

# MATTHEW T. LUONGO

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## EDUCATION

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**Scripps Institution of Oceanography** *La Jolla, CA*  
**University of California, San Diego**

Ph.D., Oceanography Jun. 2024

M.S., Oceanography Dec. 2020

*Thesis:* “Understanding the Climate Response to Hemispheric Differences in Radiative Forcing through Coupled Ocean-Atmosphere Interactions”

*Advisors:* Professors Shang-Ping Xie & Ian Eisenman

**Harvard University** *Cambridge, MA*

A.B., Earth & Planetary Sciences, *Magna Cum Laude with Highest Honors* May 2017

A.B., Engineering Sciences

*Thesis:* “Comparison & Calibration of Climate Proxy Data in Medieval Europe”

*Advisor:* Professor Peter Huybers

## EMPLOYMENT

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**University of Washington** 2024 -  
CICOES Postdoctoral Research Fellow Seattle, WA

**Scripps Institution of Oceanography, UCSD** 2019 - 2024  
Graduate Student Researcher San Diego, CA

**Wildlands Trust** 2018 - 2019  
Research Assistant Plymouth, MA

**West Monroe Partners** 2017 - 2018  
Energy & Utilities Experienced Consultant New York, NY

## RESEARCH PUBLICATIONS

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### Published & In Press

11. Hahn, L.C., Lutsko, N.J., Eisenman, I., **Luongo, M.T.**, & Xie, S.-P. Contribution of AMOC Decline to Uncertainty in Global Warming via Ocean Heat Uptake and Climate Feedbacks. *Journal of Climate*, 38(21), pp. 6245-6259. doi: [10.1175/JCLI-D-24-0752.1](https://doi.org/10.1175/JCLI-D-24-0752.1).
10. **Luongo, M.T.**, Xie, S.-P., Eisenman, I., Sun, S., & Peng, Q. (2025). How the Subsurface Tropical Pacific Responds to Subtropical Surface Cooling: Implications for Cross-Equatorial Transport. *Journal of Climate*, 38(14), pp. 3313-3331. doi: [10.1175/JCLI-D-24-0440.1](https://doi.org/10.1175/JCLI-D-24-0440.1).
9. Taylor, B.A., Shi, J.-R., Talley, L.D., Xie, S.-P., **Luongo, M.T.**, & Peng, Q. (2025) Warming Band in Southern Ocean’s Indian Sector: The Role of Remote Atlantic Buoyancy Forcing via Poleward-Shifting Circulation Response. *Journal of Climate*, 38(14), pp. 3219-3228. doi: [10.1175/JCLI-D-24-0425.1](https://doi.org/10.1175/JCLI-D-24-0425.1).
8. Peng, Q., Xie, S.-P., Miyamoto, A., Deser, C., Zhang, P., & **Luongo, M.T.** (2025). Strong 2023-2024 El Niño Generated by Ocean Dynamics. *Nature Geoscience*, 18(6), pp. 471-478. doi: [10.1038/s41561-025-01700-9](https://doi.org/10.1038/s41561-025-01700-9).

7. Wan, J.S., Chen, C.-C.-J., Tilmes, S., **Luongo, M.T.**, Richter, J.H., & Ricke, K. (2024) Diminished Efficacy of Regional Marine Cloud Brightening in a Warmer World. *Nature Climate Change*, 14(8), pp. 808-814. doi: [10.1038/s41558-024-02046-7](https://doi.org/10.1038/s41558-024-02046-7)
6. **Luongo, M.T.**, Brizuela, N.G., Eisenman, I., & Xie, S.-P. (2024). Retaining Short-Term Variability Reduces Mean State Biases in Wind Stress Overriding Simulations. *Journal of Advances in Modeling Earth Systems*, 16, e2023MS003665. doi: [10.1029/2023MS003665](https://doi.org/10.1029/2023MS003665).
5. Tseng, H.-Y., Hwang, Y.-T., Xie, S.-P., Kang, S.M., Tseng, Y.-H., **Luongo, M.T.**, & Eisenman, I. (2023). Fast and Slow Responses of the Tropical Pacific to Radiative Forcing in Northern High Latitudes. *Journal of Climate*, 36(16), pp. 5337-5349. doi: [10.1175/JCLI-D-22-0622.1](https://doi.org/10.1175/JCLI-D-22-0622.1)
4. **Luongo, M.T.**, Xie, S.-P., Eisenman, I., Hwang, Y.-T., & Tseng, H.-Y. (2023). A Pathway for Northern Hemisphere Extratropical Cooling to Elicit a Tropical Response. *Geophysical Research Letters*, 50, e2022GL100719. doi: [10.1029/2022GL100719](https://doi.org/10.1029/2022GL100719)
3. Lutsko, N.J., **Luongo, M.T.**, Wall, C.J., & Myers, T.A. (2022). Correlation Between Cloud Adjustments and Cloud Feedbacks Responsible for Larger Range of Climate Sensitivities in CMIP6. *Journal of Geophysical Research: Atmospheres*, e2022JD037486. doi: [10.1029/2022JD037486](https://doi.org/10.1029/2022JD037486)
2. **Luongo, M.T.**, Xie, S.-P., & Eisenman, I. (2022). Buoyancy Forcing Dominates the Cross-Equatorial Ocean Heat Transport Response to Northern Hemisphere Extratropical Cooling. *Journal of Climate*, 35(20), pp. 3071-3090. doi: [10.1175/JCLI-D-21-0950.1](https://doi.org/10.1175/JCLI-D-21-0950.1)
1. **Luongo, M.T.**, Kurbatov, A.V., Erhardt, T., Mayewski, P.A., McCormick, M., More, A.F., Spaulding, N.E., Wheatley, S.D., Yates, M.G., & Bohleber, P.D. (2017). Possible Icelandic Tephra Found in European Colle Gnifetti Glacier. *Geochemistry, Geophysics, Geosystems*, 18(11), pp. 3904-3909. doi: [10.1002/2017GC007022](https://doi.org/10.1002/2017GC007022)

