

Curriculum Vitae

Dr. Jinyu Sheng

Professor in Physical Oceanography

LRET Chair in Modelling and Prediction of Marine Extreme Events

Department of Oceanography, Dalhousie University

September 2013

1. Curriculum Vitae

Dr. Jinyu Sheng
 Professor and LRET Chair
 Department of Oceanography, Dalhousie University

1.1 Personal Information

Name: Jinyu Sheng
 Date of Birth: January 21, 1959
 Citizenship: Canadian
 Address: Department of Oceanography
 Dalhousie University,
 Halifax, Nova Scotia, B3H 4J1
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1.2 University Education

| | | |
|--------------------------------------|-----------------------------|------|
| Ph.D. (Physical Oceanography) | Memorial University, Canada | 1990 |
| M.Sc. (Physical Oceanography) | Memorial University, Canada | 1985 |
| B.Eng. (Coastal Hydrology) | Hohai University, China | 1981 |

1.3 Professional Career

| Position | Institution | Period |
|--------------------------------|---|-------------------|
| Professor and LRET Chair | Department of Oceanography Dalhousie University | 2011 (April) – |
| Professor | Department of Oceanography Dalhousie University | 2009-2011 (March) |
| Associate Professor | Department of Oceanography Dalhousie University | 2004-2009 |
| Assistant Professor | Department of Oceanography Dalhousie University | 1999-2004 |
| Assistant Professor | Department of Physics and Physical Oceanography, Memorial University | 1998 |
| Research Associate | Department of Oceanography Dalhousie University | 1990-1998 |
| Teaching Assistant (part-time) | Department of Physics Memorial University | 1985-1989 |

1.4 Professional Membership and Affiliations

- Chair, LRET Research Network in Modelling and Prediction of Marine Extreme Events (2011-)
- Member of the Canadian Meteorological and Oceanography Society (CMOS)
- Member of the American Geophysical Union (AGU)
- Member of the American Meteorological Society (AMS)
- Member of the Canadian National Committee for the Scientific Committee on Ocean Research (SCOR)
- Member of the Advisory Committee for International Conferences on Estuarine and Coastal Modeling (ECM, 2006-)
- Co-Principal Investigator, CMEP project (Centre for Marine Environmental Prediction) funded by CFCAS led by Drs. John Cullen and Alex Hay of Dalhousie University (2003-2007)
- Co-Principal Investigator, ECONAR project (Ecological Connectivity Among Reefs) funded by NSERC led by Dr. Peter Sale of University of Windsor (2001-2004)
- Co-Principal Investigator, EACRE project (Environmental Assessments of Coral Reef Ecosystem) funded by NASA led by Dr. Serge Andrefouet of University of South Florida (2004-2008)
- Member of the Canadian SOLAS research team (Surface Ocean Lower Atmosphere Study) funded by CFCAS/NSERC led by Dr. William Miller of Dalhousie University (2003-2006)

1.5 Reviewing, Refereeing and Examiner Activities

1.5.1 Manuscript Reviews

Journal of Geophysical Research-Oceans
 Journal of Physical Oceanography
 Journal of Ocean Modelling
 Ocean Dynamics
 Continental Shelf Research
 Canadian Journal of Fisheries and Aquatic Sciences
 International Journal of Coastal Research
 Atmosphere-Ocean
 Journal of the Acoustic Society of America
 Progress in Oceanography
 Journal of Marine Systems
 International Journal of Coastal Science
 Coral Reefs

1.5.2 Research Grant Proposal Reviews

Natural Environment Research Council (UK)
 Natural Science and Engineering Research Council of Canada
 Alaska Sea Grant College Program (US)
 Science and Technology Foundation (US)
 National Science Foundation (US)
 Research Council of Norway

1.5.3 Examiner Activities

| | |
|----------------------------|--|
| Jon Bergh | External examiner for Ph.D. thesis, Bergen University (Feb. 2010) |
| Daniel Bourgault | External examiner for Ph.D. thesis, McGill University (Feb. 2001) |
| Noreen Kelly | Departmental representative for Ph.D. thesis defence (July 2007) |
| Moritz Lehmann | External examiner for Ph.D. thesis proposal defence |
| Birgit Kjoss Lyngre | External examiner for Ph.D. thesis, University of Oslo (May 2011) |
| Doris Leong | Chair for M.Sc. thesis proposal defence |
| Stephanie Moore | External examiner for M.Sc. thesis defence (June 2008) |
| Gregory C. Smith | External examiner for Ph.D. thesis, McGill University (April 2005) |
| Wenbo Song | External examiner for Ph.D. thesis proposal defence |
| Xiaodong Zhang | External examiner for Ph.D. thesis proposal defence |

1.6 University and Departmental Committees

- Honorary Degrees Committee, Faculty of Science, Dalhousie University (2001-2005)
- University Senate Committee (2006-2007)
- Departmental Admissions Committee (2000-2003)
- Member of Dalhousie delegation of China mission led by Sam Scully (VP) and Keith Taylor (Dean) in 2006
- Departmental Space Committee (2003-2005)
- Departmental Seminar Coordinator (1999-2000, 2008-2009)
- Departmental Radiation Safety Officer (acting, 2001-2002)
- Chair Advisory Committee for the Department of Psychology (2004)
- Departmental Tenure and Promotion Committee (2009-)

1.7 External Committees

- Canadian National Committee for the Scientific Committee on Ocean Research (2002-2009)
- Huntsman Award Selection Committee (2011-)
- Coordinator for CNC/SCOR lecture tours over the east coast of Canada (2005-2008)
- Advisory Professor, Department of Sedimentation, Institute of Water Resources and Hydropower of China, Beijing, China (2006-)
- Advisory Professor, Hohai University, Nanjing, China (2001-2006)
- Principal of Halifax Chinese Language School (Volunteer work, 1993-1998, 2001-) and vice-principal (1999-2000)
- Co-convener for a special session in coastal oceanography and inland waters, CMOS congress,

Kelowna, Canada, June 2011

- Co-convener for a special session in coastal oceanography and inland waters, CMOS congress, Kelowna, Canada, June 2010
- Co-convener for a special session in coastal oceanography and inland waters, CMOS congress, Kelowna, Canada, June 2009
- Co-convener for a special session in coastal oceanography and inland waters, CMOS congress, Kelowna, Canada, May 2008
- Session chair in 9th International Symposium on Fluid Control, Tallahassee, Florida, USA, September 2007
- Co-convener for a special session in coastal oceanography and inland waters, CMOS Congress, St. John's, Canada, May 2007
- Co-convener for a special session in coastal oceanography and inland waters, CMOS Congress, Toronto, Canada, May 2006
- Co-convener for a special session in coastal oceanography and inland waters, CMOS Congress, Vancouver, Canada, May 2005
- Co-organizer for an international conference on Marine Science in Qingdao, May 2005
- Halifax/Dartmouth Regional Committee of the Canadian Meteorological and Oceanographic Society (2000-2004)
- Volunteer coordinator for CMOS 2009 congress to be held in Halifax (2008-2009)

1.8 Research Interests

1.8.1 Research Areas:

- Physical processes over coastal waters and shelf seas
- Numerical modeling and two-way interactive nesting, coupled bio-physical modelling
- Numerical predictions of coastal and shelf circulations
- Air-sea interaction
- Retention and connectivity of chemical and biological materials in the ocean

1.8.2 Specific Research Interests

- Application of the semi-prognostic method and related techniques for improving the utility of ocean circulation models
- Development of a new nesting technique based on the semi-prognostic method
- Air-sea flux of chlorofluorocarbons and carbon dioxide in response to climate forcing, as part of SOLAS
- Effects of surface heating/cooling, sea-ice and freshwater runoff on the general circulation and temperature/salinity distribution on the eastern Canadian shelf

- Barotropic and baroclinic ocean responses to hurricanes and tropical storms in the eastern Canadian shelf
- Nonlinear dynamics of the Gaspé Current
- Hydrodynamics and thermal structures in fresh or salty lakes (Lake Huron and Bras d'Or Lakes)
- Development and application of a nested-grid coastal circulation prediction system (NCOPS-LB) for Lunenburg Bay, as part of CMEP
- Numerical study of ecological connections among reefs over the Mesoamerican Barrier Reef System (MBRS) of the northwest Caribbean Sea
- Storm-induced circulation over the Mesoamerican Barrier Reef System during Hurricane Mitch
- Development of a nested-grid numerical circulation system for the Pearl River Estuary of China

1.9 Research Grants and Contracts

| <u>PI</u> and Co-PI | Funding Agency and Title | Amount | Period |
|-------------------------------------|--|--|---------------|
| D. Wallace and 39 others | NCE Network “ Marine Environmental Observation, Prediction and Response (MEOPAR)” | \$330,000 (\$110,000/yr) (my share only) | 2013-2015 |
| <u>J. Sheng</u> | NSERC Engage Grant: “Investigation of Eastern Caribbean Sea Forecasting Models in Support of Climate Change Mitigation and Maritime Disaster Management” | \$25,000 | 2012-2014 |
| <u>J. Sheng</u> | NSERC Discovery Grant: “Coastal and Shelf Dynamics over the Eastern Canadian Shelf” | \$190,000 (\$38,000/yr) | 2012-2017 |
| <u>J. Sheng</u> and 4 others | LRET Network: “Global Networking to Improve Prediction of Extreme Marine Events” | \$1,210,000 (\$242,000/yr) (my share only) | 2011-2016 |
| <u>J. Sheng</u> | Dalhousie University, Faculty Start-Up Funds for the LRET Chair | \$40,000 | 2011-2013 |
| <u>S. Iverson</u> | NSERC Strategic Network : “The Ocean Tracking Network Canada” | \$490,000 (\$70,000/yr) | 2010-2016 |

(my share only)

| | | | |
|--|---|---|-----------|
| <u>J. Sheng</u> | OEER Research Contract: "Assessing the Far Fields of Tidal Power Extraction on the Bay of Fundy, Gulf of Maine and Scotian Shelf" | \$140,000 (\$70,000/yr) | 2010-2011 |
| <u>J. Sheng</u> | NSERC Discovery Grant: "Variability of Circulation and Hydrodynamic Connectivity over the Eastern Canadian Shelf" | \$105,450 (\$21,080/yr) | 2007-2012 |
| <u>J. Sheng</u> | CFCAS GOAPP Project Grant: "Assessing the Capability of a Nested-Grid shelf Circulation model for the Eastern Canadian Shelf" | \$40,000 (\$20,000/yr) | 2009-2010 |
| <u>J. Sheng</u> | Cape Breton University subcontract: "Physical Ocean Modeling Cluster Support" | \$17,500 | 2008 |
| <u>J. Sheng</u> | DFO Research Contract: "Simulating Circulation over the Scotian Shelf" | \$29,000 | 2005-2007 |
| <u>J. Cullen and A. Hay</u> J. Sheng and 12 others | CFCAS Project Grant: "Interdisciplinary Marine Environmental Prediction in the Atlantic Coastal Ocean" | \$1862,590 (\$120,000/yr) (my share only) | 2006-2007 |
| <u>J. Sheng</u> | DFO Research Contract: "Simulating Circulation over the Scotian Shelf" | \$29,000 | 2005-2007 |
| <u>F. Berthe</u> | AquaNet Project Grant: "Developing Tools to Study Biological and Environmental Limitations of MSX Infections" | \$443,600 (\$55,000/yr) (my share only) | 2004-2006 |
| <u>S. Andrefouet</u> J. Sheng and 5 others | NASA Research Grant: "Environmental Assessments of Coral Reef Ecosystem" | \$95,000 (\$31,600/yr) (my share only) | 2004-2008 |
| <u>P. Sale</u> J. Sheng and 2 others | Canadian Consultant Trust Funds: "GEF Global Targeted Research and Capacity Building Project" | \$13,300 (my share only) | 2003-2004 |
| <u>J. Sheng</u> | NSERC Discovery Grant: "Numerical Studies of Circulation and Dynamics over the Eastern Canadian Shelf" | \$67,200 (\$16,800/yr) | 2003-2007 |
| <u>J. Sheng</u> | Environment Canada Research Contract: "Development of Three-Dimensional Hydrodynamic Circulation Model for Lake Huron and Georgian Bay" | \$19,000 | 2003-2004 |
| <u>J. Sheng</u> R. Greatbatch J. | CFCAS Project Grant: "A Relocatable Nested Shelf Circulation Model with Application to the" | \$115,500 (\$38,500/yr) | 2002-2005 |

