DYLAN SCHLICHTING

Los Alamos National Laboratory
Fluid Dynamics & Solid Mechanics Group, TA-03 200
Los Alamos, NM 87545

dylan.schlichting@tamu.edu
(413) 262-4393
https://dylanschlichting.github.io/
Last updated on February 15, 2024

EDUCATION

Ph.D. Oceanography, Texas A&M University — Jan 2020 - Aug 2024 (Expected)
Committee: Robert Hetland (co-chair), Henry Potter (chair), Spencer Jones, Scott Socolofsky
Dissertation: Numerical and physical submesoscale mixing processes over the Texas-Louisiana shelf

B.S. Civil Engineering, University of Maine — Aug 2016 - Dec 2019
Minor: Mathematics.
Honors: cum laude

RESEARCH INTERESTS

Spurious/numerical mixing, coastal/regional ocean modeling, submesoscale processes and dynamics, estuarine exchange.

RESEARCH EXPERIENCE

DOE SCGSR Fellow — Dec 2023 - Present
Los Alamos National Laboratory

· Assessing the representation of coastal processes in the Model for Prediction Across Scales - Ocean (MPAS-O) over the Texas-Louisiana (TXLA) shelf

Graduate Research Assistant — Jan 2020 - Present
Texas A&M University: Dept. Oceanography

· Characterized numerical mixing in two-way nested ROMS simulations of the TXLA shelf as part of the Submesoscales Under Near-Resonant Inertial Shear Experiment (SUNRISE, https://sunrise-nsf.github.io/)
· Developed ROMS simulations of idealized submesoscale baroclinic instabilities

Student Research Assistant — May 2017 - Dec 2019
UMaine: Dept. Civil Engineering

· Analyzed the environmental impacts of living shorelines and coastal armoring structures on pocket beaches in Southern Maine.
· Participated in the construction, deployment, and management of an oceanographic mooring system for the Sensing Storm Surge Citizen Science Project. (http://sensingstormsurge.acg.maine.edu/)

Engineering Research Assistant — Aug 2018 - May 2019
UMaine: School of Marine Sciences

· Characterized inertial oscillations in the Gulf of Maine using observational current data

Research Experience for Undergraduates May 2018 - Aug 2018
Texas A&M University: Dept. Oceanography

- Characterized salinity structure in Copano Bay, TX using ROMS output
- Cruise: R/V Pelican (3 days). Cocodrie, LA, to Flower Garden Banks National Marine Sanctuary in the northern Gulf of Mexico

PUBLICATIONS

3. **Schlichting, D.**, Qu, L., Kobashi, D., & Hetland, R. (2023). Quantification of physical and numerical mixing in a coastal ocean model using salinity variance budgets. *Journal of Advances in Modeling Earth Systems*, 15, e2022MS003380. `https://doi.org/10.1029/2022MS003380`.

2. Qu, L., Hetland, R., & **Schlichting, D.** Mixing pathways in simple box models (2022). *Journal of Physical Oceanography*, 52(11), 2761-2772. `https://doi.org/10.1175/JPO-D-22-0074.1`.

1. Spicer, P., **Schlichting, D.**, Huguenard, K., Roche, A., & Rickard, L. (2021). Sensing Storm Surge: A framework for establishing a citizen scientist monitored water level network. *Ocean and Coastal Management*, 211, 105802. `https://doi.org/10.1016/j.ocecoaman.2021.105802`.

MANUSCRIPTS IN PREPARATION

2. **Schlichting, D.**, & Hetland, R. Numerical mixing suppresses submesoscale baroclinic instabilities over sloping bathymetry. Intent to submit to *Journal of Physical Oceanography*.

1. Wei Hsu, F., **Schlichting, D.**, Shearman, R. Kipp , Kobashi, D., & Hetland, R. S_2 Atmospheric Tide Driven Superinertial Oscillation on the Texas-Louisiana Shelf. Intent to submit to *Journal of Physical Oceanography*.

INVITED PRESENTATIONS

2. **Schlichting, D.** (2022). An introduction to numerical mixing in a coastal ocean model of the Texas-Louisiana continental shelf. SUNRISE student cruise meeting, Bend, OR. *Talk*.

1. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Quantification of physical and numerical mixing using tracer variance dissipation in a coastal ocean model. Pacific Northwest National Laboratory coastal modeling group. Jul 11. *Talk, virtual*.

ACADEMIC PRESENTATIONS / CONFERENCES

15. **Schlichting, D.**, Hetland, R., & Jones, S. (2024). Numerical mixing suppresses submesoscale baroclinic instabilities over sloping bathymetry. Ocean Sciences Meeting, New Orleans, LA, Feb 18-23. *Poster*.

