CHEN, JIA-LIN (Julie)
Associate Professor, Department of Hydraulic and Ocean Engineering - NCKU
National Cheng Kung University, Taiwan

Education

Ph.D., Civil and Environmental Engineering
University of Delaware, USA | 2009-2014
M.S., Hydroinformatics and Water Management
Erasmus Mundus Joint Master Program, EuroAquae | 2005-2007
A master degree provided by Newcastle University (UK), University of Nice - Sophia Antipolis (FR), and Brandenburg University of Technology (DE)
B.S., Hydraulic and Ocean Engineering (Major) Computer Science (Minor)
National Cheng Kung University, Taiwan | 2000-2004

Professional experience

Guest Investigator
Applied Ocean Physics & Engineering, WHOI | Aug, 2016-Aug, 2019
Postdoctoral Investigator
Applied Ocean Physics & Engineering, WHOI | Mar, 2015-Aug, 2016
Hydrodynamic and sediment transport modelling in Delaware Estuary
Engineer, Project Manager, Business Development Manager
DHI Singapore & Shanghai | 2007-2009

Mike by DHI Technique Support (Hydrodynamic/ Sediment transport modules)
Environmental Monitoring for Dredging & Reclamation
Global Tidal Energy Assessment, Hydraulic Assessment for Marina Design
Flood Risk Analysis/Flood Mapping
Professional Practice
DHI Headquarter, Denmark | Mar, 2007-Agu 2007
Data Assimilation for the North Sea Baltic Sea Tidal Forecasting System

Peer Reviewed Publications

1. Vladoiu, A., Lien, R. C., Kunze E., Ma, B., Essink, S., Yang, Y., Chang, M., Jan, S., Chen, J., & Yeh Y. (2025) Finescale measurements of Kelvin-Helmholtz instabilities at a Kuroshio seamount. *Journal of Physical Oceanography,* [accepted]
2. Chuang, T,-L., Chen, J.-L., Chang, M., Jan S, Yang, Y. and Lien, R. C., and A. Vladoiu, (2025) A Divergence-Vorticity View of Nonlinear Oceanic Lee Wave Obtained by A Two-vessel Survey. *Journal of Geophysical Research* [accepted].
3. Yeh, Y.-Y., Chang, M.-H., Lien, R.-C., Chang, J.-X., Chen, J.-L., Jan, S., et al. (2024). Turbulence generation via nonlinear lee wave trailing edge instabilities in Kuroshio-seamount interactions. Journal of Geophysical Research: Oceans, 129, e2024JC020971.

