Curriculum Vitae
Sonya Allayne Legg

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Education

1989-1992	**Imperial College, University of London**, UK Dynamical meteorology and oceanography, PhD. Thesis title: Open-ocean deep convection: the spreading phase. Thesis supervisor: John Marshall.
1986-1989	**Oxford University, Keble College**, UK Physics, BA Honours, First Class.

Employment History

2018 - present	**Princeton University**, Princeton. *Associate Director* of Cooperative Institute for Modeling the Earth System.
2013 - 2018	**Princeton University**, Princeton. *Associate Director* of Cooperative Institute for Climate Science.
2014 - present	**Princeton University**, Princeton. *Senior Research Oceanographer* in Program in Atmospheric and Oceanic Sciences.
Sept 2004 - 2014	**Princeton University**, Princeton. *Research Oceanographer* in Program in Atmospheric and Oceanic Sciences.
May 2001 - Sept 2006	**Woods Hole Oceanographic Institution**, Woods Hole. *Associate Scientist* Awarded tenure Jan 2005.
June 2003 - Sept 2003	**NOAA-GFDL and Princeton University**, Princeton *Visiting Fellow*
Sept 1997 - May 2001	**Woods Hole Oceanographic Institution**, Woods Hole. *Assistant Scientist*
Feb 1997 - Sept 1997	**University of California Los Angeles**, Los Angeles, USA. *Assistant Researcher* in Inst. for Geophysics and Planetary Phys.
Feb 1995 - Feb 1997	**Universities Corporation for Atmospheric Research**, Boulder, USA

	NOAA Climate and Global Change program postdoctoral fellow. (host institution: University of California Los Angeles)
Feb 1993 - Jan 1995	**University of Colorado**, Boulder, USA. *Postdoctoral Research Associate* in Joint Institute for Laboratory Astrophysics.

Fellowships and Awards

2017	**American Geophysical Union**, Outstanding Reviewer citation, Journal of Geophysical Research Oceans
2016	**American Meteorological Society** Editor's award, Journal of Physical Oceanography
2016	**NOAA-EEO** Diversity award for exemplary service
2003	**NOAA-GFDL/Princeton University** Visiting Fellowship
1995-1997	**National Oceanic and Atmospheric Administration**, USA, post-doctoral fellowship in Climate and Global Change.

Teaching and Outreach

Graduate education

- MIT/WHOI joint program in oceanography, 2000-2004: member of "Joint Committee for Physical Oceanography", taught course in Geophysical Turbulence, thesis committee member for 3 students.

- Princeton University Atmospheric and Oceanic Sciences program, 2004-present: lecturer, teaching class AOS 572 "Atmospheric and Oceanic Wave Dynamics" (2006-present) and coordinating class GEO 503 "Responsible Conduct of Research" (2010-2012); 2006-2013: member of Graduate Work Committee; 2009-2012: Director of Graduate Studies; thesis committee member for 4 students; graduate summer interns supervised: University of Girona PhD student (2005), MPOWIR summer intern (2011).

- **Graduate student advisees**: He Wang (2009-2016), Robert Nazarian (2012-2017), Elizabeth Yankovsky (2015-2020)

- Lecturer at graduate summer schools: International school on "Topographic internal waves in the atmosphere and the ocean", Cargese, France, 2010; Alpine summer school on "Buoyancy driven flows", Aosta, Italy, 2010; JPL summer school on "Using Satellite Observations to Advance Climate Models", 2012; Arctic Ocean Model Intercomparison Project school for young scientists, Woods Hole, 2012; GFD summer school on Buoyancy Driven Flows, Woods Hole, 2013; International Center for Mechanical Sciences summer school on "Turbulent Mixing in Stratified Flows", Udine, Italy, 2018; Estimating the Circulation and Climate of the Ocean (ECCO)

summer school, Friday Harbor, 2019; summer school on "Waves, Instabilities and Turbulence in Geophysical and Astrophysical Flows", Cargese, France, 2019.

