

C L A U D I A C E N E D E S E

RESEARCH INTERESTS

The focus of my research is to improve our understanding of how mesoscale and submesoscale processes such as buoyant plumes generated by melting glaciers, buoyancy driven surface and bottom currents, turbulent mixing and entrainment, river plumes and mesoscale vortices influence and modify the general circulation of the ocean. My principal goal is to improve our understanding of the underlying dynamics, leading to a more reliable and accurate representation of these processes in ocean and climate models.

EDUCATION

1995 Laurea, Universita' di Roma "La Sapienza", Environmental Engineering, Italy
1998 Ph.D., University of Cambridge, Applied Mathematics and Theoretical Physics, UK

POSITIONS HELD

1998 – 2000 Postdoctoral Scholar, Dept. of Physical Oceanography, WHOI
2000 Postdoctoral Investigator, Dept. of Physical Oceanography, WHOI
2000 Postdoctoral Investigator, Dept. of Earth, Atmospheric, and Planetary Sciences, MIT
2000 – 2004 Assistant Scientist, Dept. of Physical Oceanography, WHOI
2004 – 2009 Associate Scientist w/o tenure, Dept. of Physical Oceanography, WHOI
2009 – present Associate Scientist with tenure, Dept. of Physical Oceanography, WHOI

ACADEMIC PROGRAMS ADVISOR

Graduate Advisor: P.F. Linden, University of Cambridge.
Postdoctoral Advisor: J.A. Whitehead, Woods Hole Oceanographic Institution.

AWARDS

2015 Visiting Erskine Fellowship - Department of Civil and Natural Resources Engineering, College of Engineering, University of Canterbury, Christ Church, New Zealand.
2011 WHOI Doherty Chair in Education.
2010 – 2011 12-month Marie Curie Fellowship from the Seventh Framework Programme (FP7) of the European Commission.
2007 – 2009 WHOI Coastal Ocean Institute Fellow.
1997 Predoctoral Fellowship at the Geophysical Fluid Dynamics Summer School Program, WHOI.
1996 – 1998 24-month Research Fellowship from the Marine Science and Technologies Program of the European Commission.
1996 Research Studentship from Trinity Hall College, Cambridge, UK.
1995 National Summer School in Geophysical and Environmental Fluid Dynamics, University of Cambridge.

PROFESSIONAL PUBLICATIONS AND PRESENTATIONS

Author or co-author of 32 refereed publications, 4 non-refereed publications, 74 conference abstracts and presentations, 13 conference proceedings and 48 lectures.

REFEREED PUBLICATIONS

1. van der Wiel K.*, **Cenedese C.**, Gille S.T., Linden P.F. and Llewellyn Smith S.G. On the collision of sea breeze gravity currents. Submitted to *J. Fluid Mech.*
2. Jones C.S. *, **Cenedese C.**, Chassignet E.P., Linden P.F. and Sutherland B.R., 2015. Gravity Current Propagation Up a Valley. *J. Fluid Mech.*, 762, 417-434.
3. Straneo, F. and **Cenedese C.**, 2015. Dynamics of Greenland's glacial fjords and their role in climate. *Annual Review of Marine Science*, 7 (1), doi:10.1146/annurev-marine-010213-135133. *Contribution: Shared the planning and writing of the manuscript and provided feedback to lead author throughout process.*
4. Sciascia, R.*, **Cenedese C.**, Nicolì D.*, Heimbach P. and Straneo F. 2014 Impact of periodic intermediary flows on submarine melting of a Greenland glacier. *J. Geophys. Res.*, 119, doi:10.1002/2014JC009953.
5. **Cenedese C.** and Linden P.F. 2014. Entrainment in two coalescing axisymmetric turbulent plumes. *J. Fluid Mech.*, 752, doi:10.1017/jfm.2014.389.
6. Zhang W.G. and **Cenedese C.**, 2014. The Dispersal of Dense Water Formed in an Idealized Coastal Polynya on a Shallow Sloping Shelf. *J. Phys. Oceanogr.*, 44, 1563-1581. *Contribution: Conducted the laboratory experiments and analysis of the laboratory data. Shared the theoretical analysis and the interpretation of the numerical and laboratory data. Co-authored the manuscript text and provided feedback to lead author throughout process.*
7. Sciascia R.*, Straneo F., **Cenedese C.** and Heimbach P., 2013 Seasonal variability of submarine melt rate and circulation in an East Greenland fjord. *J. Geophys. Res.*, 118, 2492-2506. *Contribution: Guided the analysis and interpretation of the data. Contributed substantially to the writing of the manuscript and provided feedback to lead author throughout process.*
8. Andres M. and **Cenedese C.**, 2013 Laboratory experiments and observations of cyclonic and anticyclonic eddies impinging on an island. *J. Geophys. Res.*, 118, 762-773. *Contribution: Planned the experiments and shared the analysis and interpretation of the data. Contributed substantially to the writing of the manuscript and provided feedback to lead author throughout process.*
9. **Cenedese C.**, Todd R.E.*, Gawarkiewicz G.G., Owens W. B, and Shcherbina A.Y., 2013 Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current. *J. Phys. Oceanogr.*, 43, 905-919.
10. **Cenedese C.**, Lerczak J.A. and Bartone G. *, 2012. A Geostrophic Adjustment Model of two Buoyant Fluids. *J. Phys. Oceanogr.*, 42, 1932-1944.
11. **Cenedese C.**, 2012. Downwelling in Basins Subject to Buoyancy Loss. *J. Phys. Oceanogr.*, 42, 1817-1833.
12. Shrivastava A.*, **Cenedese C.** and Caulfield C.P., 2012. Entrainment and mixing dynamics of surface-stress-driven stratified flow in a cylinder. *J. Fluid Mech.*, 691, 498-517.
13. Yamamoto H. *, **Cenedese C.** and Caulfield C.P., 2011. Laboratory experiments on two coalescing axisymmetric turbulent plumes in a rotating fluid. *Physics of Fluids*, 23, 056601.