| | | | |
|---|--|---|---------------|
| Chuang | Eastern Canadian Shelf' | | |
| <u>R. Greatbatch</u> J. Sheng | NSERC/MARTEC/MSC Industrial Research Chair in "Regional Ocean Modelling and Prediction" | \$435,000 (\$87,000/yr) | 2003- 2008 |
| <u>A. Hay</u> J. Sheng and 10 others | CFCAS Project Grant: "Interdisciplinary Marine Environmental Prediction in the Atlantic Coastal Ocean" | \$254,000 (\$84,667/yr) (my share only) | 2003- 2006 |
| <u>W. Miller</u> J. Sheng and 39 others | J. CFCAS/NSERC Network Research Grant: "Canadian Surface Ocean-Lower Atmosphere Study (Canadian SOLAS)" | \$66,000 (\$16,500/yr) (my share only) | 2002- 2006 |
| <u>P. Sale</u> J. Sheng and 4 others | NSERC Collaborative Research Opportunity Grant: "Regional Scale Ecological Connections Among Reefs" | \$139,500 (\$46,500/yr) (my share only) | 2001- 2004 |
| <u>J. Sheng</u> | NSERC Research Grant: "Subtidal Circulation and Temperature/Salinity Variation over the Eastern Canadian Shelf" | \$52,622 (\$13,155/yr) | 1999- 2002 |
| <u>J. Sheng</u> | Dalhousie University, Faculty Start-Up Funds | \$20,000 | 1999 |
| <u>R. Greatbatch</u> J. Sheng | NSERC/MARTEC/MSC Industrial Research Chair in "Regional Ocean Modelling and Prediction" | \$397,000 (\$79,400/yr) | 1998- 2003 |
| <u>J. Sheng</u> | BIO/DFO Research Contract: "Numerical Studies of Tracer Transports and Pathways in the Northwest Atlantic Ocean" | \$36,000 (\$18,000/yr) | 2000- 2002 |
| <u>J. Cullen,</u> J. Sheng and 7 others | CFI/ACOA Research Infrastructure of "Marine Environmental Prediction System for Real-Time Observation, Prediction and Visualization" | \$170,000 (\$85,000/yr) (my share only) | 2001- 2003 |
| <u>J. Sheng</u> R. Greatbatch K. Thompson H. Ritchie, D. Wright | CFI/ACOA/SGI Research Infrastructure of "Ocean/Atmosphere Circulation Modelling and Prediction from Labrador to Maine" | \$538,098 | 2000 |

1.10 Collaborations

The Department of Oceanography is a multi-disciplinary research department of international stature. It provides genuine opportunities of collaboration for all faculty members. I have taken a very active approach to collaborate with colleagues in this department and scientists at other national and international institutions.

1. Collaboration with the NSERC/MARTEC/MSC senior chair **Dr. Richard Greatbatch** of Dalhousie University in several key research areas outlined in the chair proposal, including the semi-prognostic method (Sheng et al., 2001; Greatbatch et al., 2004), barotropic waves generated by moving storms

(Mercer, et al., 2002; Macking's MSc thesis, 2008), numerical study of seasonal circulation and ice and CFC distributions in the northwest Atlantic Ocean (Zhang et al., 2004; Zhao et al., 2004; Zhao et al., 2006), and application of nested-grid models in the study of coastal and shelf circulations (Zhai et al., 2005; Sheng et al., 2005; Zhai et al., 2007 and 2008).

2. Continuous collaboration and coordination with **Dr. Keith Thompson** of Dalhousie University on the development of prototype operational forecast systems (Thompson et al., 2007; Ohashi, et al., 2008) and examination of prediction and predictability of dynamically downscaling shelf circulation for the Eastern Canadian Shelf as part of the Global Ocean-Atmosphere Prediction and Predictability (GOAPP).
3. Collaboration with Drs. **Alex Hay, John Cullen, Mike Dowd** and other researchers on the CMEP-Bay project (Wang et al., 2007; Guarracino et al., 2008).
4. Collaboration with **Drs. Dan Wright, Peter Jones** and **Kumiko Azetsu-Scott** of Bedford Institute Oceanography in the numerical study of the passive tracers in the Labrador Sea (Zhao et al., 2006), and collaboration with Drs. Dan Wright and Fred Dupont on the development a high resolution shelf circulation model based on OPA as part of GOAPP.
5. Collaboration with **Drs. Harold Ritchie** and **Serge Desjardins, Doug Mercer** and **Chris Fogarty** of the Meteorological Service of Canada to study the ocean response to wind and pressure forcing produced by atmospheric circulation models.
6. Collaboration with **Dr. Bruce Hatcher** of Cape Breton University on the connectivity study in the Mesoamerican Barrier Reef System of the northwestern Caribbean Sea (Tang et al., 2006; Sheng et al., 2007) and the three-dimensional circulation in the Bras d'Or Lakes of Nova Scotia (Yang et al., 2007).
7. Collaboration with **Drs. Serge Andrefouet, Chuanmin Hu** and **Frank Muller-Karger** at the University of South Florida on the study of the storm-induced circulation on the western Caribbean Sea (Sheng et al., 2007).
8. Collaboration with **Dr. Liqun Tang** at the Institute of Water Resources and Hydropower of China on the development of a nested-grid model for the Pearl River Estuary of China.
9. Interaction with **Drs. Chris Taggart** and **Chris Reiss** on examining the implications of baroclinic circulation over Western Bank on the Scotian Shelf for larval fish transport and retention (Reiss et al., 2000).
10. Interaction with **Drs. Jeff Runge** and **Bruno Zakardjian** of Institut des Sciences de la Mer de Rimouski on the numerical simulation of life history of the copepod over the Gulf of St. Lawrence and Scotian Shelf (Zakardjian et al., 2003).
11. Collaboration with **Dr. Peter Sale** of University of Windsor, **Dr. Barry Ruddick** of Dalhousie University, and **Bruce Hatcher** of Cape Breton University in studying the ecological connectivity among coral reefs (Sheng and Tang, 2003; Tang et al., 2006).
12. Most recently, I have been involved in the preparation of an NSERC strategic proposal for the Ocean Tracking Network (OTN) led by Ron O'Dor.

1.11 Teaching Activities

I held the junior and then associate NSERC/MARTEC/MSU Industrial Research Chair in "Regional Ocean Modelling and Prediction" from 1999 to 2010. I have therefore major research responsibilities in terms of developing numerical modelling systems to investigate the evolution and predictability of the atmosphere/ocean/ice system. The following are the courses I have taught at Dalhousie University since 1999.

| | Course No. | Title | Term |
|-----|----------------|---------------------------------|-----------------------------|
| 21. | OCEA 4220/5220 | Numerical Modelling | 2012/2013 Winter |
| 20. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2012/2013 Fall |
| 19. | OCEA 4220/5220 | Numerical Modelling | 2011/2012 Winter |
| 18. | OCEA 4220/5220 | Numerical Modelling | 2010/2011 Winter |
| 17. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2010/2011 Fall |
| 15. | OCEA 4220/5220 | Numerical Modelling | 2008/2009 Winter |
| 14. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2008/2009 Fall |
| 13. | OCEA 4220/5220 | Numerical Modelling | 2007/2008 Winter |
| 12. | OCEA 4220/5220 | Numerical Modelling | 2006/2007 Fall |
| 11. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2006/2007 Fall |
| 10. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2005/2006 Fall |
| 9. | OCEA 4220/5220 | Numerical Modelling | 2004/2005 Winter |
| 8. | OCEA 4220/5220 | Numerical Modelling | 2003/2004 Winter |
| 7.. | OCEA 4220/5220 | Numerical Modelling | 2002/2003 Winter |
| 6. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2002/2003 Fall |
| 5. | OCEA 4220/5220 | Numerical Modelling | 2001/2002 Winter |
| 4. | OCEA 4222/5222 | Estuary, Coast & Shelf Dynamics | 2000/2001 Fall |
| 3. | OCEA 4220/5220 | Numerical Modelling | 2000/2001 Winter |
| 2. | OCEA 4220/5220 | Numerical Modelling | 1999/2000 Winter |
| 1. | PHY 3220 (MUN) | Classical Mechanics I | 1998/1999 Fall ^⓪ |

^⓪I taught a fourth-year undergraduate course of "Classical Mechanics" in the fall term of 1998 when I was a faculty member in the Department of Physics and Physical Oceanography at the Memorial University of Newfoundland. I also gave several guest lectures to "Ocean Dynamics" at Dalhousie University.

1.12 Training of Highly Qualified Personnel

1.12.1 List of research associates and research assistants supervised and co-supervised since January, 1999:

- Mr. Mike Casey** Mike was recruited by Dr. Greatbatch and myself as the computer support person for the Chair program. Mike was responsible for our pc-cluster and provides general computer support to our group. Mike left the group in August 2007 to pursue a Ph.D. degree in St. Mary's University.
- Dr. Yuri Geshelin** Yuri was hired as a Research Associate under the NSERC/MARTEC/MSC Industrial Research Chair in September 1998. Primarily under my supervision, Yuri developed a new temperature and salinity climatology for the northwest Atlantic Ocean (Geshelin et al, 1999) that has been used in several modelling studies. Yuri has been working with Dr. John Loder at Bedford Institute of Oceanography since September 1999.
- Dr. Daisuke Hasegawa** Daisuke came to work with us in May 2009 on the POKM project. His main responsibility is to develop a nested-grid model using the POM. Daisuke left the group in September 2011 to take a research position in Japan.
- Dr. Fuxi Ma** Fuxi was hired as a Research Associate in October 2008 to work on the GeoConnections project. Fuxi left the group in April 2010 to take a postdoctoral fellow position in the Faculty of Engineering.
- Dr. Kyoko Ohashi** Kyoko was recruited as a Post-Doctoral Fellow in February 2004 co-supervised by myself and Dr. Hal Ritchie to work on an operational shelf circulation forecast system known as DALCOAST as part of the CMEP project. Kyoko took the NSERC visiting fellowship position in the Northwest Atlantic Fisheries Centre in St. John's in March 2008. Kyoko rejoined the group in February 2010.
- Dr. Eric Oliver** Eric was recruited as the postdoctoral fellow in September 2011 to work on the extreme ocean currents over the eastern Canadian shelf. Eric will go to Hobart, Australia in February 2011 to take a "super science fellow" position at the Institute For marine and Antarctic Studies.
- Dr. Liqun Tang** Liqun was recruited as a Post-Doctoral Fellow (April 2001 to December 2002) and then a Research Associate (January 2002 to February 2005) to develop a three-dimensional ocean circulation model for the Mesoamerican Barrier Reef System as part of the ECONAR project funded by NSERC IRO. He took a Professor position at the Institute of Water Research and Hydropower of China in March 2005.
- Mr. Qin Tu** Qin was recruited as a part-time Research Assistant in May 2003 to April 2004 work on the computer graphic programs for the CMEP project.
- Dr. Liang Wang** Liang was hired as a Research Associate from September 1999 to August 2000 to work on the numerical study of passive tracers in the northwest Atlantic. Liang took a temporary research position in Vancouver and came back to work with me on September, 2001. Liang developed a high-resolution model for Lunenburg Bay as part of CMEP. Liang has been working in a private company (Bechtel Corporation) in Houston, Texas since May 2006.
- Ms. Hualin Wong** Hualin was hired as a Research Assistant from August 2000 to April 2001 to work on the research project of passive tracers in the northwest Atlantic. She also designed an informative website for CANDIE (www.phys.ocean.dal.ca/programs/CANDIE).
- Dr. Bo Yang** Bo was recruited in October 2005 as a Post-Doctoral Fellow to develop a nested-grid model for Bras d'Or lakes of Nova Scotia. Since January 2007, Bo has been working on the nested-grid coastal circulation prediction system as part of the

CMEP project. Bo left the group in October 2008 to take a faculty position at the Ocean University of China.