- External examiner for PhD theses from University of Bologna (2018), University Paris Saclay (2017), Imperial college (2017), Australian National University (2016, 2019), Stockholm University (2014), University of Western Australia (2012, 2016), University of Grenoble, France (2010), University of Waterloo, Canada (2007).

Undergraduate education

- Princeton University, 2007-2009, 2012-2016, 2019-2021: co-taught class GEO 425 "Introduction to physical oceanography".

- Imperial College, 1990-1991: Laboratory demonstrations for physics undergraduates.

- Guest lectures: Tutorial on Climate Modeling at MIRTHE NSF engineering research center summer workshop, Princeton, 2011; Research Experience for Undergraduates seminar series, Princeton, 2012, 2015; Climate Change lecture in Rider University Environmental Geology course, 2012-2022.

- Undergraduate Summer Student interns supervised: 2 Woods Hole undergraduate summer student fellows (1998,2002); Hollings scholars (2009, 2012, 2018); Princeton Environmental Institute undergraduate intern (2015,2016), Cooperative Institute for Climate Science summer intern (2016, 2017), Cooperative Institute for Modeling the Earth System intern (2020), Andlinger Center for Energy and the Environment intern (2022).

K-12 education

- March 2009, 2014, 2015, May 2018, 2021, 2022: Participant in Young Women's Conference, at Princeton Plasma Physics Laboratory.

- 2014-present: exhibitor at New Jersey Ocean Fun Days.

- 2012-present: numerous talks to school groups

- 2015-present: participant in STEM events organized by Boys and Girls Clubs of Mercer County, focused on teens from under-represented groups

Mentoring Activities

- Princeton University: participant in GWISE (Graduate women in science and engineering), PWiGs (Princeton Women in Geosciences), WISC (Women in Science Colloquium) and PWISE (Princeton women in science and engineering) mentoring programs, symposia and panels.

- MPOWIR (Mentoring Physical Oceanography Women to Increase Retention, nationwide mentoring organization): Mentorgroup leader, 2008-present; Senior participant at Pattullo conferences, 2010-present; co-PI, 2014-present.

- Ocean Sciences Meeting mentoring program: 2014 - mentored 3 junior participants; 2016 - mentored 2 junior participants; 2022 - mentored 3 junior participants

- NOAA Educational Partnership Program 7th biennual forum 2014: mentor and presentation judge

- SACNAS 2018 and 2020 conference: reviewer and mentor

Postdoctoral advisees: James Girton (2002-2004), Ulrike Riemenschneider (2004-2007), Maxim Nikurashin (2009-2011), Mehmet Ilicak (2009-2012), Maarten Buijsman (2010-2012), Angelique Melet (2011-2013), Benjamin Mater (2014-2015), Gustavo Marques (2015-2017), Marion Alberty (2019-present), Henri Drake (2021-present), Yang Wang (2022-present).

Membership of Professional Societies
American Geophysical Union
American Meteorological Society
Society for the Advancement of Chicanos and Native Americans in STEM (the leading US organization for diversity in STEM)

Service activities

- NSF panelist

- Universities' Corporation for Atmospheric Research member representative for WHOI 2002-2004

- Coordinating PI for NSF/NOAA funded "Gravity Current Entrainment Climate Process Team", 2003-2008.

- Co-convener of scientific sessions at AGU fall meeting (2012), Ocean Sciences (2008) and EGS General Assembly (2006).

- Facilitator for session on "Key Physical Processes" at CLIVAR workshop on Ocean Component of Climate Models, June 2004.

