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Curriculum Vitae

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1. ONLINE PROFILES

UAlberta: https://sites.ualberta.ca/~gswaters/
ORCID: https://orcid.org/0000-0001-5229-8572?lang=en
LINKEDIN: https://www.linkedin.com/in/gordon-swaters-aa62a5177/
X: https://twitter.com/GESwaters

2. PROFESSIONAL POSITIONS

1986-present: University of Alberta
Professor Emeritus of Mathematical and Statistical Sciences (2026-present),
President, Association of Academic Staff University of Alberta (2003-04, 2022-26)
Project Coordinator for Faculty of Science (2006-07)
Director, Applied Mathematics Institute (1999-2000)
Associate Chair (Graduate Studies & Research), Mathematical Sciences (1996-99)
Associate Director, Institute for Geophysical Research (1995-98, 2012-18)
Professor of Mathematical and Statistical Sciences (1993-2026)
Associate Professor of Mathematics (1990-93)
Assistant Professor of Mathematics (1986-90)

1979-81: Centre for Cold Oceans Resources Engineering, Memorial University, St. John's, Newfoundland. Staff Researcher. R&D position directed toward development of computational models of sea ice and iceberg drift in the Labrador Sea.

2A. CONCURRENT VISITING POSITIONS

1996 (Feb): Visiting Researcher, National Center for Atmospheric Research (NCAR), Oceanography Section, Boulder, USA.
1996 (July, Sept): Invited Participant, Atmosphere and Ocean Dynamics Programme, Isaac Newton Institute for the Mathematical Sciences, Cambridge, UK.
2001 (June): Visiting Researcher, French Institute for the Research and Exploitation of the Sea (IFREMER), Brest, France.

3. DISTINCTIONS

2007: *CAIMS*SCMAI Research Prize*, Canadian Applied and Industrial Mathematics Society

1998, 2001: *Area of Established Research Excellence* in *Fluid Dynamics and Transport Phenomena*, University Research Policy Committee and Vice-President (Research), University of Alberta

1996: *Killam Annual Professorship*, University of Alberta

1996: *Faculty of Science Research Award*, University of Alberta

1995: *McCalla Research Professorship*, University of Alberta

1994: *President's Prize*, Canadian Meteorological and Oceanographic Society

1984: *Graduate Student Prize*, Canadian Meteorological and Oceanographic Society

4. UNDERGRADUATE, GRADUATE AND POST-DOCTORAL EDUCATION

1973-78: University of Waterloo, Waterloo, ON, Canada. B. Math. (Honours) in Applied Mathematics.

1981-83: University of British Columbia, Vancouver, BC, Canada, MSc in Applied Mathematics & Physical Oceanography; Thesis (supervised by Professor L. A. Mysak, *CM, FRSC*): *Topographically induced baroclinic eddies along a coast*.

1983-85: University of British Columbia, Vancouver, BC, Canada. PhD in Applied Mathematics & Physical Oceanography. Thesis (supervised by Professor L. A. Mysak, *CM, FRSC*): *On the stability and propagation of barotropic modons in slowly varying media*.

1985-86: Post-Doctoral Research Associate, Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology.

5. PUBLICATIONS

One book and 111 *refereed* articles. See attached list.

6. RESEARCH GRANTS

Total individual and team funding has exceeded $7.75M in *peer-reviewed* grants.
See attached list.

7. INVITED ADDRESSES

Sixty-four *invited* seminars in *fifteen* countries. See attached list.

8. GENERAL RESEARCH INTERESTS

One can characterize ocean currents into two broad groups. The first are the wind-driven currents. These currents are most intense near the surface of the ocean. Their principal role is to transport warm equatorial waters toward the Polar Regions.

The second group of currents consists of those driven by density contrasts with the surrounding waters. Among these are the deep, or abyssal, grounded currents flowing along the bottom of the oceans in narrow bands. Their principal role is to transport cold, dense waters produced in the Polar Regions toward the equator.

My research group is working toward understanding the low frequency baroclinic dynamics of grounded abyssal ocean currents. In particular, we develop innovative mathematical and computer models to describe the evolution, including the transition to instability and interaction with the surrounding ocean and bottom topography, of these flows. The goal of this research is to better understand the temporal variability in the planetary scale dynamics of the ocean in Earth's climate system.

Our work can be seen as "theoretical" in the sense that we develop new models to elucidate the most important dynamical balances and "process-oriented" in the sense that we use these models to make concrete predictions about the evolution of these flows. As such, our work is a blend of classical applied mathematics, high-performance computational science and physical oceanography.

8A. CURRENT RESEARCH

Dynamics of ocean currents, fronts and eddies, and wave-wave and wave-mean flow interactions.

9. REFEREEING

9A. GRANT REFEREEING

NSERC operating, research and discovery grants, NSERC women's faculty research awards, NSERC strategic and research network grants, Israel Science Foundation, International Science Foundation, Australian Research Council, National Science Foundation (USA), Natural Environment Research Council (UK), Internal Reviewer for CFI applications, United States-Israel Binational Science Foundation, Canadian Foundation for Climate and Atmospheric Sciences, Qatar National Research Fund, Banff International Research Station.

9B. EDITORIAL BOARDS AND JOURNAL REFEREEING

Editorial Boards

- *Atmospheric and Oceanographic Sciences Library Series*, Springer (2001-21),
- *Advances in Fluid Mechanics*, WIT Press (2004-10, 2013-16),
- *Canadian Applied Mathematics Quarterly* (1996-2000),
- *International Journal of Applied Mathematics and Engineering Sciences* (2005-26).
- Co-Editor in Chief: *Canadian Applied Mathematics Quarterly* (1999-2000).
- College of Reviewers, *Canada Research Chair Program* (2003-26)

Journal Refereeing

Atmosphere-Ocean, Geophysical and Astrophysical Fluid Dynamics, Journal of Fluid Mechanics, Physics of Fluids, Journal of Marine Research, Journal of the Australian Mathematical Society (Series B), Dynamics of Atmospheres and Oceans, Quarterly of Applied Mathematics, Journal of Physical Oceanography, Oceanologica Acta, SIAM Review, Liege Colloquium on Ocean Hydrodynamics (Elsevier Oceanographic Series), Canadian Applied Mathematics Quarterly, Journal of Nonlinear Science, Journal of Mathematical Analysis and its Applications, Deep-Sea Research, SIAM Journal of Mathematical Analysis, Theoretical and Computational Fluid Dynamics, Journal of Engineering Mathematics, Fluid Dynamics Research, Surveys in Geophysics, ASME Journal of Fluids Engineering, Proceedings of the Royal Society of London A, Indian Journal of Mathematics, Journal of the Atmospheric Sciences, Quarterly Journal of the Royal Meteorological Society, Applied Mathematics Letters, Ocean Modelling, Geophysical Research Letters, Nonlinearity, Ocean Science, Environmental Fluid Mechanics, Ocean Dynamics, Mathematical Problems in Engineering, Fluids.