- Dr. Sheng Zhang** Sheng was hired by Dr. Greatbatch and myself as a Research Associate to work on sea ice modelling as part of the NSERC/MARTEC/MSC Industrial Research Chair program. He developed a coupled ocean/ice model for the northwest Atlantic Ocean. Sheng has been working elsewhere since 2003.
- Ms. Jun Zhao** Jun was recruited as a Research Assistant to work on the development of a coastal forecast model for Lunenburg Bay of Nova Scotia. Jun has been taking a physical scientist position at the National Water Research Institute of Environment Canada since February 2007.

1.12.2 Supervision of graduate students:

(1.12.2a) Students supervised or co-supervised

- Jean-Pierre Auclair** M.Sc. student in Physical Oceanography (starting in September 2008), Co-Supervisor
- Jorge Urrego Blanco** Ph. D. student in Physical Oceanography (in progress), Supervisor
- Matthew Corkum** M.Sc. student in Atmospheric Science (completed in September 2008), Co-Supervisor
- Mathieu Dever** Ph. D. student in Physical Oceanography (in progress), Co-Supervisor
- Xiaomei Ji** Visiting Ph.D. student from Nanjing University (completed in October 2009), Co-Supervisor (back to China in February 2009)
- Yuehua Lin** Ph.D. student in Physical Oceanography (completed in August 2010), Co-Supervisor
- Jennifer Mecking** M.Sc. student in Atmospheric Science (completed in May 2008), Co-Supervisor
- Doug Mercer** Ph.D. student in Atmospheric Science (in progress), Co-Supervisor
- Perluigi Pantalone** M.Sc. student in Physical Oceanography (completed in December 2006), Co-Supervisor
- Shiliang Shan** M.Sc. student in Physical Oceanography (completed in December 2010), Supervisor
- Shiliang Shan** Ph.D. student in Physical Oceanography (in progress), Supervisor
- Lee Titus** M.Sc. student in Atmospheric Science (completed in August 2010), Co-Supervisor
- Li Zhai** Ph.D. student in Physical Oceanography (completed in January 2008), Co-Supervisor
- Xiaoming Zhai** M.Sc. student in Physical Oceanography (completed in February 2004), Co-Supervisor
- Jun Zhao** M.Sc. student in Physical Oceanography (completed in July 2005), Supervisor

(1.12.2b) List of committees for graduate students

| | |
|---------------------------|--|
| Chris Algar | Ph.D. student in Geological Oceanography (), Advisory committee member |
| Yanjie Cheng | M.Sc. student in Atmospheric Science (completed in July 2007), Thesis defence committee member |
| Shaun Gelati | M.Sc. student in Physical Oceanography, Advisory committee member |
| Chris Fogarty | Ph.D. student in Atmospheric Science (completed in March 2006), Advisory committee member |
| Tanya Leverette | M.Sc. student in Biological Oceanography (completed in June 2004), Advisory committee member |
| Jian Lu | Ph.D. student in Atmospheric Science (completed in December 2003), Advisory committee member |
| Josee Michaud | Ph.D. student in Biological Oceanography (completed in November 2005), Advisory committee member |
| Ryan Mulligan | Ph.D. student in physical oceanography (completed in May 2008), Advisory committee member |
| Natasha Rendon | M.Sc. student in Biological Oceanography (completed in March 2009), Advisory committee member |
| Clark Richards | Ph.D. student in physical oceanography (<i>in progress</i>), Advisory committee member |
| Megan Saunders | M.Sc. student in Biological Oceanography (completed in October, 2009), Advisory committee member |
| Elizabeth Shadwick | Ph.D. student in Chemical Oceanography (completed in 2010), Advisory committee member |
| Jinhua Sheng | M.Sc. student in Mechanical Engineering (completed in 2003), Advisory committee member |
| Jing Tao | M.Sc. student in Physical Oceanography, Advisory committee member |
| Xiaoming Zhai | Ph.D. student in Physical Oceanography (completed in September 2007), Advisory committee member |
| Wei Wang | M.Sc. student in Mechanical Engineering (completed in March 2008), Advisory committee member |

List of Highly Qualified Personnel supervise or co-supervised

| Name | Type of HQP Training and status | Years supervised or co-supervised | Title of project or thesis | Present position |
|----------------------|--|--|-----------------------------------|--------------------------------------|
| Auclair, Jean-Pierre | Master's (In Progress) | Co-supervised 2008- | Ocean wave modelling | MSc Student, Dalhousie |
| Casey, Mike | Computer Specialist (Completed) | Co-supervised 1999-2007 | Computer support | Ph.D. Student, St. Mary's University |
| Chapman, Tim | System Administer (Completed) | Co-supervised 2006-2008 | Computer system administrator | Computer Consulting, Halifax |
| Corkum, Matthew | Master's (Completed) | Co-supervised 2006-2008 | Atmospheric circulation | Ph.D. Student, York University |
| Dever, Mathieu | Doctoral | Co-supervised | Observed ocean circulation on | Ph.D. Student, Dalhousie |

| | | | | |
|----------------------|---------------------------------------|----------------------------|--|---|
| | (Completed) | 2009- | the Scotian Shelf | |
| Geshelin, Yuri | Research Associate (Completed) | Co-supervised 1998-1999 | Hydrographic climatology of the North Atlantic | Research Staff, BIO |
| Hartwell, Sean | System Administer (Completed) | Co-supervised 2001-2005 | Computer system administrator | Administrative Secretary, Dalhousie |
| Hasegawa, Daisuke | Postdoctoral (Completed) | Supervised 2009-2011 | Far field effect of tidal energy in the Bay of Fundy | Research position at Okinawa Institute of Sci and Tech, Japan |
| Hurst, Jackie | Research Assistant (In Progress) | Co-supervised 2005- | Research support | Research Assistant, Dalhousie |
| Ji, Xiaomei | Vising Ph.D. Student (Completed) | Supervised (2007-2009) | Circulation over the Pearl River Estuary | Faculty member at Hohai University, China |
| Jackson, David | System Administer (Completed) | Co-supervised 1999-2001 | Computer system administrator | Software development/ system admin., Keshet Technologies, Ottawa |
| Lin, Yuehua | Doctoral (Completed) | Co-supervised 2004-2010 | Transport variability of Florida Current | NSERC Industrial Postdoctoral Fellow, ASL Environmental Sciences, Victoria |
| Ma, Fuxi | Postdoctoral (Completed) | Supervised 2009-2010 | GeoConnection Project for the Bras d'Or Lakes | Research staff, Dalhousie |
| Mecking, Jennifer | Master's (Completed) | Co-supervised 2005-2008 | Shelf circulation forced by fast- moving storms | Ph.D. Student, University of Kiel, Germany |
| Mercer, Doug | Doctoral (part-time, In Progress) | Co-supervised 2002- | Ocean currents forced by tropical storms | Ph.D. Student at Dalhousie and weather forecaster at MSC |
| Morrison, Daniel | System Administer (In Progress) | Co-supervised 2008- | Computer system administrator | Computer System Administrator, Dalhousie |
| Ohashi, Kyoko | Postdoctoral (In Progress) | Co-supervised 2002- | Development of a shelf circulation model for CMEP | Research staff, Dalhousie |
| Oliver, Eric | Postdoctoral (In Progress) | Supervised 2011- | Circulation over the eastern Canadian Shelf | Research staff, Dalhousie |
| Pantone, Perluigi | Master's (Completed) | Co-supervised 2002-2006 | Particle movements in the Caribbean Sea | Back to Italy |
| Shan, Shiliang | Master's Student (Completed) | Supervised 2008-2011 | Simulation of circulation in Halifax Harbour | Ph.D. Student, Dalhousie |
| Shan, Shiliang | Doctoral (In Progress) | Supervised 2011- | Physical processes of circulation on the Scotian Shelf | Ph.D. Student, Dalhousie |
| Sheng, Jinhua | Research Assistant (Completed) | Co-supervised 2003-2004 | Visualization development | Consulting business in China |
| Tang, Liqun | PDF/Research Associate (Completed) | Supervised 2001-2005 | Circulation and connectivity over the Belize shelf | Professor at the National Institute of Water Resource, China |
| Titus, Lee | Master's Student (Completed) | Supervised 2009-2011 | Statistical downscaling of atmospheric variables | Research staff, Meteorological Service of Canada |
| Tollefsen, Dag | System Administer (Completed) | Co-supervised 2005-2006 | Computer system administrator | Recently moved to Ottawa |
| Tu, Qin | Research Assistant (Completed) | Co-supervised 2004-2005 | Visualization development | Ph.D. student, Dalhousie |
| Urrego Blanco, Jorge | Doctoral (In Progress) | Supervised 2007- | Interannual variability of circulation over northwest at Atlantic Ocean | Ph.D. student, Dalhousie |
| Wang, Liang | Research Associate (Completed) | Supervised 1999-2006 | Circulation over the eastern Canadian Shelf, Development of coastal circulation models | Senior Engineer, Bechtel Corporation, Houston, Texas |
| Wong, Hualin | Research Assistant (Completed) | Supervised 2000-2001 | Passive tracers in the northwest Atlantic Ocean | Consulting Company in St. John's |
| Yang, Bo | Postdoctoral (Completed) | Supervised 2005-2008 | Circulation and connectivity in Bras d'Or Lakes | Senior Lecturer at the Ocean University of China |
| Zhai, Li | Doctoral (Completed) | Co-supervised 2003-2008 | Study of baroclinic circulation in Lunenburg Bay | Postdoctoral Fellow at BIO |
| Zhai, Xiaoming | Master's (Completed) | Co-supervised 2002-2004 | Storm-induced circulation on the Scotian Shelf | Postdoctoral Fellow at University of Oxford (will take a faculty position at the University of East Anglia in Feb 2012) |
| Sheng Zhang | Research Associate | Co-supervised | Development of an ice-ocean | Research staff at University of |

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|-----------|---|-------------------------|--|--|
| | (Completed) | 2000-2003 | model for northwest Atlantic | Alaska |
| Zhao, Jun | MSc Student and then Research Assistant (Completed) | Supervised 2003-2007 | Development of a coastal circulation model for CMEP | Research staff, Canada Freshwater Research Center, Burlington, Ontario |

1.13 Research Publications

1.13.1 Manuscripts Submitted to Refereed Journals

(The first author underlined was a student/trainee under my (co-)supervision):

87. Zheng, H., J. **Sheng**, 2013. Estimation of extreme sea levels over the eastern continental shelf of North America, *Journal of Geophysical Research*.
86. Shan, S., J. **Sheng**, B. Greennan, 2013. Modelling study of three-dimensional circulation and particle movement over the Sable Gully of Nova Scotia, *Ocean Dynamics*.
85. Urrego Blanco, J., and J. **Sheng**, 2013. Subtidal circulation and variability in the Gulf of St. Lawrence, Scotian Shelf and Gulf of Maine using a nested-grid coupled ocean-ice model, *Ocean Dynamics*.