- Co-convener of IGCP workshop "Dialogue between contourite and oceanography processes", 2013

- Associate member of IAPSO/SCOR working group 121 on Ocean Mixing, 2004-2007

- Member of US CLIVAR Process Studies and Model Improvement Panel, 2005-2009; co-chair of panel, 2007-2009.
- Member of Review Panel for NOAA Hollings Undergraduate Scholarship Program, 2007
- MPOWIR (Mentoring Physical Oceanography Women to Increase Retention): mentorgroup leader, 2008-present; lead PI, 2014-2022.
- Member of editorial board for Ocean Modelling, 2009-2018
- Member of External Advisory Board for Modeling Complex Systems IGERT program at Johns Hopkins University, 2010
- Expert reviewer for IPCC AR5 working group I report
- Member of external review panel for NOAA Cooperative Institute for Marine Ecosystems and Climate, 2014
- Member of NSF Earthcube test governance advisory committee, 2014-2015
- Member of review committee for MIT/WHOI Joint program in oceanography, 2014
- Member of US Clivar Scientific Steering committee, 2014-2017
- Member of scientific organizing committee for US Clivar workshop on Translating Process Understanding to Improve Climate Models, 2015
- Chair of poster cluster and session on Ocean Mixing, CLIVAR Open Science Conference, Qingdao, 2016
- Gordon Research Conference on Ocean Mixing: vice-chair, 2020/2022; chair, 2024.
- Member of WCRP-CLIVAR Scientific Steering Group, 2019-present, co-chair 2020-present.
- Expert reviewer for IPCC report on Ocean and Cryosphere in a Changing Climate
- Expert reviewer for IPCC AR6 working group I report
- Associate editor for Journal of Advances in Modeling the Earth System (JAMES), AGU, 2019-present

Refereed Publications

1. Legg S. and J. Marshall, 1993. A heton model of the spreading phase of open-ocean deep convection, *J. Phys. Oceanogr.*, **23**, 1040-1056.

2. Julien K., S. Legg*, J. McWilliams, and J. Werne, 1996. Penetrative convection in rapidly rotating flows: Preliminary results from numerical simulation, *Dyn. Atmos. Oceans*, **24** 237-249.

3. Julien K., S. Legg, J. McWilliams and J. Werne, 1996. Hard-Turbulence in rotating Rayleigh-Benard convection, *Phys. Rev. E* **53** R5557.

4. Julien, K., S. Legg, J. McWilliams, and J. Werne, 1996. Rapidly rotating turbulent Rayleigh-Benard convection, *J. Fluid Mech.* **322**, 243-273.

5. Legg S., H. Jones, and M. Visbeck, 1996. A heton perspective of baroclinic eddy transfer in localized ocean convection, *J. Phys. Oceanogr.* **26**, 2251-2266.

6. Legg S. and J. Marshall, 1998. The influence of the ambient circulation on the spreading of convected fluid, *J. Mar. Res.* **56**, 107-139.

7. Legg, S., J. Gao, and J. McWilliams, 1998. Localization of ocean deep convection by a mesoscale eddy, *J. Phys. Oceanogr.* **28** 944-970.

8. The LabSea Group, 1998. The Labrador Sea Deep Convection experiment, *Bull. American Met. Soc.* **79**, 2033-2058.

9. Julien K., S. Legg*, J. McWilliams and J. Werne, 1999. Plume structure in rotating convection. Part I: balances and ensemble statistics, *J. Fluid Mech.* **391**, 151-187.

10. Fischer K.W., S. Legg, W. H. Munk, R.M. Shuchman, R.W. Garwood, and J.P.Palshook, 1999. Modeled radar surface signature of deep ocean convection *IEEE Transactions of geoscience and remote sensing* **37**, 2050-2067.

11. Legg S., and J.C. McWilliams, 2000. Temperature and salinity variability in heterogeneous ocean convection *J. Phys. Oceanogr.*, **30**, 1188-1206.

12. Legg S. and J. C. McWilliams, 2001. Convective modifications of a geostrophic eddy field *J. Phys. Oceanogr.*, **31**, 874-891

13. Legg S., K. Julien, J. McWilliams, and J. Werne, 2001. Vertical transport by convective plumes: modification by rotation, *Phys. and Chem. of the Earth*, **26**, 259-262.

14. Legg S. and J. McWilliams, 2002. Sampling characteristics from isobaric floats in a convective eddy field, *J. Phys. Oceanogr.*, **32**, 527-544.