10. TRAINING OF HIGHLY QUALIFIED PERSONNEL

- 5 PhD and 16 MSc students. See attached list.
- 5 Undergraduate Summer Research Assistants. See attached list.
- 2 Computer Systems Analysts. See attached list.

11. TEACHING ACTIVITIES

- Lectured various undergraduate and graduate courses in Mathematics and Fluid Dynamics.
- Teaching evaluations are consistently in the top 25th percentile in the Faculty of Science.
- Updated and modernized the course syllabus for the two-term 4th-year Honours Applied Mathematics courses in "Intermediate Partial Differential Equations" (Math 436 and 438).
- Created graduate courses in *Hydrodynamic Stability Theory* (ref. Drazin & Reid), *Nonlinear Waves* (refs. Whitham; Drazin & Johnson), and *Geophysical Fluid Dynamics* (refs. Pedlosky; LeBlond & Mysak) (Math 664).
- Founder of weekly nonlinear waves/fluid dynamics research seminar in the Department of Mathematical and Statistical Sciences, University of Alberta.

12. UNIVERSITY, PROVINCIAL and NATIONAL ACADEMIC COMMITTEES

1986-2026:	Numerous departmental committees, e.g., Executive Committee, Graduate Studies, Applied Mathematics Council, Liaison with Physical Sciences, Liaison with Faculty of Engineering, Publicity Co-ordinator and Newsletter Editor for Applied Mathematics Institute, Mathematics Computer Committee, Executive of the Applied Mathematics Institute, Computer Co-ordinator for Applied Mathematics Institute, Acting Director of Applied Mathematics Institute, Hiring Committee, Acting Chair of Department of Mathematical Sciences, Acting Site-Director for Pacific Institute for the Mathematical Sciences (PIMS), Long-term Hiring Plan Committee, Liaison with Earth and Atmospheric Sciences
1987-89:	Faculty of Science Salary and Promotions Committee
1988-89:	Hiring Committee for Department of Geography (Meteorology)

1990-97:	University of Alberta Numerical and Graphics Intensive Computer Users Group
1993:	Selection Committee for Director, Applied Mathematics Institute
1993:	Selection Committee for Director, Institute for Geophysical Research (also 1998, 2005)
1994-95:	Faculty of Science representative to Faculty of Agriculture, Food and Nutritional Science
1995-96:	Hiring Committee for Department of Earth and Atmospheric Sciences (also 1998-99)
1996:	Chair, Selection Committee for Director, Applied Mathematics Institute
1996-2026:	AASUA Council
1997-98:	FGSR Task Force on Grading in Graduate Courses
1997-99:	FGSR Academic Appeals Committee
1998-2000:	Multimedia and Advanced Computational Infrastructure (MACI), Management Team
1998-99:	President, Faculty Club
1998:	PIMS Steering Committee
1999:	Chair Selection Committee, Department of Marketing, Business Economics and Law, Business
1999:	Presidential Review Committee
1999-2001:	FGSR Graduate Scholarship Committee
1999:	McCalla Research Professor Selection Committee
1999-2000:	Hiring Committee for MACI Project Manager (FSO III, appointed as Professor of Physics)
1996-2002:	AASUA Salary Committee (also 2014-present; Chair 2000-02, 2016-17)
1999-2005:	AASUA Executive (also 2012-present)
2001-02:	AASUA Compensation negotiating team (also 2004-05, 2007-08, 2010-11, 2012-13, 2014-16)
2002-09:	AASUA Sponsor Representative to Universities Academic Pension Plan (also 2022-present)
2002-04:	Confederation of Alberta Faculty Associations (CAFA), Council (also 2022-24)
2002-03:	AASUA Vice-President
2003:	Petro-Canada Award Selection Committee (Faculty of Science)
2003-04:	Treasurer, CAFA (also 2022-24)
2003-04:	General Faculties Council (also 2022-24)
2003-04:	AASUA delegate to Canadian Association of University Teachers (CAUT) (also 2022-24)
2003-04:	Advisory Group on Teaching and Research, VP (Research)
2004-05:	Presidential Advisory Search Committee
2004-05:	AASUA Past-President
2004-11:	Stakeholder Committee for Centennial Centre for Interdisciplinary Science
2006:	General Appeals Committee (Presidential Appointee)
2008-09:	Supplementary Pension Plan Implementation Committee (AASUA/Administration)
2008-20:	AASUA Past Presidents' Committee
2010-17:	CAUT Collective Bargaining and Economic Benefits Committee
2010-26:	AASUA Academic Faculty Committee (Vice-Chair 2012-14)
2013-26:	Co-Chair, Academic Supplementary Retirement Plan Operations Committee

2013-26:	Academic Supplementary Retirement Plan Management Committee
2014-26:	Co-Chair, Academic Benefits Management Committee
2014-16:	Chair, AASUA Benefits Committee
2016-17:	Lead Negotiator, AASUA Agreement Review Committee to negotiate changes to the Collective Agreements to implement "Comprehensive Collective Bargaining"
2017-19:	Lead Negotiator, AASUA Collective Bargaining Negotiating Team (also 2019-22)
2022-26:	Trustee/Director, CAUT Defence Fund
2023:	Provost & Vice-President (Academic) Advisory Search Committee
2024:	Presidential Advisory Review Committee
2024-25:	Vice-President (International and Enterprise) Advisory Search Committee
2025-26:	Vice-President (Research) Advisory Search Committee

13. RESEARCH INSTITUTE MEMBERSHIPS

Applied Mathematics Institute, University of Alberta.
Institute for Geophysical Research, University of Alberta.