1.13.2 Refereed Journal Publications

(The first author underlined was a student, trainee or research staff under my (co-)supervision):

84. Shan, S., J. **Sheng**, B. Greennan, 2013. Physical processes affecting circulation and hydrography in the Sable Gully of Nova Scotia, *Deep-Sea Research*. (in press).
83. Ohashi, K., and J. **Sheng**, 2013. Influence of St. Lawrence River discharge on the circulation and hydrography in Canadian Atlantic waters, *Continental Shelf Research*, **48**, 32-49.
82. Titus, L., J. **Sheng**, R. Greatbatch, and I. Folkins, 2013. Improving statistical downscaling of general circulation models. *Atmosphere-Ocean*, **51**, doi:10.1080/07055900.2013.774259, 213-225.
81. Oliver, E., J. **Sheng**, K. Thompson, and J. Urrego Blanco, 2012. Extreme surface and Near Bottom Currents in the northwest Atlantic, *Natural Hazards*, **64**, doi:10.1007/s11069-012-0303-5, 1425-1446.
80. Shan, S., and J. **Sheng**, 2012. Examination of circulation, flushing time and dispersion in Halifax Harbour of Nova Scotia, Canada, *Water Quality Research Journal of Canada*, **47**, 353-374.

79. Zhao, J., Y. R. Rao, and J. **Sheng**, 2012. Numerical study of dispersion and hydrodynamic connectivity of near-surface waters in Lake Huron. *Water Quality Research Journal of Canada*, **47**, 238-251.
78. Tang, L., J. **Sheng**, and Y. Cai, 2012. Storm-Induced circulation in the Pearl River Estuary of China during super typhoon Koryn, *Water Quality Research Journal of Canada*, **47**, 314-332.
77. Urrego Blanco, J., and J. **Sheng**, 2012. Numerical investigation of interannual variability of circulation and hydrography over the eastern Canadian Shelf. *Atmosphere-Ocean*, **50**, 277-300.
76. Lin, Y., J. **Sheng**, and R.J. Greatbatch, 2011. A numerical study of the circulation and monthly to seasonal variability in the Caribbean Sea: The role of Caribbean eddies. *Ocean Dynamics*, **62**, doi:10.1007/s10236-011-0498-0, 193-211.
75. Muarracino, M., D. Dowd, J. **Sheng**, and J.J. Cullen, 2011. Calibration of a coupled biological–physical model for prediction in a coastal inlet. *Continental shelf Research*, **31**:1713-1727.
74. Hasegawa, D., J. **Sheng**, K.R. Thompson, and D. Greenberg, 2011. Far-field effects of tidal energy extraction in the Minas Passage on tidal circulation in the Bay of Fundy and Gulf of Maine using a nested-grid coastal circulation model. *Ocean Dynamics*, **61**, doi:10.1007/s10236-011-0481-9, 1845-1868.
73. Shan, S., J. **Sheng**, K.R. Thompson, and D. Greenberg, 2011. Simulating three-dimensional circulation and hydrography of Halifax Harbour using a multi-grid coastal circulation model. *Ocean Dynamics*, **61**, doi:10.1007/s10236-011-0398-3, 951-976.
72. Ji, X., J. **Sheng**, L. Tang, D. Liu, and X. Yang, 2011. Process study of dry-season circulation in the Pearl River Estuary and adjacent coastal waters using a triple-nested coastal circulation model. *Atmosphere-Oceans*, **49**, doi:10.1080/07055900.2011.580165, 138-162.
71. Ji, X., J. **Sheng**, L. Tang, D. Liu, and X. Yang, 2011. Process study of circulation and hydrography in the Pearl River Estuary and adjacent coastal waters in the wet season using a triply-grid circulation model. *Journal of Ocean Modelling*, **38**, 138-160.
70. Lin, Y., R. J. Greatbatch and J. **Sheng**, 2010. The influence of the Gulf of Mexico Loop Current intrusion on the transport of the Florida Current. *Ocean Dynamics*, **60**, doi:10.1007/s1026-010-0308-0, 1075-1084.
69. Lin, Y., J. **Sheng**, and R. J. Greatbatch, 2010. A numerical study of circulation and associated variability in the Intra-Americas Sea, *Estuarine and Coastal Modeling*, 137-156.
68. **Sheng**, J., L. Tang, X. Ji, and D. Liu, 2010. An examination of seasonal mean circulation and salinity distributions in the Pearl River Estuary of China using a nested-grid coastal ocean circulation model, *Estuarine and Coastal Modeling*, 108-127.
67. **Sheng**, J., and B. Yang, 2010. A nested-grid ocean circulation model for simulating three-dimensional circulation and hydrography over Canadian coastal waters, *Journal of Terrestrial, Atmospheric and Oceanic Sciences*, **21**, doi:10.3319/TAO.2009.06.08.01 (IWNOP), 27-44.
66. Ohashi, K., J. Sheng, K. R. Thompson, C. G. Hannah, H. Ritchie, 2009. Numerical study of three-dimensional shelf circulation on the Scotian Shelf using a shelf circulation prediction system. *Continental Shelf Research*, **29**, doi:10.1016/j.csr.2009.08.005, 2138-2156/2009.

65. Ohashi, K., J. **Sheng**, K. R. Thompson, C. G. Hannah, H. Ritchie, 2009. Effect of stratification on the tidal circulation over the Scotian Shelf and Gulf of St. Lawrence, a numerical study using a three-dimensional shelf circulation model. *Ocean Dynamics*, **59**, doi: 10.1007/s10236-009-0212-7, 809-825.
64. Tang, L., J. **Sheng**, X. Ji, W. Cao, and D. Liu, 2009. Investigation of three-dimensional circulation and hydrography over the Pearl River Estuary of China using a nested-grid coastal circulation model, *Ocean Dynamics*, **59**, doi: 10.1007/s10236-009-0218-1, 899-919.
63. Mecking, J., C. T. Fogarty, R. J. Greatbatch, J. **Sheng**, and D. Mercer, 2009. Using atmospheric model output to simulate the meteorological tsunami response to Tropical Storm Helene (2000). *Journal of Geophysical Research*, **114**, C10005, doi:1029/2009JC005290.
62. Lin, Y., R. J. Greatbatch, and J. **Sheng**, 2009. A model study of the vertically-integrated transport variability through the Yucatan Channel: the influence of Loop Current evolution and flow compensation around Cuba. *Journal of Geophysical Research*, **114**, C08003, doi: 10.1029/2008JC005199.
61. Soto, I., S. Andrefouet, C. Hu, F. E., Muller-Karger, C. Wall, J. **Sheng**, and B. G. Hatcher, 2009. Physical connectivity in Mesoamerica inferred from 9 years of ocean color observations. *Coral Reefs*, **28**, doi: 10.1007/s00338-009-0465-0, 415-425.
60. **Sheng**, J., J. Zhao, and L. Zhai, 2009. Examination of circulation, dispersion, and retention in Lunenburg Bay of Nova Scotia using a nested-grid circulation model. *Journal of Marine Systems*, **77**, doi:10.1016/j.jmarsys.2008.01.013, 350-365.
59. **Sheng**, J., L. Tang, W. Cao, B. Yang, and D. Liu, Development and application of nested-grid coastal circulation models. Proceedings of Academic Forum on Water Resources and Hydropower, Beijing, China, 146-163, 2009 (in Chinese).
58. Tang, L., J. Chen, J. **Sheng**, and D. Liu, 2009. Advances in simulation of estuarial dynamic processes reacting to storm surge in estuarial areas. *Advances in Science and Technology of Water Resources*, **29** (in Chinese).
57. Chen, J., L. Tang, J. **Sheng**, D. Liu, 2009. Advances in typhoons wind Field and pressure field. *Ocean Engineering*, **27** (in Chinese).
56. Zhai, L., and J. **Sheng**, 2008. Improving the utility of a coastal circulation model by assimilating hydrographic observations into the model momentum equation. *Geophysical Research Letters*, **35**, L24603, doi:10.1029/2008GL035640.
55. Yang, B., and J. **Sheng**, 2008. Process study of coastal circulation on the inner Scotian Shelf using a nested-grid ocean circulation model, during with a special emphasis on the storm-induced circulation during tropical storm Alberto in 2006. *Ocean Dynamics*, **58**, doi:10.1007/s10236-008-0149-2, 375-396.
54. Zhai, L., J. **Sheng**, and R. J. Greatbatch, 2008. Baroclinic dynamics of wind-driven circulation in a stratified bay: A numerical study using models of varying complexity. *Continental Shelf Research*, **28**, doi:10.1016/j.csr.2008.05.005, 2357-2370.
53. Yerubandi, R. R., and J. **Sheng**, 2008. Application of a nested-grid hydrodynamic model for circulation and thermal structure in the coastal boundary layer of Lake Huron. *Aquatic Ecosystem Health Management*, **11**, 161-166.