4. Tsai, S.-D., Lin, Y.-C., Romdani, A., Chen, J.-L., Hsu Ray T., and Liu James T., (2023) On the occurrence of low concentration hyperpycnal river plumes in small mountainous river-canyon system, *Continental Shelf Research*. 2023.104932 [link]
5. Pao CH, Romdani, A., Chen, J.-L., (2023) Tidally-modulated stratification in a channel-shoal estuary, Estuarine, Coastal and Shelf Science. Volume 284,2023,108279 [link]
6. Tsai, S.-D., Chen, J-L., Hsu, W.-Y., Tsai, W.-Z., Romdani, A., (2023) A numerical investigation of the transport process of density currents over steep slopes and its implications for subsea cable breaks, *Ocean Eng. Volume 269,2023,113446* [link]
7. Romdani, A., Chen, J-L., Chien, H, Lin, J-H., Liao, C-Y, Hou, C-Q, (2023) Downdrift Port Siltation Adjacent to a River Mouth: Effects of Meso-tidal Conditions and Typhoon. *Journal of Waterway, Port, Coastal, and Ocean Engineering* ASCE [link]
8. Chang, M., Cheng, Y., Yeh, Y., Yang, Y. J., Jan, S., Liu, C., Matsuno, T., Endoh, T., Tsutsumi, E., Chen, J., & Guo, X. (2022) Internal hydraulic transition and turbulent mixing observed in the Kuroshio over the I-Lan Ridge off northeastern Taiwan, *Journal of Physical Oceanography, 52, 3179–3198* [link]
9. Chen, J.-L., Yu X, Chang M-H, Jan S, Yang YJ and Lien R-C, (2022/05) Shear Instability and Turbulent Mixing in the Stratified Shear Flow Behind a Topographic Ridge at High Reynolds Number. *Mar. Sci*. 9:829579. Editor: Saito Review by :Nagai (JGR Ocean Editor) & Stocchino [link]
10. Romdani, A., Chen J-L; Chien H, Lin J-H; Hung C-K; Huang Y-Q, (2022/03) Downdrift Port Siltation adjacent to a River Mouth: Mechanisms and Effects of Littoral Sediment Transport to the Navigation Channel, *Journal of Waterway, Port, Coastal, and Ocean Engineering* ASCE, 148, 05022001, **Special Collection on Case Studies in Waterways Engineering** [link]
11. Zhong, Y-Z, Chien, H, Lin, M-Y, Wargula, A, Chen, J-L. (2022/02) On the Dependency of Bottom Drag and the Eddy Viscosity upon Flow Structure in the Coastal Boundary Layer. *Mar. Sci. Eng.* 10(3):324. [link]
12. Romdani, A., Tsai, S.-D., Tsai, W.-Z., Lin, Y.-C., Chen, J.-L., (2022/01). A numerical investigation on the occurrence of the typhoon-triggered density currents of the 2008-flood event. J. Coast. Offshore Sci. Eng. 1, 100–116.[link]
13. Pao CH, Chen, J.-L., Su SF, Huang YC, Huang WH, Kuo CH, (2021/03) The effect of Wave-induced Current and Coastal Structure on Sediment Transport at the Zengwen River Mouth, *Mar. Sci. Eng.* 9 (3), 333. [link]
14. Wang, T., Wei, Z., Jiang, W., Xu, T., Chen, J.-L., Bian, C., (2021/02) Quantification of numerical mixing in coastal ocean models through an offline method, *Ocean Engineering*, 222, 108588. [link]
15. Geyer, W.R., Ralston, D.K. and Chen, J.-L.(2020/12), Mechanisms of Exchange Flow in an Estuary with a Narrow, Deep Channel and Wide, Shallow Shoals. *J. Geophys. Res. Oceans*, 125: e2020JC016092. [link]
16. Y.A. Shirazi, E.W. Carr, G.R. Parsons, P. Hoagland, D.K. Ralston, J. Chen, (2019) Increased operational costs of electricity generation in the Delaware River and Estuary from salinity increases due to sea-level rise and a deepened channel, *Journal*

of Environmental Management, Volume 244, 2019, Pages 228-234, ISSN 0301-4797, https://doi.org/10.1016/j.jenvman.2019.04.056.
17. Chen, J.-L., Ralston. D. K., Geyer, W. R., Sommerfield, C., and Chant, B (2018), Wave generation, dissipation, and disequilibrium in an embayment with complex bathymetry, *J. Geophys. Res.,* doi: 10.1029/2018JC014381.
18. Wargula A., Raubenheimer, B., and Elgar, S, Chen, J.-L., Shi, F. and Traykovski, P., (2018), Tidal flow asymmetry owing to inertia and waves on an unstratified, shallow ebb shoal, *J. Geophys. Res.,* doi.org/10.1029/2017JC013625.
19. Chen, J.-L., Hsu, T.-J., Shi, F., Raubenheimer, B., and Elgar, S. (2015), Hydrodynamic and sediment transport modeling of New River Inlet (NC) under the Interaction of Tides and Waves, *J. Geophys. Res.*, doi: 10.1002/2014JC010425 **(Fig3 was featured in Journal of Geophysical Research: Oceans Website)**.
20. Spydell, M. S., Feddersen, F., Olabarrieta, M., Chen, J.-L., Raubenheimer, B., Elgar, S., and Guza, R. T. (2015), Observed and modeled drifters at a tidal inlet, J. Geophys. Res. Oceans, 120, 4825–4844, doi:10.1002/2014JC010541.
21. Rogowski, P., E. Terrill, and J. Chen (2014), Observations of the frontal region of a buoyant river plume using an autonomous underwater vehicle, *J. Geophys. Res.* Oceans, 119, doi:10.1002/2014JC010392 **(Fig6 was featured in Journal of Geophysical Research: Oceans Website)**.
22. Chen, J.-L., Shi, F., Hsu, T.-J. and Kirby, J. T., (2014), NearCoM-TVD - A quasi-3D nearshore circulation and sediment transport model, *Coastal Engineering*, 91, 200-212. doi:10.1016/j.coastaleng.2014.06.002.

