

Curriculum Vitae

Name: **Ming Li**
Address: University of Maryland
Center for Environmental Science
Horn Point Laboratory
Cambridge, MD
(410) 221-8420 mingli@hpl.umces.edu

I. Education

1991 Ph.D, University of Oxford, Geophysical Fluid Dynamics
1983 B.Eng., Hohai University, Fluid Mechanics

II. Professional Experience

2001-present. Associate Professor, Horn Point Lab, Center for Environmental Science,
University of Maryland.
1996-2001. Research Scientist, Institute of Ocean Sciences, Canada.
1991-1996. Research Associate, University of Victoria, Canada.

III. Research

A. Areas of professional expertise

Estuarine and coastal dynamics, turbulent mixing processes, air-sea interaction, numerical ocean modelling, biological-physical interactions, impact of climatic variability on marine ecosystem productivity and marine pollution.

B. Selected Peer-Reviewed publications

Zhong, L., **M. Li**, D.-L. Zhang and S. Zhang. 2008. Sensitivity of storm surge predictions to uncertainties in hurricane model forecasts. *Journal of Geophysical Research*, submitted.

Zhong, L., **M. Li** and M.G. Foreman. 2008. Resonance and sea level variability in Chesapeake Bay. *Continental Shelf Research*, in press.

Hilton, T. W., R. G. Najjar, L. Zhong and **M. Li**. 2008. Is there a signal of sea-level rise in Chesapeake Bay salinity? *Journal of Geophysical Research*, in press.

North, E.W., Z. Schlag, R. R. Hood, **M. Li**, L. Zhong, T. Gross and V. S. Kennedy. 2008. Larval vertical swimming behavior may influence the dispersal of oysters in Chesapeake Bay. *Marine Ecology Progress Series*, 359: 99-115.

Li, M. and L. Zhong. 2008. Flood-ebb and spring-neap variations of stratification, mixing and circulation in Chesapeake Bay. *Continental Shelf Research (Special PECS issue)*, doi:10.1016/j.csr.2007.06.012.

Li, M., J. Trowbridge and W.R. Geyer. 2008. Asymmetric tidal mixing due to the horizontal density gradient. *Journal of Physical Oceanography*, 38, 418-434.

Li, M., L. Zhong, W. C. Boicourt, S. Zhang and D. Zhang. 2007. Hurricane-induced destratification and destratification in a partially-mixed estuary. *Journal of Marine Research*, 65, 169-192.

Edson, J., T. Crawford, J. Crescenti, T. Farrar, N. Frew, G. Gerbi, C. Helmis, T. Hristov, D. Khelif, A. Jessup, H. Jonsson, **M. Li**, L. Mahrt, W. McGillis, A. Plueddemann, L. Shen, E. Skillingstad, T. Stanton, P. Sullivan, J. Sun, J. Trowbridge, D. Vickers, S. Wang, Q. Wang, R. Weller, J. Wilkin, D. Yu, and C. Zappa. 2007. The Coupled Boundary Layers and Air-Sea Transfer Experiment in Low Winds (CBLAST-LOW), *Bulletin of the American Meteorological Society*, 88 (3), 341-356.

Piomelli, U., S. Radhakrishnan, L. Zhong and **M. Li**. 2007. Wall-layer models for large-eddy simulations of high Reynolds number non-equilibrium flows. In Palma, J. M. L. M. and Silva Lopes, A., editors, *Advances in Turbulence XI*, pages 47–54, Berlin. Springer.

Li, M., L. Zhong, W. C. Boicourt, S. Zhang and D. Zhang. 2006. Hurricane-induced storm surges, currents and destratification in a semi-enclosed bay. *Geophysical Research Letters*, 33, L02604, doi:10.1029/2005GL024992.

Zhong, L. and **M. Li**. 2006. Tidal energy fluxes and dissipation in the Chesapeake Bay. *Continental Shelf Research*, 26, 752-770.

Li, M., L. Zhong, and W. C. Boicourt. 2005. Simulations of Chesapeake Bay estuary: Sensitivity to turbulence mixing parameterizations and comparison with observations, *Journal of Geophysical Research*, 110, C12004, doi:10.1029/2004JC002585.

Li, M., C. Garrett and E. Skillingstad. 2005. A regime diagram for classifying turbulent large eddies in the upper ocean. *Deep-Sea Research I*, 52, 259-278.