15. Legg S. and A. J. Adcroft, 2003. Internal wave breaking on concave and convex continental slopes, *J. Phys Oceanogr.* **33**, 2224-2246.

16. Legg S., 2004. Internal tides generated on a corrugated continental slope. Part I: Cross-slope barotropic forcing, *J. Phys Oceanogr.* **34**, 156-173.

17. Legg S., 2004. Internal tides generated on a corrugated continental slope. Part II: Along-slope barotropic forcing, *J. Phys Oceanogr.* **34**, 1824-1838.

18. Legg S., 2004. A simple criterion to determine whether convection is localized or distributed, *J. Phys Oceanogr.* **34**, 2843-2846.

19. Legg S., R.W. Hallberg and J.B. Girton†, 2006. Comparison of entrainment in overflows simulated by z-coordinate, isopycnal and nonhydrostatic models, *Ocean Modelling*, **11**, 69-97.

20. Legg S. and K.M.H. Huijts†, 2006. Preliminary simulations of internal waves and mixing generated by finite amplitude tidal flow over isolated topography, *Deep Sea Research, part II*, **53**, 140-156.

21. Riemenschneider U.†, and S. Legg, 2007. Regional Simulations of the Faroe Bank Channel Overflow in a Level Model, *Ocean Modelling*, **17**, 93-122.

22. Green J.A.M., J.H. Simpson, S. Legg and M.R. Palmer, 2008. Internal waves, baroclinic energy fluxes and mixing at the European shelf edge, *Continental Shelf Research*, **28**, 937-950.

23. Jackson L., R.W. Hallberg and Legg S., 2008. A parameterization of shear-driven turbulence for ocean climate models, *J. Phys. Oceanogr.*, **38**, 1033-1053.

24. Legg S., L. Jackson and R.W. Hallberg, 2008. Eddy-resolving modeling of overflows, in *"Ocean Modeling in an Eddying regime*, eds M.W. Hecht and H. Hasumi, AGU Geophysical Monographs, p63-82.

25. Legg S. and J. Klymak, 2008. Internal Hydraulic Jumps and Overturning Generated by Tidal Flow over a Tall Steep Ridge, *J. Phys. Oceanogr.*, **38**, 1949-1964.

26. Legg S., B. Briegleb, Y. Chang, E.P. Chassignet, G. Danabasoglu, T. Ezer, A.L. Gordon, S. Griffies, R. Hallberg, L. Jackson, W. Large, T.M. Ozgokmen, H. Peters, J. Price, U. Riemenschneider, W. Wu, X. Xu and J. Yang, 2009: Improving oceanic overflow representation in climate models: the gravity current entrainment climate process team. *Bull. Am. Met. Soc.*, **90**, 657-670.

27. Griffies, S., A. Adcroft, H. Banks, C.W. Boning, E.P. Chassignet, G. Danabasoglu, S. Danilov, E. Deleersnijder, H. Drange, M. England, B. Fox-Kemper, R. Gerdes, A. Gnanadesikan, R.W. Hallberg, E. Hanert, M.J. Harrison, S. Legg, C.M. Little, G. Madec, S.J. Marsland, M. Nikurashin, A. Pirani, H.L. Simmons, J. Schroter, B.L. Samuels, A-M. Treguier, J.R. Toggweiler, H. Tsujino, G.K. Vallis, L. White, 2009: Problems and prospects in large scale ocean circulation models. In *OceanObs'09*, 21-25 September, Venice, Italy, ESA Special Publication, 1-23.

28. Klymak, J.M., S. Legg and R. Pinkel, 2010: High-mode stationary waves in stratified flow over large obstacles, *J. Fluid Mech.*, **644**, 321-336.