Other Publications

1. Pao CH, J.-L., (2023), A Numerical Investigation of Density Currents in the Zengwen River Mouth, *Journal of Coastal and Ocean Engineering,* Vol. 19, No. 1, pp. 23-38 DOI:10.6266/JCOE.2023.1901.03
2. Huang, Y., Lin J., Yang, R., Chen Y., and Chen, J.-L. (2018), Beach Response To Exposed Riverine Sediment And Beach Nourishment, *Proc 36th Int. Conf. Coastal Eng.* ISBN: 978-0-9896611-4-0. DOI: https://doi.org/10.9753/icce.v36.sediment.92
3. Pao, C., Uda, T., Lin, Y., and Chen, J.-L. (2018), Beach Erosion On Golden Beach In South Taiwan, *Proc 36th Int. Conf. Coastal Eng.* ISBN: 978-0-9896611-4-0. DOI: https://doi.org/10.9753/icce.v36.sediment.46
4. Wargula A., Raubenheimer, B., and Elgar, S, Chen, J.-L., and Shi, F. (2018), Time-Varying Wave Effects On Flows And Dynamics At An Unstratified Inlet, *Proc 36th Int. Conf. Coastal Eng*. ISBN: 978-0-9896611-4-0. DOI: https://doi.org/10.9753/icce.v36.currents.45
5. Chen, J.-L., Hsu, T.-J., Shi, F., Raubenheimer, B., and Elgar, S. (2014), Hydrodynamic and Sediment Transport modeling of New River Inlet North Carolina, *Proc 34th Int. Conf. Coastal Eng.* 445, 561-576.
6. Hsu, H.-C., Kuo P.-C., Chen, J.-L., Yang B.,-D, Hsu T.-J. (2014), A study of wave and tidal current in the ChangHwa-Yulin coastal area by NearCoM model, *Proceeding of the 35th Ocean Engineering Conference in Taiwan,* 173-178.
7. Shi, F., Kirby, J. T., Hsu, T.-J., Chen, J.-L., and Mieras, R., (2013), NearCoM-TVD – A hybrid TVD solver for the nearshore community model documentation and user's

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8. Chen, J.-L., Shi, F., and Hsu, T.-J. (2011), A Numerical Investigation on Hyperpycnal Flow, *The Proceedings of the Coastal Sediments 2011,* 1360-1472. ISBN: 978-981-4355-52-0.
9. Chen, J.-L, Lu, Q. (2008), The Application of 2D Modeling in Different Areas: Yangtze Estuary, Singapore, and Baltic Sea as Examples, *Proceeding of the 30th Ocean Engineering Conference in Taiwan*, 123-128.
10. Chen, P.-H., Chien, H, Chen, J.-L., Kao, C.-C. (2005), On the characteristics of Kuroshio circulation and tidal current in the northwestern Pacific, *Proceeding of the 27th Ocean Engineering Conference in Taiwan.*
11. Chien H., Chen J.-L., Kao, C.C., (2005), On the Short-time Rotary Spectral Analysis to the Drifter Data in the Western Pacific. *Proceedings of the Fifteenth Workshop on Ocean Model (WOM-15).* Sep. 27-29, Jakarta, Indonesia.

