Karina Ramos-Musalem

Personal Information

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Nationality:	Mexican

Education

01/2020	PhD - University of British Columbia (UBC) Thesis: *Tracer Transport Through Submarine Canyons* Supervisor: Susan Allen
04/2013	BSc Physics - Universidad Nacional Autónoma de México (UNAM) Thesis: *Estudio numérico de los forzamientos que generan la surgencia de Yucatán* Supervisor: Jorge Zavala Hidalgo

Awards and Honours

2020	**Captain Thomas S. Byrne Prize for outstanding thesis in oceanography** University of British Columbia
2018–2020	**Scholarship for graduate studies** Consejo Nacional de Ciencia y Tecnología (CONACYT)
2014–2018	**Four Year Fellowship** University of British Columbia
2017	**Best Student Talk** Eastern Pacific Ocean Conference, Fallen Lake, Nevada, USA.
2016	**Financial support** Fluid Dynamics of Sustainability and the Environment Summer School, University of Cambridge, UK.
2015	**Teaching commendation by the Dean of Science** University of British Columbia
2013	**Student Travel Grant** Meeting of the Americas, American Geophysical Union
2011	**Summer Student Fellowship** Woods Hole Oceanographic Institution

Publications

Ramos-Musalem, K. and Allen, S. E. (2020) The impact of initial tracer profile on the exchange and on-shelf distribution of tracers induced by a submarine canyon, *Journal of Geophysical Research: Oceans*,125, e2019JC015785, DOI:10.1029/2019JC015785

Ramos-Musalem, K. and Allen, S. E. (2019) The Impact of Locally Enhanced Vertical Diffusivity on the Cross-Shelf Transport of Tracers Induced by a Submarine Canyon, *Journal of Physical Oceanography*, 49(2), DOI: 10.1119/1.3119175.

Arane, T., **Musalem, A.K.R.**, and Fridman, M. (2009) Coupling between two singing wineglasses, *American Journal of Physics*, 77(11), DOI:10.1119/1.3119175.

Selected Conferences and Invited Talks

2020	Transporte en cañones submarinos*, Physical Oceanography Seminar, CICESE, Ensenada, Baja California, Mexico.
2018	**Ramos-Musalem, K.** and S. E. Allen, The Impact of Submarine Canyon Dynamics on the Cross-Shelf Exchange and On-Shelf Distribution of Nutrients and Oxygen, AGU/TOS/ASLO Ocean Sciences Meeting, Portland, Oregon.
2017	Intercambio de nutrientes en un cañón submarino*, Physical Oceanography Seminar, IOA-CCA, UNAM, Mexico City, Mexico.
2017	**Ramos-Musalem, K.** and S. E. Allen, Scaling Estimates of Tracer Flux Through a Submarine Canyon, 51st CMOS Congress, Toronto, OB, Canada.
2017	**Ramos-Musalem, K.** and S. E. Allen, The Combined Effect of Submarine Canyon Dynamics and Geometry of Tracer Concentration Profiles on the Cross-Shelf Exchange of Tracers, Eastern Pacific Ocean Conference, Fallen Leaf Lake, CA, USA.
2016	**Ramos-Musalem, K.** and S. E. Allen. Tracer and Nutrient Transport Through Upwelling Submarine Canyons, 3rd INCISE Symposium. Victoria, BC.
2016	**Ramos-Musalem, K.**, S. E. Allen, and S. Waterman. Cross-Shelf Transport of Tracers Induced by a Submarine Canyon†, ASLO/AGU/TOS Ocean Sciences Meeting, New Orleans, Louisiana, USA.
2015	Physical Oceanography of Submarine Canyons: Research at UBC*, Ocean Networks Canada Barkley Canyon Workshop, University of Victoria, Victoria, BC.
2014	**Ramos-Musalem, K.**, J. Zavala-Hidalgo, and A. Ruiz-Angulo, A Numerical Study of the Yucatan Upwelling Processes†, ASLO/AGU/TOS Ocean Sciences Meeting, Honolulu, Hawaii, USA.
2013	**Ramos-Musalem, K.**, J. Zavala-Hidalgo, and A. Ruiz-Angulo, A Numerical Study of the Yucatan Upwelling Processes, AGU Meeting of the Americas, Cancun, QR, Mexico.
2012	**Ramos-Musalem, K.**, K. R. Helfrich, and B. L. White, Evolution of Shallow, Horizontal Shear Layers with a Horizontal Density Contrast†, ASLO/AGU/TOS Ocean Sciences Meeting, Salt Lake City , Utah, USA.