14. CONFERENCES, SYMPOSIA AND WORKSHOPS ORGANIZED

1. *Mathematics of Planet Earth: The Science of Data*. Held in Montreal, Canada as Union (U03) Symposium as part of the IUGG General Assembly during July 9 - 18, 2019. U03 had 6 invited speakers and 9 poster presentations. The U03 Symposium also hosted the IUGG Gold Medal Lecture. This symposium was co-organized with Ilya Zaliapin, USA; Yehuda Ben-Zion, USA, Malcolm Sambridge, Australia; Shin-Chan Han, China.
2. *Mathematics and Observations of Earth Systems* and *Climate Variability and Earth Systems Modelling*. Held in Prague, Czech Republic as Union (U3) and Joint Symposia (JM01/02), respectively, as part of the IUGG General Assembly during June 22 – July 2, 2015. U3 had 6 invited speakers and 15 contributed posters and JM01/02 had 7 invited speakers, 28 contributed talks and 17 contributed posters (co-organized with Yehuda Ben-Zion, USA; Ilya Zaliapin, USA; Roberto Carniel, Italy; Alexey Gvishiani, Russia; Ute Herzfeld, USA; Matthias Holschneider, Germany; Richard Peltier, Canada; Malcolm Sambridge, Australia; Daniel Schertzer, France; Nico Sneeuw, Germany.)
3. *Mathematical Tools and Methods in Geophysics: Geocomplexity*. Held in Melbourne, Australia as a Union Symposium as part of the IUGG General Assembly during June 27 – July 8, 2011. Six invited speakers and 41 contributed presentations (co-organized with Matthias Holschneider, Institute for Mathematics, University of Potsdam, Germany).
4. *Wave Phenomena IV*. June 14-18, 2010. Held at the University of Alberta. Sixteen major speakers and 70 participants (co-organized with Profs. A. B. G. Bush, R. V. Craster, T. B. Moodie and B. R. Sutherland, UofA).
5. *Overflows and Abyssal Currents*. July 22-23, 2009. Held in Montreal, Canada. Symposium was part of the Joint Assembly (July 19-29, 2009) of the International Association of Meteorology and Atmospheric Sciences (IAMAS), International Association for the Physical Sciences of the Ocean (IAPSO) and International Association of Cryospheric Sciences (IACS). Three invited speakers and 23 contributed presentations (co-organized with J. B. Girton, Applied Physics Laboratory, University of Washington, Seattle, USA).

6. *Variability and Mixing near Topography*. March 2-7, 2008. Held in Orlando, Florida. Symposium was part of the American Society of Limnology and Oceanography (ASLO) 2008 Ocean Sciences Meeting. Two major speakers, 7 contributed talks and 9 poster presentations (co-organized with G. G. Sutyrin, Graduate School of Oceanography, University of Rhode Island, USA).
7. *Wave Phenomena III: Waves in fluids from the microscopic to the planetary scale*. July 11-15, 2001. Held at the University of Alberta. Twenty-five major speakers and 150 participants (co-organized with Profs. A. B. G. Bush, T. B. Moodie and B. R. Sutherland, UofA).
8. *PIMS Graduate Math Modelling Camp*. May 24-29, 1999. Held at the University of Alberta. Six industrial Mentors and 30 invited graduate students from across Canada working on industrial mathematical and statistical problems.
9. *PIMS Graduate Information Weekend*. January 20-24, 1999. Held at the University of Alberta. Fifteen invited undergraduate honours students from across Canada and 14 faculty speakers describing graduate study in pure and applied mathematics and statistics.
10. *Mini-symposium on Geophysical Fluid Dynamics*. May 30-June 1, 1997. Held at Fields Institute for research in Mathematical Sciences, Toronto. Five major speakers.
11. *Vortex Dynamics in the Atmosphere and Ocean*. May 11-13, 1993. Held at the Royal Netherlands Academy of Arts and Sciences, Amsterdam, NL. Ten major speakers and 60 conference participants (co-organized with Profs. B. Cushman-Roisin, Dartmouth College, US; G. F. van Heijst, Technical University of Eindhoven, NL and D. Dritschel, University of Cambridge, UK).
12. *Thirteenth Annual Conference of the Canadian Applied Mathematics Society*. Conference Theme: *Wave Phenomena II: Modern Theory and Applications*. July 15-18, 1992. Held at the University of Alberta. Fifteen major speakers and 200 conference participants (co-organized with Prof. T. B. Moodie, UofA).

15. NATIONAL AND INTERNATIONAL SCIENTIFIC COMMITTEES

2009-15:	IAPSO representative on IUGG Commission for Mathematical Geophysics.
2009:	Scientific Committee, 2nd International conference on high-Reynolds number vortex interactions (held August 31 – September 2, 2009 at the University of Brest, Brest, France).
2006-11:	Scientific Working Group for Deep Ocean Exchanges with the Shelf, International Association for the Physical Sciences of the Ocean (IAPSO) and the Scientific Committee for Ocean Research (SCOR).
2004-10:	Scientific Advisory Committee, International Conference on Advances in Fluid Mechanics (also 2013-16, held bi-annually at various European locations).
2007-11:	Research Prize Committee, Canadian Applied & Industrial Mathematics Society (CAIMS) (also 2017-18).
2000-03:	Board of Directors, Canadian Applied & Industrial Mathematics Society.
2000-01:	Board of Directors, Rocky Mountain Mathematics Consortium.
1999-2000:	Scientific Advisory Committee, Fifth International Symposium on Stratified Flows (held at UBC, July 10-13, 2000).
1995-97:	Chair (1995-96), Doctoral Dissertation Award Committee, Canadian Applied & Industrial Mathematics Society (also 2000-03),
1989-96:	Canadian Scientific Team Member, Surface Velocity Drifters Program, World Ocean Circulation Experiment (WOCE).

1989-91: Vice-President, Canadian Meteorological and Oceanographic Society (Alberta Chapter).

16. PROFESSIONAL MEMBERSHIPS

Canadian Meteorological and Oceanographic Society
Canadian Applied and Industrial Mathematics Society
American Geophysical Union

PUBLICATIONS

Book

Swaters, G. E., *Introduction to Hamiltonian fluid dynamics and stability theory*. Chapman & Hall/CRC Monographs and Surveys in Pure and Applied Mathematics **102**, 274 pp, 2000. ISBN 1-5848-8023-6.