52. **Sheng, J.**, and B. Yang, 2008. A five-level nested-grid coastal circulation prediction system for Atlantic Canadian coastal waters, *Estuarine and Coastal Modeling*, **10**, 38-56.
51. **Ohashi, K.**, **J. Sheng**, K. R. Thompson, C. G. Hannah, and H. Ritchie, 2008. The effect of stratification on the tidal circulation over the Scotian Shelf and the Gulf of St. Lawrence, A numerical study. *Estuarine and Coastal Modeling*, **10**, 57-73.
50. **Zhai, L.**, and **J. Sheng**, 2008. Assimilating hydrographic observations into a nested-grid coastal circulation model, *Estuarine and Coastal Modeling*, **10**, 274-290.
49. **Zhai, L.**, **J. Sheng**, and R. J. Greatbatch, 2008. Application of a nested-grid ocean circulation model to a shallow coastal embayment: Verification against observations. *Journal of Geophysical Research*, **113**, C02024, doi:10.1029/2007JC004230.
48. **Yang, B.**, **J. Sheng**, and B. G. Hatcher, 2008. Modeling circulation and hydrodynamic connectivity in Bras d'Or Lakes using nested-grid approach. *Journal of Coastal Research*, Special Issue **52**, 57-70.
47. **Zhai, L.**, **J. Sheng**, and R. J. Greatbatch, 2007. Observations of the dynamic response of a coastal embayment to wind, tide and buoyancy forcing. *Continental Shelf Research*, **27**, 2534-2555.
46. **Yang, B.**, **J. Sheng**, and B. G. Hatcher, 2007. Numerical study of circulation and temperature-salinity distribution in the Bras d'Or Lakes. *Ocean Dynamics*, **57**, doi:10.1007/s10236-007-0120-7, 245-268.
45. **Sheng, J.**, L. Wang, and 7 others, 2007. Upper ocean response of the Mesoamerican Barrier Reef System to Hurricane Mitch and coastal freshwater inputs: a study using SeaWiFS remote sensing data and a nested-grid ocean circulation model. *Journal of Geophysical Research*, **112**, C07016, doi:10.1029/2006JC003900.
44. **Wang, L.**, **J. Sheng**, A. E. Hay, and D. J. Schillinger, 2007. Storm-induced circulation in Lunenburg Bay of Nova Scotia: Observations and numerical simulations. *Journal of Physical Oceanography*, **37**, 873-895.
43. Thompson, K. R., K. Ohashi, **J. Sheng**, J. Bobanovic, and J. Ou, 2007. Suppressing bias and drift of coastal circulation models through the assimilation of seasonal climatologies of temperature and salinity. *Continental Shelf Research*, **27**, 1303-1316.
42. **Zhao, J.**, **J. Sheng**, R. J. Greatbatch, K. Azestu-Scott, and E. P. Jones, 2006. Estimation of inventory and spreading of CFC-11 and CFC-12 in the North Atlantic Ocean using a three-dimensional ocean circulation model with the modified semi-prognostic method. *Journal of Geophysical Research*, **111**, C06027, doi:10.1029/2004JC002814.
41. **Sheng, J.**, X. Zhai, and R. J. Greatbatch, 2006. Numerical study of the storm-induced circulation on the Scotian Shelf during Hurricane Juan using a nested-grid ocean model. *Progress in Oceanography*, **70**, doi:10.1016/j.pocan.2005.07.007, 233-254.
40. **Sheng, J.**, 2006. Circulation and variability over the Meso-American Barrier Reef System: Application of a triply nested ocean circulation model. *Estuarine and Coastal Modeling* **9**, 270-290.
39. **Ohashi, K.**, **J. Sheng**, K. R. Thompson, and H. Ritchie, 2006. Simulating circulation and seasonal variability on the Scotian Shelf. *Estuarine and Coastal Modeling* **9**, 123-137.

38. **Sheng, J.**, and Y. R. Rao, 2006. Circulation and thermal structure in Lake Huron and Georgian Bay: Application of a nested-grid hydrodynamic model. *Continental Shelf Research*, **26**, 1496-1518, doi:10.1016/j.csr.2006.01.019.
37. **Tang, L.**, and J. **Sheng**, 2006. A triply two-way nested-grid ocean circulation model and its application for a coastal zone. *Journal of China Institute of Water Resources and Hydropower Research*, **4**, 111-118.
36. **Tang, L.**, J. **Sheng**, B. G. Hatcher, and P. F. Sale, 2006. Numerical study of circulation, dispersion and connectivity of surface waters in the Belizean shelf. *Journal of Geophysical Research*, **111**, C01003, doi:10.1029/2005JC002930.
35. **Sheng, J.**, R. J. Greatbatch, X. Zhai, and L. Tang, 2005. A new two-way nesting technique based on the smoothed semi-prognostic method. *Ocean Dynamics*, **55**, doi: 10.1007/s10236-005-00005-6, 162-177.
34. **Sheng, J.**, L. Tang, and L Wang, 2005. Simulating the upper ocean circulation on the Belize shelf: An application of a triply nested-grid ocean circulation model. *Journal of Ocean University of China*, **4**, 315-328.
33. **Wang, L.**, J. **Sheng**, 2005. Development of a high-resolution coastal circulation model for the ocean observatory in Lunenburg Bay. *Journal of Ocean University of China*, **35**, 349-356.
32. **Zhai, X.**, R. J. Greatbatch, and J. **Sheng**, 2005. Doppler-shifted inertial oscillations on a beta-plane. *Journal of Physical Oceanography*, **35**, 1480-1488.
31. Zhai, X., R. J. Greatbatch, and J. **Sheng**, 2004. Diagnosing the role of eddies in driving the circulation of the North Atlantic Ocean. *Geophysical Research Letters*, **31**, L23304, doi:10.1029/2004GL021146, 2004.
30. **Zhang, S.**, J. **Sheng**, and R. J. Greatbatch, 2004. A coupled ice-ocean modeling study of the northwest Atlantic Ocean. *Journal of Geophysical Research*, **109**, C04009, doi:10.1029/2003JC00194.
29. **Zhao, J.**, R. J. Greatbatch, J., **Sheng**, C. Eden, and K. Azestu-Scott, 2004. Impact of an adiabatic correction technique on the simulation of CFC-12 in a model of the North Atlantic Ocean. *Geophysical Research Letters*, **31**, L12309, doi:10.1029/2004GL02026.
28. Zhai, X., R. J. Greatbatch, and J. **Sheng**, 2004. Advective spreading of storm-induced inertial oscillations in a model of the North Atlantic. *Geophysical Research Letters*, **31**, L14315, doi:10.1029/2004GL02084.
27. Greatbatch, R. J., J. **Sheng**, C. Eden, L. Tang, X. Zhai, and J. Zhao, 2004. The semi-prognostic method. *Continental Shelf Research*, **24**, 2149-2165.
26. **Sheng, J.**, and L. Wang, 2004. A high-resolution coastal circulation model for Lunenburg Bay, Nova Scotia. In: *Estuarine and Coastal Modeling*, **8**, 372-387.
25. **Sheng, J.**, and L. Wang, 2004. Numerical study of tidal circulation and nonlinear dynamics in Lunenburg Bay, Nova Scotia. *Journal of Geophysical Research*, **109**, C10018, doi:10.1029/2004JC002404.
24. **Zhai, X.**, J. **Sheng**, and R. J. Greatbatch, 2004. A new two-way nested-grid ocean circulation modeling technique applied to the Scotian Shelf and Slope Water. In: *Estuarine and Coastal Modeling* **8**, 342-357.

23. **Sheng**, J., and L. Tang, 2004. A two-way nested-grid ocean circulation model for the Meso-American Barrier Reef System. *Ocean Dynamics*, **54**, 232-242.
22. **Sheng**, J., and L. Tang, 2003. Numerical studies of circulation in the western Caribbean Sea. *J. Physical Oceanography*, **33**, 2049-2069.
21. Thompson, K. R., **J. Sheng**, L. Cong, and P. C. Smith, 2003. Prediction of surface currents and drifter trajectories on the inner Scotian Shelf. *Journal of Geophysical Research*, **108**, 3287, doi:10.1029/2001JC001119.
20. Zakardjian, B., **J. Sheng**, J., Runge, K. R. Thompson, Y. Gratton, I. McLaren, and S. Plourde, 2003. Effects of temperature and circulation on the distribution and abundance of calanus finmarchicus in Eastern Canadian Waters. *Journal of Geophysical Research*, **108**, 8016, doi:10.1029/2002JC001410.
19. **Sheng**, J., 2002. Circulation and drift pathways in the northwest Atlantic Ocean, In: *Estuarine and Coastal Modeling* **7**, 364-383.
18. Mercer, D., **J. Sheng**, R. J. Greatbatch, and J. Bobanovic, 2002. Barotropic waves generated by storms moving rapidly over shallow water. *Journal of Geophysical Research*, **107**, 3152, doi:10.1029/2001JC001140.
17. **Sheng**, J., R. J. Greatbatch and D. Wright, 2001. Improving the utility of ocean circulation models through adjustment of the momentum balance. *Journal of Geophysical Research*, **106**, 16711-16728.
16. **Sheng**, J., 2001. Dynamics of a buoyancy-driven coastal jet: The Gaspé Current. *Journal of Physical Oceanography*, **31**, 3146-3162.
15. Greatbatch, R. J., J. Bobanovic, **J. Sheng** and K. R. Thompson, 2001. Oceanography. *Encyclopedia of Environmetrics*, Vol. **3**, P. C. Chatwin and P. Sullivan, ed., 1461-1470, John Wiley.
14. **Sheng**, J., K. R. Thompson, L. Cong, P. C. Smith and D. Lawrence, 2001. Effect of wind and local density on the subtidal circulation on the inner Scotian Shelf. *Continental Shelf Research*, **21**, 1-19.
13. **Sheng**, J., 2000. The Gaspé Current and cyclonic motion over the northwestern Gulf of St. Lawrence. In: *Estuarine and Coastal Modeling*, **6**, 686-704.
12. Reiss, C. S., G. Panteleev, C. T. Taggart, **J. Sheng**, and B. deYoung, 2000. Observation on larval fish transport and retention on the Scotian Shelf in relation to geostrophic circulation. *Fisheries Oceanography*, **9**, 195-213.
11. **Sheng**, J., D. Wright, R. J. Greatbatch and D. Dietrich, 1998. CANDIE: A new version of the DieCAST ocean circulation model. *J. Atm. and Oceanic Tech.*, **15**, 1414-1432.
10. Thompson, K. R., and **J. Sheng**, 1997. Subtidal circulation on the Scotian Shelf: Assessing the hindcast skill of a linear, barotropic model. *Journal of Geophysical Research*, **102**, 24987-25003.
9. **Sheng**, J., and K. R. Thompson, 1996. Summer surface circulation on the Newfoundland Shelf and Grand Banks: The role of local density gradients and remote forcing. *Atmosphere-Ocean*, **34**, 257-284.
8. **Sheng**, J., and K. R. Thompson, 1996. A robust method for diagnosing regional shelf circulation from vertical density profiles. *Journal of Geophysical Research*, **101**, 25,647-25,659.

7. **Sheng**, J., and A. E. Hay, 1995. Sediment eddy diffusivities in the nearshore zone from multifrequency acoustic backscatter. *Continental Shelf Research*, 5, 129-147.
6. **Sheng**, J., and K. R. Thompson, 1993. A modified Galerkin-Spectral model for three-dimensional, barotropic, wind-driven shelf circulation. *Journal of Geophysical Research*, **98**, 7011-7022.
5. **Sheng**, J., and A. E. Hay, 1993. Spherical wave backscatter from cylinders: Thin-wire standard targets. *J. Acoustic Soc. Am.*, **94**, 2756-2765.
4. Hay, A., and J. **Sheng**, 1992. Vertical profiles of suspended sand concentration and size from multifrequency acoustic backscatter. *Journal of Geophysical Research*, **97**, 15,661-15,677.
3. Hay, A. E., L. Huang, E. Colbourne, J. **Sheng**, and A. Bowen, 1989. A high multi-channel data acquisition system for remote acoustic sediment transport studies,. In: *Proc. OCEANS'88*, 413-418.
2. **Sheng**, J., and A. E. Hay, 1988. An examination of the spherical scatterer approximation in aqueous suspensions of sand. *J. Acoust. Soc. Am.*, 83, 598-610.
1. **Sheng**, J., and A. E. Hay, 1987. Sound scattering in aqueous suspensions of sand: comparison of theory and experiment. In: *Progress in Underwater Acoustics*, 161-168.

1.13.3 Refereed Data Reports

2. Geshelin, Y., J. **Sheng**, and R. J. Greatbatch, 1999. Monthly mean climatologies of temperature and salinity in the western North Atlantic. *Can. Data Rep. Hydrogr. Ocean. Sci.*, 153.
1. Cong, L. Z., J. **Sheng** and K. R. Thompson, 1996. A retrospective study of particle retention on the Scotian Shelf over last 38 years. *Can. Tech. Rep. Hydrogr. Ocean. Sci.*, 170.