14. Straneo F., Curry, R.G., Sutherland D.A., Hamilton G.S., **Cenedese C.**, Våge K. and Stearns L.A., 2011. Impact of fjord dynamics and glacial run-off on the circulation near Helheim Glacier. *Nature Geosciences*, doi: 10.1038/NGEO1109. *Contribution: Participated in the interpretation of the data. Provided feedback to lead author.*
15. Wells M., **Cenedese C.** and Caulfield C.P., 2010. The relationship between flux coefficient and entrainment ratio in density currents. *J. Phys. Oceanogr.*, 40, 2713-2727. *Contribution: Shared the analysis and theoretical interpretation of the data. Co-authored the manuscript text and provided feedback to lead author throughout process.*
16. **Cenedese C.** and Adduce C. *, 2010. A new parameterization for entrainment in overflows. *J. Phys. Oceanogr.*, 40, 1835-1850.
17. Sutherland D.A.* and **Cenedese C.**, 2009. Laboratory experiments on the interaction of a buoyant coastal current with a canyon: application to the East Greenland Current. *J. Phys. Oceanogr.*, 39, 1258-1271.
18. Wells A.J.*, **Cenedese C.**, Farrar J.T. and Zappa C.J., 2009. Variations in ocean surface temperature due to near surface flow: straining the cool skin layer. *J. Phys. Oceanogr.*, 39, 2685-2710.
19. **Cenedese C.** and Adduce C.*, 2008. Mixing in a density-driven current flowing down a slope in a rotating fluid. *J. Fluid Mech.*, 604, 369-388.
20. Tanabe A. * and **Cenedese C.**, 2008. Laboratory experiments on mesoscale vortices colliding with an island chain. *J. Geophys. Res.*, 113, C04022, doi:10.1029/2007JC004322.
21. Wählin A.K., Darelus E.*, **Cenedese C.** and Lane-Serff G.F., 2008. Laboratory observations of enhanced entrainment in dense overflows in the presence of submarine canyons and ridges. *Deep Sea Res. I*, doi:10.1016/j.dsr.2008.02.007. *Contribution: Participated in planning the experiments. Shared the analysis and interpretation of the data. Co-authored the manuscript text and provided feedback to lead author throughout process.*
22. Wählin A.K. and **Cenedese C.**, 2006. How entraining density currents influence the stratification in a one-dimensional ocean basin. *Deep Sea Res. II*, 53, 172-193. *Contribution: Shared the analysis and interpretation of the data. Co-authored the manuscript text and provided feedback to lead author throughout process.*
23. Wolfe C.L.* and **Cenedese C.**, 2006. Laboratory experiments on eddy generation by a buoyant coastal current flowing over variable bathymetry. *J. Phys. Oceanogr.*, 36, 395-411.
24. **Cenedese C.**, Adduce C.* and Fratantoni D.M., 2005. Laboratory experiments on mesoscale vortices interacting with two islands. *J. Geophys. Res.*, 110, C09023, 10.1029/2004JC002734.
25. Limeburner R., Whitehead J.A. and **Cenedese C.**, 2005. Variability of Antarctic bottom water flow into the North Atlantic. *Deep-Sea Res. II*, 52, 495-512. *Contribution: Participated in the field work. Led the analysis and interpretation of the hydrographic and moored temperature data. Co-authored the manuscript text and provided feedback to lead author throughout process.*
26. Adduce C.*, and **Cenedese C.**, 2004. Laboratory experiments on a mesoscale vortex colliding with topography of varying geometry in a rotating fluid. *J. Mar. Res.*, 62, 611-638.
27. **Cenedese C.**, Marshall J.C. and Whitehead J.A., 2004. A laboratory model of thermocline depth and exchange fluxes across circumpolar fronts. *J. Phys. Oceanogr.*, 34, 656-667.
28. **Cenedese C.**, Whitehead J.A., Ascarelli T.A.* and Ohiwa M.*, 2004. A dense current flowing down a sloping bottom in a rotating fluid. *J. Phys. Oceanogr.*, 34, 188-203.

29. **Cenedese C.**, 2002. Laboratory experiments on mesoscale vortices colliding with a seamount. *J. Geophys. Res.*, 107, C6, 10.1029/2000JC000599.
30. **Cenedese C.** and Linden P.F., 2002. Stability of a buoyancy-driven coastal current at the shelf break. *J. Fluid Mech.*, 452, 97–121.
31. **Cenedese C.** and Whitehead J.A., 2000. Eddy-shedding from a boundary current around a cape over a sloping bottom. *J. Phys. Oceanogr.*, 30, 1514-1531.
32. **Cenedese C.** and Linden P.F., 1999. Cyclone and anticyclone formation in a rotating stratified fluid over a sloping bottom. *J. Fluid Mech.*, 381, 199-223.