Li, M., L. Sanford and S-Y Chao. 2005. Time-dependent effects in unstratified tidal flows: results from Large Eddy Simulations. *Estuarine, Coastal and Shelf Science*, 62, 193-204.

Gargett, A., **M. Li** and R. Brown. 2001. Testing mechanistic explanations of observed correlations between environmental factors and marine fisheries. *Canadian Journal of*

Fishery and Aquatic Science, 58, 208-219.

Farmer, D.M., S. Vagle and **M. Li**. 2001. Bubble and temperature fields in Langmuir circulation. *Fluid Mechanics and the Environment: Dynamical Approaches*, Edited by John L. Lumley, 91-105.

Li, M. 2000. Estimating horizontal dispersion of floating particles in wind-driven upper ocean. *Spill Science and Technology*, 6(3), 255-261.

Li, M., A. Gargett and K.L. Denman. 2000. What determines seasonal and interannual variability of phytoplankton and zooplankton in strongly estuarine system? *Estuarine, Coastal and Shelf Science*, 50, 467-488.

Garrett, C., **M. Li** and D.M. Farmer. 2000. The connection between bubble size spectra and energy dissipation rates in the upper ocean, *Journal of Physical Oceanography*, 30, 2163-2171.

Li, M., A. Gargett and K.L. Denman. 1999. Seasonal and interannual variability of estuarine circulation in a box model of the Strait of Georgia and Juan de Fuca Strait. *Atmosphere-Ocean*, 37, 1-19.

Farmer, D.M., S. Vagle and **M. Li**. 1999. Wave breaking, turbulence and bubble distributions in the ocean surface layer. *The Wind-Driven Air-Sea Interface: Electromagnetic and Acoustic Sensing, Wave Dynamics, and Turbulent Fluxes*. Edited by M. L. Banner. University of New South Wales Press. 187-192.

Colbo, K. and **M. Li**. 1999. Parameterizing particle dispersion in Langmuir circulation. *Journal of Geophysical Research*, 104, 26059-26068.

Li, M. and C. Garrett. 1998. The relationship between oil droplet size and upper ocean turbulence. *Marine Pollution Bulletin*, 36, 961-970.

Li, M. and C. Garrett. 1998. Large eddies in the surface mixed layer and their effects on mixing, dispersion and biological cycling. In *Physical Processes in Lakes and Oceans* (AGU series on Coastal and Estuarine Studies), edited by J. Imberger, 61-86.

Li, M. and Cummins, P.F. 1998. A note on hydraulic theory of internal bores. *Dynamics of Atmosphere and Oceans*, 28, 1-7.

Cummins, P.F. and **M. Li**. 1998. Comment on "Energetics of borelike internal waves" by F.S. Henyey and A. Hoering. *Journal of Geophysical Research*, 103 (C2), 3339-3341.

Li, M. and C. Garrett. 1997. Mixed-layer deepening due to Langmuir circulation. *Journal of Physical Oceanography*, 27, 121-132.

Li, M., K. Zahariev and C. Garrett. 1995. Role of Langmuir circulation in the deepening of the ocean surface mixed layer. *Science*, 270, 1955-1957.

Li, M. and C. Garrett. 1995. Is Langmuir circulation driven by surface waves or surface cooling? *Journal of Physical Oceanography*, 25, 64-76.

Farmer, D.M. and **M. Li**. 1995. Patterns of bubble clouds organized by Langmuir circulation. *Journal of Physical Oceanography*, 25, 1426-1440.

Farmer, D.M. and **M. Li**. 1994. Oil dispersion in turbulence and coherent circulations. *Ocean Engineering*, 21(6), 575-586.

Li, M. and C. Garrett. 1993. Cell merging and jet/downwelling ratio in Langmuir circulation. *Journal of Marine Research*, 51, 737-769.

C. Research Awards

Principal Investigator. 2008-2009. Linking ASI to regional science and solutions for environmental management in Chesapeake Bay: A Subcontract to ESSIC, UMCP. National Oceanic and Atmospheric Administration.

Co-Principal Investigator: 2007-2012. CHR07: Modeling Hypoxia and Ecological Responses to Climate and Nutrients. National Oceanic and Atmospheric Administration.

Co-Principal Investigator: 2007-2010. Chesapeake Inundation Prediction System: A Forecasting and Visualization Prototype for Emergency Management in Coastal-Bay-Estuary Systems. National Oceanic and Atmospheric Administration.

Principal Investigator. 2005-2009. Large Eddy Simulations of estuarine mixing. National Science Foundation.

