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Cesar B Rocha

Physical oceanographer

Research I intertwine theory, computation, and analysis of observations to unravel pressing problems on how the ocean flows and shapes the climate. My motivation stems both from the desire to solve societal-relevant problems and natural curiosity. My latest research efforts have targeted the turbulent and wavy dynamics of the upper ocean at horizontal scales between 1-300 km.

Education

Current, PhD in Oceanography, University of California, San Diego
BSc, MSc in Oceanography, University of São Paulo, Brazil (*summa cum laude*)

Experience

2015, Fellow in Geophysical Fluid Dynamics, GFD Program, WHOI
Coupled reduced equations for strongly stratified flows.

2013–Current, Graduate Student Researcher, SIO/UCSD
Stratified planetary turbulence and dynamics of the upper ocean.

2012, Visiting student, University of Massachusetts Dartmouth
Quasigeostrophic modes and surface quasigeostrophic solutions.

2011–2013, Master Student, University of Sao Paulo
Energetics and dynamics of the Brazil Current System.

Publications

Submitted

2. Ardhuin, F., Gille, S., Menemenlis, D., **Rocha, C. B.**, Rascle, N., Chapron, B., Gula, J., Molemaker, J.: Small scale currents have large effects on ocean wave heights, under review for GRL.

1. **Rocha, C. B.**, Chereskin, T. K., Gille, S. T., Young, W. R., and Menemenlis, D.: Seasonality in governing submesoscale dynamics in the Kuroshio Extension, under review for GRL.

Peer-reviewed

4. **Rocha, C. B.**; Chereskin, T. K.; Gille, S. T. and Menemenlis, D., 2016: "Mesoscale to submesoscale wavenumber spectra in Drake Passage", *J. Phys. Oceanogr.*, 46 (2), 601-620, doi:10.1175/JPO-D-15-0087.1.

3. **Rocha, C. B.**; Young, W. R. and Grooms, I., 2016: "On Galerkin approximations of the surface-active quasi-geostrophic equations", *J. Phys. Oceanogr.*, 46 (1), 125-139, doi:10.1175/JPO-D-15-0073.1

2. **Rocha, C. B.**; da Silveira, I. C. A., Castro, B. ,M. and Lima, J. A. M., **2014**: "Vertical structure, energetics and dynamics of the Brazil Current System at 22°S-28°S", *J. Geophys. Res., 119,* doi:10.1002/2013JC009143.

1. **Rocha, C. B.**; Tandon, A.; da Silveira, I. C. A. and Lima, J. A. M., **2013**: "Traditional Quasi-geostrophic modes and Surface Quasi-geostrophic solutions in the Southwestern Atlantic", *J. Geophys. Res., 118 (5),* doi:10.1002/jgrc.20214.

Grey literature

1. **Rocha, C. B.**, 2015: Coupled reduced equations for strongly stratified flows, Proceedings of the Geophysical Fluid Dynamics Program, Woods Hole Oceanographic Institution, Woods Hole, MA.

Invited Seminars

1. Oceans and Cryosphere Seminar Series, Jet Propulsion Laboratory, Fall 2015

Software

3. Core developer for "Python quasigeostrophic model" (PyQG), `doi.org/10.5281/zenodo.30517`

2. Core developer for "Spectral Analysis in Python" (PySpec), `doi.org/10.5281/zenodo.31596`

1. Contributor to a number of open source projects on github.

Service

2016, Reviewer for Deep Sea Research-I, Geophysical Research Letters, Journal of Fluid Mechanics, Nature Communications, Ocean Modelling.

2016, Member of student committee as part of the SIO faculty search in large scale observational physical oceanography.

2015-2016, Mentor for 1st yr SIO Graduate Students.

2015, Member of student committee for the SIO teaching award.

Honors & Awards

2016, NASA Earth & Space Science Graduate Fellowship
2015, Geophysical Fluid Dynamics Fellowship, Woods Hole Oceanographic Institution
2011, Best BSc thesis in Oceanography, University of Sao Paulo

Skills

Programming

Python , C, Fortran 90, Shell-Script, Matlab, git, mercurial, markdown

Languages

English (fluent), Portuguese (native), Spanish (professional fluency)

Membership

American Geophysical Union, The Oceanography Society, NumFOCUS

Other interests

Data science, Scientific reproducibility, Free software, Open science, History and philosophy of science