#### Submitted

3. Xie, S.-P., Miyamoto, A., Peng, Q., & **Luongo, M.T.** Internal Variability Dominates Tropical Pacific Warming Pattern During Satellite Era. Manuscript submitted.
2. **Luongo, M.T.**, Xie, S.-P., Eisenman, I., Sun, S., & Armour, K.C. Explaining the Equatorial Pacific Thermocline Response to Climate Change with a Model Hierarchy. Manuscript in review at *JGR: Oceans*. Pre-print doi: [10.31223/X5TB4T](https://doi.org/10.31223/X5TB4T).
1. Moon, J.-Y., An, S.-I., **Luongo, M.T.**, Yang, Y.-M., Park, S.-E., Xie, S.-P., & England, M.R. Asymmetric Cross-Hemisphere Climate Response to Extratropical Forcing Mediated by Tropical Pacific Coupling. Manuscript submitted.

#### NON-REFEREED PUBLICATIONS

1. **Luongo, M.T.** (2024). Understanding the Climate Response to Hemispheric Differences in Radiative Forcing through Coupled Ocean-Atmosphere Interactions. Doctoral dissertation. University of California, San Diego. [Link](#).
2. **Luongo, M.T.** (2017). Comparison and Calibration of Climate Proxy Data in Medieval Europe. Undergraduate thesis. Harvard University. [Link](#).

#### HONORS & AWARDS

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| <b>2024–</b> | CICOES Postdoctoral Fellowship (UW CICOES & NOAA PMEL)       |
| <b>2024–</b> | Data Science Postdoctoral Fellowship (UW eScience Institute) |
| <b>2024</b>  | Early Career Researcher Presentation Award (CFMIP)           |
| <b>2024</b>  | Outstanding Student Presentation Award (AGU23)               |
| <b>2023</b>  | Outstanding Student Presentation Award (CalGFD)              |

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| <b>2022–2024</b> | FINESST Graduate Research Fellowship (NASA)                                      |
| <b>2022</b>      | Outstanding Teaching Assistant (SIO)   |
| <b>2021</b>      | NSF GRFP Honorable Mention (NSF)   |
| <b>2021</b>      | Outstanding Student Mentor (SIO)   |
| <b>2019–2020</b> | Regents Fellowship (UCSD)  |
| <b>2017</b>      | Hoopes Prize for Outstanding Senior Thesis Work (Harvard)                        |
| <b>2015</b>      | Undergraduate Summer Research Fellow (Harvard University Center for Environment) |
| <b>2013</b>      | National Merit Program Commended Scholar   |
| <b>2013</b>      | John Joseph Moakley Scholar  |
| <b>2012</b>      | Eagle Scout  |