Refereed Journal Articles

1. Swaters, G. E., Ekman layer dissipation in an eastward-travelling modon. *J. Phys. Oceanogr.* **15**, 1212-1216, 1985.
2. Swaters, G. E., Derivation and analysis of a McPhee-like damping term for inertially oscillating sea ice drift. *J. Eng. Math.* **19**, 251-259, 1985.
3. Swaters, G. E., & L. A. Mysak, Topographically induced baroclinic eddies near a coastline, with applications to the Northeast Pacific. *J. Phys. Oceanogr.* **15**(11), 1470-1485, 1985.
4. Swaters, G. E., A nonlinear stability theorem for baroclinic quasigeostrophic flow. *Phys. Fluids* **29**(1), 5-6, 1986.
5. Swaters, G. E., Barotropic modon propagation over slowly varying topography. *Geophys. Astrophys. Fluid Dynamics* **36**, 85-113, 1986.
6. Swaters, G. E., Stability conditions and a priori estimates for equivalent-barotropic modons. *Phys. Fluids* **29**(5), 1419-1422, 1986.
7. Swaters, G. E., Critical-layer absorption of neutral ageostrophic vorticity wave perturbations of baroclinic jets. *Geophys. Astrophys. Fluid Dynamics* **43**, 1-41, 1988.
8. Swaters, G. E., Resonant three-wave interactions in nonlinear hyperelastic fluid-filled tubes. *J. Appl. Math. Physics (ZAMP)* **39**, 668-681, 1988.
9. Swaters, G. E., Viscous modulation of the Lamb dipole vortex. *Phys. Fluids* **31**(10), 2745-2747, 1988.
10. Swaters, G. E., & R. P. Sawatzky, Viscoelastic modulation of solitary pressure pulses in nonlinear fluid-filled distensible tubes. *Q. Jl. Mech. Appl. Math.* **42**, 213-237, 1989.
11. Swaters, G. E., A perturbation theory for the solitary drift-vortex solutions of the Hasegawa-Mima equation. *J. Plasma Physics* **41**, 523-539, 1989.
12. Moodie, T. B., & G. E. Swaters, Nonlinear waves and shock calculations for hyperelastic fluid-filled tubes. *Quart. Appl. Math.* **XLVII**, 705-722, 1989.
13. Wilson, J. D., G. E. Swaters & F. Ustina, A perturbation analysis of turbulent flow through a porous barrier. *Quart. J. Royal Meteorol. Soc.* **116**, 989-1004, 1990.
14. Swaters, G. E., & G. R. Flierl, Dynamics of ventilated coherent cold eddies on a sloping bottom. *J. Fluid Mech.* **223**, 565-588, 1991.
15. Swaters, G. E., Dynamical characteristics of decaying Lamb couples. *J. Appl. Math. Physics (ZAMP)* **42**, 109-121, 1991.
16. Wilson, J. D., & G. E. Swaters, The source area influencing a measurement in the planetary boundary layer: The footprint and the distribution of the time since surface contact. *Boundary-layer Meteorology* **55**, 25-46, 1991.
17. Swaters, G. E., On the baroclinic instability of cold-core coupled density fronts on a sloping continental shelf. *J. Fluid Mech.* **224**, 361-382, 1991.
18. Cree, W. C., & G. E. Swaters, On the topographic dephasing and amplitude modulation of nonlinear Rossby wave interactions. *Geophys. Astrophys. Fluid Dynamics* **61**, 75-99, 1991.
19. Wilson, J. D., T. K. Flesch, & G. E. Swaters, Dispersion in sheared Gaussian homogeneous turbulence. *Boundary-layer Meteorology* **62**, 281-290, 1993.
20. Swaters, G. E., Nonlinear stability of intermediate baroclinic flow on a sloping bottom. *Proc. R. Soc. Lond. A* **442**, 249-272, 1993.
21. Swaters, G. E., On the baroclinic dynamics, Hamiltonian formulation and general stability characteristics of density-driven currents and fronts over a sloping continental shelf. *Phil. Trans. R. Soc. Lond. A* **345**, 295-325, 1993.

22. Ropchan, C. B., & G. E. Swaters, The role of negative energy waves in linear and nonlinear shear flow instability in hyperelastic fluid-filled tubes. *Q. Jl. Mech. Appl. Math.* **46**, 657-681, 1993.
23. Swaters, G. E., On stationary equivalent-modons in an eastward flow. *Phys. Fluids* **6**, 118-123, 1994.
24. Ek, N. R., & G. E. Swaters, Geostrophic scatter diagrams and the application of quasi-geostrophic free mode theory to a Northeast Pacific blocking episode. *J. Atmos. Sci.* **51**(4), 563-581, 1994.
25. Primeau, F. W., & G. E. Swaters, The effect of along-shore topographic variation and bottom friction on shelf wave interactions. *J. Phys. Oceanogr.* **24**(5), 1021-1039, 1994.
26. Swaters, G. E., On stationary baroclinic planetary dipole-vortices in a continuously stratified fluid of finite depth. *J. Appl. Math. Physics (ZAMP)* **45**, 638-657, 1994.
27. Swaters, G. E., A Hamiltonian structure for hyperelastic fluid-filled tubes. *Can. Appl. Math. Quart.* **2**(4), 551-584, 1994.
28. Karsten, R. H., G. E. Swaters & R. E. Thomson, Stability characteristics of deep-water replacement in the Strait of Georgia. *J. Phys. Oceanogr.* ***25***(10), 2391-2403, 1995.
29. Yonemitsu, N., G. E. Swaters, N. Rajarantnam & G. A. Lawrence, Shear instabilities in arrested salt-wedge flows. *Dyn. Atmos. Oceans* **24**(B), 173-182, 1996.
30. Karsten, R. H., & G. E. Swaters, Nonlinear stability of baroclinic fronts in a channel with variable topography. *Stud. Appl. Math.* **96**, 183-199, 1996.
31. D'Alessio, S. J. D., T. B. Moodie, J. P. Pascal & G. E. Swaters, Gravity currents produced by a sudden release of a fixed volume of heavy fluid. *Stud. Appl. Math*. **96**, 359-385, 1996.
32. Karsten, R. H., & G. E. Swaters, A note on the stability theory of buoyancy-driven ocean currents over a sloping bottom. *J. Appl. Math. Physics (ZAMP)* **47**, 28-38, 1996.
33. Mooney, C. J., & G. E. Swaters, Finite amplitude baroclinic instability of a mesoscale gravity current in a channel. *Geophys. Astrophys. Fluid Dynamics* **82**, 173-205, 1996.
34. D'Alessio, S. J. D., T. B. Moodie, J. P. Pascal & G. E. Swaters, Intrusive gravity currents. *Stud. Appl. Math.* **98**, 19-46, 1997.
35. Timko, P., & G. E. Swaters, On the dissipation of internal solitons in coastal seas. *Geophys. Astrophys. Fluid Dynamics* **85**, 163-194, 1997.
36. Slomp, C. G., & G. E. Swaters, Finite-amplitude waves and modulational instability of a stable geostrophic front. *Geophys. Astrophys. Fluid Dynamics* **86**, 149-172, 1997.
37. Moodie, T. B., J. P. Pascal & G. E. Swaters, Sediment transport and deposition from a two-layer model of gravity currents on a sloping bottom. *Stud. Appl. Math.* **100**, 215-244, 1998.
38. Swaters, G. E., Numerical simulations of the baroclinic dynamics of density-driven coupled fronts and eddies on a sloping bottom. *J. Geophys. Res.* **103**, 2945-2961, 1998.
39. Swaters, G. E., Dynamics of radiating cold domes on a sloping bottom. *J. Fluid Mech.* **364**, 221-251, 1998.
40. Poulin, F. J., & G. E. Swaters, Sub-inertial dynamics of density-driven flows in a continuously stratified fluid on a sloping bottom. I. Model derivation and stability characteristics. *Proc. R. Soc. Lond. A* **445**, 2281-2304, 1999.
41. Poulin, F. J., & G. E. Swaters, Sub-inertial dynamics of density-driven flows in a continuously stratified fluid on a sloping bottom. II. Isolated eddies and radiating cold domes. *Proc. R. Soc. Lond. A* **445**, 2305-2329, 1999.
42. Poulin, F. J., & G. E. Swaters, Sub-inertial dynamics of density-driven flows in a continuously stratified fluid on a sloping bottom. Part 3. Nonlinear stability theory. *Can. Appl. Math. Quart.* **7** (1), 49-69, 1999.
43. Reszka, M. K., & G. E. Swaters, Eddy formation and interaction in a baroclinic frontal geostrophic model. *J. Phys. Oceanogr.* **29**, 3025-3042, 1999.
44. Swaters, G. E., On the evolution of near-singular modes of the Bickley jet. *Phys. Fluids* **11**(9), 2546-2555, 1999.
45. Karsten, R. H., & G. E. Swaters, A unified asymptotic derivation of two-layer, frontal geostrophic models including planetary sphericity and bottom topography. *Phys. Fluids* **11**(9), 2583-2597, 1999.
46. Reszka, M. K., & G. E. Swaters, Numerical investigation of baroclinic instability in the Gaspé current using a frontal geostrophic model. *J. Geophys. Res.* **104**, 25,685-25,696, 1999.