Principal Investigator. 2006-2007. Development of an ecological forecasting model for Chesapeake Bay: A demonstration project for technology transfer to NOAA. National Oceanic and Atmospheric Administration.

Principal Investigator. 2005-2007. Oceanic LES simulations to interpret and synthesize turbulence measurements obtained during CBLAST-Low. Office of Naval Research.

Principal Investigator. 2002-2005. A community model for the Chesapeake Bay. National Oceanic and Atmospheric Administration /CICEET (The Cooperative Institute for Coastal and Estuarine Environmental Technology).

Co-investigator. 2004-2005. Modeling dispersal of oyster larvae in Chesapeake Bay. Maryland Department of Natural Resources.

Principal Investigator. 2001-2007. Parameterizing the effects of upper-ocean large eddies on air-sea interaction. Office of Naval Research.

Principal Investigator. 1999-2001. Parameterizing sloping bottom boundary layers for incorporation into Ocean General Circulation Models. Canadian Department of Environment.

D. Selected Conference Proceedings

Li, M., 2004. Deepening of the ocean mixed layer by Langmuir and shear turbulence. Proceedings of American Meteorological Society 16th Symposium on Boundary Layer Turbulence. 11.10, 5 pp.

Gargett, A.E., M. Li and R. Brown. 1998. Testing the concept of an optimal stability “window”. In: Biotic Impacts of Extratropical Climate Change in the Pacific, Proceedings of 'Aha Huliko'a Hawaiian Winter Workshop, Edited by G. Holloway, P. Muller and D. Henderson. 133-140.

Zeidan, E., K. Zahariev, M. Li and C. Garrett. 1997. The breakup of oil spills in the marine environment. *Proceedings of the 20th Arctic and Marine Oilspill Program Technical Seminar*, 187-201.

Li, M. 1996. Representing turbulent dispersion in oil spill models. *Proceedings of the 19th Arctic and Marine Oilspill Program Technical Seminar*, 185-198.

Li, M. and C. Garrett. 1996. Breakup of oil droplets in turbulent flows. *Proceedings of the 19th Arctic and Marine Oilspill Program Technical Seminar*, 671-684.

Li, M. and D.M. Farmer. 1993. Oil submersion in a wind-driven sea. *Proc. IEEE Oceans*, 330-334.

E. Invited seminars and conference presentations

Li, M. 2007. How does turbulence affect circulation and biological production in an estuary? Invited seminar at Beijing University.

Li, M. 2007. How do hurricanes affect coastal oceans? Invited seminar at First Institute of Oceanography.

Li, M. 2007. Assessing the impacts of climate variability and extreme weather events on coastal systems – Perspectives from Chesapeake Bay, U.S.A. Talk at 4th International Ocean-Atmosphere Conference.

Li, M. 2007. Development of coupled hydrodynamic-biogeochemical models to investigate water quality in coastal oceans. Invited seminar at Yantai Institute of Coastal Development, Chinese Academy of Science.

Li, M. 2007. Development of a forecast model for Chesapeake Bay estuary. Invited seminar at Hohai University.

Li, M. 2007. A new model for estuaries and coastal oceans: Regional Ocean Modeling System (ROMS). Invited seminar at Nanjing University of Information Science and Technology.

Li, M. 2007. Coupled hydrodynamic-biogeochemical models. Invited seminar at Nanjing University of Information Science and Technology.

Li, M. 2007. How does turbulent mixing affect circulation in Chesapeake Bay? Invited seminar at Johns Hopkins University.

Li, M. 2007. Large Eddy Simulations of turbulent oceanic flows. Invited seminar at Fluid Dynamics Reviews Seminars of the Burgers Program. University of Maryland at College Park.

Li, M. 2007. Role of surface waves in air-sea interaction: implications for coupled atmosphere-ocean models. Invited talk at COAA spring workshop.

Li, M. 2006. How do surface waves affect dynamics of the ocean surface mixed layer? Invited seminar at University of Delaware, Newark, Delaware.

Li, M. 2006. Hurricane-induced storm surges, destratification and restratification in Chesapeake Bay. Invited seminar at University of Delaware, Newark, Delaware.

Li, M. 2006. Which is more important in driving/mixing Chesapeake Bay? Tide or wind? Invited seminar at Woods Hole Oceanographic Institution.