14. **Schlichting, D.**, & Hetland, R. (2023). Numerical mixing in idealized simulations of baroclinic instabilities over a shelf. Gordon Research Seminar/Conference on coastal ocean dynamics, Smithfield, RI, Jun 17-23. *Poster*.

13. Texas Center for Climate Studies High Resolution Earth System Modelling Workshop (2023). College Station, TX, Jan 23-25. *Attended*.

12. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Quantification of physical and numerical mixing using tracer variance dissipation in a coastal ocean model. Gordon Research Seminar/Conference on ocean mixing, South Hadley, MA, Jun 4-10. *Poster*.
11. Hetland, R., Qu, L., & **Schlichting, D.** (2022). Tracer variance mixing in simple box models. Ocean Sciences Meeting, Feb 24 - Mar 4. *Talk, virtual*.
10. **Schlichting, D.**, Qu, L., Hetland, R., & Kobashi, D. (2022). Using salinity variance budgets to quantify numerical mixing in a coastal ocean model. Ocean Sciences Meeting, Feb 24 - Mar 4. *Talk, virtual*
9. **Schlichting, D.**, Hetland, R., Qu, L., & Kobashi, D. (2021). Using tracer variance budgets to quantify numerical mixing offline in a coastal ocean model. Warnemünde Turbulence Days Meeting. Dec 6-9. *Talk, virtual*.
8. Scientific Computing with Python Conference (2021). Jul 12-18. *Attended, virtual*.
7. Scientific Computing with Python Conference (2020). Jul 6-12. *Attended, virtual*.
6. **Schlichting, D.**, Lieberthal, B., & Huguenard, K. (2019). An assessment into vegetation farms as a solution to coastal erosion in southern Maine. Northeast Aquaculture Conference, Boston MA. Jan 9-11. *Poster*.
5. **Schlichting, D.** & Hetland, R. (2018). Using salinity variance and total exchange flow to analyze salinity structure in an unsteady estuary. Physics of Estuaries and Coastal Seas Conference, Galveston, TX, Oct 14-18. *Poster*.
4. **Schlichting, D.** & Hetland, R. (2018). Mechanisms controlling salinity structure structure in a broad, shallow, unsteady estuary. Sustainable Ecological Aquaculture Network Undergraduate Research Symposium, Walpole, ME, Aug 7. *Poster*.
3. **Schlichting, D.** & Hetland, R. (2018). Salinity structure in Copano Bay. Texas A&M University Observing the Ocean REU Student Symposium, College Station, TX, Aug 2. *Talk*.
2. **Schlichting, D.**, Lieberthal, B., & Huguenard, K. (2017). Vegetation farms as a solution to coastal erosion for Saco, Maine. Sustainable Ecological Aquaculture Network Undergraduate Research Symposium, Walpole, ME, Aug 16. *Poster*.
1. Coastal and Estuarine Research Federation Conference (2017). Providence, RI, Nov 5-9. *Attended*.

SERVICE & MENTORING

Mentor: Kaila Uyeda (Postbac Researcher)	Aug. 2023 - Dec. 2023
Reviewer: *Journal of Geophysical Research: Oceans* ($n = 1$)	Aug. 2023 - Present
Judge: Student Research Week	Spring 2023
NSF PROGRESS Mentor - Milly Hencey	Fall 2022
Judge: Environmental Geosciences capstone (GEOS 405, TAMU)	Spring 2022
Tutor: Computers in Civil Engineering (CIE 115, UMaine)	Spring 2019

FUNDED RESEARCH

DOE SCGSR fellow ($\sim \$30,100$)	Dec. 2023-Present
Oceanography Graduate Council mini-grant ($n = 3$, $\$1300$ total)	2021

HONORS AND AWARDS

Louis and Elizabeth Scherck Scholarship ($n = 4$)	2020-Present
NSF S-STEM Scholar ($n = 2$)	Jan 2020 - Aug 2021
Frank Sleeper - Sawyer Scholarship	2017 - 2019
Best civil engineering capstone project	2019
Chi Epsilon Member	2019
NSF REU Scholar	May 2018 - Aug 2018
Alpha Tau Omega Memorial Scholarship	2018

SKILLS

- Modeling: ROMS (proficient), COAWST (proficient), MPAS-O (basic), E3SM (basic)
- Programming & Related: Python (proficient), LaTeX(proficient), Markdown (proficient), Matlab (intermediate), Bash (intermediate), Github/git (intermediate), FORTRAN (basic)
- Ocean observations (basic): HOBO water level and conductivity sensors, ADCPs, ADVs
- Civil engineering (basic): Concrete design, HEC-RAS, AutoCad, Revit

PROFESSIONAL SOCIETIES

- American Geophysical Union
- Association for the Sciences of Limnology and Oceanography
- The Oceanography Society