

**Weifeng (Gordon) Zhang**

Applied Ocean Physics and Engineering Department

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**EDUCATION**

Ph.D., 2009, Oceanography, Rutgers, The State University of New Jersey

M.E., 2003, Fluid Mechanics, Zhejiang University, China

B.S., 2000, Fluid Mechanics, Zhejiang University, China

**WORK EXPERIENCES**

2011 – present, Assistant Scientist, Woods Hole Oceanographic Institution

2009 – 2011, Post-doctoral Scholar, Woods Hole Oceanographic Institution

2004 – 2009, Research Assistant, Institute of Marine and Coastal Sciences, Rutgers University

**RESEARCH INTERESTS**

Coastal ocean dynamics, Internal wave dynamics, Numerical ocean modeling, Data assimilation, Model-based observing system design, Biophysical interactions

**REFEREED PUBLICATIONS IN OCEANOGRAPHY****Zhang, W. G.**, C. Cenedese, 2014: The dispersal of dense water formed in an idealized coastal polynya on a shallow sloping shelf, *Journal of Physical Oceanography*, 44, 1563-1581.**Zhang, W. G.**, T. F. Duda, Ilya A. Udovychenkov, 2014: Modeling and analysis of internal-tide generation and beam-like onshore propagation in the vicinity of shelfbreak canyons, *Journal of Physical Oceanography*, 44, 834-849.**Zhang, W. G.**, T. F. Duda, 2013: Intrinsic nonlinear and spectral structure of internal tides at a shelfbreak, *Journal of Physical Oceanography*, 43, 2641-2660.**Zhang, W. G.**, D. J. McGillicuddy, and G. G. Gawarkiewicz, 2013: Is biological productivity enhanced at the New England Shelfbreak Front? *Journal of Geophysical Research – Oceans*, 118, 517-535.Garau, B., Ruiz, B., **W. G. Zhang**, A. Pascual, E. Heslop, J. Kerfoot, and J. Tintore, 2011, Thermal lag correction on Slocum CTD glider data, *Journal of Atmospheric and Oceanic Technology*, 28, 1065-1071.Wilkin, J.L., **W. G. Zhang**, B. Cahill and R. C. Chant, 2011, Integrating coastal models and observations for studies of ocean dynamics, observing systems and forecasting, In *operational Oceanography in the 21<sup>st</sup> Century*, A. Shiller and G. Brassington (eds.), Springer, pp 487-512, doi: 10.1007/978-94-007-0332-2\_19.**Zhang, W.G.**, G.G. Gawarkiewicz, D.J. McGillicuddy, and J.L. Wilkin, 2011, Climatological mean circulation at the New England shelf break. *Journal of Physical Oceanography*, 41, 1874-1893.**Zhang, W.G.**, J.L. Wilkin, J.C. Levin, 2010, Towards building an integrated observation and modeling system in the New York Bight using variational methods, Part II: representer-based observing system evaluation, *Ocean Modelling*, 35, 134-145.**Zhang, W.G.**, J.L. Wilkin, H.G. Arango, 2010, Towards building an integrated observation and modeling system in the New York Bight using variational methods, Part I: 4DVAR data assimilation, *Ocean Modelling*, 35, 119-133.

- Zhang, W.G.**, J.L. Wilkin, O.M.E. Schofield, 2010, Simulation of age and residence time in the New York Bight, *Journal of Physical Oceanography*, 40, 965-982.
- Zhang, W.G.**, J.L. Wilkin, J.C. Levin, H.G. Arango, 2009, An Adjoint Sensitivity Study of Buoyancy- and Wind-driven Circulation on the New Jersey Inner Shelf, *Journal of Physical Oceanography*, 39, 1652-1668.
- Zhang, W.G.**, J.L. Wilkin, R.J. Chant, 2009, Modeling of the pathways and mean dynamics of river plume dispersal in New York Bight, *Journal of Physical Oceanography*, 39, 1167-1183.
- Chant, R. J., J. Wilkin, **W. Zhang**, B.-J. Choi, E. Hunter, R. Castelao, S. Glenn, J. Jurisa, O. Schofield, R. Houghton, J. Kohut, T.K. Frazer, and M.A. Moline, 2008, Dispersal of the Hudson River Plume in the New York Bight: synthesis of observational and numerical studies during LaTTE, *Oceanography*, 21(4): 148-161.
- Wilkin, J.L., **W.G. Zhang**, 2007, Modes of mesoscale sea surface height and temperature variability in the East Australian Current, *Journal of Geophysical Research*, 112, C01013, doi:10.1029/2006JC003590.