∗: Invited Talk
†: Poster Presentation

Workshops and Training

08/2019	**Ocean Hack Week**, University of Washington, Seattle, WA, USA.
09/2018	**Instructional Skills Workshop**, Centre for Teaching, Learning and Technology, UBC, Vancouver.
09/2018	**Laser Safety and Program Development Course**, Risk Management Services, UBC, Vancouver.
09/2016	**Fluid Dynamics of Sustainability and the Environment Summer School**, DAMTP, University of Cambridge, UK.
11/2014	**Software Carpentry Instructor Training Workshop**, University of Washington, Seattle, WA, USA.

Experience

Research

2018–2020	**PhD Research** *EOAS, UBC, Canada* Laboratory modelling of the flow around two submarine canyons on a rotating tank using Particle Image Velocimetry (PIV), dye and conductivity probes.
supervisor	Susan E. Allen
2014–2020	**PhD Research** *EOAS, UBC, Canada* Numerical modelling of the cross-shelf exchange of tracers through a submarine canyon using the community model MITgcm.
supervisor	Susan E. Allen
2012–2013	**Undergraduate Thesis** *Ocean-Atmosphere Interaction Group, Centro de Ciencias de la Atmosfera, UNAM, Mexico City, Mexico* Numerical modelling of the Yucatan shelf upwelling in the Gulf of Mexico using the community model MITgcm.
Supervisor	Jorge Zavala Hidalgo
2012	**Undergraduate Research** *Fluid Mechanics and Rheology Laboratory, IIM, UNAM, Mexico City, Mexico* Experiments on swimming mechanics of Artemia Salina using PIV and high-speed camera as visualization techniques.
Supervisor	Roberto Zenit
2011	**Summer Student Fellow** *Geophysical Fluid Dynamics Laboratory, Woods Hole Oceanographic Institution, Woods Hole, MA, USA.* Experiments on the evolution of tilting shear layers with a horizontal density contrast.
Supervisor	Karl H. Helfrich
2007	**Summer Research** *Complex Systems Department, Wizemann Institute of Science, Rehovot, Israel.* Experiments with singing wineglasses using water as a coupling agent and measuring vibration coherence with lasers.
Supervisor	Moti Fridman

Teaching

Instructor

2021-1	**Experimental Techniques**, Facultad de Ciencias, UNAM

Software Carpentry Instructor

2015	Women in Science and Engineering Software Carpentry Workshop, Faculty of Science, UBC.
2015, 2016	Earth, Ocean and Atmospheric Sciences Software Carpentry Workshop, UBC.

Teaching Assistant

2017, 2016	EOSC 471 - Waves, Currents, and Mixing in the Ocean, UBC
2015	EOSC 442 - Climate Measurement and Analysis, UBC
2013, 2014, 2016	EOSC 372 - Introduction to Oceanography, UBC
2012, 2013	Ordinary Differential Equations I, Facultad de Ciencias, UNAM.

Service and Volunteering

	Manuscript reviewer for scientific journals
2019 –	Geophysical Research Letters
2020 –	Journal of Geophysical Research
2020 –	Deep Sea Research
2018–2019	**Science Pen-pal** Letters to a Pre-scientist Pen-pal to 5th grade students for the school year 2018-2019.
2018	**Contributing author** Earth Matters, EOAS, UBC Earth Matters is the annual newsletter of the Department of Earth Ocean and Atmospheric Sciences.
2016–	**Committee Member** VM Srivastava Endowment Funds Oversight Committee, Faculty of Science, UBC
2015	**Session Co-Chair** CMOS, Whistler, BC Co-chaired the session "Mixing in the coastal and open ocean" at the annual meeting of the Canadian Meteorological and Oceanographic Society.
2014–2016	**Helper** Software Carpentry Workshops Several workshops at Simon Fraser University and UBC, Vancouver, BC.
2015	**Volunteer** CMOS Meeting, Whistler, BC
2014–2015	**Organizer** Physical Oceanography Seminar, EOAS-UBC

Skills

- Programming: Shell, Python, Matlab and Fortran
- Version control: Git and Mercurial
- Languages: Spanish (native), English (fluent)

Professional Affiliations

American Geophysical Union
The Oceanography Society