* indicates student or postdoc involved in the research project and publication

SELECTED INVITED LECTURES

- 2014 Laboratory Experiments Investigating Glacier Submarine Melt Rates and Circulation in an East Greenland Fjord. *AGU Fall Meeting, San Francisco, CA, USA.*
- 2014 Laboratory experiments investigating submarine melting of Greenland’s glaciers. *GK Batchelor Laboratory 50 year Meeting, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK.*
- 2013 Submarine melt rate and circulation in an East Greenland fjord, *Ercofac - Turbulent mixing in Buoyancy Driven Flows, BP Institute, Cambridge, UK.*
- 2013 Submarine melt rate and circulation in an East Greenland fjord, *Gordon Research Conference, Coastal Ocean Circulation, Biddeford, MA, USA.*
- 2013 Ocean turbulence seen through a laboratory tank. *33rd CNLS Annual Conference: Ocean Turbulence, Santa Fe, NM, USA.*
- 2012 Downwelling in Basins Subject to Buoyancy Loss, *NCAR Image of the Year 2012: Connections between Rotating, Stratified Turbulence and Climate: Observations, Experiments, and Models, NCAR/CIRES, Boulder, CO, USA.*
- 2009 Mixing in oceanic and laboratory overflows. *MOCA-09, Montreal, Canada.*
- 2009 A new entrainment parameterization for mixing in oceanic overflows and dense gravity currents. *The Meeting of the Americas, Toronto, Canada.*
- 2008 Mixing in oceanic (and laboratory) overflows, *Workshop on Mixing in Geophysical Flows, BP Institute, Cambridge, UK.*
- 2008 What we can learn about the ocean in a 60 x 60 x 60 cm³ tank. *Workshop on Teaching Weather and Climate Using Laboratory Experiments, University of Chicago, Chicago, IL, USA.*
- 2007 Mixing induced in a dense plume flowing down a sloping bottom in a rotating fluid: a new entrainment parameterization? *39th Liège Colloquium on Ocean Dynamics “Turbulence re-visited”.*

OTHER PROFESSIONAL ACTIVITIES

Society Membership:

- 1998 – present American Geophysical Union
- 1998 – present American Physical Society

Community Activities:

- 2014 – present Member of the organizing committee of the 2015 APS-DFD Meeting in Boston.
- 2014 – present US AMOC Science Team Member.

- 2007, 2013 Co-director of the WHOI GFD Summer School Program.
- 2012 – 2013 Selected as an expert in the Civil Engineering and Architecture panel for the evaluation and review of research products in the framework of the Italian Evaluation of Research Quality exercise (VQR 2004-2010).
- 2010 Co-director of the Alpine Summer School on "Buoyancy Driven Flows" in Aosta, Italy.
- 2009 – present WHOI Faculty Liaison for the "Gori Fellowship".
- 2007 – present WHOI Faculty Liaison for the GFD Summer School Program.
- 2007 Chaired and organized the Mini-Symposium on "Ocean Bottom and Surface Boundary Layers" during the 4th week of the GFD Summer School, Woods Hole, MA.
- 2006 Chaired and organized the session: "Steep Topography Impact at All Scales" at the AGU Ocean Science Meeting, Honolulu, HI, USA, together with B. Dewar and G. Sutyrin.
- 2004 Invited to the New England Board of Higher Education "Outside Researchers Networking Reception".
- 2003 – present Member of the Faculty of the GFD Summer School Program.

WHOI Committees:

- 2006, 2010 Physical Oceanography Dept. Chair Selection Committee.
- 2009 – 2012 Educational Council Members and Joint Committee for Physical Oceanography.
- 2007 – 2010 Scientific Staff Executive Committee.
- 2006 – 2011 Coastal Ocean Institute Advisory Committee.
- 2005 – 2010 Physical Oceanography Dept. Safety Committee.
- 2002 – 2003 Physical Oceanography Dept. Seminar Coordinator.

Outreach:

- 2010 Interviewed by History Channel for the television program 'Underwater Universe' - Tides and Currents episode.
- 2011 Interviewed by RAI1 (Italian public TV) for the television program 'Superquark'.
- 2011 Interviewed by National Geographic for the television program 'Transparent Ocean'.
- 2013, 2014 Geophysical Fluid Dynamics Laboratory Open Days: a week-long event in which K-12 schools, teachers, WHOI employees, trustees, and the general public were invited to the laboratory to learn about the ocean and fluid dynamics from 10 demonstrations.

FIELD EXPERIENCE

- 2001 R.V. *L.M. Gould*, "GLOBEC Southern Ocean" Moored Array Deployment in Antarctica.
- 2001 R.V. *Oceanus*, "Antarctic Bottom Water Variability" Moored Array Recovery and CTD Survey in Equatorial Atlantic.
- 1999 R.V. *Oceanus*, "GLOBEC Georges Bank Frontal Study" Moored Array Recovery.
- 1999 R.V. *Seward Johnson*, "Antarctic Bottom Water Variability" Moored Array Deployment and CTD Survey in Equatorial Atlantic.

TEACHING AND ADVISING ACTIVITIES

University of RomaTRE:

- 2012 Invited to teach 7 lectures on Turbulence at the Dipartimento di Scienze dell'Ingegneria Civile, Roma Tre University, Roma, Italy.

MIT-WHOI Joint Program courses:

- 2002, 2004 12.862 Coastal Physical Oceanography (2002 taught with Dave Chapman and Steve Lentz; 2004 taught with Jim Lerczak and Steve Lentz).
2008 – 2012 12.800 Fluid Dynamics of the Atmosphere and Ocean (taught with Larry Pratt).