### **REFEREED PUBLICATIONS IN FLUID MECHANICS**

- Lin Jianzhong, Sun Ke, **Zhang Weifeng**, 2008, Orientation distribution of fibers and rheological property in fiber suspensions flowing in a turbulent boundary layer, *ACTA MECHANICA SINICA*, 24(3), 243-250.
- Zhang Shanliang, Lin Jianzhong, **Zhang Weifeng**, 2007, Numerical research on the fiber suspensions in a turbulent T-shaped branching channel flow, *Chinese Journal of Chemical Engineering*, 15(1), 30-38, doi:10.1016/S1004-9541(07)60030-5.
- Lin Jianzhong, Zhang Lingxin, **Zhang Weifeng**, 2006, Rheological behavior of fiber suspensions in a turbulent channel flow, *Journal of Colloid and Interface Science*, 296(2): 721-728.
- Zhang Lingxin, Lin Jianzhong, **Zhang Weifeng**, 2006, Theoretical model of particle orientation distribution function in a cylindrical particle suspension subject to turbulent shear flow, *Progress in Natural Science*, 16(1): 16-20.
- Lin Jianzhong, Li Jun, **Zhang Weifeng**, 2005, Orientation distribution of fibres in a channel flow of fibre suspension, *Chinese Physics*, 14: 2529-2538, doi:10.1088/1009-1963/14/12/026.
- Lin, Jianzhong, Wang Yelong, **Zhang Weifeng**, 2005, Sedimentation of short cylindrical pollutants with mechanical contacts, *Journal of Environmental Sciences*, 17(6): 906-911.
- You, Zhenjiang, Lin, Jianzhong, Shao, Xueming, **Zhang, Weifeng**, 2004, Stability and drag reduction in transient channel flow of fibre suspension, *Chinese Journal of Chemical Engineering*, 12(3):319-323.
- Lin, Jianzhong, Li, Jun, **Zhang, Weifeng**, 2004, The force for cylindrical particles in an elongational-shear flow, *International Journal of Nonlinear Sciences and Numerical Simulation*, 5(1): 9-16.
- Lin, Jianzhong, **Zhang, Weifeng**, Yu, Zhaosheng, 2004, Numerical Research on the orientation distribution of fibers immersed in laminar and turbulent pipe flows, *Journal of Aerosol Science*, 35: 63-82.
- Zhang, Weifeng**, Lin, Jianzhong, 2004, Research on the Motion of Particles in the Turbulent Pipe Flow of Fiber Suspensions, *Applied Mathematics and Mechanics*, 25(7): 417-750.
- Zhang, Weifeng**, Lin, Jianzhong, 2003, Research on the Orientation of Cylindrical Particles in Gas-Solid Two-Phase Pipe Flows, *ACTA Aerodynamica Sinica* 21(2): 237-243. (In Chinese)
- Lin, Jianzhong, **Zhang, Weifeng**, Wang, Yelong, 2002, Research on the orientation distribution of fibers immersed in a pipe flow, *Journal of Zhejiang University SCIENCE (English Edition)* 3(5): 501-506.

### **CONFERENCE PROCEEDINGS**

- Duda, T. F., **W. G. Zhang**, and Y.-T. Lin, 2012, Studies of internal tide generation at a slope with nonlinear and linearized simulations: Dynamics and implications for ocean acoustics. *Oceans 2012*, Hamptons Road, Virginia, Oct. 14-19, MTS/IEEE, submitted.