47. Choboter, P. F., & G. E. Swaters, On the baroclinic instability of axisymmetric rotating gravity currents with bottom slope. *J. Fluid Mech.* **408**, 149-177, 2000.
48. Karsten, R. H., & G. E. Swaters, Nonlinear effects in two-layer, large-amplitude, geostrophic dynamics. Part 1. The strong beta case. *J. Fluid Mech.* **412**, 125-160, 2000.
49. Karsten, R. H., & G. E. Swaters, Nonlinear effects in two-layer, large-amplitude, geostrophic dynamics. Part 2. The weak beta case. *J. Fluid Mech.* **412**, 161-196, 2000.
50. Choboter, P. F., & G. E. Swaters, Modelling equator-crossing currents on the ocean bottom. *Can. Appl. Math. Quart.* **8**, 367-385, 2000.
51. Swaters, G. E., On the finite-amplitude development of near-singular modes of the Bickley jet. *Can. Appl. Math. Quart.* **8**, 387-413, 2000.
52. Swaters, G. E., On the collision between deep anticyclones and seamounts. *Eur. J. Mech., B/Fluids* **20**, 471-488, 2001.
53. Reszka, M. K., & G. E. Swaters, Dynamics of bottom-trapped currents with application to the Strait of Georgia. *Can. Appl. Math. Quart.* **9**, 127-157, 2001.
54. Reszka, M. K., G. E. Swaters & B. R. Sutherland, Instability of abyssal currents in a continuously stratified ocean with bottom topography. *J. Phys. Oceanogr.* **32**, 3528-3550, 2002.
55. Choboter, P. F., & G. E. Swaters, Two-layer models of abyssal Equator-crossing flow. *J. Phys. Oceanogr.* **33**, 1401-1415, 2003.
56. Swaters, G. E., Baroclinic characteristics of frictionally destabilized abyssal overflows. *J. Fluid Mech.* **489**, 349-379, 2003.
57. Swaters, G. E., Spectral properties in modon stability theory. *Stud. Appl. Math.* **112**, 235-258, 2004.
58. Reszka, M. K., & G. E. Swaters, Evolution of initially axisymmetric buoyancy jets: A numerical study. *J. Fluid Mech.* **501**, 355-377, 2004.
59. Choboter, P. F., & G. E. Swaters, Shallow-water modeling of Antarctic Bottom Water crossing the Equator. *J. Geophys. Res.* **109**, C03038, doi:10.1029/2003JC002048, 2004.
60. Sutherland, B. R., J. Nault, K. Yewchuk & G. E. Swaters, Rotating dense currents on a slope. Part I: Stability. *J. Fluid Mech.* **508**, 241-264, 2004.
61. Pavec, M., X. Carton & G. E. Swaters, Baroclinic instability of frontal geostrophic currents over a slope. *J. Phys. Oceanogr.* **35**, 911-918, 2005.
62. Ha, S.-J., & G. E. Swaters, Finite-amplitude baroclinic instability of time-varying abyssal currents. *J. Phys. Oceanogr.* **36**, 122-139, 2006.
63. Swaters, G. E., The meridional flow of source-driven abyssal currents in a stratified basin with topography. Part I. Model development and dynamical properties. *J. Phys. Oceanogr.* **36**, 335-355, 2006.
64. Swaters, G. E., The meridional flow of source-driven abyssal currents in a stratified basin with topography. Part II. Numerical simulation. *J. Phys. Oceanogr.* **36**, 356-375, 2006.
65. Swaters, G. E., On the frictional destabilization of abyssal overflows dynamically coupled to internal gravity waves. *Geophys. Astrophys. Fluid Dynamics* **100**, 1-24, 2006.
66. Swaters, G. E., Perturbations of soliton solutions to the unstable nonlinear Schrödinger and sine-Gordon equations. *Stud. Appl. Math.* **118**, 99-116, 2007.
67. Turnbull, M. R., & G. E. Swaters, Evolution of solitary marginal disturbances in baroclinic frontal geostrophic dynamics with dissipation and time-varying background flow. *Proc. R. Soc. A* **463**, 1749-1769, 2007.
68. Swaters, G. E., Mixed bottom-friction-Kelvin-Helmholtz destabilization of source-driven abyssal overflows in the ocean. *J. Fluid Mech.* **626**, 33-67, 2009.
69. Wilson, J. D., W. J. Massman & G. E. Swaters, Dynamic response of the Thermometric Net Radiometer. *Agri. Forest Meteorol.* **149**, 1358-1364, 2009.
70. Swaters, G. E., Ekman destabilization of inertially-stable baroclinic abyssal flow on a sloping bottom. *Phys. Fluids* **21**, 086601 (1-10), 2009.
71. Swaters, G. E., Modal interpretation for the Ekman destabilization of inviscidly-stable baroclinic flow in the Phillips model. *J. Phys. Oceanogr.* **40**, 830-839, 2010.