MIT-WHOI Joint Program Graduate advisor for:

- 2005-2007 Christie Woods (Co-advisor with J. Lerczak)
2002-2003 Dave Sutherland

WHOI Postdoctoral Scholar advisor for:

- 2009-2011 Magdalena Andres (Co-advisor with Y. Kwon and J. Yang)

MIT Postdoctoral advisor for:

- 2013 Roberta Sciascia (Co-advisor with F. Straneo and P. Heimbach)

GFD Summer Fellows advisor for:

- 2013 Catherine Jones, University of California, San Diego, USA
2013 Karin van der Wiel, University of East Anglia, UK
2012 Vamsi Chalamalla, University of California San Diego, USA
2009 Hiroki Yamamoto, Kyoto University, Japan
2008 Malte Jansen, Massachusetts Institute of Technology, USA
2008 Amrita Shrivastava, University of Oxford, UK
2007 Andrew Wells, University of Cambridge, UK
2007 Jeroen Hazewinkel, Amsterdam University, NL
2005 Aya Tanabe, Imperial College, London, UK
2004 Danielle Wain, University of Illinois at Urbana-Champaign, USA
2003 Christopher Wolfe, Oregon State University, USA

Guest Students advisor for:

- 2013 Marco Gatto, Universita' RomaTre, Rome, Italy
2013 Luisa Ottolenghi, Universita' RomaTre, Rome, Italy
2012 Dario Nicoli, Universita' di Roma "La Sapienza", Rome, Italy
2012 Caterina Massidda, Universita' di Roma "La Sapienza", Rome, Italy
2012 Riccardo Figoli, Universita' RomaTre, Rome, Italy
2011 Roberta Sciascia, Universita' di Torino, Torino, Italy
2010 Giuseppe Bartone, Universita' di Roma "La Sapienza", Rome, Italy
2010 Domenico Mussardo, Universita' di Roma "La Sapienza", Rome, Italy
2010 Alessandro Ramoni, Universita' di Roma "Tor Vergata", Rome, Italy
2009 Yackar Mauzole, Ecole Polytechnique, Paris, France
2008 Flavio Greggi, Universita' di Roma "La Sapienza", Rome, Italy

- 2008 Riccardo D'Andrea, Universita' di Roma "La Sapienza", Rome, Italy
- 2006 Michelangelo Mariani, Universita' di Roma "La Sapienza", Rome, Italy
- 2005 Valentina Dore, Universita' di Roma "La Sapienza", Rome, Italy
- 2005 Michela De Dominicis, Universita' di Roma "La Sapienza", Rome, Italy
- 2004 Rachel Bueno de Mesquita, Universita' di Roma "La Sapienza", Rome, Italy
- 2004 Claudia Adduce, Universita' RomaTre, Rome, Italy
- 2004 Shreyas Mandre, University of California, Santa Cruz, USA
- 2003 Igino Angelini, Universita' di Roma "La Sapienza", Rome, Italy
- 2003 Gianluca Cesarei, Universita' di Roma "La Sapienza", Rome, Italy
- 2002 Claudia Adduce, Universita' RomaTre, Rome, Italy

LECTURES

2014:

Laboratory experiments investigating submarine melting of Greenland's glaciers, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

Glacier submarine melt rate and circulation in an East Greenland Fjord, Department of Physics and Physical Oceanography, Memorial University of Newfoundland, St. John's, CANADA. (Invited).

2013:

Submarine melt rate and circulation in an East Greenland fjord, Department of Physics, University of Oxford, UK. (Invited).

Submarine melt rate and circulation in an East Greenland fjord, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK. (Invited).

Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current, Physical Oceanography Department, Florida State University, FL, USA. (Invited).

Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current, Dipartimento di Scienze dell'Ingegneria Civile, Roma Tre University, Roma, Italy. (Invited).

2012:

Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current, Graduate School of Oceanography, University of Rhode Island, RI, USA. (Invited).

Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

Downwelling in Basins Subject to Buoyancy Loss, GFD Summer School, Woods Hole, MA, USA. (Invited).

Geostrophic Adjustment and Stability of Two Adjacent Buoyant Coastal Currents, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

Downwelling in Basins Subject to Buoyancy Loss, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA. (Invited).

Downwelling in Basins Subject to Buoyancy Loss, Department of Geology and Geophysics, Yale University, CT, USA. (Invited).

Downwelling in Basins Subject to Buoyancy Loss, Dipartimento di Scienze dell'Ingegneria Civile, Roma Tre University, Roma, Italy. (Invited).

Downwelling in Basins Subject to Buoyancy Loss, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK. (Invited).

Downwelling in Basins Subject to Buoyancy Loss, LEGI-CNRS, Grenoble, France. (Invited).

2011:

Downwelling in Basins Subject to Buoyancy Loss, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

A New Parameterization for Entrainment in Overflows. Mechanical and Aerospace Engineering Department, University of California San Diego. (Invited).

2009:

Dynamics and Stability of Interacting Buoyant Currents, Physical Oceanography Department, Florida State University, FL, USA. (Invited).

A new entrainment parameterization for mixing in overflows, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

2008:

Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization, Physical Oceanography Sack Lunch Seminar, Massachusetts Institute of Technology, MA, USA. (Invited).

Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization, Geophysical and Nonlinear Fluid Dynamics Seminars, University of Oxford, UK.

Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization, National Oceanography Centre, Southampton, UK.

Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization, ITG, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK.

Mesoscale vortices colliding with islands and seamounts, Lab Group Lunch Seminar, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK. (Invited).

Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization. University of Gothenburg, SE. (Invited).

Mesoscale vortices colliding with islands and seamounts, University of Gothenburg, SE. (Invited).

2007:

Mesoscale vortices colliding with islands and seamounts, University of California San Diego, CA, USA. (Invited).

Mixing induced in a dense plume flowing down a sloping bottom in a rotating fluid: a new entrainment parameterization?, Graduate School of Oceanography, University of Rhode Island, RI, USA. (Invited).

