Geographical Information Science, 28 (5), 987-1009
- Sato, S., Okayasu, A., Yeh, H., Fritz, H.M., Tajima, Y., and Shimozone, T. 2014. Delayed survey of the 2011 Tohoku Tsunami in the former exclusion zone in Minami-Soma, Fukushima Prefecture. Pure Appl. Geophys. 171, 3229-3240.
- Yeh, H. and Mason, H.B. 2014. Sediment response to tsunami loading: mechanisms and estimates. Géotechnique, 64 (2), 131 –143.
- Yeh, H., Sato, S., and Tajima, Y. 2013. The 11 March 2011 East Japan Earthquake and Tsunami: Tsunami Effects on Coastal Infrastructure and Buildings. Pure Appl. Geophys., 170, 1019-1031.
- Yeh, H., Tolkova, E., Jay, D., Talke, S., and Fritz, F. 2012. Tsunami hydrodynamics in the Columbia River, J. Disaster Research, 7 (5), 604-608.
- Chen, G., Palke, D., Lin, Z., Yeh H., Vincent, P., Laramée, R.S., and Zhang, E. 2011. Asymmetric tensor field visualization for surfaces, IEEE Transactions on Visualization and Computer Graphics, 17(12), 1979-1988.
- Raskin, J., Wang, Y., Boyer, M., Fiez, T., Moncada, J., Yu, K., and Yeh, H., 2011 An evacuation building project for Cascadia earthquake and tsunamis. Obras Y Proyectos: Revista de Ingeniería Civil (translation: Work and Projects: Civil Engineering magazine), 9, 11-22.
- Sou, I.M., and Yeh, H. 2011. Laboratory study of the cross-shore flow structure in the surf and swash zones, J. Geophys. Res., 116, C03002, doi:10.1029/2010JC006700
- Li, W., Yeh, H., and Kodama Y. 2011. On the Mach reflection of a solitary wave – revisited. J. Fluid Mech., 672, 326-357.
- Yeh, H., Li, W., and Kodama, Y. 2010. Mach reflection and KP solitons in shallow water. European Physical Journal, 185, 97-111.
- Yeh, H. 2010. Gender and age factors in tsunami casualties, Natural Hazards Review, 11 (1), 29-34.
- Arnason, H., Petroff, C., and Yeh, H. 2009. Tsunami bore impingement onto a vertical column. J. Disaster Research, 4 (6), 391-403.
- Lukkunaprasit, P., Thanasisathit, N., and Yeh, H. 2009. Experimental verification of FEMA P646 tsunami loading. J. Disaster Research, 4 (6), 410-418.
- Lee, K.H., Kim, C.H., Kim, D.S., Yeh, H., and Hwang, Y.T. 2009. Numerical analysis of runup and wave force acting on coastal revetment and onshore structure due to tsunami, Journal of the Korean

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Lee, K.H., Kim, D.S., and Yeh, H. 2008. Characteristics of water level and velocity changes due to the propagation of bore, Journal of the Korean Society of Civil Engineers, 28 (5B), 575-589. (in Korean)

Yeh, H. 2008. Closure to “Maximum fluid forces in the tsunami runup zone” by Harry Yeh, Journal of Waterway, Port, Coastal, and Ocean Engineering, 134, 200-201.

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Yeh, H., Francis, M., Peterson, C., Katada, T., Latha, G., Chadha, R.K., Singh, J.P., and Raghuraman, G. 2007. Effects of the 2004 Great Sumatra Tsunami: Southeast Indian Coast, Journal of Waterway, Port, Coastal, and Ocean Engineering, 133, 382-400.

Gardarsson, S. M., and Yeh, H. 2007. Hysteresis in shallow water sloshing, Journal of Engineering Mechanics, 133, 1093-1100.

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Yeh, H., and Yim, S.C. 2006. Tsunami research at Oregon State University (ed: A.C. Burr) The Structural Engineer, 84, 16-17.

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Yeh, H., Chadha, R.K., Francis, M., Katada, T., Latha, G., Peterson, C., and Raghuraman, G., and Singh, J.P. 2006. Tsunami runup survey along the Southeast Indian Coast, Earthquake Spectra, 22, 173-186.

Carrier, G.F. and Yeh, H. 2005. Tsunami propagation from a finite source, Computer Modeling in Engineering & Sciences, 10, 113-122.

Peterson, C., Yeh, H., Chadha, R.K., Latha, G., Katada, T. 2005. Flood elevation, inundation distance and flow competence of the 2004 Sumatra-Andaman Tsunami, as recorded by tsunami deposits in thirteen shore-normal profiles from the Tamil Nadu coastline, India. ISSET Journal of Earthquake Technology, 42, 95-110.