1.13.4 Non-Refereed Publications

(The first author underlined was a student, trainee or research staff under my (co-)supervision):

11. **Sheng**, J., and L. Tang, 2011. Investigating storm-induced circulation and hydrodynamic connectivity in the Pearl River Estuary of China using a nested-grid coastal circulation model. Extended abstract for 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, 158-162.
10. Shan, S., and J. **Sheng**, 2011. Application of a multi-nested ocean circulation model for investigating circulation, flushing time and dispersion in Halifax Harbour and adjacent waters. Extended abstract for 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, 154-157.
9. Zhao, J., Y. R. Rao, and J. **Sheng**, 2011. Numerical Study of Dispersion and Hydrodynamic Connectivity of Near-Surface Waters in Lake Huron. Extended abstract for 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, 196-200.

8. **Sheng**, J., D. Hasegawa, K. Thompson, P. Hill and D. Greenberg, 2011. Assessing the Far Field Effects of Tidal Power Extraction on the Bay of Fundy, Gulf of Maine and Scotian Shelf. OEER Newsletter, Issue 2.
7. **Sheng**, J., L. Wang, B. Yang, S. Andrefouet, C. Hu, B. C. Hatcher, and F. E. Muller-Karger, 2007. Numerical study of the upper ocean response of the western Caribbean Sea to Hurricane Mitch. Extended abstract for AMS 16th conference on Atmospheric and Oceanic Fluid Dynamics, Santa Fe, New Mexico.
6. Yang, B., J. **Sheng**, and Bruce G. Hatcher, 2007. Investigation of circulation and connectivity in Bras d'Or Lakes of Nova Scotia using a nested-grid circulation model. 9th International Symposium on Fluid Control, Measurement and Visualization, Tallahassee, Florida, USA.
5. **Sheng**, J., J. Zhao, and L. Zhai, 2005. Development of a nested-grid coastal circulation mode for Lunenburg Bay of Nova Scotia. Proceedings of Canadian Coastal Conference 2005, Halifax, Canada.
4. **Sheng**, J., and Y. Rao, 2004. Development of a three-dimensional hydrodynamic circulation model for Lake Huron and Georgian Bay. National Water Research Institute Contribution No. 04-176.
3. Ritchie, H., S. Desjardins, J. **Sheng**, J., and L. Wang, 2004. Coupled atmosphere-ocean observations and modelling for Lunenburg Bay, Nova Scotia. Extended abstract for Symposium on Forecasting the Weather and Climate of the Atmosphere and Ocean.
2. Azetsu-Scott, K., R. M. Gershey, E. P. Jones, and J. **Sheng**, 2001. Natural and anthropogenic CO₂ in the Labrador Sea: Distribution, inventory and uptake. Sixth International Carbon Dioxide Conference, Extended Abstract, Vol. 2, 654-657.
1. Smith, P. C., D. J. Lawrence, K. R. Thompson, J. **Sheng**, G. Verner, J. St. James, N. Bernier, and L. Feldman, 1998. Improving the skill of search-and-rescue forecast. The Canadian Meteorological and Oceanography Society Bulletin, 26, 119-129.

1.14 Research Presentations and Lectures

1.14.1 Contributed Conference Presentations (since 1990)

(The author underlined was a student, trainee or research staff under my (co-)supervision):

88. **Sheng**, J., and J. Urrego-Blanco, Assessment of one-way and two-way nesting techniques in a coupled ocean-ice circulatory model for the eastern Canadian shelf, 5th International Workshop on Modeling the Ocean, Bergen, June, 2013.
87. **Sheng**, J., S. Shan, and B. Greenan, Physical processes affecting circulation and hydrography in the Sable Gully of Nova Scotia, 5th International Workshop on Modeling the Ocean, Bergen, June, 2013.
86. Zhang, H., and J. **Sheng**, Estimation of extreme sea levels over the continental shelf of Eastern North America", 5th International Workshop on Modeling the Ocean, Bergen, June, 2013.
85. **Sheng**, J., and H. Zhang, Estimation of extreme sea levels over the eastern Continental shelf of North America, 47th Annual CMOS Congress, Saskatoon, Canada, May, 2013.

84. **Sheng**, J., and K. **Ohashi**, Numerical examination of effects of the physical environment on movements of American eel in the Gulf of St. Lawrence, 47th Annual CMOS Congress, Saskatoon, Canada, May, 2013.
83. **Sheng**, J., The far-field effect of tidal energy extraction on circulation and hydrography in the Bay of Fundy and Gulf of Maine, 46th Annual CMOS Congress, Montreal, Canada, May, 2012 (invited).
82. **Urrego-Blanco**, J., and **Sheng**, J., Numerical study of circulation, hydrography and sea-ice conditions in the Gulf of St. Lawrence and Scotian Shelf using a coupled ocean-ice model, 46th Annual CMOS Congress, Montreal, Canada, May, 2012.
81. **Shan**, S., **Sheng**, J., and Greenan, B., Shelfbreak frontal circulation near the Sable Gully of Nova Scotia, 46th Annual CMOS Congress, Montreal, Canada, May, 2012.
80. **Sheng**, J., The far-field effect of tidal energy extraction on circulation and hydrography in the Bay of Fundy and Gulf of Maine: Numerical Study using the Princeton Ocean Model, 4th International Workshop on Modelling the Ocean, Yokohama, Japan, May, 2012 (invited).
79. **Urrego-Blanco**, J., and **J. Sheng**, Numerical study of circulation, hydrography and sea-ice conditions in the Gulf of St. Lawrence and Scotian Shelf using a coupled ocean-ice model, JONSMOD Meeting, Brest, France, May, 2012.
78. **Shan**, S., **J. Sheng**, and B. Greenan, Shelf break frontal circulation near the Sable Gully of Nova Scotia, JONSMOD Meeting, Brest, France, May, 2012.
77. **Sheng**, J., and Kyoko Ohashi, Numerical study of circulation and particle movements in the Gulf of St. Lawrence and Scotian Shelf, Ocean Science meeting, Salt Lake, USA, February, 2012.
76. **Sheng**, J., and L. Tang, Numerical Study of Estuarine Circulation and Hydrodynamic Connectivity in the Pearl River Estuary of China using a Nested-Grid Coastal Circulation Model. 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, July 2011.
75. **Shan**, S., and **J. Sheng**, Application of a Nested-grid Ocean Circulation Model for Investigating Circulation, Flushing Time and Dispersion in Halifax Harbour and Adjacent Water. 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, July 2011.
74. **Zhao**, J., Y. R. Rao, and **J. Sheng**, Numerical Study of Dispersion and Hydrodynamic Connectivity of Near-Surface Waters in Lake Huron. 15th International Workshop on Physical Processes in Natural Waters: Fluids and Environments, Burlington, Ontario, July 2011.
73. **Sheng**, J., and D. Hasegawa, Investigating far-field effects of tidal in-stream energy extraction in the Minas Passage on tidal circulation in the Bay of Fundy and the Gulf of Maine using a nested-grid coastal ocean circulation model. 45th Annual CMOS Congress, Victoria, Canada, June 2011.
72. **Shan**, S., and **J. Sheng**, Application of a Multi-Nested Ocean Circulation Model for Investigating Circulation, Flushing Time and Dispersion in Halifax Harbour and Adjacent Waters. 45th Annual CMOS Congress, Victoria, Canada, June 2011.

71. **Sheng**, J., L. Tang, and X. Ji, Examination of circulation and associated seasonal variability in the Pearl River Estuary of China using a nested-grid coastal ocean circulation model. 44th Annual CMOS Congress, Ottawa, Canada, June 2010.
70. **Hasegawa**, D., and J. **Sheng**, Study of tidal circulation and seasonal variability in the Gulf of Maine and Bay of Fundy using a nested-grid ocean circulation model. 44th Annual CMOS Congress, Ottawa, Canada, June 2010.
69. **Urrego-Blanco**, J., and J. **Sheng**, Assessing the performance of a northwest Atlantic Ocean circulation model using the spectral nudging and the semi-prognostic methods. 44th Annual CMOS Congress, Ottawa, Canada, June 2010.
68. **Shan**, S., and J. **Sheng**, Simulating three-dimensional circulation and hydrography in Halifax Harbour using a nested-grid ocean circulation model. 44th Annual CMOS Congress, Ottawa, Canada, June 2010.
67. **Lin**, Y., J. **Sheng**, and R. Greatbatch, A model study of the connectivity of circulation variations in the Intra-Americas Sea. 44th Annual CMOS Congress, Ottawa, Canada, June 2010.
66. **Sheng**, J., and D. Hasegawa, Assessing the far field effects of tidal power extraction on the Bay of Fundy using a nested-grid model. JONSMOD Meeting, Delft, Netherlands, May 2010.
65. **Shan**, S., and J. **Sheng**, Numerical study of three-dimensional circulation and hydrography in Halifax Inlet using a nested-grid ocean circulation model. JONSMOD Meeting, Delft, Netherlands, May 2010.
64. **Sheng**, J., L. Tang, X. Ji, and D. Liu, Numerical study of estuarine circulation in the Pearl River Estuary of China using a nested-grid coastal circulation model. Estuarine and Coastal Modeling 11, Seattle, USA, November 2009.
63. **Lin**, Y., J. **Sheng**, and R. J. Greatbatch, A numerical study of circulation and variability in the Intra-Americas Sea. Estuarine and Coastal Modeling 11, Seattle, USA, November 2009.
62. **Sheng**, J., Numerical study of three-dimensional circulation over coastal waters of Nova Scotia during Tropical Storm Alberta using a five-level nested-grid ocean circulation model. 43rd Annual CMOS Congress, Halifax, Canada, June 2009.
61. **Ji**, X., J. **Sheng**, and L. Tang, Process study of dynamics over the Pearl River Estuary using a nested-grid coastal circulation model. 43rd Annual CMOS Congress, Halifax, Canada, June 2009.
60. **Urrego-Blanco**, J., and J. **Sheng**, Developing a nested-grid circulation model for the eastern Canadian Shelf. 43rd Annual CMOS Congress, Halifax, Canada, June 2009.
59. **Ma**, F., and J. **Sheng**, Physical Oceanography modeling of St. Margaret Bay. 43rd Annual CMOS Congress, Halifax, Canada, June 2009.
58. **Lin**, Y., J. **Sheng**, and R. G. Greatbatch, Numerical and observational study of circulation in the Intra-Americas Sea: Connection between the Gulf of Mexico Loop Current intrusion and throughflow transport variability. 43rd Annual CMOS Congress, Halifax, Canada, June 2009.
57. Hatcher, B., J. **Sheng**, and S. Andrefouet, Synoptic ecological tools for coral reef science. 11th International Coral Reef Symposium, Florida, July 2008.