2006:

Laboratory experiments on mixing in a dense current down a sloping bottom: a new entrainment parameterization?, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

2004:

Laboratory study on eddy generation by a buoyancy-driven current over variable bottom topography, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

Laboratory model of thermocline depth and exchange fluxes across circumpolar fronts GFDI, Florida State University, FL, USA. (Invited).

An experimental study of a monopolar vortex colliding with obstacles of varying geometry in a rotating fluid, University of Massachusetts Dartmouth, MA, USA. (Invited).

2003:

An experimental study of a monopolar vortex colliding with obstacles of varying geometry in a rotating fluid, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

An experimental study of a mesoscale vortex colliding with seamounts of varying geometry in a rotating fluid, Florida State University, Physical Oceanography Department, FL, USA. (Invited).

Thermocline depth and exchange fluxes across circumpolar fronts, University of RomaTre, Rome, Italy. (Invited).

Thermocline depth and exchange fluxes across circumpolar fronts, Graduate School of Oceanography, University of Rhode Island, RI, USA. (Invited).

Thermocline depth and exchange fluxes across circumpolar fronts, Workshop on “The Southern Ocean and the Antarctic Circumpolar Current” organized by J. Marshall, Massachusetts Institute of Technology, MA, USA

2002:

Density current down a slope in a rotating fluid. Department of Civil and Environmental Engineering, Massachusetts Institute of Technology, MA, USA. (Invited).

Thermocline depth and exchange fluxes across circumpolar fronts, Department of Geophysical Science, University of Chicago, IL, USA. (Invited).

Thermocline depth and exchange fluxes across circumpolar fronts, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

A dense current flowing down a sloping bottom in a rotating fluid, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

Density current down a slope in a rotating fluid, Department of Theoretical and Applied Mechanics, University of Illinois at Urbana-Champaign, IL, USA. (Invited).

2000:

Mesoscale vortices colliding with a seamount, University of Washington, WA, USA.

Mesoscale vortices colliding with a seamount, University of Delaware, DE, USA. (Invited).

Mesoscale vortices colliding with a seamount, Physical Oceanography Sack Lunch Seminar, Massachusetts Institute of Technology, MA, USA. (Invited).

Mesoscale vortices colliding with a seamount, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

1999:

The stability of a buoyancy-driven coastal current at the shelf break, Physical Oceanography Department, Woods Hole Oceanographic Institution, MA, USA.

CONFERENCE PROCEEDINGS

Cenedese C., Lerczak J.A. and Bartone G*. 2011. Dynamics and Stability of Interacting Buoyant Currents. Proceedings of the VII International Symposium on Stratified Flows, Rome, Italy. ISBN 978-88-95814-49-0.

Cenedese C. and Lerczak J.A., 2007. Understanding the dynamics of the interaction between two river plumes. *Fifth International Symposium on Environmental Hydraulics*, ASU, AZ, USA.

Cenedese C. and Adduce C.*, 2007. Mixing induced in a dense plume flowing down a sloping bottom in a rotating fluid: a new entrainment parameterization. *Fifth International Symposium on Environmental Hydraulics*, ASU, AZ, USA.

Adduce C.* and **Cenedese C.**, 2007. Experiments on mixing in a density driven current, *XXXII LAHR*.

Adduce C.* and **Cenedese C.**, 2006. Indagine sperimentale sul mescolamento di una corrente di gravita' su un piano inclinato. *Idra-2006, Roma, Italy. September 10-15, 2006*.

- Tanabe A.* and **Cenedese C.**, 2006. Laboratory experiments on vortices colliding with multiple islands. *Proc. Appl. Math. Mech. (PAMM)*, vol. 6, Wiley-VCH.
- Adduce C.* and **Cenedese C.**, 2004. Laboratory experiments on eddy interaction with multiple islands. *ICHE 2004, Brisbane, Australia*.
- Adduce C.* and **Cenedese C.**, 2004. Experimental investigation of a vortex interacting with an obstacle in a rotating fluid. *Idra-2004, Trento, Italy. September 7-10, 2004*.
- Adduce C.* and **Cenedese C.**, 2003. Influence of islands and their 3-D geometry on the bifurcation of eddies. *XXX International Association Hydraulic Research Congress, Thessaloniki, Tema A, pp. 603-610*.
- Adduce C.* and **Cenedese C.**, 2003. Indagine sperimentale sull'interazione fra vortici e isole. *Conferenza "La Difesa Idraulica del Territorio", 10-12 Settembre, Trieste, Italy*.
- Sutherland D.* and **Cenedese C.**, 2003. The Role of Eddies in a Laboratory Study of the Antarctic Circumpolar Current. *Proceeding of Oceans 2003 Conference, San Diego*.
- Cenedese C.**, Whitehead J.A., Ascarelli T.A.* and Ohiwa M.*, 2001. Density Current down a Slope in a Rotating Fluid. *International Symposium on Environmental Hydraulics, ASU, AZ*.
- Cenedese C.** and Dalziel S.B., 1998. Concentration and depth fields determined by the light transmitted through a dyed solution. *Proceedings of the 8th International Symposium on Flow Visualization, ed. Carlomagno & Grant. ISBN 0 953399109, paper 061*.

* indicates student or postdoc involved in the research project and publication

NON-REFEREED PUBLICATIONS

- Buoyancy-Driven Flows*, 2012. Chassignet, E.P., **C. Cenedese**, and J. Verron, (Eds.), Cambridge University Press, 436 pp.
- Cenedese C.**, 1998. *Baroclinic eddies over topography*. Ph.D. thesis, DAMTP, University of Cambridge.
- Cenedese C.**, 1998. *Eddy-shedding from a boundary current around a cape over a sloping bottom*. Geophysical Fluid Dynamics Program Notes, Woods Hole Oceanographic Institution Technical Report, WHOI-98-09.
- Cenedese C.**, 1995. *The effects of the Coriolis force on the motion of stratified flows*. Degree Thesis, University of Rome.

