

# Te-Yang Yeh

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## Education:

B.S. Geophysics - National Central University, Taiwan, 2008-2012

M.S. Geophysics - National Central University, Taiwan, 2012-2014

Ph.D. Geophysics - San Diego State University/UC San Diego Joint Doctoral Program, 2016-2022

## *Professional Experience:*

Developed 4th-order staggered-grid finite-difference numerical simulation code for modeling of elastic wave propagation in complex 3D media including realistic surface topography using curvilinear scheme. Applied the developed code to simulations of broadband (>1Hz) earthquake ground motions to better predict the observations using velocity structures of higher resolutions and better description of the geotechnical layers. Using the most realistic description of underground velocity structures, calibrated poorly-constrained model features such as parameterization of anelastic attenuation and near-surface velocity structure, constrained by seismic data recorded at different distance ranges. Included soil nonlinearity in the 3D finite-difference code using the Masing Rules and applied it to simulate ground motions of scenario earthquakes for vital infrastructures such as embankment dams.

## *Publications:*

Yeh, T.-Y. and K.B. Olsen (2024). Waveguide or not? Revised ground motion simulations for greater Los Angeles from the M7.8 ShakeOut earthquake scenario, *Seismol. Res. Lett.*, accepted for publication.

Yeh, T.-Y., and K. B. Olsen, 2024, Simulation of 0–7.5 Hz physics-based nonlinear ground motions for maximum credible earthquake scenarios at the Long Valley Dam, CA, *Earthq. Spectra.*, 87552930231226135, doi: 10.1177/87552930231226135.

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Roten, D., T. Yeh, K. B. Olsen, S. M. Day, and Y. Cui, 2023, Implementation of Iwan-Type Nonlinear Rheology in a 3D High-Order Staggered-Grid Finite-Difference Method, *Bull. Seismol. Soc. Am.*, 113, no. 6, 2275–2291, doi: 10.1785/0120230011.

O'Reilly, O., T. Yeh, K. B. Olsen, Z. Hu, A. Breuer, D. Roten, and C. A. Goulet, 2021, A High-Order Finite-Difference Method on Staggered Curvilinear Grids for Seismic Wave Propagation Applications with Topography, *Bull. Seismol. Soc. Am.*, 112, no. 1, 3–22, doi: 10.1785/0120210096.

Lin, Y.-Y., H. Kanamori, Z. Zhan, K.-F. Ma, and T.-Y. Yeh, 2020, Modelling of pulse-like velocity ground motion during the 2018 M<sub>w</sub> 6.3 Hualien earthquake, Taiwan, *Geophysical Journal International*, 223, no. 1, 348–365.

Lin, Y.-Y., T.-Y. Yeh, K.-F. Ma, T.-R. A. Song, S.-J. Lee, B.-S. Huang, and Y.-M. Wu, 2018, Source characteristics of the 2016 Meinong (ML 6.6), Taiwan, earthquake, revealed from dense seismic arrays: Double sources and pulse-like velocity ground motion, *Bulletin of the Seismological Society of America*, 108, no. 1, 188–199.

Kanamori, H., L. Ye, B.-S. Huang, H.-H. Huang, S.-J. Lee, W.-T. Liang, Y.-Y. Lin, K.-F. Ma, Y.-M. Wu, and T.-Y. Yeh, 2017, A strong-motion hot spot of the 2016 Meinong, Taiwan, earthquake (M<sub>w</sub> = 6.4), *Terrestrial Atmospheric and Oceanic Sciences*, 28, no. 5, 637–650.

Lee, S., T. Yeh, and Y. Lin, 2016, Anomalous Large Ground Motion in the 2016 ML 6.6 Meinong, Taiwan, Earthquake: A Synergy Effect of Source Rupture and Site Amplification, *Seismological Research Letters*, 87, no. 6, 1319–1326, doi: 10.1785/0220160082.

Lee, S.-J., T.-Y. Yeh, T.-C. Lin, Y.-Y. Lin, T.-R. A. Song, and B.-S. Huang, 2016, Two-stage composite megathrust rupture of the 2015 Mw8.4 Illapel, Chile, earthquake identified by spectral-element inversion of teleseismic waves, *Geophysical Research Letters*, 43, no. 10, 4979–4985.

Lee, S.-J., T.-Y. Yeh, H.-H. Huang, and C.-H. Lin, 2015, Numerical earthquake models of the 2013 Nantou, Taiwan, earthquake series: Characteristics of source rupture processes, strong ground motions and their tectonic implication, *Journal of Asian Earth Sciences*, 111, 365–372.

Lee, S.-J., H.-H. Huang, J. B. H. Shyu, T.-Y. Yeh, and T.-C. Lin, 2014, Numerical earthquake model of the 31 October 2013 Ruisui, Taiwan, earthquake: Source rupture process and seismic wave propagation, *Journal of Asian Earth Sciences*, 96, 374–385.

Konstantinou, K., and T.-Y. Yeh, 2012, Stress field around the Coloumbo magma chamber, southern Aegean: Its significance for assessing volcanic and seismic hazard in Santorini, *Journal of Geodynamics*, 54, 13–20.