- Duda, T. F., Y.-T. Lin, **W. G. Zhang**, B. D. Cornuelle, P. F. J. Lermusiaux, 2011: Computational studies of three-dimensional ocean sound fields in areas of complex seafloor topography and active ocean dynamics, in *Proceedings of 10th International Conference on Theoretical and Computational Acoustics*, ICTCA 2011, Taipei, Taiwan, World Scientific Publishing.
- Duda, T.F., Y.-T. Lin, A.E. Newhall, **W. G. Zhang**, and J.F. Lynch, 2010: Computational studies of time-varying three-dimensional acoustic propagation in canyon and slope regions. *Oceans 2010*, Seattle, WA, IEEE/MTS, 1-6.
- Wilkin, J., J. Zavala-Garay, J., Levin, and **W. G. Zhang**, 2008: Four-dimensional variational assimilation of satellite temperature and sea level data in the coastal ocean and adjacent deep sea, *Geoscience and Remote Sensing Symposium*, IGARSS 2008, IEEE International, 3, pp.III-427-III-430, 7-11 July 2008, doi: 10.1109/IGARSS.2008.4779375.

### **INVITED PRESENTATIONS**

- Zhang, Weifeng (2014) "The generation of internal tides at a shelf edge." May 12, College of Physical and Environmental Oceanography, Ocean University of China, Qingdao, China.
- Zhang, Weifeng (2014) "The generation of internal tides at a shelf edge." May 10, Department of Information Science & Electronic Engineering, Zhejiang University, Hangzhou, China.
- Zhang, Weifeng (2014) "The generation of internal tides at a shelf edge." May 8, The Second Institute of Oceanography, State Ocean Administration, Hangzhou, China.
- Zhang, Weifeng (2013) "Dispersal of the Hudson River plume in the New York Bight." Oct 25, State Key Laboratory of Estuarine and Coastal Research, East China Normal University, Shanghai, China.
- Zhang, Weifeng (2013) "Dispersal of the Hudson River plume in the New York Bight." Oct 22, Ocean College, Zhejiang University, Hangzhou, China.
- Zhang, Weifeng (2012) "Is biological productivity enhanced at the New England Shelfbreak?" Apr 18, The School for Marine Science and Technology, University of Massachusetts Dartmouth.
- Zhang, Weifeng (2010) "Pathways and time scales of the freshwater dispersal on the New York Bight", Sep 17, Graduate School of Oceanography, University of Rhode Island.
- Zhang, Weifeng (2009) "Towards building an integrated observation and modeling system in the New York Bight using variational methods", *Glider Data Assimilation Workshop*, Sep. 17-18, Chapel Hill, North Carolina.
- Zhang, Weifeng (2008) "Modeling of the New York Bight for freshwater dispersal study and observing system design", Dec. 10, Department of Applied Ocean Physics & Engineering, Woods Hole Oceanographic Institution, Massachusetts.
- Zhang, Weifeng (2008) "Coastal Ocean Modeling Using Variational Methods for Data Assimilation and Observing System Design", Oct. 17, Department of Civil and Environmental Engineering, Princeton University, New Jersey.
- Zhang, Weifeng (2008) "Coastal Ocean Modeling Using Variational Methods for Data Assimilation and Observing System Design", *Physical Oceanography Dissertation Symposium*, Oct. 5-10, Honolulu, Hawaii.
- Zhang, Weifeng (2005) "Sensitivity Analysis of SST along New Jersey coast with ROMS Adjoint model", *ROMS workshop*, Oct. 24-26, La Jolla, CA.

### **CONFERENCE PRESENTATIONS**

- Zhang, Weifeng (2014), "Modeling and analysis of internal-tide generation and beam-like onshore propagation in the vicinity of shelfbreak canyons", *Ocean Science Meeting*, Feb 24-28, Honolulu, HI. (poster)