72. Swaters, G. E., H. V. Dosser & B. R. Sutherland, Conservation laws, Hamiltonian structure, modulational instability properties and solitary wave solutions for a higher-order model describing nonlinear internal waves. *Stud. Appl. Math.* **128**, 159-182, 2011.
73. Swaters, G. E., Perturbation theory for the solitary wave solutions to a Sasa-Satsuma model describing nonlinear internal waves in a continuously stratified fluid. *Stud. Appl. Math*. **128**, 420-432, 2012.
74. Swaters, G. E., Flow of grounded abyssal ocean currents along zonally-varying topography on a rotating sphere. *Geophys. Astrophys. Fluid Dynamics* **107**, 564-586, 2013.
75. Somayaji, C. R., & G. E Swaters, Kelvin-Helmholtz instability of a bottom-intensified jet in a stratified fluid. *Can. Appl. Math. Quart.* **21**, 355-377, 2013.
76. Kim, A., G. E Swaters & B. R. Sutherland, Cross-equatorial flow of grounded abyssal ocean currents. *Geophys. Astrophys. Fluid Dynamics* **108**, 363-386, 2014.
77. Swaters, G. E., Midlatitude-equatorial dynamics of a grounded deep western boundary current. Part I. Midlatitude flow and the transition to the equatorial region. *J. Phys. Oceanogr.* **45**, 2457-2469, 2015.
78. Swaters, G. E., Midlatitude-equatorial dynamics of a grounded deep western boundary current. Part II. Cross-equatorial dynamics. *J. Phys. Oceanogr.* **45**, 2470-2483, 2015.
79. Swaters, G. E., Internal dissipative boundary layers in the cross-equatorial flow of a grounded deep western boundary current. *Geophys. Astrophys. Fluid Dynamics* **111**, 91-114, 2017.
80. Swaters, G. E., Meridional dynamics of grounded abyssal water masses on a sloping bottom in a mid-latitude β-plane. *J. Fluid Mech*. **841**, 674-701, 2018.
81. Swaters, G. E., Hamiltonian structure and a variational principle for grounded abyssal flow on a sloping bottom in a mid-latitude β-plane. *Stud. Appl. Math*. **141**, 247-263, 2018.
82. Gervais, A. D., G. E. Swaters, T. S. van den Bremer & B. R. Sutherland, Evolution and stability of two-dimensional anelastic internal gravity wavepackets. *J. Atmos. Sci* **75**, 3703-3724, 2018.
83. Deepwell, D., R. Sapede, L. Buchart, G. E. Swaters & B. R. Sutherland, Particle transport and resuspension by shoaling internal solitary waves. *Phys. Rev. Fluids* **5**, 054303 (1-21), 2020.
84. Gervais, A. D., Q. Ede, G. E. Swaters, T. S. van den Bremer & B. R. Sutherland, Propagation and breaking of three-dimensional Boussinesq wavepackets with rotation. *Phys. Rev. Fluids* **6** 044801 (1-20), 2021.
85. Gervais, A. D., G. E. Swaters & B. R. Sutherland, Transmission and reflection of three-dimensional Boussinesq internal gravity wave packets in nonuniform retrograde shear flow. *Phys. Rev. Fluids* **7**, 114802 (1-24), 2022.

Refereed Book Chapters, Conference Proceedings and Technical Report

86. Gaskill, H., R. Lopez & G. E. Swaters, *Free drift of sea ice: a comparison of models*. Centre for Cold Oceans Resources Engineering, 1980, 132 pp.
87. Swaters, G. E., & G. R. Flierl, Ekman dissipation of a barotropic modon. In *Mesoscale/Synoptic coherent structures in geophysical turbulence*, 149-165, edited by J.C.J. Nihoul and B. M. Jamart, Elsevier Press, 1989.
88. Swaters, G. E., Propagation of two-dimensional solitary drift vortices in a viscous rotating fluid or plasma. In *Continuum mechanics and its applications*, 779-796, edited by C. Graham and S. Malik, Hemisphere Publishers, 1989.
89. Swaters, G. E., Morphology of vorticity-stream function scatter diagrams and the emergence of coherent vortices during the destabilization of a two dimensional jet. In *Ocean waves mechanics, Computational fluid dynamics and Mathematical modelling*, 117-128, edited by M. Rahman, Computational Mechanics Publications, 1990.
90. Ropchan, C., & G. E. Swaters, Shear-flow instability and explosive three-wave interactions in hyperelastic fluid-filled tubes. In *Ocean waves mechanics, Computational fluid dynamics and Mathematical modelling*, 129-138, edited by M. Rhaman, Computational Mechanics Publications, 1990.

91. Swaters, G. E., A survey of the mathematical theory of modons. In *Nonlinear dispersive wave systems*, 461-479, edited by L. Debnath, World Scientific Publishing Company, 1992.
92. Swaters, G. E., The February 1989 Pacific block as a coherent structure. In *Modelling of oceanic vortices*, 207-215, edited by G. J. F. van Heijst, Verhandeligen Koninklijke Academie voor Wetenschappen (KNAW), North Holland, Elsevier, 1994.
93. Swaters, G. E., Mathematical modelling of solitary oceanographic vortices. In *Fluid Vortices*, 575-616, edited by S.I. Green, Kluwer Academic Publishing, 1995.
94. Mooney, C. J., & G. E. Swaters, On the finite amplitude instability of gravity currents on a sloping bottom. In *10th Conference on Atmospheric and Oceanic Waves and Stability*, 23-24, American Meteorological Society, 1995.
95. Karsten, R. H., & G. E. Swaters, On the stability of two layer geostrophic fronts on a beta plane. In *10th Conference on Atmospheric and Oceanic Waves and Stability*, 49-50, American Meteorological Society, 1995.
96. Swaters, G. E., Numerical simulations of the low-frequency dynamics for gravity currents, cold pools and coherent density-driven eddies on a sloping bottom in a channel. In *10th Conference on Atmospheric and Oceanic Waves and Stability*, 123-125, American Meteorological Society, 1995.
97. Slomp, C. G., & G. E. Swaters, On the finite-amplitude stability of geostrophic fronts. In *10th Conference on Atmospheric and Oceanic Waves and Stability*, 210-211, American Meteorological Society, 1995.
98. Reszka, M. K., & G. E. Swaters, Some analytical and numerical results for buoyancy-driven fronts over a sloping bottom. In *11th Conference on Atmospheric and Oceanic Fluid Dynamics*, 135-139, American Meteorological Society, 1997.
99. Karsten, R. H., & G. E. Swaters, Nonlinear destabilization of large-scale oceanic fronts. In *11th Conference on Atmospheric and Oceanic Fluid Dynamics*, 147-151, American Meteorological Society, 1997.
100. Poulin, F. J., & G. E. Swaters, Mesoscale cold-pools within a continuously stratified fluid overlying a sloping continental shelf. In *11th Conference on Atmospheric and Oceanic Fluid Dynamics*, 157-161, American Meteorological Society, 1997.
101. Choboter, P. F., & G. E. Swaters, Modelling the dynamics of abyssal equator-crossing currents. In *Advances in Mathematical Modelling of Atmosphere and Ocean Dynamics,* 125-130, edited by P. F. Hodnett, Kluwer Academic Publishers, 2001.
102. Reszka, M. K., & G. E. Swaters, Baroclinic instability of bottom-dwelling currents. In *Advances in Mathematical Modelling of Atmosphere and Ocean Dynamics,* 209-214, edited by P. F. Hodnett, Kluwer Academic Publishers, 2001.
103. Swaters, G. E., Evolution of near-singular jet modes. In *Advances in Mathematical Modelling of Atmosphere and Ocean Dynamics*, 251-258, edited by P. F. Hodnett, Kluwer Academic Publishers, 2001.
104. Swaters, G. E., Generation of internal gravity waves by unstable overflows. In *Nonlinear Processes in Geophysical Fluid Dynamics*, 91-102, edited by O. U. Velasco Fuentes, J. Sheinbaum & J. Ochoa, Kluwer Academic Publishers, 2003.
105. Reszka, M. K., & G. E. Swaters, Simple frontal models of baroclinic instability. In *14th Conference on Atmospheric and Oceanic Fluid Dynamics*, 83-88, American Meteorological Society, 2003.
106. Sutherland, B. R., J. Nault, K. Yewchuk & G. E. Swaters, Stability and evolution of dense currents on sloping topography. In *14th Conference on Atmospheric and Oceanic Fluid Dynamics*, 71-74, American Meteorological Society, 2003.
107. Swaters, G. E., On the meridional flow of source-driven abyssal currents on a continental slope. In *Advances in Fluid Mechanics V*, 119-128, edited by C. A. Brebbia, A. C. Mendes & M. Rahman, WIT Press, 2004.
108. Swaters, G. E., Finite amplitude evolution of frictionally destabilized abyssal overflows in a stratified ocean. In *Advances in Fluid Mechanics VI*, 185-191, edited by M. Rahman & C. A. Brebbia, WIT Press, 2006.