Atwater, B., Bourgeois, J., Yeh, H., Abbott, M., Cisternas, M., Glawe, U., Higman, B., Horton, B., Peters, R., Rajendran, K. and Tuttle, M. 2005. Tsunami geology and its role in hazard mitigation, EOS, Trans. Amer. Geophys. Union, 86, 400.

Chadha, R.K., Latha, G., Yeh, H., Peterson, C., and Katada, T. 2005. The tsunami of the great Sumatra earthquake of M 9.0 on 26 December 2004 – Impact on the east coast of India. Current Science, 88, 1-4.

Tonkin, S., Yeh, H., Kato, F., and Sato S. 2003. Tsunami Scour around a Cylinder, Journal of Fluid Mechanics, 496, 165-192.

Carrier, G.F., Wu, T.T. and Yeh, H. 2003. Tsunami Runup and Drawdown on a Plane Beach, Journal of Fluid Mechanics, 475, 79-99.

Gardarsson, S., Yeh, H., and Reed, D.A. 2001. The Behavior of Sloped-Bottom Tuned Liquid

Dampers. Journal of Engineering Mechanics, **127**, 266-271.

佐藤慎司, Yeh, H., and 加藤史訓. 2001. 利根川河口周辺沿岸域における浮遊懸濁物質の挙動に関する現地観測. Proc. Coastal Engineering, JSCE, **48**, 626-630.

Matsuyama, M., Walsh, J.P., and Yeh, H. 1999. The effect of bathymetry on tsunami characteristics at Sissano Lagoon, Papua New Guinea. Geophysical Research Letters, **26**, 3513-3516.

Kato, F., Sato, S. and Yeh, H. 1999. Large-Scale Experiment on Dynamic Response of Sand Bed around a Cylinder due to Tsunami, Proceedings of Coastal Engineering, JSCE, **46**, 956-960. (in Japanese).

Mok, K.M. and Yeh, H. 1999. On Mass Transport of Progressive Edge Waves. Physics of Fluids, **11**, 2906-2924.

Wakahara, T. and Yeh, H. 1999. Spectral characteristics of wind-induced forces on a rectangular column structure in a higher frequency range. Journal of Wind Engineering, **80**, 65-73.

Tappin, D.R., Matsumoto, T., Watts, P., Satake, K., McMurty, G.M., Matsuyama, M., Lafoy, Y., Tsuji, Y., Kanamatsu, T., Lus, W., Iwabuchi, Y., Yeh, H., Matsumoto, Y., Nakamura, M., Mahoi, M., Hill, P., Crook, K., Anton, L., Walsh, J.P. 1999. Sediment Slump Likely Caused 1998 Papua New Guinea Tsunami, EOS, Trans. Amer. Geophys. Union, **80**, 329,334,340.

Bourgeois, J., Petroff, C., Yeh, H., Titov, V., Synolakis, C., Benson, B., Kuroiwa, J., Lander, J., and Norabuena, E. 1999. Geologic Setting, Field Survey and Modeling of the Chimbote, Northern Peru, Tsunami of 21 February 1996. Pure Appl. Geophys., **154**, 513-540.

Zappa, C., Jessup, A. and Yeh, H. 1998. Skin-Layer Recovery of Free-Surface Wakes: Relationship to Surface Renewal and Dependence on Heat Flux and Background Turbulence. Journal of Geophysical Research, **103**, 21,711-21,722.

Yeh, H. 1998. Tsunami Researchers Outline Steps for Better Data. EOS, Trans. Amer. Geophys. Union, **79**, 480 & 484.

Reed, D.A., Yeh, H., Yu, J., and Gardarsson, S. 1998. Tuned Liquid Dampers under Large Amplitude Excitation. Journal of Wind Engineering and Industrial Aerodynamics, **74-76**, 923-930.

Liu, P., Yeh, H., Lin, P., Chang, K.-T., Cho, Y.-S. 1998. Generation and evolution of edge-wave packets. Phys. Fluids, **10**, 1635-1657.

Reed, D.A., Yu, J.K., Yeh, H., and Gardarsson, S. 1998. An Investigation of Tuned Liquid Dampers under Large Amplitude Excitation. Journal of Engineering Mechanics, **124**, 405-413.

Chang, K.-T. and Yeh, H. 1997. Laser-Induced Image for Wave Measurement. Journal of Flow Visualization & Image Processing, **4**, 59-68.

Synolakis, C., Liu, P., Carrier, G., and Yeh, H. 1997. Tsunamigenic Sea-Floor Deformations. Science, **278**, 598-600.

