Lixin Qu

Texas A&M University
Department of Oceanography
1204 Eller O&M Building
3146 TAMU
College Station, TX 77843-3146

Office: Eller O&M Building, Room 618
Phone: (979) 845-5472
Email: lixinqu@tamu.edu
Web: lixinqu.github.io

Education

Ph.D. Oceanography, Texas A&M University, 2014–2019 (expected in August).

M.Sc. Physical Oceanography, Ocean University of China, 2011–2014.

Study Abroad: Sino-German summer school on marine sciences, Germany, 2012.

B.Sc. Information and Computing Science, Ocean University of China, 2007–2011.

Exchange Program: School of Mathematics, Shandong University, China, 2008–2009.

Research Experience

Research Assistant, Department of Oceanography, Texas A&M University, 2014–present.

Research Assistant, College of Oceanic and Atmospheric Sciences, Ocean University of China, 2011–2014.

Research Interests

Fluid dynamics; Submesoscale processes; Near-inertial waves; Mixing and turbulence; LES simulation of flow in coastal environments

Research

Publications

Refereed Publications

Qu, L. and R. D. Hetland (submitted). Non-geostrophic baroclinic instability over sloping bathymetry: buoyant flow regime. *Journal of Physical Oceanography*.

Luo, L., D. Wang, T. Zu, **L. Qu**, S. Ou, S. Tang, and J. Wang (submitted). Buoyant plume off the Pearl River Estuary induced by an extreme precipitation event during spring and summer 2016. *Estuarine, Coastal and Shelf Science*.

Qu, L. and R. D. Hetland (2019). Temporal resolution of wind forcing required for river plume prediction. *Journal of Geophysical Research: Oceans*, 124(3), 1459-1473. doi:10.1029/2018JC014593.

Qu, L., X. Lin, R. D. Hetland, and J. Guo (2018). The asymmetric continental shelf wave in response to the synoptic wind burst in a semienclosed double-shelf basin. *Journal of Geophysical Research: Oceans*, 123(1), 131-148. doi:10.1002/2017JC013025.

Qu, L. and X. Lin (2014). The effect of the continental shelf slope around island on the Island Rule. *Journal of Ocean University of China*, 44 (Sup.), 001-006 (in Chinese with English abstract).

Manuscripts in Preparation

Qu, L., R. D. Hetland, and L. N. Thomas. Near-inertial waves in a baroclinic vortex.

Qu, L. and R. D. Hetland. Non-geostrophic baroclinic instability over sloping bathymetry: dense flow regime.

Other and Products

Qu, L. (2019). Submesoscale vortices and near-inertial waves in coastal buoyancy-driven flow (Doctoral dissertation).

Qu, L. and T. Zu (2017). "Northern South China Sea Forecast System," An operational high-resolution ocean forecast model on the northern shelf of South China Sea. http://barataria.tamu.edu:8080/NSCS

Qu, L. (2014). The oceanic responses to synoptic wind bursts in the Yellow Sea and Bohai Sea (Master's thesis). http://cdmd.cnki.com.cn/Article/CDMD-10423-1014329439.htm

Conference and Seminar Presentations

L. Qu , and R. D. Hetland, "Sr: A Number for baroclinic instability suppression," Gordon Research Conference: Coastal Ocean Dynamics, Southern New Hampshire University, June 17–21, 2019. (poster)

L. Qu , R. D. Hetland, and L. N. Thomas, "Mixing Due to Trapping of Near-Inertial Waves in a Submesoscale Eddy," Gordon Research Seminar: Coastal Ocean Dynamics, Southern New Hampshire University, June 15–16, 2019. (talk)

L. Qu , R. D. Hetland, and L. N. Thomas, "Internal-wave-driven mixing within submesoscale eddies," Oceanography Departmental Seminar, Texas A&M University, November 26, 2018. (talk)

L. Qu , R. D. Hetland, and L. N. Thomas, "Near-inertial waves at submesoscale coherent vortices in a buoyancy-driven flow," Physics of Estuaries and Coastal Seas Meeting 2018, Galveston, TX, October 14–19, 2018. (talk)

L. Qu and R. D. Hetland, "Baroclinic instabilities and near-inertial waves in buoyancy-driven flow," Communicating Ocean Science, Texas A&M University, May 7, 2018. (poster)

L. Qu and R. D. Hetland, "Non-geostrophic baroclinic instability over sloping bathymetry," AGU Virtual Poster Showcase, April, 2018. (poster)

L. Qu , R. D. Hetland*, and L. N. Thomas, "Effects of near-inertial wind forcing on baroclinic instabilities in a large buoyancy driven current," Ocean Sciences Meeting, Portland, OR, February 11–16, 2018. (talk)