29. Klymak, J.M., and S. Legg, 2010: A simple mixing scheme for models that resolve breaking internal waves. *Ocean Modelling*, doi:10.1016/j.ocemod.2010.02.005

30. Klymak, J.M., S. Legg and R. Pinkel, 2010: A simple parameterization of turbulent tidal mixing near supercritical topography. *J. Phys. Oceanogr.*, **40**, 2059-2074, doi: 10.1175/2010JPO4396.1.

31. Nikurashin, M.† and S. Legg, 2011: A mechanism for local dissipation of internal tides generated at rough topography. *J. Phys. Oceanogr.*, **41**, 378-395.

32. Ilicak, M.†, S. Legg, A. Adcroft and R. Hallberg, 2011: Dynamics of a dense gravity current flowing over a corrugation. *Ocean Modelling*, **38**, 71-84.

33. Buijsman, M.†, S. Legg, and J. Klymak, 2012: Double Ridge Internal Tide Interference and its Effect on Dissipation in Luzon Strait. *J. Phys. Oceanogr.*, **42**, p1337-1356, doi:10.1175/JPO-D-11-0210.1.

34. Klymak, J.M., S. Legg, M.H. Alford, M. Buijsman†, R. Pinkel, and J.D. Nash, 2012: The direct breaking of internal waves at steep topography. *Oceanography*, **25**, 150-159.

35. Melet, A.†, R. Hallberg, S. Legg and K. Polzin, 2013: Sensitivity of the ocean state to the vertical distribution of internal-tide driven mixing. *J. Phys. Oceanogr.*, **43**, 602-615.

36. Klymak, J., M. Buijsman†, S. Legg and R. Pinkel, 2013: Parameterizing baroclinic internal tide scattering and breaking on supercritical topography: the one- and two-ridge cases. *J. Phys. Oceanogr.*, **43**, doi:10.1175/JPO-D-12-061.1.

37. Legg, S., 2014: Scattering of low-mode internal waves at finite isolated topography. *J. Phys. Oceanogr.*, **44**, doi:10.1175/JPO-D-12-0241.1.

38. Melet†, A., R. Hallberg, S. Legg and M. Nikurashin, 2014: Sensitivity of the ocean state to lee wave driven mixing, *J. Phys. Oceanogr.*, **44**, doi: http://dx.doi.org/10.1175/JPO-D-13-072.1.

39. Buijsman†, M.C., J. Klymak, S. Legg, M.H. Alford, D. Farmer, J.A.MacKinnon, J.D. Nash, J.-H. Park, A. Pickering, H. Simmons, 2014: Three-dimensional double ridge internal tide resonance in Luzon Strait, *J. Phys. Oceanogr.*, **44**, doi: http://dx.doi.org/10.1175/JPO-D-13-024.1.

40. Ilicak†, M., S. Legg and A. Adcroft, 2014: A framework for parameterization of heterogeneous ocean convection. *Ocean Modelling*, **82**, 1-14.

41. Clem, S., S. Legg, S. Lozier and C. Mouw, 2014: The impact of MPOWIR: a decade of investing in mentoring women in physical oceanography. *Oceanography*, **27** supplement: 39-48, doi:/10.5670/oceanog.2014.113.

42. Wang†, H., S. Legg and R. Hallberg, 2015: Representations of the Nordic Seas Overflows and their large scale climate impact in coupled models. *Ocean Modelling*, **86**, doi:10.1016/j.ocemod.2014.12.005.

43. Melet†, A., R. Hallberg, A. Adcroft, M. Nikurashin and S. Legg, 2015: Energy flux into internal lee waves: sensitivity to future climate changes using linear theory and a climate model. *J. Climate*, **28**, doi:10.1175/JCLI-D-14-00432.1.