CONFERENCE ABSTRACTS AND PRESENTATIONS

2015:

- Cenedese C. Laboratory Experiments Investigating Glacier Submarine Melt Rates and Circulation in an East Greenland Fjord. *The 3rd Interannual New Zealand Physical Oceanography Workshop, Wellington, New Zealand*.

2014:

- Cenedese C. Laboratory Experiments Investigating Glacier Submarine Melt Rates and Circulation in an East Greenland Fjord. *AGU Fall Meeting, San Francisco, CA, USA*. (Invited).
- Bhaganagar K., Nayamatullah M.* and Cenedese C. Comparison of entrainment in constant volume and constant flux dense currents over sloping bottoms. *AGU Fall Meeting, San Francisco, CA, USA*. (Presented by Bhaganagar).
- Enderlin E., Hamilton G., Straneo F. and Cenedese C. Submarine Melting of Icebergs from Repeat High-Resolution Digital Elevation Models. *AGU Fall Meeting, San Francisco, CA, USA*. (Presented by Enderlin).
- Cenedese C., Ottolenghi L.* and Adduce C. Entrainment in a density-driven current flowing down a

rough slope in a rotating fluid. *APS 67th Annual Meeting of the Division of Fluid Dynamics, San Francisco, CA, USA.*

Cenedese C. Laboratory experiments investigating the influence of multiple subglacial discharges on submarine melting of Greenland's Glaciers. *FAMOS Meeting, Woods Hole, MA, USA.*

Cenedese, C. Laboratory experiments investigating submarine melting of Greenland's glaciers. *GK Batchelor Laboratory 50 year Meeting, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK.* (Invited).

Cenedese C. Laboratory experiments investigating the influence of multiple subglacial discharges on submarine melting of Greenland's Glaciers. *2014 Ocean Science Meeting, Honolulu, HI, USA.*

2013:

Cenedese C. Laboratory experiments investigating the influence of subglacial discharge on submarine melting of Greenland's Glaciers. *APS 66th Annual Meeting of the Division of Fluid Dynamics, Pittsburgh, PA, USA.*

Cenedese C. Laboratory experiments investigating the influence of subglacial discharge on submarine melting of Greenland's Glaciers. *FAMOS Meeting, Woods Hole, MA, USA.*

Zhang W.G. and Cenedese C. Dispersal of Dense Water in a Coastal Region. *MABPOM Meeting, RI, USA.*

Cenedese, C. Submarine melt rate and circulation in an East Greenland fjord, *Ercoftac - Turbulent mixing in Buoyancy Driven Flows, BP Institute, Cambridge, UK.* (Invited)

Cenedese, C. Submarine melt rate and circulation in an East Greenland fjord, *Gordon Research Conference, Coastal Ocean Circulation, Biddeford, MA, USA.* (Invited).

Cenedese, C. Ocean turbulence seen through a laboratory tank. *33rd CNLS Annual Conference: Ocean Turbulence, Santa Fe, NM, USA.* (Invited).

2012:

Cenedese C. Laboratory experiments investigating the influence of fjord circulation on submarine melting of Greenland's Glaciers. *APS 65th Annual Meeting of the Division of Fluid Dynamics, San Diego, CA, USA.*

Cenedese C. Laboratory experiments investigating the influence of fjord circulation on outlet glacier melting. *AOMIP/FAMOS Meeting, Woods Hole, MA, USA.*

Cenedese C., Todd R.E., Gawarkiewicz G.G., Owens W. B, and Shcherbina A.Y. Offshore Transport of Shelf Waters through Interaction of Vortices with a Shelfbreak Current., *MABPOM Meeting, CT, USA.*

Cenedese, C. Downwelling in Basins Subject to Buoyancy Loss, *NCAR Image of the Year 2012: Connections between Rotating, Stratified Turbulence and Climate: Observations, Experiments, and Models, NCAR/CIRES, Boulder, CO, USA.* (Invited).

Cenedese, C. Laboratory Experiments on the Stability of Two Adjacent Buoyant Coastal Currents. *2012 Ocean Science Meeting, Salt Lake City, UT, USA.*

2011:

Cenedese C., Caulfield C.P., Dewar W.K., Wiebe P.H., and Copley N. Enhanced vertical mixing by grass shrimp (Palaemonetes) in a linearly stratified fluid. *APS 64th Annual Meeting of the Division of Fluid Dynamics, Baltimore, MD, USA.*

Cenedese, C. Dynamics and Stability of Interacting Buoyant Currents. *VII International Symposium on Stratified Flows, Rome, Italy.*

2010:

Cenedese, C. Downwelling in Boundary Currents Subject to Buoyancy Loss. *APS 63rd Annual Meeting*

of the Division of Fluid Dynamics, Long Beach, CA, USA.

Shrivat, A.*, Cenedese, C. and Caulfield C.P. The inhibiting effect of stratified mixing on surface-stress-driven flow in a cylinder. *2010 Ocean Science Meeting, Portland, OG, USA.* (Presented by Shrivat)

2009:

Caulfield C.P, Shrivat, A. * and Cenedese, C. The inhibiting effect of stratified mixing on surface-stress-driven flow in a cylinder. *APS 62nd Annual Meeting of the Division of Fluid Dynamics, Minneapolis, MN, USA.* (Presented by Caulfield).