Submitted Abstract

1. **Chen, J.-L., Chuang, T,-L. , Chang, M., Jan S, Yang, Y. and Lien, R. C., and A. Vladoiu, (2024), A Divergence and Vorticity View of Nonlinear Oceanic Lee Wave Obtained by A Two-vessel Survey**, A**GU Fall Meeting (Oral Presentation).**
2. **Chen, J.-L., Chang, M.-H., Yang, Y.-J., and Jan, S. (2023), Exploring Kuroshio Paradox – a study of mixing processes over topographic features, JPGU Meeting (Oral Presentation).**
3. Wei-Zhang Tsai, Chen, J.-L., Chang, M.-H., Yang, Y.-J., and Jan, S. (2023), Exploring Kuroshio Paradox – a study of mixing processes over topographic features, JPGU Meeting.
4. **Chen, J.-L., Chang, M.-H., Yang, Y.-J., and Jan, S. (2020), Mixing Enhancement Modulated by Unsteady Shear Flow in the Kuroshio above a System of Seamount, AGU Fall Meeting (Oral Presentation).**
5. **Lin, Y.-C., Chen, J.-L., Liu, J. T, Hsu, T.J., Chen, S.-N (2020), A Field and Numerical Study on the Occurrence of Hyperpycnal Turbidity Currents, Ocean Sciences Meeting (Oral Presentation).**
6. Chen, J.-L., Chang, M.-H., Yang, Y.-J., and Jan, S. (2020), Dynamics and Variability of Topography-induced Shear Instabilities in Western Boundary Currents, Ocean Sciences Meeting.
7. Chen, J.-L., Yu, X., Chang, M.-H., Yang, Y.-J., and Jan, S. (2018), Topography-induced shear instabilities in western boundary currents, AGU Fall Meeting.
8. **Zhong, Y.Z., Chien, H., Chen, J.-L., Lin, M.-Y. (2018), Analysis of mixing in inner shelf based on Stokes Boundary Layer theory, AGU Fall Meeting (Oral presentation).**
9. Lin, Y.-C., Liu, J. T, Hsu, T.J., Chen, S.-N., and Chen, J.-L. (2018), A Field and Numerical Study on the Occurrence of Hyperpycnal Turbidity Currents, AGU Fall Meeting (ESPRC Thesis Award 地科中心論文獎).

