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#### 教育背景

2018 美国布朗大学地球、环境与行星科学博士学位

导师: B. Fox-Kemper

博士论文: Langmuir Turbulence and Its Effects on Global Climate

2013 北京大学气象学硕士学位

导师: 杨海军

硕士论文: 水球世界气候态与经向的耦合模式研究

2010 北京大学大气科学学士学位

导师: 杨海军

学士论文:基于拉格朗日方法的太平洋海洋环流研究

2010 北京大学经济学双学位

#### 研究兴趣

行星边界层湍流,海浪,海洋数值模拟,气候科学

#### 科研经历

2018 - 博士后研究员,美国洛斯阿拉莫斯国家实验室

2013 - 2018 研究助理,美国布朗大学地球、环境与行星科学系/布朗大学环境与社会研究院

2010 - 2013 研究助理,北京大学物理学院大气与海洋科学系

## 教学经历

2020 夏 学生导师,美国洛斯阿拉莫斯国家实验室

并行计算暑期研究实习(与 L. Van Roekel 和 M. Turner 共同指导)

2017 秋 助教,布朗大学

Principles of Planetary Climate (教授: J.-E. Lee)

2017春 客座讲师,布朗大学

Ocean Circulation and Climate (教授: B. Fox-Kemper)

2016 秋 客座讲师,布朗大学

Mathematical Methods of Fluid and Solid Geophysics and Geology (教授: B. Fox-Kemper)

2016 秋 助教, 布朗大学

Mathematical Methods of Fluid and Solid Geophysics and Geology (教授: B. Fox-Kemper)

2015 - 2016 布朗大学 Harriet W. Sheridan 教学中心 Sheridan Teaching Certificate I

2010 秋 助教,北京大学

流体力学(教授:辛国君)

### 奖励与资助

差旅资助:访问美国国家大气研究中心(NCAR) 课题机时资助:美国洛斯阿拉莫斯国家实验室 2018 - 2020 Q. Li and L. Van Roekel, Better Understanding of the Air-Sea Fluxes Using Atmosphere-Ocean Coupled Large Eddy Simulation, 7 M 计算机机时 + 40.9 TB 数据存储空间 学术会议差旅资助: Physical Oceanography Dissertation Symposium X, Kailua-Kona, 2018 HI, USA 学术会议差旅资助: CLIVAR Open Science Conference, Qingdao, China 2016 学术会议差旅资助: Liège Colloquium on Submesoscale Processes: Mechanisms, Im-2016 plications and new Frontiers, Liège, Belgium 布朗大学环境与社会研究院奖学金 2015 - 2016 2014 学术会议差旅资助: Institute for Mathematics and its Applications Workshop on Impact of Waves Along Coastlines, Minneapolis, MN, USA 差旅资助: The Community Earth System Model Tutorial, Boulder, CO, USA 2014 布朗大学新生奖学金 2013 - 2014

#### 学术兼职

2020 学术会议分会组织者和主持人(与 Ivan Savelyev,Gregory Wagner 和 Leah Johnson 共同组织和主持)

Ocean Sciences Meeting (分会主题: Turbulent mixing of the ocean surface boundary layer: Observation, Simulation, and Parameterization)

2018 学术会议分会主持人

KITP Conference on Frontiers in Oceanic, Atmospheric, and Cryospheric Boundary Layers (分会主题: Interdisciplinary)

2015 学术会议学生志愿者(协助整理摘要和安排日程)

American Physical Society 68th Annual Division of Fluid Dynamics Meeting

审稿人: Acta Oceanologica Sinica, Deep-Sea Research Part I: Oceanographic Research Papers, Geophysical Research Letters, Geoscientific Model Development, Journal of Advances in Modeling Earth Systems, Journal of Climate, Journal of Computational Physics, Journal of Geophysical Research: Atmospheres, Journal of Geophysical Research: Oceans, Journal of Physical Oceanography, Marine Geodesy, Ocean Dynamics, Ocean Modelling