Cenedese C. and Adduce C. * Mixing in oceanic and laboratory overflows. *MOCA-09, Montreal, Canada.* (Invited).

Cenedese C. and Adduce C. * A new entrainment parameterization for mixing in oceanic overflows and dense gravity currents. *The Meeting of the Americas, Toronto, Canada.* (Invited).

Cenedese C. and Lerczack J.A. Interaction and stability of two buoyant currents. *Gordon Research Conference, Coastal Ocean Circulation, New London, NH, USA.* (Poster).

2008:

Cenedese C., Lerczack J.A. and D'Andrea R.* Interaction and stability of two buoyant plumes. *APS 61st Annual Meeting of the Division of Fluid Dynamics, San Antonio, TX, USA.*

Cenedese C. Mixing in oceanic (and laboratory) overflows, *Workshop on Mixing in Geophysical Flows, BP Institute, Cambridge, UK.* (Invited)

Cenedese C. What we can learn about the ocean in a 60 x 60 x 60 cm³ tank. *Workshop on Teaching Weather and Climate Using Laboratory Experiments, University of Chicago, Chicago, IL, USA.* (Invited)

Cenedese C. and Adduce C.* Mixing induced in oceanic overflows and dense gravity currents: a new entrainment parameterization. *Ocean Sciences Meeting, Orlando, FL, USA.*

Wählin, A.K., Darelius, E.*, Cenedese C. and Lane-Serff G.F. Laboratory observations of enhanced plume entrainment in the presence of submarine canyons and ridges. *Ocean Sciences Meeting, Orlando, FL, USA.* (Presented by Wählin).

Wells A.J.*, Cenedese C., Farrar J.T. and Zappa C.J. Variations in ocean surface temperature due to near surface flow: straining the cool skin layer. *Ocean Sciences Meeting, Orlando, FL, USA.* (Presented by Wells).

2007:

Cenedese C. and Lerczak J.A. Understanding the dynamics of the interaction between two river plumes. *5th ISEH, Tempe, AZ, USA.*

Cenedese C. and Adduce C.* Mixing induced in a dense plume flowing down a sloping bottom in a rotating fluid: a new entrainment parameterization. *5th ISEH, Tempe, AZ, USA.*

Cenedese C. Mixing induced in a dense plume flowing down a sloping bottom in a rotating fluid: a new entrainment parameterization? *39th Liège Colloquium on Ocean Dynamics "Turbulence re-revisited" (7–11 May 2007).* (Invited).

Adduce C.* and Cenedese C. Experiments on mixing in a density driven current. *XXXII LAHR Conference. July 1–6, 2007. Venice, Italy.* (Presented by Adduce).

Wählin A.K., Darelius, E.*, Cenedese C. and Lane-Serff G.F. Laboratory observations of increased plume entrainment in the presence of submarine canyons and ridges. *EGU 2007, Vienna, Austria, 15–20 April 2007.* (Presented by Wählin).

Wählin A.K. and Cenedese C. How entraining density currents influence the stratification in a one-dimensional ocean basin. *EGU 2007, Vienna, Austria, 15–20 April 2007.* (Presented by Wählin).

2006:

- Adduce C.* and Cenedese C. Indagine sperimentale sul mescolamento di una corrente di gravita' su un piano inclinato. *Idra-2006, Roma, Italy. September 10–15, 2006.* (Presented by Adduce).
- Adduce C.* and Cenedese C. Mixing induced in a dense current flowing down a sloping bottom in a rotating fluid. *Ocean Sciences Meeting, Honolulu, HI, USA.* (Poster).
- Wählin A.K. and Cenedese C. How entraining density currents influence the ocean stratification. *Ocean Sciences Meeting, Honolulu, HI, USA.* (Poster presented by Wählin).
- Cenedese C. Vortex interaction with a buoyancy-driven coastal current in a rotating fluid. *Ocean Sciences Meeting, Honolulu, HI, USA.*
- Tanabe A.* and Cenedese C. Laboratory experiments on vortices colliding with multiple islands. *GAMM (The Gesellschaft für Angewandte Mathematik und Mechanik e.V.) Annual meeting, Berlin, Germany.* (Invited). (Presented by Tanabe).

2005:

- Cenedese C. and Adduce C.* Mixing induced in a dense current flowing down a sloping bottom in a rotating fluid. *APS58th Annual Meeting of the Division of Fluid Dynamics, Chicago, IL, USA.*
- Cenedese C. Vortex interaction with a buoyancy-driven coastal current in a rotating fluid. *Gordon Research Conference, Coastal Ocean Circulation, New London, NH, USA.* (Poster).
- Adduce C.* and Cenedese C. Mixing induced in a dense current flowing down a sloping bottom in a rotating fluid. *European Geosciences Union, General Assembly, Vienna, Austria.*
- Cenedese C. Vortex interaction with a buoyancy-driven coastal current in a rotating fluid. *European Geosciences Union, General Assembly, Vienna, Austria.* (Poster).