44. Alford, M.H., T. Peacock, J.A. MacKinnon, J.D. Nash, M.C. Buijsman†, L.R. Centurioni, S.-Y. Chao, M.-H. Chang, D.M. Farmer, O.B.Fringer, K.-H. Fu, P. Gallacher, H.C. Graber, K.R. Helfrich, S. Jachec, C. Jackson, J.M. Klymak, D.S. Ko, S. Jan, T.M.S. Johnston, S. Legg, I.-H. Lee, R.-C. Lien, M.J. Mercier, J.N. Moum, R. Musgrave, J.-H. Park, A.I. Pickering, R. Pinkel, L.R. Rainville, S. Ramp, D.R. Rudnick, S. Sarkar, A. Scotti, H.L. Simmons, L.C. St Laurent, K. Venayagamoorthy, Y.-H. Wang, J. Wang, Y.J. Yang, T. Paluszkiewicz and T.Y. Tang, 2014: The formation and fate of internal waves in the South China Sea. *Nature*, **521**, 65-69, doi:10.1038/nature14399.

45. Melet†, A., S. Legg and R. Hallberg, 2016: Climatic impacts of parameterized local and remote tidal mixing. *J. Climate*, **29**, doi:10.1175/JCLI-D-15-0153.

46. Turnewitsch, R., M. Dumont, K. Kiriakoulakis, S. Legg, C. Mohn, F. Peine, G. Wolff, 2016: Tidal influence on particulate organic carbon export fluxes around a tall seamount, *Prog. in Oceanog.*, **149**, doi:10.1016/j.pocean.2016.10.009.

47. Jennifer MacKinnon; Matthew Alford; Joseph K Ansong; Brian K Arbic; Andrew Barna; Bruce P. Briegleb; Frank O. Bryan; Maarten C. Buijsman; Eric P. Chassignet; Gokhan Danabasoglu; Steve Diggs; Stephen M. Griffies; Robert W. Hallberg; Steven R. Jayne; Markus Jochum; Jody M. Klymak; Eric Kunze; William G. Large; Sonya Legg; Benjamin Mater; Angelique V. Melet; Lynne M. Merchant; Ruth Musgrave; Jonathan D. Nash; Nancy J Norton; Andrew Pickering; Robert Pinkel; Kurt Polzin; Harper L. Simmons; Louis C. St. Laurent; Oliver M. Sun; David S. Trossman; Amy F. Waterhouse; Caitlin B. Whalen; Zhongxiang Zhao, 2017: Climate Process Team on Internal-Wave Driven Ocean Mixing, *Bull. Am. Met. Soc*, **98**, doi:10.1175/BAMS-D-16-0030.1

48. Robert Nazarian† and Sonya Legg, 2017a: Internal wave scattering in continental slope canyons, Part 1: Theory and development of a ray tracing algorithm. *Ocean Modelling*, **118**, 1-15, doi:10.1016/j.ocemod.2017.07.002.

49. Robert Nazarian† and Sonya Legg, 2017b: Internal wave scattering in continental slope canyons, Part 2: a comparison of ray tracing and numerical simulations. *Ocean Modelling*, **118**, 16-30, doi:10.1016/j.ocemod.2017.07.005.

50. Young R. Yi†, Sonya Legg and Robert H. Nazarian†, 2017: The impact of topographic steepness on tidal dissipation at bumpy topography. *Fluids*, 2(4), 55, DOI:10.3390/fluids2040055.

51. He Wang†, Sonya Legg and Robert Hallberg, 2018: The effect of Arctic freshwater pathways on North Atlantic Convection and the Atlantic Meridional Overturning Circulation. *J. of Climate*, doi:10.1175/JCLI-D-17-0629.1.

52. Colleen B. Mouw, Sarah Clem, Sonya Legg and Jean Stockard, 2018: Meeting mentoring needs in physical oceanography: an evaluation of the impact of MPOWIR, *Oceanography*, doi:10.5670/oceanog.2018.405.

53. Elizabeth Yankovsky† and Sonya Legg, 2019: Symmetric and Baroclinic instability in dense shelf overflows, *Journal of Physical Oceanography*, doi:10.1175/JPO-D-18-0072.1.