Li, M. and L. Zhong. 2006. Comparison of wind and tidal forcing on Chesapeake Bay. Presentation at PECS 2006 (Physics of Estuaries and Coastal Seas): From Processes to Prediction, Astoria, Oregon.

Zhong, L. and M. Li. 2006. Sensitivity analysis of ROMS predictions for Chesapeake Bay. Presentation at PECS 2006 (Physics of Estuaries and Coastal Seas): From Processes to Prediction, Astoria, Oregon.

Li, M., L. Zhong, R. R. Hood and L.W. Harding, Jr. 2005. Simulating seasonal and interannual variations of plankton populations in the Chesapeake Bay using a new biophysical model. ERF conference. Norfolk, Virginia.

Li, M. 2005. Development of a coupled hydrodynamic-biogeochemical Model for Chesapeake Bay. Invited seminar at University of Maryland, College Park, Maryland.

Li, M., L. Zhong, W. C. Boicourt, S. Zhang and D.-L. Zhang. 2005. Hurricane-induced storm surges, currents and destratification in Chesapeake Bay. MABPOM (Middle

Atlantic Bight Physical Oceanography and Meteorology) workshop, Stony Brooks, New York.

Zhong, L., M. Li and W. C. Boicourt. 2005. Development and validation of a new hydrodynamic model for Chesapeake Bay. MABPOM (Middle Atlantic Bight Physical Oceanography and Meteorology) workshop, Stony Brooks, New York.

Li, M. 2005. Modeling turbulent large eddies in the upper ocean. Invited talk at ONR Northeast Site Review workshop, New Brunswick, New Jersey.

Li, M. and L. Zhong. 2005. Development of a new coupled hydrodynamic-biogeochemical model for ecological forecasting in Chesapeake Bay. Invited presentation at EPA workshop on Ecological forecasting for Chesapeake Bay. Annapolis, Maryland.

Li, M. 2004. Deepening of the mixed layer into a linearly stratified water by Langmuir and shear turbulence. Ocean Science Meeting. Portland, Oregon.

Li, M. 2004. Development of a new biophysical model for the Chesapeake Bay using ROMS. Invited seminar at Chesapeake Biological Lab.

Li, M. 2004. Modeling Stratified Shear Flows in Estuaries Using Large Eddy Simulations (LES) Model. Invited seminar at Woods Hole Oceanographic Institution.

Li, M. 2004. Deepening of the ocean mixed layer by Langmuir and shear turbulence. American Meteorological Society 16th symposium on boundary layer turbulence. Portland, Maine.

Li, M. 2004. A regime diagram for classifying turbulent large eddies in the upper ocean. Invited seminar at University of Maryland, College Park.

L. Zhong, M. Li, S. Zhang and D. Zhang. 2004. Hindcast simulations of Chesapeake Bay circulation during Hurricane Isabel using a mesoscale coupled atmosphere-ocean model. Hurricane Isabel in Perspective Conference. November 15 - 17, 2004. Maritime Institute, Linthicum Heights, Maryland.

Li, M. 2003. A regime diagram for turbulent eddies in the upper ocean. Invited seminar at Woods Hole Oceanographic Institution.

Li, M. 2003. Modeling estuarine flows using Large Eddy Simulation model. Presentation at Estuarine Research Foundation Conference. Seattle, Washington.

Zhong, L., M. Li, R. R. Hood and W. C. Boicourt. 2003. Development of a community model for the Chesapeake Bay using ROMS. Presentation at ERF conference, Seattle, Washington.

Li, M. 2003. Modeling the interacting scales of motion in estuarine circulation using ROMS and LES. Invited seminar at Old Dominion University.

Li, M. and L. Zhong. 2003. Development of a new hydrodynamic model for the Chesapeake Bay using ROMS. Invited presentation at COAA (Chinese-American Oceanic and Atmospheric Association) workshop. George-Mason University.

Li, M. 2003. Climate Variability and its Impact on Estuaries. Invited talk at COSEE workshop. Cambridge, Maryland.

Li, M. 2002. Two regimes of internal tide generation over bottom topography. Presentation at Ocean Science meeting. Hawaii.

Li, M. 2001. Generation of internal waves by tidal currents over bottom topography in the deep ocean. Invited seminar at Woods Hole Oceanographic Institution.

Li, M. 2001. Characterization of wave-, shear-, and buoyancy-driven turbulence in the ocean surface layer. Presentation at ASLO meeting. New Mexico.

Li, M. 2001. Generation of internal tides in the deep ocean. Invited seminar at University of Washington.

