

# SEAN HANEY PH.D.

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webpage: [seanrhaney.github.io](http://seanrhaney.github.io)

## EDUCATION

- 2010-2015 **Ph.D., Atmospheric and Oceanic Sciences**, University of Colorado at Boulder.  
Research Advisor: Baylor Fox-Kemper
- 2010-2013 **M.S. Atmospheric and Oceanic Sciences**, University of Colorado at Boulder
- 2005-2009 **B.S. Mathematics**, College of Creative Studies, University of California, Santa Barbara

## FELLOWSHIP AWARDS

- 2012 **Cooperative Institute for Research in the Environmental Sciences (CIRES)**: Graduate Student Research Fellowship. *Graduate level merit fellowship, 50%.*
- 2007 **University of California, Santa Barbara, College of Creative Studies**: Summer Undergraduate Research Fellowship. *Undergraduate level research fellowship, 20%.*

## RESEARCH EXPERIENCE

- 2017- **Postdoctoral Researcher**: Scripps Institution of Oceanography, under J. A. MacKinnon. *Submesoscale instabilities and turbulence in the ocean surface boundary layer.*
- 2015-2017 **Postdoctoral Researcher**: Scripps Institution of Oceanography, under W. R. Young. *Interactions between surface and internal gravity waves.*
- 2011-2014 **Graduate Researcher**: CIRES (Boulder, Colorado), under B. Fox-Kemper, UCB Dept. of Atmospheric and Oceanic Sciences. *Studied three-dimensional turbulent process that affect the ocean mixed layer.*
- 2011 **Student**: Community Earth System Model (CESM) Tutorial, National Center for Atmospheric Research (NCAR) Mesa Lab, Boulder, CO. *August 1-5.*
- 2009-2010 **Staff Research Associate II**: Scripps Institution of Oceanography (La Jolla, CA), under B. Cornuelle. *Analysis of the California State Estimate (CASE), a data assimilation project of the California current system.*
- 2007 **Undergraduate Researcher**: University of California, Santa Barbara, under S. James Allen, Institute for Terahertz Science and Technology. *Testing a terahertz detector with a free electron laser.*
- 2006 **Undergraduate Researcher**: University of California, San Diego, under R. Rothschild, Center for Astrophysics and Space Sciences. *Analysis of data collected by the PCA and HEXTE x-ray detectors.*

## FIELDWORK

- 2017 **R/V Sally Ride**: Inner Shelf Dynamics, September 7-22. *Point Sal, CA.*
- 2016 **R/V Roger Revelle**: Flow Encountering Abrupt Topography (FLEAT), June 2-24. *Palau.*

## GRANTS AWARDED

10/1/17– **NSF:** Division of Ocean Sciences 1736595. J. A. MacKinnon and Co-PI **S. Haney:**  
9/30/19 *Submesoscale instabilities and turbulence across oceans: Connecting theory and ob-*  
*servations, \$258,254.*

## TEACHING EXPERIENCE

**Teaching Assistant:** University of Colorado at Boulder, Undergraduate classes  
2010-2012 for Dept. Atmospheric and Oceanic Sciences. *Lectured for lab sections, and assisted*  
*with lecture courses.*

**Mathematics/Physics Tutor:** University of California, Santa Barbara (Santa  
2008-2009 Barbara, California), under D. Kiplagat, Campus Learning Assistance Services. *Un-*  
*dergraduate mathemataics and physics tutor.*

## SERVICE EXPERIENCE

2013 **Member:** Atmospheric and Oceanic Sciences, Comps Committee. *Review ques-*  
*tions for the ATOC Comps I exam.*

2012-2013 **Member:** Atmospheric and Oceanic Sciences, Curriculum Committee. *Review and*  
*update the ATOC curriculum.*

2012 **Judge:** Corden Pharma Colorado Regional Science Fair, Boulder Valley School  
District. *February 28, 2013.*

**Reviewer for** *Journal of Fluid Mechanics, Journal of Physical Oceanography, Ocean Mod-*  
*elling, Geophysical Research Letters, Journal of Climate*

## REFEREED PUBLICATIONS

**S. Haney**, W.R. Young, Radiation of internal waves from groups of surface gravity waves:  
2017. *Journal of Fluid Mechanics*, **829**: 280-303. doi:[10.1017/jfm.2017.536](https://doi.org/10.1017/jfm.2017.536)

**S. Haney**, B. Fox-Kemper, K. Julien, A. Webb, Symmetric and Geostrophic Instabilities in  
the Wave-Forced Ocean Mixed Layer: 2015. *Journal of Physical Oceanography*, **45**(12):  
3033-3056. doi:[10.1175/JPO-D-15-0044.1](https://doi.org/10.1175/JPO-D-15-0044.1)

**S. Haney**, S. Bachman, B. Cooper, S. Kupper, K. McCaffrey, L. Van Roekel, S. Stevenson, B.  
Fox-Kemper, R. Ferrari, Hurricane wake restratification rates of 1, 2 and 3-dimensional pro-  
cesses: 2012. *Journal of Marine Research*, **70**(6): 824-850. doi:[10.1357/002224012806770937](https://doi.org/10.1357/002224012806770937)

L. P. Van Roekel, B. Fox-Kemper, P. P. Sullivan, P. E. Hamlington, and **S. R. Haney** , The  
form and orientation of Langmuir Cells for misaligned winds and waves: 2012. *Journal of*  
*Geophysical Research-Oceans*, **117**(C05001): 22pp. doi:[10.1029/2011JC007516](https://doi.org/10.1029/2011JC007516)

## OTHER PUBLICATIONS

**S. Haney**, 2015: *Mixing and Restratification in the Upper Ocean: Competing Mechanisms in*  
*the Wave-Averaged Boussinesq Equations*, PhD thesis, University of Colorado Boulder, 153  
pp.