Jessup, A.T., Zappa, C.J., and Yeh, H. 1997. Defining and Quantifying Microscale Wave Breaking with Infrared Imagery. Journal of Geophysical Research, **102**, 23145-23153.

Liu, P. and Yeh, H. 1996. The Generation of Edge Waves by a Wave-Maker. Phys. Fluids, **8**, 2060-2065.

Yeh, H., Titov, V., Gusiakov, V., Pelinovsky, E., Khramushin, V., and Kaistrenko, V. 1995. The 1994 Shikotan Earthquake Tsunamis. PAGEOPH, **144**, 855-874.

Yeh, H., Liu, P., Briggs, M., and Synolakis, C. 1994. Propagation and Amplification of Tsunamis at Coastal Boundaries. Nature, **372**, 353-355.

- Yeh, H., Imamura, F., Synolakis, C., Tsuji, Y., Liu, P., & Shi, S. 1993. The Flores Island Tsunamis. EOS, Trans. Amer. Geophys. Union, 74, 369-373.
- Yeh, H. 1993. Disaster on Flores Island. Nature 361, 686.
- Yeh, H., 1993. Education and Research in the United States. Transactions of Japan Society of Civil Engineers. January issue, 40-43 (in Japanese).
- Yeh, H., 1992. Shoreline Profile of the Stokes-Mode Edge Waves. Journal of Waterway, Port, Coastal, and Ocean Engineering. 118, 112-116.
- Liu, P. L.-F., Synolakis, C., and Yeh, H., 1991. Report on the International Workshop on Long-Wave Runup. Journal of Fluid Mechanics. 229, 675-688.
- Yeh, H., 1991. Vorticity-Generation Mechanisms in Bores. Proceedings of the Royal Society, London, Series A 432, 215-231.
- Yeh, H., 1991. Tsunami Bore Run-Up. Natural Hazards 4, 209-220.
- Yeh, H., and Mok, K.-M., 1990. On Turbulence in Bores. Physics of Fluids, 2, 821-828.
- Yeh, H., Ghazali, A., and Marton, I., 1989. Experimental Study of Bore Runup. Journal of Fluid Mechanics, 206, 563-578.
- Yeh, H., and Shrestha, M., 1989. Free-Surface Flow through a Screen. Journal of Hydraulic Engineering, 115, 1371-1385.
- Yeh, H., and Ghazali, A., 1988. On Bore Collapse. Journal of Geophysical Research, 93, 6930-6936.
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- Yeh, H., 1985. Nonlinear Progressive Edge waves: Their Instability and Evolution, Journal of Fluid Mechanics, 152, 479-499.
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Papers in Proceedings:

- Yeh, H. and Knowles, J. 2018. Mach reflection of a solitary wave: seeking the four-fold amplification. The Proceedings of Workshop on Nonlinear Water Waves: RIMS Kokyuroku. Kyoto University.
- Exton, M.C., Harry, S., Mason, H.B., Yeh, H., and Kutter, B.L. 2018. Novel experimental devise to simulate tsunami loading in a geotechnical centrifuge. 9th International Conference Physical Modelling in Geotechnics 2018, London, UK.
- Ko, H. T.-S., Mayfield, W.D., Dumelle, M., Fuentes, C., Restrepo, J.M., and Yeh, H. 2018 Efficient estimates of uncertainties in tsunami inundation forecast. Eleventh U.S. National Conference on Earthquake Engineering, Los Angeles.
- Rees, D., Laramée, R.S., Nguyen, D., Zhang, L., Chen, G., Yeh, H., and Zhang, E. 2017. A stream

ribbon seeding strategy. Eurographics Conference on Visualization (Euro Vis) 2017.

Ko, H. T.-S., Knowles, J., and Yeh, H. 2016. Bore-impact forces on elongated structures. International Conference Coastal Engineering, Istanbul, Turkey.

Yeh, H. 2015. How we may mitigate the effects of extreme overland flows. 2015 ICEO&SI and ICLEI Resilience Forum, JUNE 28-30, Kaohsiung, Taiwan.

Yeh, H., Barbosa, A. R., Ko, H., & Cawley, J. G. 2014. Tsunami loadings on structures: review and analysis. *Coastal Engineering Proceedings*, 1(34), currents-4.

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Fluid Dynamics and Thermodynamics Technologies, Bali, Indonesia.

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Janik, C., Bailey, M., Keon, D., Pancake, C., and Yeh, H. 2007. Web-based tsunami visualization, Proceedings of Flucome 2007: The 9th International Symposium on Fluid Control, Measurement, and Visualization, Tallahassee, FL, September 16-19.

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