56. **Sheng**, J., X. Ji, and L. Tang, Numerical study of circulation in the Pearl River Estuary of the South China Sea using a nested-grid coastal circulation model. JONSMOD Meeting, Bergen, Norway, June 2008.
55. **Sheng**, J., and B. Yang, Development of a five-level nested-grid coastal circulation for the inner Scotian Shelf. 42nd Annual CMOS Congress, Kelowna, Canada, May 2008.
54. **Zhai**, L., and J. **Sheng**, Investigation of circulation and hydrography in stratified coastal waters of Nova Scotia based on observations and numerical model results. 42nd Annual CMOS Congress, Kelowna, Canada, May 2008.
53. **Sheng**, J., X. Ji., and L. Tang, A three-level nested-grid coastal circulation for the Pearl River Estuary of the South China Sea. 42nd Annual CMOS Congress, Kelowna, Canada, May 2008.
52. **Sheng**, J., Numerical study of circulation and hydrodynamic connectivity on the Mesoamerican Barrier Reef System using a nested-grid ocean circulation model. 42nd Annual CMOS Congress, Kelowna, Canada, May 2008.
51. **Ohashi**, K., J. **Sheng**, K. R. Thompson, and H. Ritchie, Examining the effect of stratification on the tidal circulation over the Scotian Shelf using a three-dimensional circulation model. 42nd Annual CMOS Congress, Kelowna, Canada, May 2008.
50. **Sheng**, J., and L. Zhai, Observational and numerical study of ocean dynamics over Canadian coastal waters. International workshop for Numerical Modeling and Prediction. Taipei, Taiwan, April 2008.
49. **Sheng**, J, and L. Zhai, Circulation and hydrography in the coastal waters of Nova Scotia: Observations and numerical modeling (poster). International workshop for Numerical Modeling and Prediction, Taipei, Taiwan, April 2008.
48. **Sheng**, J., B. Yang, L. Zhai, and K., Ohashi, A nested-grid coastal ocean prediction system for the Scotian Shelf (NCOPS-SS). Estuarine and Coastal Modeling 10, Rhode Island, USA, November 2007.
47. **Ohashi**, K, J. **Sheng**, K. R. Thompson, and H. Ritchie, The effect of seasonal variations in vertical stratification on the tidal circulation over the Scotian Shelf and the Gulf of St. Lawrence. Estuarine and Coastal Modeling 10, Rhode Island, USA, November 2007.
46. **Zhai**, L., and J. **Sheng**, Improving the performance of a baroclinic coastal circulation model by assimilating hydrographic observations. Estuarine and Coastal Modeling 10, Rhode Island, USA, November 2007.
45. **Yang**, B., J. **Sheng**, and B. Hatcher, Numerical study of circulation, retention, and dispersion in the Bras d'Or Lakes of Nova Scotia using a numerical circulation model. 9th International Symposium on Fluid Control, Measurement and Visualization, Tallahassee, Florida, USA, September 2007.
44. **Sheng**, J., L. Wang, B. Yang, S. Andrefouet, C. Hu, B. C. Hatcher, and F. E. Muller-Karger, Numerical study of the upper ocean response of the western Caribbean Sea to Hurricane Mitch (poster). AMS 16th conference on Atmospheric and Oceanic Fluid Dynamics, Santa Fe, New Mexico, June 2007.
43. **Sheng**, J., Circulation and variability over the eastern Canadian shelf during the period 2001 to 2005, a numerical study. 41st Annual CMOS Congress, St. John's, Canada, May 2007.

42. Ohashi, K., J. **Sheng**, H. Ritchie, K. R. Thompson, and C. G. Hannah, Assessing the performance of Dalcost3 in simulating three-dimensional circulation on the Scotian Shelf. 41st Annual CMOS Congress, St. John's, Canada, May 2007.
41. Zhai, L., and J. **Sheng**, Coastal dynamical response to local wind forcing, tides, and buoyancy forcing in Lunenburg Bay of Nova Scotia. 41st Annual CMOS Congress, St. John's, Canada, May 2007.
40. Yang, B., and J. **Sheng**, Numerical study of circulation, retention, and dispersion in the Bras d'Or Lakes of Nova Scotia using a numerical circulation model. 41st Annual CMOS Congress, St. John's, Canada, May 2007.
39. **Sheng**, J., B. Yang, and B. Hatcher, Circulation and hydrographic structures in the Bras d'Or Lakes of Nova Scotia: A numerical study. JONSMOD Meeting, Plymouth, United Kingdom, June 2006.
38. **Sheng**, J., and R. Rao, Development of a nested-grid hydrodynamic model for simulating circulation and thermal structure in Lake Huron and Georgian Bay. 40th Annual CMOS Congress, Toronto, Canada, May 2006.
37. Ohashi, K., J. **Sheng**, H. Ritchie, K. R. Thompson, and C. G. Hannah, Simulating circulation on the Scotian Shelf using a sigma-coordinate model. 40th Annual CMOS Congress, Toronto, Canada, May 2006.
36. Yang, B., and J. **Sheng**, Application of a nested-grid hydrodynamic model to study circulation and hydrographic structures in the Bras d'Or Lakes of Nova Scotia (poster). 40th Annual CMOS Congress, Toronto, Canada, May 2006.
35. Zhai, L., and J. **Sheng**, Numerical study of baroclinic dynamics in Lunenburg Bay of Nova Scotia. 40th Annual CMOS Congress, Toronto, Canada, May 2006.
34. Zhao, J., J. **Sheng**, and L. Zhai, Assessing the performance of a high-resolution coastal circulation model in simulating the storm-induced circulation in Lunenburg Bay of Nova Scotia. 40th Annual CMOS Congress, Toronto, Canada, May 2006.
33. **Sheng**, J., Assessing the performance of a nested-grid coastal circulation modeling system for Canadian Coastal Waters (poster). 2006 Ocean Sciences Meeting, Hololulu, USA, February 2006.
32. Wang, L., J. **Sheng**, C. Hu and B. G. Hatcher, Storm-induced circulation on the Meso-American Barrier Reef System during Hurricane Mitch: Coupling remote sensing data and a nested-grid ocean circulation modeling system (poster). 2006 Ocean Sciences Meeting, Hololulu, USA, February 2006.
31. Andrefouet, S., F. Muller-Karger, C. S., Moses, L. Wang, C. Hu, C. Steinberg, J. **Sheng**, B. G. Hatcher, S. Ouillon, P. Douiller, Environmental assessments of coral reef ecosystems using EOS platforms and numerical ocean circulation models, A NASA interdisciplinary research effort. 2006 Ocean Sciences Meeting, Hololulu, USA, February 2006.
30. **Sheng**, J., Numerical simulation of seasonal circulation on the Belizean shelf: Application of a triply nested-grid ocean circulation model. Estuarine and Coastal Modeling 9, Charleston, USA, November 2005.

29. **Sheng, J.**, Simulating seasonal circulation and particle dispersion on the Belizean shelf using a three-level nested-grid ocean circulation model. The Second Forum on Marine Science: New Development and Challenge, Qingdao, China, June 2005.
28. **Wang, L.**, and **J. Sheng**, An interdisciplinary ocean observatory in Lunenburg Bay and development of a high-resolution coastal circulation model. The Second Forum on Marine Science: New Development and Challenge, Qingdao, China, June 2005.
27. **Greatbatch, R.**, and **J. Sheng**, The semi-prognostic method. The Second Forum on Marine Science: New Development and Challenge, Qingdao, China, June 2005.
26. **Sheng, J.**, **R. J. Greatbatch**, and **X. Zhai**, A three-dimensional ocean circulation model of the western Caribbean Sea: Circulation and seasonal variability. JONSMOD/MEDMOD Meeting, Warnemuende, Germany, June 2004.
25. **Sheng, J.**, **L. Wang**, and **L. Zhai**, Assessing the performance of a high-resolution coastal circulation model using observations made in Lunenburg Bay of Nova Scotia during Hurricane Juan. 39th Annual CMOS Congress, Vancouver, Canada, May 2005.
24. **Ritchie, H.**, **S. Desjardins**, **J. Sheng**, and **L. Wang**, Coupled atmosphere-ocean modeling for Lunenburg Bay, Nova Scotia. 84th Annual AMS (American Meteorological Society) Congress, Seattle, USA 2004.
23. **Hatcher, B.**, **Dixon, B.**, **Fryer, D.**, **Heath, J.**, **Kritzer, B.**, **Ruddick, J.**, **Sheng, J.**, and **L. Tang**, Connecting the dots: Ecological linkages in large marine ecosystems. ASLO/TOS (American Society of Limnology and Oceanography/The Oceanography Society) Ocean Research 2004 Conference, Honolulu, USA 2004.
22. **Sheng, J.**, **X. Zhai**, **R. J. Greatbatch**, Storm-induced circulation on the Scotian Shelf and slope using a two-way nested-grid ocean circulation modeling system. 38th Annual CMOS Congress, Edmonton, Canada, May 2004.
21. **Sheng, J.**, and **L. Wang**, A high-resolution coastal circulation model for Lunenburg Bay, Nova Scotia. Estuarine and Coastal Modeling 8, Monterey, USA, November 2003.
20. **Zhai, X.**, **J. Sheng**, and **R. Greatbatch**, A new two-way nested-grid ocean modeling technique applied to the Scotian Shelf and Slope water. Estuarine and Coastal Modeling 8, Monterey, USA, November 2003.
19. **Zhao, L.**, **J. Sheng**, **R. Greatbatch**, **K. Azetsu-Scott** and **C. Eden**, Numerical study on uptake and spreading of chlorofluorocarbons in the Northwest Atlantic Ocean. 37th Annual CMOS Congress, Ottawa, Canada June 2003.
18. **Wang, L.**, and **J. Sheng**, A three-dimensional coastal circulation model for Lunenburg Bay, Nova Scotia. 37th Annual CMOS Congress, Ottawa, Canada, June 2003.
17. **Tang, L.**, and **J. Sheng**, A modelling study of physical processes of ocean circulation over the Mesoamerican Barrier Reef System. 37th Annual CMOS Congress, Ottawa, Canada, 2003.
16. **Sheng, J.**, A three-dimensional ocean circulation model of the western Caribbean Sea: Circulation and seasonal variability. JONSMOD/MEDMOD Meeting, Liege, Belgium, 2002.
15. **Sheng, J.**, Comparison of diagnostic, prognostic and semi-prognostic methods in simulating currents and tracer transports in the northwest Atlantic. 36th Annual CMOS Congress, Rimouski, Canada, 2002.

14. Tang, L., and J. **Sheng**, Numerical studies of seasonal circulation in the western Caribbean Sea. 36th Annual CMOS Congress, Rimouski, Canada, 2002.
13. Wang, L., and J. **Sheng**, Three-dimensional numerical study of barotropic tidal circulation in Lunenburg Bay, Nova Scotia. 36th Annual CMOS Congress, Rimouski, Canada, 2002.
12. Mercer, D., J. **Sheng** and R. J. Greatbatch, Barotropic waves generated by storms moving rapidly over shallow water. 25th Conference on Hurricanes and Tropical Meteorology, San Diego, USA, 2002.
11. **Sheng**, J., Circulation and drift pathways in the northwest Atlantic Ocean. Estuarine and Coastal Modeling, 7, St. Petersburg, USA, 2001.
10. Mercer, D., J. **Sheng** and R. J. Greatbatch, Barotropic waves generated by storms moving rapidly over shallow water. 35th Annual CMOS Congress, Winnipeg, Canada, 2001.
9. **Sheng**, J. and R. J. Greatbatch, The seasonal circulation in the northwest Atlantic Ocean. 34th Annual CMOS Congress, Victoria, Canada, 2000.
8. **Sheng**, J., The Gaspé Current and cyclonic motion over the northwestern Gulf of St. Lawrence. Estuarine and Coastal Modeling 6, New Orleans, USA, 1999.
7. **Sheng**, J., Dynamics of a buoyancy-driven coastal jet: The Gaspé Current. 33rd Annual CMOS Congress, Montreal, Canada, 1999.
6. **Sheng**, J., and K.R. Thompson, Predicting circulation over eastern Canadian Shelves: progress and prospects. 32th Annual CMOS Congress, Halifax, Canada, 1998.
5. **Sheng**, J., and K. R. Thompson, Assimilating coastal sea level into a 3D shelf circulation model. in EOS, Trans, AGU, 75 88, Fall Conference, San Francisco, USA, 1994.
4. **Sheng**, J., and K. R. Thompson, Subtidal circulation variability on the Scotian Shelf: A retrospective modelling study. 24th Annual CMOS Congress, Ottawa, Canada, 1994.
3. **Sheng**, J., and K. R. Thompson, Circulation on the Scotian Shelf forced by mesoscale variability in the wind field. 23rd Annual CMOS Congress, Fredericton, Canada, 1993.
2. **Sheng**, J., and K. R. Thompson, Local and remote forcing of three-dimensional circulation on the Scotian Shelf. 22nd Annual CMOS Congress, Quebec, Canada, 1992.
1. **Sheng**, J., and A. E. Hay, Estimates of suspended sand concentration, size, and vertical diffusivity from multifrequency acoustic backscatter measurements in the nearshore zone. in EOS, Trans, AGU, 71, 1368-1369, Fall Conference, San Francisco, USA, 1990.