## PRESENTATIONS AND POSTERS

- S. Haney**, W.R. Young, Surface Gravity Wave Groups Drive "Stokes Pumping" and Radiate Internal Gravity Wave Wakes: 2017. *21<sup>st</sup> Conference on Atmospheric and Oceanic Fluid Dynamics*, Portland, OR, June 26-30.
- S. Haney**, W.R. Young, Interactions Between Surface Gravity Wave Groups and Deep Stratification in the Ocean: 2016. *VIII<sup>th</sup> International Symposium on Stratified Flows*, San Diego, USA, August 29 - September 1.
- S. Haney**, W.R. Young, The Wake of Internal Gravity Waves Behind Groups of Surface Gravity Waves: 2016. *Liege Colloquium on Submesoscale Processes: Mechanisms, Implications And New Frontiers*, Liege, Belgium, May 23-27.
- B. Fox-Kemper, N. Suzuki, Q. Li, **S. Haney**, Effects of ocean surface gravity waves: on turbulence, instabilities, and frontogenesis: 2016. *Liege Colloquium on Submesoscale Processes: Mechanisms, Implications And New Frontiers*, Liege, Belgium, May 23-27.
- S. Haney**, B. Fox-Kemper, K. Julien, A. Webb, 2016: Langmuir Turbulence and Symmetric Instabilities in Submesoscale Fronts. *Ocean Sciences Meeting*, New Orleans, Louisiana, February 21-26.
- S. Haney**, B. Fox-Kemper, K. Julien, A. Webb, 2015: Instabilities of the Ocean Mixed Layer in the Wave-Averaged Boussinesq Equations. Invited Talk. *MURI 3D + 1 Workshop*, Scripps Institution of Oceanography, La Jolla, CA, September 28.
- S. Haney**, B. Fox-Kemper, K. Julien, A. Webb, 2015: Baroclinic Instabilities in the Wave-Forced Ocean Mixed Layer. Invited Talk. *CASPO Seminar*, Scripps Institution of Oceanography, La Jolla, CA, February 25.
- S. Haney**, B. Fox-Kemper, K. Julien, 2015: The Influence of Stokes Drift on Baroclinic Instabilities in the Ocean Mixed Layer. Invited Talk. *Boulder Fluids Seminar*, Boulder, CO, January 13.
- S. Haney**, B. Fox-Kemper, K. Julien, 2014: Mixing and Restratification in the Ocean Mixed Layer: Competing Mechanisms. Invited Talk. *Physical Oceanography Dissertation Symposium (PODS) VIII*, Lihue, Kaua'i, HI, October 5-9.
- S. Haney**, B. Fox-Kemper, K. Julien, 2014: Stability of the Ocean Mixed Layer in the Presence of Surface Gravity Wave Forcing. *Ocean Sciences Meeting, Poster Session*, Honolulu, HI, February 23-28.
- N. Suzuki, B. Fox-Kemper, P. E. Hamlington, L. P. Van Roekel, and **S. Haney**, 2014: The surface wave influence on mixed-layer frontal currents and multiscale turbulence. *Ocean Sciences Meeting, Poster Session*, Honolulu, HI, February 23-28.
- S. Haney**, B. Fox-Kemper, K. Julien, 2013: Modifications to Symmetric and Baroclinic instabilities in the Presence of Surface Gravity Waves. *American Physical Society, 66<sup>th</sup> Annual meeting Division of Fluid Dynamics*, Pittsburgh, Pennsylvania, November 24-26.
- S. Haney**, B. Fox-Kemper, K. Julien, 2013: Instabilities in the Stratified, Wave-Forced Ocean Mixed Layer. *19th Conference on Atmospheric and Oceanic Fluid Dynamics, Poster Session*, Newport, Rhode Island, June 17-21.
- S. Haney**, B. Fox-Kemper, K. Julien, 2013: Instabilities in the Stratified, Wave-Forced Ocean Mixed Layer. *33rd Center for Nonlinear Studies (CNLS) Annual Conference: Ocean Turbulence, Poster Session*, Santa Fe, New Mexico, June 3-7.
- S. Haney**, B. Fox-Kemper, S. Bachman, B. Cooper, S. Kupper, K. McCaffrey, S. Stevenson, L. Van Roekel, A. Webb, R. Ferrari, 2012: Hurricane Wake Restratification Mechanisms. *NCAR IMAGE Theme of the Year 2012: Connections between Rotating, Stratified Turbulence and Climate. Poster Session*, Boulder, Colorado, May 14-18.

**S. Haney**, B. Fox-Kemper, S. Bachman, B. Cooper, S. Kupper, K. McCaffrey, S. Stevenson, L. Van Roekel, A. Webb, R. Ferrari, 2012: Hurricane Wake Restratification Mechanisms. *CIRES Rendezvous 2012 Poster Session*, Boulder, Colorado, April 24<sup>th</sup>.

**S. Haney**, B. Fox-Kemper, S. Bachman, B. Cooper, S. Kupper, K. McCaffrey, S. Stevenson, L. Van Roekel, A. Webb, R. Ferrari, 2012: Hurricane Wake Restratification Mechanisms. *American Geophysical Union Ocean Sciences Meeting*, Salt Lake City, Utah, February 20-24.

## OTHER INFORMATION

Member of American Geophysical Union

Languages: English, Fortran, MATLAB, L<sup>A</sup>T<sub>E</sub>X, UNIX

Last updated September 25, 2017