## PRESENTATIONS

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22. University of Washington, School of Oceanography, Seattle, WA (May 2025).
21. University of Washington, eScience Institute, Seattle, WA, USA (Apr. 2025).
20. Columbia University, Applied Physics & Applied Mathematics Dept., New York, NY, USA (Feb. 2025). *Invited.*
19. AGU Fall Meeting, Washington, DC, USA (Dec. 2024). Poster.
18. Physical Oceanography Dissertations Symposium (PODS) XIII, Lihue, Kauai, HI, USA (Oct. 2024). *Invited.*
17. National Taiwan University, Dept. of Atmospheric Sciences, Taipei, Taiwan (Sep. 2024). *Invited.*
16. University of Tokyo, AORI, Kashiwa, Japan (Aug. 2024). *Invited.*
15. University of Tokyo, RCAST, Tokyo, Japan (Aug. 2024). *Invited.*
14. CFMIP, Boston, MA, USA (Jun. 2024).
13. University of Washington, School of Oceanography, Seattle, WA (May 2024). *Invited.*
12. AGU Fall Meeting, San Francisco, CA, USA (Dec. 2023). Poster.
11. AGU Fall Meeting, San Francisco, CA, USA (Dec. 2023).
10. CalGFD, La Jolla, CA, USA (Sep. 2023).
9. Atlantic Variability and Tropical Basin Interactions Workshop, International Centre for Theoretical Physics, Trieste, Italy (Aug. 2023). Poster.
8. AGU Fall Meeting, Chicago, IL, USA (Dec. 2022).
7. Graduate Climate Conference, Pack Forest, WA, USA (Oct. 2022). Poster.
6. Scripps Student Symposium, La Jolla, CA, USA (Sep. 2022).
5. Equilibrium Climate Sensitivity & Cloud Feedback Symposium, Virtual (Aug. 2022). *Invited.*
4. CalGFD, Pasadena, CA, USA (Aug. 2022).
3. NOAA Climate Sensitivity Task Force Meeting, Virtual (Mar. 2022). *Invited.*
2. AGU Fall Meeting, New Orleans, LA, USA (Dec. 2021).
1. Graduate Climate Conference, Virtual (Oct. 2020). Poster.

## TEACHING & MENTORING

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**Teaching Assistant**

- *Dynamics of the Atmosphere and Climate* (SIO 173), UCSD. 2021. Instructors: Shang-Ping Xie & Ian Eisenman.
- *Frontiers and Foundations of Modern Chemistry: A Molecular and Global Perspective* (PS 11), Harvard University. 2015-2017. Instructors: Jim Anderson & Gregg Tucci.

#### Guest Lecturer

- *Current Research in Climate Science* (OCEAN 475), UW. 2025. Instructor: Steven Riser.
- *Physics of Climate* (ATMS 321), UW. 2025. Instructor: Dargan Frierson.
- *Numerical Modeling of the Climate System* (SIOC 224), UCSD. 2022, 2024. Instructor: Ian Eisenman.
- *Dynamics of the Atmosphere and Climate* (SIO 173), UCSD. 2023. Instructor: Shang-Ping Xie.

#### Research Mentor

- Jun-Young Moon, MS student, Yonsei University: *Asymmetric Climate Impacts of High-latitude Radiative Forcing*.
- Cassia Cai, PhD student, UW: *Modeled and Observed Variability of the Southern Hemisphere Subtropical Cell*.
- Manali Nayak, PhD student, UW: *Regional Ocean Dynamics and Historical Ocean Heat Uptake Efficiency*.
- Nico Davis, REU student, Colorado College: *Wind Effects on Southern Ocean Trend Biases in CESM2 Large Ensemble*.

#### Peer Mentor

- Jessica Wan & Laney Wicker (SIO).
- SIO-Ask, mentoring program for underrepresented graduate school applicants (2022-2023).

## LEADERSHIP AND SERVICE

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#### Field

- AGU Session Convener: “El Niño-Southern Oscillation and Pantropical Climate Interactions: Mechanisms, Predictability, Impacts, and Projections” (2024, 2025).
- ECS & Cloud Feedback Virtual Symposium Organizer (2024-present).
- CalGFD Organizing Committee (2023).
- Reviewer for: *Journal of Climate*, *Climate Dynamics*, *Geophysical Research Letters*, *Earth’s Future*, *Nature Communications*, *Science Advances*, *Weather & Climate Dynamics*

#### Department

- SIO Climate Journal Club: Seminar Organizer (2020-2024).
- SIO Peer Mentor Leadership Team (2021-2022).
- SIO Graduate Student Council Climate Sciences Curricular Group Representative (2021-2022).
- SIO GFD Faculty Search Committee (2022).

## MEDIA

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- AGU Eos (Nov. 2025): *Ocean Tunneling May Have Set Off an Ancient Pacific Cooldown*. [Link](#).
- NPR Shortwave Podcast (Jul. 2025): *The Ocean’s Currents are Shifting. Why?* [Link](#).
- Scripps News (Jun. 2024): *Artificial Climate Controls Might Become Ineffective—Because of Climate Change*. [Link](#).

## FIELD WORK

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#### October 2024: Ocean Observatories Initiative Coastal Endurance Array Fall Cruise

10 days on *R/V Sikuliaq* deploying and recovering moorings, profilers, and gliders off the coast of WA & OR to contribute to OOI’s long-term coastal time series.