10. **Huang, Y., Lin J., Yang, R., Chen Y., and Chen, J.-L. (2018), Beach Response To Exposed Riverine Sediment And Beach Nourishment, *Proc 36th Int. Conf. Coastal Eng.* (Oral presentation).**
11. Pao, C., Uda, T., Lin, Y., and Chen, J.-L. (2018), Beach Erosion on Golden Beach in South Taiwan, *Proc 36th Int. Conf. Coastal Eng.*
12. **Chen, J.-L., Ralston. D. K., Geyer, W. R., and Sommerfield, C., (2017), Flow Dynamics, Wave Energy, and Sediment Transport in the Delaware Estuary, CERF, Providence, RI (Oral presentation).**
13. Geyer, W. R., Li X., Warner. J. C., and Chen, J.-L., (2017), Physical dimensions of interdisciplinary, estuarine classification, *CERF*, Providence, RI.
14. **Chen, J.-L., Geyer, W. R., and Ralston. D. K. (2016), Flow dynamics and variability in the Delaware Estuary, AGU Fall Meeting (Oral presentation).**
15. Wargula, A., Raubenheimer, B., Elgar, S., Geyer, W. R., Traykovski, P., and Chen, J.-L. (2016), Tidal asymmetries in waves, advection, and currents over an ebb shoal, *AGU Fall Meeting.*
16. Geyer, W. R., and Chen, J.-L., (2016), Parameterizing the Dynamics of Wide, Convergent Estuaries, *PECS*, TU Delft, NL.
17. Chen, J.-L., Ralston. D. K., Geyer, W. R., Chant, B and Sommerfield, C., (2016), Wave generation in the Delaware Estuary, *Ocean Sciences Meeting*, New Orleans, LS.
18. Sommerfield, C., Chen, J.-L., Ralston. D. K., Geyer, W. R., and Sommerfield, C., (2016), Indirect Effects and Potential Cumulative Impacts of Dredging in an Urbanized Estuary, *Ocean Sciences Meeting*, New Orleans, LS.
19. Geyer, W. R., Wang T, Ralston. D. K., MacCready P. and Chen, J.-L., (2015), Physical dimensions of interdisciplinary, estuarine classification, *CERF 2015*, Portland, OR.
20. Chen, J.-L., Hsu, T.-J., and Shi, F., (2014), A numerical investigation on the circulation pattern in New River Inlet, NC–the interaction of tides and waves, *Ocean Sciences Meeting*, Honolulu, HI.
21. Chen, J.-L., Hsu, T.-J., Shi, F., (2014), Hydrodynamic and sediment transport modeling of New River Inlet (NC) under the interaction of tides and waves, *Young Coastal Scientists and Engineers Conference 2014*, Newark, DE.
22. Spydell, M. S., Feddersen, F., Guza, R. T., Chen, J.-L., Raubenheimer, B., and Elgar, S., (2014), Observed and NearCoM modeled currents, material transport and dispersion at the new river inlet, NC, *Ocean Sciences Meeting*, Honolulu, HI.
23. Chen, J.-L., Hsu, T.-J., and Shi, F., (2013), A numerical investigation on the circulation pattern in New River Inlet, NC–the interaction of tides and waves, *Coastal Ocean Circulation, Gordon Research Conference,* Biddeford, ME.
24. **Chen, J.-L., Hsu, T.-J., Shi, F., Raubenheimer, B., and Elgar, S., (2012), Hydrodynamics in New River Inlet, NC – a Numerical Investigation using NearCoM-TVD, AGU Fall Meeting, San Francisco, CA. (Oral presentation)**
25. Spydell, M. S., Chen, J.-L., Hsu, T.-J., Feddersen, F., and Guza, R.T., (2012), Observed and Simulated Drifter Tracks and Lyopanov Exponents During the RIVET 2012 Experiment, *AGU Fall Meeting*, San Francisco, CA.
26. Chen, J.-L., Hsu, T.-J., and Shi, F., (2012), A numerical investigation on the circulation pattern in New River Inlet, NC–the interaction of tides and waves, *Ocean Sciences Meeting*, Salt Lake City, UT.
27. Hsu, T.-J., Chen, J.-L., and Geyer, W. R., (2012), On the occurrence of low concentration hyperpycnal flow, *Ocean Sciences Meeting*, Salt Lake City, UT.

28. Hsu, T-J., Ozdemir, C. E., Yu, X., Snyder P. J., Chen, J-L., and Shi, F., (2010), The trapping and delivery of fine sediment in the coastal environment, *AGU Chapman Conference for sediment source to sink*.
29. Xiao, Y., Snyder P. J., Chen, J.-L., and Hsu, T.-J., (2010), Convective instability and its implication to settling of fine sediment off river plume, *Ocean Sciences Meeting*, Portland, OR.
30. **Chen, J.-L., Hsu, T.-J., and Shi, F., (2010), A numerical investigation on the dynamics of hyperycnal flow, *Western Pacific Geophysics Meeting*, Taipei, Taiwan. (Oral presentation)**

Reviewer Service

Journal of Geophysical Research, Water Resources Research (AGU)
Journal of Physical Oceanography, Journal of Atmospheric and Oceanic Technology (AMS)
Ocean Modelling, Ocean Engineering, Estuarine, Coastal and Shelf Science (Elsevier)
Journal of Waterway, Port, Coastal, and Ocean Engineering (ASCE)
Estuaries and Coasts, Ocean Dynamics (Springer)