54. Fox-Kamper, B., A. Adcroft, C.W. Boning, E.P. Chassignet, E. Curchitser, G. Danabasoglu, C. Eden, M.H. England, R. Gerdes, R.J. Greatbatch, S.M. Griffies, R.W. Hallberg, E. Hanert, P. Heimbach, H.T. Hewitt, C.N. Hill, Y. Komuro, S. Legg, J. Le Sommer, S. Masina, S.J. Marsland, S.G. Penny, F. Qiao, T.D. Ringler, A.M. Treguier, H. Tsujino, P. Uotila, and S.G. Yeager, 2019: Challenges and Prospects in Ocean Circulation Models, *Front. Mar. Sci*, doi:10.3389/fmars.2019.00065

55. Alberto C. Naveira Garabato, Eleanor E. Frajka-Williams, Carl P. Spingys, Sonya Legg, Kurt L. Polzin, Alexander Forryan, E. Povl Abrahamsen, Christian E. Buckingham, Stephen M. Griffies, Stephen D. McPhail, Keith W. Nicholls, Leif N. Thomas and Michael P. Meredith, 2019: Rapid mixing and exchange of deep-ocean waters in an abyssal boundary current, *Proc. Nat. Acad. Sci.* **116 (27)**, p13233-13238 doi:10.1073/pnas.1904087116.

56. Adcroft, Alistair, Whit G Anderson, V Balaji, Chris Blanton, Mitchell Bushuk, C O Dufour, John P Dunne, Stephen M Griffies, Robert Hallberg, Matthew J Harrison, Isaac M Held, Malte Jansen, Jasmin G John, John P Krasting, Amy R Langenhorst, Sonya Legg, Zhi Liang, Colleen McHugh, Aparna Radhakrishnan, Brandon G Reichl, Anthony Rosati, Bonita L Samuels, Andrew Shao, Ronald J Stouffer, Michael Winton, Andrew T Wittenberg, Baoqiang Xiang, Niki Zadeh, and Rong Zhang, 2019: The GFDL Global Ocean and Sea Ice Model OM4.0: Model Description and Simulation Features. *Journal of Advances in Modeling Earth Systems*, **11(10)**, DOI:10.1029/2019MS001726.

57. Legg, S, 2021: Mixing by Oceanic Lee Waves, *Annual Review of Fluid Mechanics*, doi: 10.1146/annurev-fluid-051220-043904.

58. Spingys, C.P., A.C. Naveira Garabato, S. Legg, K.L. Polzin, E.P. Abrahamsen, C.E. Buckingham, A. Forryan, and E.E. Frajka-Williams, 2021: Mixing and transformation in a deep western boundary current: a case study. *Journal of Physical Oceanography*, doi:10.1175/JPO-D-20-0132.1

59. Yankovsky, Elizabeth, Sonya Legg, and Robert Hallberg, 2021: Parameterization of submesoscale symmetric instability in dense flows along topography. *Journal of Advances in Modeling the Earth System*, doi:10.1029/2020MS002264.

60. Behl, Mona, Sharon Cooper, Corey Garza, Sarah E. Kolesar, Sonya Legg, Jonathan C. Lewis, Lisa White, and Brandon Jones, 2021: Changing the Culture of coastal, ocean and marine sciences: Strategies for individual and collective actions. *Oceanography Magazine* doi:10.5670/oceanog.2021.307.

61. Nazarian†, R. H., Burns, C. M., Legg, S., Buijsman, M. C., Kaur, H., and Arbic, B. K. ,2021: On the magnitude of canyon-induced mixing. *Journal of Geophysical Research: Oceans*, **126**, e2021JC017671. doi:10.1029/2021JC017671.

62. Legg, S., C. Wang, E. Kappel, L. Thompson, 2023: Gender Equity in Oceanography, *Ann. Reviews of Marine Sci.*, **15:1**, https://doi.org/10.1146/annurev-marine-032322-100357.

†: postdoc or student under my supervision.
*: corresponding author.

Unrefereed publications

1. Legg, S., 1993: Open ocean deep convection: the spreading phase. *PhD thesis*, University of London, 185pp.

2. Bretherton, C., F. Ferrari and S. Legg, 2004: Climate Process teams: a new approach to improving climate models. *U.S. CLIVAR Variations*, **2**, 1-6.