109. Swaters, G. E., Stability of meridionally-flowing grounded abyssal currents in the ocean. In *Advances in Fluid Mechanics VII*, 93-100, edited by M. Rahman & C. A. Brebbia, WIT Press, 2008.
110. Swaters, G. E., Meridional flow of grounded abyssal currents on a sloping bottom in spherical geometry. In *Advances in Fluid Mechanics IX*, 313-320, edited by M. Rahman & C. A. Brebbia, WIT Press, 2012.
111. Swaters, G. E., The equatorial meandering of abyssal ocean currents. In *Advances in Fluid Mechanics X*, 339-347, edited by C. A. Brebbia, S. Hernandez & M. Rahman, WIT Press, 2014.

TRAINING OF HIGHLY QUALIFIED PERSONNEL

Graduate Students

PhD Theses

N. Yonemitsu, *The stability and interfacial wave phenomena of a salt wedge flow*, Department of Civil Engineering (Environmental Engineering Program), 293 pp., 1991.
R. H. Karsten, *Nonlinear effects in two-layer, frontal-geostrophic models of surface ocean fronts*, 275 pp., 1998.
P. F. Choboter, *Modelling the dynamics of abyssal equator-crossing currents*, 132 pp., 2002.
M. K. Reszka, *Baroclinic frontal dynamics in the presence of continuous stratification and topography*, 196 pp., 2003.
A. D. Gervais, *Nonlinear evolution of localized internal gravity wave packets: Theory and simulations with rotation, background flow, and anelastic effects*, 243 pp., 2023.

MSc Theses

L. Yan, *Propagation of frictionally-decaying barotropic modons over finite-amplitude topography*, Department of Geography (Division of Meteorology), 91 pp., 1989.
W. C. Cree, *Topographic de-phasing and amplitude modulation of resonant Rossby wave triad packets*, Department of Geography (Division of Meteorology), 130 pp., 1990
N. R. Ek, *Geostrophic scatter diagrams and the application of free mode theory to a Northeast Pacific blocking episode*, Department of Geography (Division of Meteorology), 112 pp., 1992.
C. B. Ropchan, *The role of negative energy waves in parallel shear flow instability in hyperelastic fluid-filled tubes*, 57 pp., 1992.
F. W. Primeau, *The effect of alongshore topographic variation and bottom friction on shelf wave interactions*, 118 pp., 1992.
P. Timko, *The turbulent dissipation of internal solitary waves in a continuously stratified fluid of finite depth*, 190 pp., 1995.
C. G. Slomp, *On the Hamiltonian structure, stability characteristics and finite-amplitude evolution of geostrophic fronts*, 247 pp., 1995.
C. J. Mooney, *Finite amplitude baroclinic instability of a mesoscale gravity current in a channel*, 202 pp., 1995.
F. J. Poulin, *Mesoscale gravity currents and cold-pools within a continuously-stratified fluid overlying gently sloping topography*, 185 pp., 1997.
M. K. Reszka, *Finite amplitude waves and eddy development on a baroclinically unstable front over sloping topography*, 189 pp., 1997.
S. J. Ha, *Finite amplitude development of time dependent abyssal currents*, 101 pp., 2005.
M. R. Turnbull, *Finite-amplitude instability of time-varying frontal-geostrophic currents*, 104 pp., 2006.
J. W. Keating, *Numerical simulations of buoyancy-driven abyssal ocean currents on the sphere*, 139 pp., 2009.
C. R. Somayaji, *Kelvin-Helmholtz instability of a bottom-intensified jet*, 89 pp., 2013.
A. Kim, *Cross-equatorial flow of grounded abyssal ocean currents*, 80 pp., Department of Physics, 2013.
A. D. Gervais, *Propagation and overturning of localized anelastic internal gravity wavepackets*, 101 pp., 2018.

Undergraduate Student Supervision

F. J. Poulin. Developed X-based software for producing colour movies for hydrodynamic simulations (1993). Developed finite-difference numerical code for solving the nonlinear governing equations describing hyperelastic fluid-filled tubes (1994). Developed a theory for topographically-induced secondary instability in a marginally unstable baroclinic flow (1995).
M. Roshko. Developed a numerical code for solving the three-wave interaction equations for a topographically-forced resonant triad of Rossby waves (1994).
J. Nault. Worked on laboratory experiments on the baroclinic dynamics of abyssal currents and eddies (2002).