- Zhang, Weifeng (2013), "Intrinsic nonlinear and spectral structure of internal tides at a shelfbreak", *Gordon Research Conference – Coastal Ocean Circulation*, Jun 9-14, University of New England, Biddeford, ME. (poster)
- Zhang, Weifeng (2012) "Is biological productivity enhanced at the New England Shelfbreak?" The Middle Atlantic Bight Physical Oceanography and Meteorology Conference, Nov 7-8, University of Connecticut, Avery Point, Connecticut.
- Zhang, Weifeng (2012), "Mean circulation and biological production at the New England Shelfbreak", *Ocean Science Meeting*, Feb 20-24, Salt Lake City, UT. (poster)
- Zhang, Weifeng (2011), "Climatological mean circulation at the New England shelf break", *Gordon Research Conference – Coastal Ocean Modeling*, Jun 26-Jul 1, Mount Holyoke College, South Hadley, MA. (poster)
- Zhang, Weifeng (2010) "Towards an integrated coastal ocean observation and modeling system", *Ocean Science Meeting*, Feb 22-26, Portland, Oregon. (poster)
- Zhang, Weifeng (2009) "Representative-based observing system in the New York Bight", *The 8<sup>th</sup> Workshop on Adjoint Model Applications in Dynamic Meteorology*, May 18-22, Tannersville, Pennsylvania.
- Zhang, Weifeng (2008) "Simulation of age and residence time in the New York Bight", Dec 15-19, *AGU Fall Meeting*, San Francisco, California.
- Zhang, Weifeng (2008) "Modeling of the mean dynamics and freshwater pathways in New York Bight", *Ocean Science Meeting*, Mar 3-7, Orlando, FL. (poster)
- Zhang, Weifeng (2007) "Variational Data Assimilation off New Jersey Coast", *Gordon Research Conference - Coastal Ocean Modeling*, Jun 17-22, Colby-Sawyer College, New London, NH. (poster)
- Zhang, Weifeng (2006) "Adjoint Sensitivity Analysis of SST on New Jersey coast", *Proceedings of The 7<sup>th</sup> International Workshop on Adjoint Applications in Dynamics Meteorology*, Oct 8-13, Obergurgl, Tyrol, Austria. Abstract (208), p39.

### **WHOI SEMINAR PRESENTATIONS**

- Zhang, Weifeng (2013) "Dispersal of the dense water formed in an idealized coastal polynya", Dec 6, Coastal Ocean and Fluid Dynamics Lab Seminar, Woods Hole Oceanographic Institution.
- Zhang, Weifeng (2013) "Distributed source physics of internal tide horizontal beam patterns near shelfbreak canyons", Sep 4, Applied Ocean Physics & Engineering Department Seminar, Woods Hole Oceanographic Institution.
- Zhang, Weifeng (2012) "Intrinsic nonlinearity and spectral structure of internal tides at a shelf break", Sep 26, Applied Ocean Physics & Engineering Department Seminar, Woods Hole Oceanographic Institution.
- Zhang, Weifeng (2011) "Mean biological production at the New England Shelfbreak", Dec 16, Coastal Ocean and Fluid Dynamics Lab Seminar, Woods Hole Oceanographic Institution.
- Zhang, Weifeng (2011) "Climatological mean circulation at the New England Shelfbreak", Nov 16, Applied Ocean Physics & Engineering Department Seminar, Woods Hole Oceanographic Institution.
- Zhang, Weifeng (2010) "Coastal ocean modeling for studying circulation and transport across the continental shelf in the Mid-Atlantic Bight", Jun 9, Applied Ocean Physics & Engineering Department Seminar, WHOI.
- Zhang, Weifeng (2010) "Towards an integrated coastal ocean observation and modeling system", Jan 20, Applied Ocean Physics & Engineering Department Seminar, Woods Hole Oceanographic Institution.

**COMMUNITY SERVICES**

Invited to NSF EarthCube Early Career Strategic Visioning Workshop, Oct 16-17, 2012.

Panelist and proposal reviewer for NSF Division of Ocean Sciences.

Reviewed manuscripts for *Ocean Modelling*, *Journal of Physical Oceanography*, *Deep-Sea Research*, *Applied Mathematical Modelling*, *Journal of Geophysical Research – Ocean*, *Continental Shelf Research*, *Dynamics Atmospheres and Oceans*, *Ocean Dynamics*, *Journal of Atmospheric and Oceanic Technology*, and *Journal of Ocean University of China*.

**PROFESSIONAL SOCIETIES**

American Geophysical Union

American Meteorological Society

The Oceanographic Society