会员:美国地球物理学会,美国气象学会

# 发表论文

- [A.1] **Q**. Li, B. Fox-Kemper, Anisotropy of Langmuir turbulence and the Langmuir-enhanced mixed layer entrainment, Physical Review Fluids 5 (1) (2020) 013803. doi:10.1103/PhysRevFluids.5. 013803.
- [A.2] P. M. Caldwell, A. Mametjanov, Q. Tang, L. P. Van Roekel, J.-C. Golaz, W. Lin, D. C. Bader, N. D. Keen, Y. Feng, R. Jacob, M. E. Maltrud, A. F. Roberts, M. A. Taylor, M. Veneziani, H. Wang, J. D. Wolfe, K. Balaguru, P. Cameron-Smith, L. Dong, S. A. Klein, L. R. Leung, H.-Y. Li, Q. Li, X. Liu, R. B. Neale, M. Pinheiro, Y. Qian, P. A. Ullrich, S. Xie, Y. Yang, Y. Zhang, K. Zhang, T. Zhou, The DOE E3SM coupled model version 1: Description and results at high resolution, Journal of Advances in Modeling Earth Systems 11 (12) (2019) 4095–4146. doi:10.1029/2019MS001870.
- [A.3] Q. Li, B. G. Reichl, B. Fox-Kemper, A. Adcroft, S. Belcher, G. Danabasoglu, A. Grant, S. M. Griffies, R. W. Hallberg, T. Hara, R. Harcourt, T. Kukulka, W. G. Large, J. C. McWilliams, B. Pearson, P. Sullivan, L. Van Roekel, P. Wang, Z. Zheng, Comparing ocean surface boundary vertical mixing schemes including Langmuir turbulence, Journal of Advances in Modeling Earth Systems 11 (11) (2019) 3545–3592. doi:10.1029/2019MS001810.

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[A.4] B. G. Reichl, **Q. Li**, A parameterization with a constrained potential energy conversion rate of vertical mixing due to Langmuir turbulence, Journal of Physical Oceanography 49 (11) (2019) 2935–2959. doi:10.1175/JPO-D-18-0258.1.

- [A.5] A. B. Villas Boas, F. Ardhuin, A. Ayet, M. A. Bourassa, B. Chapron, P. Brandt, B. D. Cornuelle, J. T. Farrar, M. R. Fewings, B. Fox-Kemper, S. T. Gille, C. Gommenginger, P. Heimbach, M. C. Hell, Q. Li, M. Mazloff, S. T. Merrifield, A. Mouche, M.-H. Rio, E. Rodriguez, J. D. Shutler, A. C. Subramanian, E. J. Terrill, M. Tsamados, C. Ubelmann, E. van Sebille, Integrated observations and modeling of global winds, currents, and waves: Requirements and challenges for the next decade, Frontiers in Marine Science 6 (2019) 425. doi:10.3389/fmars.2019.00425.
- [A.6] **Q. Li**, B. Fox-Kemper, Assessing the effects of Langmuir turbulence on the entrainment buoyancy flux in the ocean surface boundary layer, Journal of Physical Oceanography 47 (12) (2017) 2863–2886. doi:10.1175/JPO-D-17-0085.1.
- [A.7] Q. Li, B. Fox-Kemper, Ø. Breivik, A. Webb, Statistical models of global Langmuir mixing, Ocean Modelling 113 (2017) 95–114. doi:10.1016/j.ocemod.2017.03.016.
- [A.8] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing effects on global climate: WAVEWATCH III in CESM, Ocean Modelling 103 (2016) 145–160. doi:10.1016/j.ocemod.2015.07.020.
- [A.9] H. Yang, K. Wang, H. Dai, Y. Wang, **Q**. **Li**, Wind effect on the Atlantic meridional overturning circulation via sea ice and vertical diffusion, Climate Dynamics 46 (11) (2016) 3387–3403. doi: 10.1007/s00382-015-2774-z.
- [A.10] H. Yang, Y. Zhao, Z. Liu, Q. Li, F. He, Q. Zhang, Heat transport compensation in atmosphere and ocean over the past 22,000 years, Scientific Reports 5 (2015) 16661. doi:10.1038/srep16661.
- [A.11] H. Yang, Q. Li, K. Wang, Y. Sun, D. Sun, Decomposing the meridional heat transport in the climate system, Climate Dynamics 44 (9) (2015) 2751–2768. doi:10.1007/s00382-014-2380-5.

## 待发表论文

- [M.1] Q. Li, L. Van Roekel, Towards multiscale modeling of ocean surface turbulent mixing using coupled MPAS-Ocean v6.3 and PALM v5.0, Geoscientific Model Development, Submitted (2020).
- [M.2] Q. Li, B. G. Reichl, B. Fox-Kemper, L. Van Roekel, Uncertainties in modeling the ocean surface vertical mixing: Mixing physics versus surface forcing, In preparation.
- [M.3] **Q**. Li, K. Bolding, H. Burchard, L. Umlauf, Extending the general ocean turbulence model (GOTM) for Langmuir turbulence parameterizations, In preparation.