Technicians

P. Karbaliotis, 1994-96, Part-time Computer Systems Analyst.
M. Duller, 2003-05, Part-time Computer Systems Analyst.

RESEARCH GRANTS

Natural Sciences and Engineering Research Council of Canada (NSERC)

1987-2021: *Operating, Research* and *Discovery*, $893,630.
1991-92, 1994-95: *Equipment*, $67,668.
1990-96: *Collaborative Special Project*, $1,091,000. (with P. H. LeBlond, UBC; W. G. Large, UBC/NCAR; R. E. Thomson, IOS and D. Krauel, RRMC)
1994-95: *Equipment*, $36,000. (with T.B. Moodie, R. Poliquin, H. van Roessel and S. Shen)
1994-95: *Equipment*, $57,707. (with D. Schmitt, J. Beamish, R. Creaser, R. Luth and T. Chacko)
1993-96: *Infrastructure*, $75,000. (with W. Allegretto, H. I. Freedman, T.B. Moodie, R. V. Moody, R. J. Tait and Y. S. Wong)
1999-2000: *Equipment*, $66,127. (with J. Bowman, A. Bush, E. Lozowski, T. B. Moodie, S. Shen and B. Sutherland)
2008-09: *Research Tools and Instrumentation*, $45,000. (with P. Myers, A. Bush, C. Haas, E. Lozowski, G. Reuter, B. Sutherland and J. Wilson)

Intellectual Infrastructure Partnership Program (IIPP, Government of Alberta)

1998-99: *Major Equipment*, $320,000. (with J. Schaeffer, J. Samson, M. Sacchi, F. Marsiglio, R. Sydora, M. Green, J. Buchannan, K. Nandakumar, R. Hayes, J. Yokota, J. Bowman, B. Sutherland, A. Bush and M. Klobukowski)
1999-2000: *Equipment*, $115,000. (with J. Bowman, A. Bush, E. Lozowski, T. B. Moodie, S. Shen, B. Sutherland and D. Zhu)
1999-2001: *Major Equipment*, $1,962,000. (with O. Beattie, M. Green, J. Samson, J. Schaeffer and Others)

Canadian Foundation for Innovation (CFI)

1999-2002: *Major Equipment*, $2,601,000. (with O. Beattie, M. Green, J. Samson, J. Schaeffer and Others)

Department of Fisheries and Oceans of Canada (DFO)

1989-97: *Science Subvention*, $98,100.
Program terminated.

Atmospheric Environment Service of Canada (AES)

1987-98: *Science Subvention*, $143,870.
1992-93: *Strategic Equipment*, $80,000. (with E.P. Lozowski, J. Wilson and G. Reuter)
Program terminated.

Other

1986-87, 1994-95: UofA Central Research Fund, $8,500.
1999-2000: UofA Equipment, $60,000.

INVITED SEMINARS

1986 Center for Meteorology and Physical Oceanography, Massachusetts Institute of Technology, Cambridge, USA Centre for Earth and Planetary Physics, Harvard University, Cambridge, USA
1987 Department of Meteorology, McGill University, Montreal
1988 Department of Physics (Atmospheric Physics Group), Imperial College of Science and Technology, UK
20th International Liege Colloquium on Ocean Hydrodynamics, University of Liege, Liege, Belgium
Institute of Meteorology and Oceanography, Rijksuniversiteit Utrecht, Utrecht, Netherlands
Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, USA
1989 Department of Mathematics and Statistics, Simon Fraser University, Burnaby
1990 Canadian Applied Mathematics Society Congress, Halifax
Department of Mathematics, University of Saskatchewan, Saskatoon
1991 Institute of Ocean Sciences, Patricia Bay Oceanographic Institution, Sidney
European Geophysical Society Meeting, Oceanic Fronts Section, Wiesbaden, Germany
NSF-CBMS Regional Conference on Nonlinear Waves, Orlando, USA
International Union of Geodesy and Geophysics (IAPSO/IAMAP sections), Vienna, Austria
Department of Physics, University of Toronto, Toronto
1992 Faculty of Technical Physics (Aeroacoustics, Instability and Vortices Group), Eindhoven University of Technology, Eindhoven, Netherlands
Department of Meteorology, McGill University, Montreal
Department of Physics, Memorial University, St. John's
Bedford Institution of Oceanography, Halifax
1993 Canadian Applied Mathematics Society Congress, Toronto
Department of Geography, University of Alberta, Edmonton
1994 Canadian Meteorological and Oceanographic Society Conference, Ottawa
School for Earth and Ocean Science, University of Victoria, Victoria
1996 Canadian Symposium on Fluid Dynamics, Winnipeg
Canadian Environmental Mathematics Workshop, London
European Geophysical Society Meeting, Transport Phenomena Section, The Hague, Netherlands
Atmosphere and Ocean Dynamics Program, Isaac Newton Institute for the Mathematical Sciences, Cambridge, UK
Mini-symposium on Geophysical Fluid Dynamics, Melbourne, Australia
National Center for Atmospheric Research (Oceanography Section), Boulder, USA
Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK
Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong
Department of Mathematics, University of New South Wales, Sydney, Australia
Department of Mathematics, University of Alabama, Tuscaloosa, USA
Department of Earth and Atmospheric Sciences, University of Alberta, Edmonton
1997 Applications of Arnol'd Stability, Fields Institute, University of Toronto, Toronto
1998 Workshop on Gravity Currents in the Environment, Vancouver
1999 Vortical structures in rotating and stratified fluids symposium, Cortona, Italy
2000 5th International Symposium on Stratified Flows, Vancouver
2001 Canadian Applied and Industrial Mathematics Society Congress, Victoria
IFREMER, Brest, France
2002 Canadian Fluid Dynamics Symposium, Calgary
IAM-PIMS Distinguished Colloquium Series, UBC
Nonlinear Processes in Geophysical Fluid Dynamics, Ensenada, Mexico
2004 Canadian Fluid Dynamics Symposium, Halifax
Canadian Meteorological and Oceanographic Society Conference, Edmonton
21st International Congress of Theoretical and Applied Mechanics, Warsaw, Poland
2005 Canadian Meteorological and Oceanographic Society Conference, Vancouver

2006 Advances in Fluid Mechanics VI, Skiathos, Greece
Canadian Fluid Dynamics Symposium, Toronto
"Coast-to-Coast Seminar: Live from Edmonton," The Interdisciplinary Research in the Mathematical and Computational Sciences Centre, Simon Fraser University, Burnaby
2007 Canadian Applied and Industrial Mathematics Society Conference, Banff
2008 American Mathematical Society/Mathematical Association of America Joint Meeting, San Diego, USA
Department of Applied Mathematics, University of Western Ontario, London
Advances in Fluid Mechanics VII, The New Forest, UK
Fields Institute Workshop on Nonlinear Wave Dynamics, Carleton University, Ottawa
PIMS Workshop on Waves in the Atmosphere and Ocean, Simon Fraser University, Burnaby
Canadian Mathematics Society Winter Meeting, Ottawa
2009 Fields Institute Workshop on Dynamics in Environmental and Geophysical Flows, University of Waterloo, Waterloo
2010 Institute for Mathematics Applied to Geosciences, National Center for Atmospheric Research, Boulder, USA
Wave Phenomena IV, University of Alberta, Edmonton
2011 Canadian Mathematics Society Winter Meeting, Toronto
2014 Advances in Fluid Mechanics X, A Coruna, Spain
2017 Canadian Mathematics Society Winter Meeting, Waterloo (declined)
2018 Canadian Symposium on Fluid Dynamics, Toronto (declined)