Li, M. 2001. What determines seasonal and interannual variability of plankton production in strongly estuarine system. Invited seminar at Oregon State University.

Li, M. 2001. Internal waves generated by tidal currents over sinusoidal and irregular bottom topography. AGU Fall meeting. San Francisco.

F. Symposia Organized/Chaired for Professional Meetings:

07/2008. Symposium on "From millimetres to megametres: the interacting scales of ocean dynamics", organizing committee.

03/2008. Ocean Science Meeting 2008, Session Convenor on "Dynamics of estuarine circulations and river plumes: from process studies to predictive models".

07/2007. Fourth International Ocean-Atmosphere Conference, Session Convenor on "Coastal Ocean Dynamics".

05/2007. Workshop on UMCES model of Chesapeake Bay, Convenor.

12/2001. AGU Fall Meeting, Session Chair.

G. Professional memberships

American Geophysical Union
American Meteorological Society
Oceanographic Society

Estuarine Research Foundation.

IV. Teaching and Training

2002- Member, USM Inter-Institutional Graduate Faculty

2005- Co-Chair, Oceanography AOS.

A. University System of Maryland Courses Taught

MEES 661. Physics of Marine and Estuarine Environments.

MEES 608G. Transport Processes and Plankton Distributions.

MEES 608K. Climate Impacts on Estuaries and Ecosystems.

B. Graduate Students Supervised as Major Advisor

Yun Li	Ph.D	MEES	UMCP
Zengrui Rong	Ph.D	Joint US-China graduate program	
Peng Jia	Ph.D	MEES	UMCP
Dakui Wang	Ph.D	Joint US-China graduate program	
Hailong Liu	Ph.D	MEES	UMCP

C. Graduate Student Committee Memberships

Michael Zickel	M.Sc	MEES	UMCP
David Miller	Ph.D.	MEES	UMCP
Monica Salerno	M.Sc	MEES	UMCP
Shih-Nan Chen	Ph.D.	MEES	UMCP
Ed Davis	M.Sc.	MEES	UMCP
Yonghui Gao	Ph.D.	MEES	UMCP

D. Postdoctoral Fellows Supervised

Liejun Zhong.

E. Undergraduate Students Supervised

Mitch Buck, John Hopkins University, 2004.

Sergejs Melderis, Salisbury University, 2005.

Andrea Abler, University of Maryland, Baltimore County, 2006.

V. Outreach and Service

- A. Editorships
- B. Public Service
- C. Federal/State/Local Government/International

- Served on the *National Science Foundation* (NSF) review panel in the Division of Ocean Sciences (2003, 2007).
- Invited participant in Maryland Sea Grant Research Planning workshop (2005)
- Invited participant in EPA workshop on Ecological Forecasting (2005).
- Participated in MACOORA workshop on Observing Systems for the MAB (2005).
- Invited participant in UMD-MITRETEK workshop on storm-surge prediction (2005, 2006).
- Advised EPA modelling group on water-quality modelling issues (2005).
- Advised NCBO on the coupling between fishery and water-quality models (2005).
- Advised NCBO about Coastal Watch remote sensing program (2005).
- Advised NCBO about Chesapeake Bay Observing System (2005).
- Invited participant in EPA STAC workshop (2006)
- Invited participant in U.S. Army Corps of Engineer's workshop on storm surge (2006).

D. University System of Maryland

- Co-Chair, MEES Oceanography AOS (2005-).
- Admission Committee, MEES Oceanography AOS (2003-2004).

E. UMCES and laboratory

- Faculty senate, Member (2003-).
- Computer Service Committee (2002-), Chair (2003-2004).

F. Other Professional Service

- Invited lecturer for the NSF COSEE program for teachers.
- Reviewers for scientific journals and funding agencies.

Reviews for *National Science Foundation*
 Reviews for *U.K. Natural Environment Research Council*
 Reviews for *Deep-Sea Research*
 Reviews for *Journal of Marine Research*
 Reviews for *Geophysical Research Letters*
 Reviews for *Journal of Physical Oceanography*
 Reviews for *Journal of Fluid Mechanics*
 Reviews for *Journal of Geophysical Research*
 Reviews for *limnology & Oceanography*
 Reviews for *Estuarine, Coastal and Shelf Research*
 Reviews for *Estuaries and Coasts*
 Reviews for *Marine Ecology Progress Series*

Reviews for *Ocean Modelling*
Reviews for *Physics of Fluids*