1.14.2 Invited Seminars and Workshop Participation (Since 1997)

61. **Sheng**, J., “How to write a scientific paper”, Hohai University, Nanjing, May, 2013.

60. **Sheng, J.**, “LRF Global Network to Improve Prediction of Extreme Marine Events”, Seoul, South Korea, April, 2013.
59. **Sheng, J.**, “Statistical Estimation of Ocean Extreme Currents over the northwest Atlantic Ocean”, Hohai University, China, May 2012.
58. **Sheng, J.**, “Statistical Estimation of Ocean Extreme Currents over the northwest Atlantic Ocean”, Ocean University of China, China, May 2012.
58. **Sheng, J.**, and E. Oliver, “Statistical Estimation of Extreme Currents over the northwest Atlantic Ocean”, National Marine Environmental Forecast Center of China, Beijing, December 2011.
57. **Sheng, J.**, and L. Tang, “Storm-Induced Circulation in the Pearl River Estuary during Super Typhoon Koryn in 1993”, Institute of Mechanics, Chinese Academy of Sciences, Beijing, December 2011.
56. **Sheng, J.**, and L. Tang, “Storm-Induced Circulation in the Pearl River Estuary during Super Typhoon Koryn in 1993”, Marine Environmental Observatory, Nanton, China, December 2011.
55. **Sheng, J.**, and J. Urrego-Blanco, “ Numerical Investigation of Interannual Variability of Circulation over the Eastern Canadian Continental Shelf”, Norwegian Meteorological Institute, University of Oslo, Oslo, Norway, May 2011.
54. **Sheng, J.**, “Assessing farfield effects of tidal power extraction on the Bay of Fundy, Gulf of Maine and Scotian Shelf”, Southeast University, Nanjing, China, December 2010.
53. **Sheng, J.**, “Assessing Far Field Effects of tidal Power Extraction on the Bay of Fundy, Gulf of Maine and Scotian Shelf”, Hohai University, Nanjing, China, December 2010
52. **Sheng, J.**, “Improving our understanding of coastal dynamics using numerical ocean models”, Bedford Institute of Oceanography, March 2010.
51. **Sheng, J.**, “Improving our understanding of coastal dynamics using numerical ocean models”, Department of Oceanography, Dalhousie University, January 2010.
49. **Sheng, J.**, “Assessing the far-field effects of tidal power extraction on the Bay of Fundy, Gulf of Maine and Scotian Shelf”, OEEER/OEGR workshop, January 2010.
48. **Sheng, J.**, “Coastal ocean modeling and prediction”, Hohai University, Nanjing, China, April 2009.
47. **Sheng, J.**, “Coastal ocean modeling and prediction”, Nanjing University, Nanjing, May 2009.
46. **Sheng, J.**, “Coastal ocean modeling and prediction”, Ocean University of China, Qingdao, May 2009.
45. **Sheng, J.**, “Coastal ocean modeling and prediction”, National Marine Environmental Forecast Center of China, Beijing, May 2009.
44. **Sheng, J.**, “Coastal ocean modeling and prediction”, Institute of Water Resources and Hydropower of China, Beijing, July 2008.
43. **Sheng, J.**, “A multidisciplinary ocean/modelling project in Lunenburg Bay of Nova Scotia”, University of Kiel, Germany, June 2008.

42. **Sheng**, J., L. Zhai and B. Yang, “Observational and numerical study of ocean dynamics over Canadian Atlantic coastal waters”, National Water Research Institute, Burlington, Canada, May 2008.
41. **Sheng**, J., “An interdisciplinary ocean observatory and development of coastal circulation models”, Tianjin University, China, May 2008.
40. **Sheng**, J., “An interdisciplinary ocean observatory and development of coastal circulation models”, Nanjing University, China, April 2008.
39. Zhai, L, and J. **Sheng**, “Baroclinic dynamics and variability of circulation and heat/salt contents in Lunenburg Bay of Nova Scotia”, Bedford Institute of Oceanography, September 2007.
38. Ohashi, K., J. **Sheng**, H. Ritchie, K. R. Thompson, and C. G. Hannah, “Simulating the three-dimensional circulation on the Scotian Shelf using Dalcoast3”, Bedford Institute of Oceanography, June 2007.
37. **Sheng**, J., B. Yang, and B. Hatcher, “Circulation and hydrographic structure in the Bras d’Or Lakes of Nova Scotia, a numerical study”, Bedford Institute of Oceanography, November 2006.
36. Zhao, J., and J. **Sheng**, “Study of circulation, dispersion, and retention in Lunenburg Bay of Nova Scotia using observations made by the Canadian Coastal Ocean Observatory and a nested-grid coastal circulation model”, International, Workshop on Coastal Observatories, Proudman Oceanographic Laboratory, Liverpool, UK, October 2006.
35. **Sheng**, J., “Assessing the performance of a coastal circulation model for a multidisciplinary ocean observatory in Lunenburg Bay, Nova Scotia”, Proudman Oceanographic Laboratory, Liverpool, UK, July 2006.
34. **Sheng**, J., “An interdisciplinary ocean observatory and development of a high-resolution coastal circulation model”, Nanjing University, Nanjing, China, January 2006.
33. **Sheng**, J., “An interdisciplinary ocean observatory and development of a high-resolution coastal circulation model”, Nanjing Hydraulic Research Institute, Nanjing, China, July 2005.
32. **Sheng**, J., “An interdisciplinary ocean observatory and development of a high-resolution coastal circulation model”, Zhoujian River Conservancy Commission, Guangzhou, China, July 2005.
31. Wang, L., and **Sheng**, J., “An interdisciplinary ocean observatory and development of a high-resolution coastal circulation model”, Hohai University, Nanjing, China, June 2005.
30. **Sheng**, J., “Numerical study of the upper ocean response of the Scotian Shelf to Hurricane”, Hohai University, Nanjing, China, June 2005.
29. **Sheng**, J., “Numerical study of circulation, dispersion and connectivity of surface waters in the Belizean shelf of the northwestern Caribbean Sea”, Institute for Marine Remote Sensing, University of South Florida, February 2005.
28. **Sheng**, J., and L. Tang, “Numerical study of circulation, dispersion and connectivity of surface waters in the Belizean shelf of the northwestern Caribbean Sea”, Department of Oceanography, Dalhousie University, February 2005.

27. **Sheng**, J., “Numerical study of upper ocean response of the Scotian Shelf to Hurricane Juan”, Bedford Institute of Oceanography, Canada, October 2004.
26. **Sheng**, J. “Numerical modeling of circulation and thermal structure in Lake Huron and Georgian Bay”, National Water Research Institute, Burlington, Canada, July 2004.
25. Mercer, D., **J. Sheng**, and R. J. Greatbatch, Tsunami-like waves generated by the Great Hurricane of 1938, 2nd International Workshop on Extra-tropical Transition (ET), Halifax, Canada 2004.
24. **Sheng**, J., “A two-way nested ocean circulation model for the western Caribbean Sea”, Hohei University, Nanjing, China, May 2003.
23. **Sheng**, J., and L. Wang, “A numerical study of tidal circulation in Lunenburg Bay”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, April 2003.
22. **Sheng**, J., “A two-way nested ocean circulation model for the Meso-American Barrier Reef System”, Proudman Oceanographic Laboratory, Liverpool, UK, February 2003.
21. **Sheng**, J., “Hydrodynamic models for ECONAR”, International Workshop on Reef Connectivity, Akumal, Mexico, January 2003.
20. **Sheng**, J., “IAS modelling in Canada”, International Workshop on Assessing GODAE Fields for the IAS and its Coastal Zones, Barbados, November 2002.
19. **Sheng**, J., “Numerical study of circulation and seasonal variability over the Western Caribbean Sea”, Bedford Institute of Oceanography, Canada, September 2002.
18. **Sheng**, J., “Numerical study of circulation and seasonal variability over the Western Caribbean”, Scripps Institution of Oceanography, La Jolla, USA, August 2002.
17. **Sheng**, J., and L. Tang, “A three-dimensional ocean circulation model of the Western Caribbean Sea”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, May 2002.
16. **Sheng**, J., “Numerical study of circulation and seasonal variability over the Western Caribbean Sea”, University of Maine, USA, April 2002.
15. **Sheng**, J., “Circulation over the eastern Canadian Shelf”, CFCAS Workshop on Marine Environmental Prediction, Halifax, Canada, 2001.
14. Mercer, D., **J. Sheng** and R. J. Greatbatch, “Barotropic waves generated by storms moving rapidly over shallow water”, International Workshop on Operational Marine Forecasting, Dartmouth, Canada, 2001.
13. **Sheng**, J., “Barotropic waves generated by storms moving rapidly over the Grand Banks”, Bedford Institute of Oceanography, Canada, November 2001.
12. Mercer, D., **J. Sheng**, R. J. Greatbatch and J. Bobanovic, “Barotropic waves generated by rapidly moving storms”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, September 2001.
11. **Sheng**, J., “Circulation and drift pathways in the northwest Atlantic Ocean”, Hohai University, Nanjing, China, July 2001.

10. **Sheng, J.**, “Circulation and drift pathways in the northwest Atlantic Ocean”, National Research Center for Marine Environment Forecasts, Beijing, China, June, 2001 and August 2001.
9. **Sheng, J.**, “Circulation and drift pathways in the northwest Atlantic Ocean”, Department of Oceanography, Dalhousie University, Canada, January 2001.
8. **Sheng, J.**, “Seasonal variability in the northwest Atlantic Ocean”, Bedford Institute of Oceanography, Canada, May 2000.
7. **Sheng, J.**, “Seasonal variability in the northwest Atlantic Ocean”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, May 2000.
6. **Sheng, J.**, “Dynamics of a buoyancy-driven coastal Jet: The Gaspé Current”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, April 1999.
5. **Sheng, J.**, “Predicting subtidal circulation over the eastern Canadian seaboard”, Physical Oceanography and Meteorological Seminar Series, Dalhousie University, Canada, September 1998.
4. **Sheng, J.**, “Progress in modelling shelf circulation with CANDIE”, Workshop on Data Assimilative Modelling of the Coastal Ocean, Halifax, Canada, 1998.
3. **Sheng, J.**, “Predicting subtidal circulation over the eastern Canadian seaboard”, Department of Oceanography, Dalhousie University, Canada, September 1998.
2. **Sheng, J.**, “Predicting subtidal circulation over the eastern Canadian seaboard”, Department of Physics, Memorial University, Canada, May 1997.
1. **Sheng, J.**, “Assimilating coastal sea-levels and current-meter data into a 3D shelf model”, Bedford Institute of Oceanography, Canada, January 1997