2004:

- Wählin A.K. and Cenedese C. Mixing induced by density currents. *Symposium on Ocean Mixing, Victoria, B.C., Canada.* (Presented by Wählin).
- Wolfe C.L.* and Cenedese C. Laboratory study on eddy formation by buoyant current over variable topography. *European Geosciences Union, 1st General Assembly, Nice, France.*
- Cenedese C. and Chapman D.C. Dynamics of a buoyant coastal current crossing a channel. *European Geosciences Union, 1st General Assembly, Nice, France.*
- Cenedese C. and Whitehead J.A. Mixing induced by wave-breaking in a dense current flowing down a sloping bottom in a rotating fluid. *Ocean Sciences Meeting, Portland, OR, USA.*
- Wolfe C.L.* and Cenedese C. Laboratory experiments on eddy generation by buoyant flow over variable topography. *Ocean Sciences Meeting, Portland, OR, USA.* (Poster presented by Wolfe).
- Cenedese C. and Chapman D.C. A buoyant coastal current encountering abrupt changes in the coastline. *Ocean Sciences Meeting, Portland, OR, USA.*
- Cenedese C. and Adduce C.* Laboratory experiments on eddy interaction with multiple islands. *APS56th Annual Meeting of the Division of Fluid Dynamics, East Rutherford, NJ, USA.*
- Adduce C.* and Cenedese C. Experimental investigation of a vortex interacting with an obstacle in a rotating fluid. *Idra-2004, Trento Italy. September 7-10, 2004.* (Presented by Adduce).

2003:

- Adduce C.* and Cenedese C. Influence of islands and their 3-D geometry on the bifurcation of eddies. *XXX International Association Hydraulic Research Conference, Thessaloniki, Tema A, pp. 603-610.* (Presented by Adduce).
- Adduce C.* and Cenedese C. Indagine sperimentale sull'interazione fra vortici e isole. *Conference "La Difesa Idraulica del Territorio", 10-12 September, 2003, Trieste, Italy.* (Presented by Adduce).

Cenedese C. and Adduce C.* Laboratory experiments on eddy collisions with seamounts of varying geometry, *EGS-AGU - European Union Geosciences Joint Assembly, Nice, France*.

Adduce C.* and Cenedese C. Laboratory experiments on eddy collisions with islands, *European Geophysical Society - EGS-AGU - European Union Geosciences Joint Assembly, Nice, France*. (Poster presented by Adduce).

2002:

Cenedese C. and Adduce C.* Influence of multiple islands and their 3-D geometry on the bifurcation of eddies. *AGU Fall Meeting, San Francisco, CA, USA*. (Poster).

Whitehead J.A., Ohiwa M.* and Cenedese C. Mixing by a gravity current over a sloping bottom in a rotating fluid. *APS 55th Annual Meeting of the Division of Fluid Dynamics, Dallas, TX, USA*. (Presented by Whitehead).

Cenedese C. and Whitehead J.A. A dense current flowing down a sloping bottom in a rotating fluid. *APS55th Annual Meeting of the Division of Fluid Dynamics, Dallas, TX, USA*.

Sciarra R.*, Cicerani S.*, Espa S. and Cenedese C. Dynamics of meddies interaction with submarine mountains. *EGS, Nice, France*. (Poster presented by Sciarra).

Cenedese C., Marshall, J.C. and Whitehead J.A. Thermocline depth and exchange fluxes across circumpolar fronts. *Ocean Sciences Meeting, Honolulu, HI, USA*.

2001:

Cenedese C., Whitehead J.A. and Ascarelli T.A.* Density current down a slope in a rotating fluid. *3rd ISEH, Tempe, AZ, USA*.

Cenedese C. Vortex Interaction with a buoyancy-driven coastal current in a rotating fluid. *APS54th Annual Meeting of the Division of Fluid Dynamics, San Diego, CA, USA*.

Cenedese C. and Whitehead J.A. Laboratory studies of density increase on shelves. *Shelf-Basin Interaction Principal Investigators Meeting, Albuquerque, NM, USA*.

2000:

Cenedese C. Vortex past a right cylinder in a rotating fluid. *APS53th Annual Meeting of the Division of Fluid Dynamics, Washington, DC, USA*.

Cenedese C. and Whitehead, J.A. Eddy formation at the shelf break. *Shelf-Basin Interaction Pan Arctic Meeting, Callaway Gardens, GA, USA*.

1999:

Cenedese C. Meddy collision with topography. *APS 52th Annual Meeting of the Division of Fluid Dynamics, New Orleans, LA, USA*.

Cenedese C. Stability of baroclinic coastal currents at the shelfbreak. *27th MABPOM WORKSHOP, WHOI, Woods Hole, MA, USA*.

Cenedese C. Meddy collision with topography. *EUROMECH Colloquium 396, Cortona, Italy*.

1998:

Cenedese C. Stability of buoyancy-driven coastal current over topography. *APS 51th Annual Meeting of the Division of Fluid Dynamics, Philadelphia, PA, USA*.

Cenedese C. and Dalziel S.B. Concentration and layer depth fields determined from the light transmitted through a dyed solution. *8th International Symposium on Flow Visualization, Sorrento, Italy*.

Cenedese C. Eddy-shedding from a boundary current around a cape over a sloping bottom. *Konstantin Fedorov Memorial Symposium on Oceanic Fronts and Related Phenomena, Sankt-Petersburg, Russia*.

Cenedese C. and Whitehead, J.A. Eddy-shedding from a boundary current around a cape over a sloping bottom. *AGU Ocean Sciences Meeting, San Diego, CA, USA*. (Poster).

1997:

Cenedese C. and Linden P.F. Stability of vortices in a stratified fluid over a sloping bottom topography. *EUROMECH 3rd European Fluid Mechanics Conference, Gottingen, Germany.*

Cenedese C. and Linden P.F. Transition from single to multiple vortices over a sloping bottom in a two-layer rotating environment. *EGS XXII General Assembly, Vienna, Austria.*

1996:

Cenedese C. and Linden, P.F. Anticyclonic and cyclonic vortices in a two-layered rotating environment. *UK Oceanography '96, Bangor, Wales, UK.*

* indicates student or postdoc involved in the research project and publication