L. Qu and R. D. Hetland, "Temporal resolution of wind forcing required for river plume prediction," Ocean Sciences Meeting, Portland, OR, February 11–16, 2018. (poster)

L. Qu , T. Zu, and R. D. Hetland, "An operational high-resolution ocean circulation forecast model on the Northern South China Sea shelf," Supercomputing 2017 Conference, Denver, CO, November 12–17, 2017. (poster)

L. Qu and R. D. Hetland, "Temporal resolution of wind forcing required for river plume predictions," Gordon Research Conference: Coastal Ocean Dynamics, University of New England, June 11–16, 2017. (poster)

L. Qu , T. Zu, and R. D. Hetland, "An operational high-resolution ocean circulation forecast model on the Northern South China Sea shelf," High Performance Research Computing: Research Computing Week, Texas A&M University, June 5–9, 2017. (poster)

T. Zu*, J. Li, **L. Qu**, Y. Shu, J. Chen, H. Zhu, J. Yao, and D. Wang, "Variability of the coastal circulation revealed by High-Frequency Radar in the Guangzhou Bay of the northern South China Sea," AGU Fall Meeting, San Francisco, CA, December 12–16, 2016. (poster)

L. Qu, X. Lin, and R. D. Hetland, "The semienclosed oceanic response to wind bursts: the sub-inertial pro-

cesses in the Yellow Sea and Bohai Sea," WCRP/CLIVAR Second International Symposium on Boundary Current Dynamics, Li Jiang, Yun Nan, China, July 8–9, 2013. (poster)

Funded Proposals

Lead Principal Investigator

L. Qu, 2014–2018. China Scholarship Council Graduate Fellowship Program, $76,800.0 total award.

Grants

Effects of near-inertial oscillations on baroclinic instabilities in a large buoyancy driven current, Texas Sea Grant, June 1, 2018 – May 31, 2019, $1,687.5, PI: **L. Qu**.

Selected Other Conferences and Workshops Attended

SciPy Conference and Tutorial, Austin, TX, July, 2015, 2016, 2017, and 2018.

Special HPC Seminar and Workshop on Cloud Computing, Texas A&M University, March 21, 2017.

TUFTE Presenting Data and Information Workshop , Houston, TX, October 12, 2016.

COAWST Model Training, Woods Hole, MA, August 15–19, 2016.

NVIDIA GPU Programming Workshop, Texas A&M University, April 27–28, 2016.

Teaching

Teaching Assistant, Python for Geoscientists (OCNG 469/669), Texas A&M University, Spring 2017.

Student Lecturer, Summer School on Marine Sciences, University of Bremen/GEOMAR, Summer 2012.

Teaching Assistant, Visual Basic Programming (Fundamental Series), Ocean University of China, Fall 2011.

Field Work

Texas continental shelf: R/V Point Sur, NSF RAPID, September 27–29, 2017.

Honors & Awards

James Sharp Graduate Scholarship, Texas A&M University, 2014 and 2018.

Chapman Award for Graduate Research, Texas A&M University, 2017.

Donald and Melba Ross Scholarship, Texas A&M University, 2017.

A.T. Webber ′22 and A.T. Webber, Jr. ′49 Fellowship in Oceanography, Texas A&M University, 2016.

Robert O. Reid Oceanography Fellowship, Texas A&M University, 2015.

Outstanding Graduate Student Award, Ocean University of China, 2012.

Excellent Undergraduate Student Award, Ocean University of China, 2011.

National Scholarship, Ministry of Education of China, 2009 and 2010.

First Prize Scholarship for Academic Performance, Ocean University of China, 2008, 2009, and 2010.

Service

Referee: Ocean Science; Journal of Geophysical Research - Oceans; Continental Shelf Research.

Peer judge for AGU Virtual Poster Showcase, 2018.

Meeting coordinator for Physics of Estuaries and Coastal Seas Meeting, Galveston, TX, 2018.

Meeting coordinator for Physical Oceanography Numerical Group, Texas A&M University, 2018–2019.

Professional Activities

Member: The Oceanography Society.

Skills

Idealized CFD Tools

Proficient in DIABLO (LES solver) and DEDALUS (PDE solver in spectral methods).

Ocean Modeling

Extensively used ROMS ocean modeling code; skilled in COAWST and GOTM modeling.

Programming Languages

Proficient in Python and Fortran; skilled in C, C++, and Matlab.

High Performance Computing

Skilled in MPI and OpenMP; experience with CUDA and OpenACC.

Other Skills

Proficient in Mathematica; skilled in LaTeX; extensive experience with LINUX/UNIX system administration, using a cluster, and shell scripting.