# 学术会议报告

- [P.1] Q. Li, L. Van Roekel, Towards multiscale modeling of ocean surface turbulent mixing using coupled MPAS-Ocean and PALM, in: Ocean Sciences Meeting, AGU/ASLO/TOS, San Diego, CA, USA, 2020, Poster.
- [P.2] Q. Li, Modeling the ocean surface boundary layer vertical mixing by Langmuir turbulence, in: 9th Warnemünde Turbulence Days (WTD) on Ocean Mixing and its Efficiency, Putbus, Germany, 2019, Talk (Invited).
- [P.3] Q. Li, L. Van Roekel, P. Caldwell, J.-C. Golaz, M. Maltrud, A. Mametjanov, Q. Tang, J. Wolfe, Labrador Sea air-sea fluxes, circulation, and sea-ice in High-Res and Low-Res E<sub>3</sub>SM, in: 22nd Conference on Atmospheric and Oceanic Fluid Dynamics, AMS, Portland, ME, USA, 2019, Poster.
- [P.4] Q. Li, B. G. Reichl, B. Fox-Kemper, A. Adcroft, S. Belcher, G. Danabasoglu, A. Grant, S. M. Griffies, R. W. Hallberg, T. Hara, R. Harcourt, T. Kukulka, W. G. Large, J. C. McWilliams, B. Pearson, P. Sullivan, L. Van Roekel, P. Wang, Z. Zheng, Comparing ocean boundary vertical mixing schemes with Langmuir turbulence, in: Fall Meeting, AGU, Washington, DC, USA, 2018, Talk.

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[P.5] **Q. Li**, Langmuir turbulence and its effects on global climate, in: Physical Oceanography Dissertation Symposium X, Kailua-Kona, HI, USA, 2018, Talk.

- [P.6] Q. Li, B. Fox-Kemper, Anisotropy of Langmuir turbulence and the entrainment buoyancy flux, in: Gordon Research Conference on Ocean Mixing, Andover, NH, USA, 2018, Poster.
- [P.7] Q. Li, B. Fox-Kemper, Anisotropy of Langmuir turbulence and the entrainment buoyancy flux, in: Ocean Sciences Meeting, AGU/ASLO/TOS, Portland, OR, USA, 2018, Poster.
- [P.8] Q. Li, B. Fox-Kemper, Surface wind wave induced entrainment at the base of the ocean surface boundary layer, in: Open Science Conference, CLIVAR, Qingdao, China, 2016, Poster.
- [P.9] Q. Li, B. Fox-Kemper, T. Arbetter, A. Webb, Ø. Breivik, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, A statistical modeling of the Langmuir mixing effects on the global climate, in: 21st CESM Workshop, NCAR, Breckenridge, CO, USA, 2016, Talk.
- [P.10] Q. Li, A. Webb, B. Fox-Kemper, T. Arbetter, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, A statistical modeling of the Langmuir mixing effects on global climate, in: 48th International Liège Colloquium On Ocean Dynamics, University of Liège, Liège, Belgium, 2016, Poster.
- [P.11] Q. Li, A. Webb, B. Fox-Kemper, T. Arbetter, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing affects the global climate: A statistical modeling, in: Ocean Sciences Meeting, AGU/ASLO/TOS, New Orleans, LA, USA, 2016, Talk.
- [P.12] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing effects on global climate: WAVEWATCH III in CESM, in: 68th Annual Division of Fluid Dynamics Meeting, APS, Boston, MA, USA, 2015, Poster.
- [P.13] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing effects on global climate: WAVEWATCH III in CESM, in: 4th COWCLIP Workshop, Paris, France, 2015, Talk.
- [P.14] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing in CESM, in: 20th CESM Workshop, NCAR, Breckenridge, CO, USA, 2015, Talk.
- [P.15] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing effects on global climate: WAVEWATCH III in CESM, in: Fall Meeting, AGU, San Francisco, CA, USA, 2014, Poster.
- [P.16] Q. Li, A. Webb, B. Fox-Kemper, A. Craig, G. Danabasoglu, W. G. Large, M. Vertenstein, Langmuir mixing effects on global climate: WAVEWATCH III in CESM, in: Workshop on the Impact of Waves Along Coastlines, IMA, University of Minnesota, Minneapolis, MN, USA, 2014, Poster.
- [P.17] Q. Li, B. Fox-Kemper, T. Arbetter, A. Webb, Assessing the influence of surface wind waves to the global climate by incorporating WAVEWATCH III in CESM: Langmuir mixing in KPP, in: 19th CESM Workshop, NCAR, Breckenridge, CO, USA, 2014, Talk.
- [P.18] Q. Li, B. Fox-Kemper, T. Arbetter, A. Webb, Assessing the influence of surface wind waves to the global climate by incorporating WAVEWATCH III in CESM, in: Ocean Sciences Meeting, AGU/ASLO/TOS, Honolulu, HI, USA, 2014, Poster.

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