3. International CLIVAR project office, 2004: Report of the CLIVAR workshop on assessment of a new generation of ocean climate models. CLIVAR publication series no. 83.

4. Legg, S., and the members of the gravity current entrainment climate process team, 2006: Gravity Current Entrainment Climate Process Team. *U.S. CLIVAR Variations*, **4**, 5-7.

5. U.S.CLIVAR Office, 2008: Review of U.S. CLIVAR pilot Climate Process Teams and recommendations for future Climate Process Teams Report 2008-3, U.S. CLIVAR Office, Washington, DC 20006, 6pp.

6. S. Griffies, A. Adcroft, H. Aiki, V. Balaji, M. Bentson, F. Bryan, G. Danabasoglu, S. Denvil, H. Drange, M. England, J. Gregory, R.W. Hallberg, S. Legg, T. Martin, T. McDougall, A. Pirani, G. Schmidt, D. Stevens, K. E. Taylor, H. Tsujino, 2009: Sampling physical ocean fields in WCRP CMIP5 simulations. CLIVAR working group on ocean model development (WGOMD) committee on CMIP5 ocean model output, WCRP informal report no. 3/2009.

7. Cronin, M.F., S. Legg and P. Zuidema, 2009: Best practices for Process Studies, *Bull. Am. Met. Soc.*, **90**, 917-918.

8. Legg S., A. Adcroft, W. Anderson, V. Balaji, J. Dunne, S. Griffies, R. Hallberg, M. Harrison, I. Held, A. Rosati, R. Toggweiler, G. Vallis, and L. White, 2009: Oceanography in 2025: a modeling perspective. In *Oceanography in 2025, proceedings of a workshop*, a report of the National Research Council.

9. Coles, V., L. Gerber, S. Legg and S. Lozier, 2011: Commentary: Mentoring groups - a non-exit strategy for women in physical oceanography. *Oceanography*, **24**, 17-20, doi: 10.5670/oceanog.2011.43

10. Legg S., 2012: Overflows and Convectively-driven flows. In "Buoyancy Driven Flows", Chassignet E.P., C. Cenedese, and J Verron, (Eds) Cambridge University Press, 203-239.

11. Subramanian, A., C. Ummenhofer, A. Giannini, M. Holland, S. Legg, A. Mahadevan, D. Perovich, J. Small, J. Teixeira, and L. Thompson, 2016: Translating process understanding to improve climate models. A US CLIVAR white paper. Report 2016-3. 48pp. doi:10.5065/D63X851Q.

12. Ummenhofer, C. C., A. Subramanian, and S. Legg (2017), Maintaining momentum in climate model development, *Eos*, **98**, doi:10.1029/2017EO086501.

Recent Invited Talks

Gordon A. Riley Memorial Lecture, Dalhousie University, 2021; Future of Earth System Modeling workshop, California Institute of Technology, 2018; Modelling imbalance in the Atmosphere and Ocean, Banff International Research Station; Convection in Nature workshop, 2018, Princeton Center for Theoretical Science; 20th Australasian Fluid Mechanics Conference, 2016, Perth; Physical Oceanography Dissertation Symposium, Honolulu, 2016; Royal Society workshop on Stratified Turbulence, UK, 2016; USCLIVAR workshop on Translating Process understanding to climate models, GFDL, 2015; Southern Ocean workshop, Bolin Center for Climate Research, 2014, Stockholm; Center for Nonlinear Science Ocean Turbulence Workshop, 2013, Santa Fe; Swedish Society for

Marine Sciences, "Visions of the Sea" 2011, Stockholm; Keynote lecture at 7th International Symposium on Stratified Flows, Rome, 2011; Banff International Research Station workshop on "Coordinated mathematical modeling of internal waves", 2010; MOCA-09, IAPSO symposium on Overflows and Abyssal currents, Montreal, 2009.