

LILY ZHANG

lnzhang@uw.edu | lilynzhang.com | Seattle, WA

EDUCATION

University of Washington PhD Student in Atmospheric Sciences	Present
Massachusetts Institute of Technology Bachelor of Science in Earth, Atmospheric, and Planetary Sciences Bachelor of Science in Physics Minor in Public Policy	2022

AWARDS

AMS Annual Meeting 1 st Place Oral Presentation Award	2024
UW Atmospheric Sciences Graduate Student Distinguished Service Award	2023
NSF Graduate Research Fellowship	2022
AMS Graduate Fellowship	2022
EAPS Christopher Goetze Prize for Undergraduate Research	2022
Barry Goldwater Scholarship	2021
EAPS Community Builder Award (with TIDE)	2021
ASF Astronaut Scholarship	2020 - 2021
NOAA Ernest F. Hollings Undergraduate Scholarship	2020
MIT Outstanding New Leader Award	2019
AMS Freshman Undergraduate Scholarship	2018
AccuWeather Earth Science Award	2017

RELATED EXPERIENCE

University of Washington Department of Atmospheric Sciences Graduate Research Assistant Using a combination of climate models, observations, and simple models to understand the soil moisture influence on Western US climate variability.	Sep. 2022 – Present
MIT Department of Civil and Environmental Engineering Entekhabi Group Research Scientist Determining the effect of land surface conditions on weather through the relationship between soil moisture and convective available potential energy (CAPE). Results will be used to understand the weather system response to climate change. Principal author of paper under review.	Sep. 2021 – Aug. 2023
NOAA Pacific Marine Environmental Laboratory Ocean Climate Research Division Hollings Intern Investigated controls on diurnal variability in Arctic sea surface temperature using meteorological data collected from autonomous surface vehicles (Saildrones). Research presented at AGU 2021, AMS 2022, and OSM 2022.	Jun. 2021 – Aug. 2021
MIT Department of Earth, Atmospheric, and Planetary Science Solomon Group Undergraduate Researcher Developed a methodology for reconstructing missing data in the Halley Antarctic Ozone Record, a dataset crucial to the discovery of the ozone hole and future climate studies. Principal author of paper published in Atmospheric Chemistry and Physics.	May 2020 – Jun. 2021
Head of the Charles Regatta Weather Forecaster Provides expert guidance to the race operations team of the largest two-day regatta in the world.	Oct. 2019 – Oct. 2021
MIT Center for Global Change Science Woosley Lab Undergraduate Researcher Analyzed seasonal and spatial trends for fugacity of carbon dioxide ($f\text{CO}_2$) in seawater using multiple datasets totaling over 500,000 observations in MATLAB. Evaluated climatological trends in seawater	Jun. 2019 – Sep. 2021

$f\text{CO}_2$ to examine the effects of anthropogenic carbon invasion. Principal author of paper accepted for publication in *Continental Shelf Research*.

MIT Department of Earth, Atmospheric, and Planetary Science | Emanuel Group

Assistant Researcher

Oct. 2018 – Jun. 2019

Developed a probabilistic wind speed model using an intensity model in tandem with a physically based wind speed equations for tropical cyclones using Python. Model provides potentially life-saving information to those living in at risk area--intended to be implemented on a large scale.

Penn State Center for Advanced Data Assimilation and Predictability Techniques

Assistant Researcher

Jul. 2017 – Apr. 2019

Analyzed and plotted data from the European Centre for Medium-Range Weather Forecasts (ECMWF) to analyze trends and variabilities of CO_2 concentration over North America using Python. Validated ECMWF MACC and NOAA CarbonTracker Near-Real Time CO_2 products against ACT-America measurements using Python. Second author of paper published in *Journal of Geophysical Research - Atmospheres*

Penn State Department of Meteorology and Atmospheric Science

Assistant Researcher

Jul. 2016 – Mar. 2018

Represented precipitation ice species with both spherical and non-spherical particles for radiative transfer modeling of microphysics-consistent cloud microwave scattering properties. Contributing author of a paper published in *Journal of Advances in Modeling Earth Systems*.

PUBLICATIONS AND PAPERS

Varagas Zeppetello, L. R., **Zhang, L. N.**, Battisti, D. S., Laguë, M. M. (2024). How Much Does Land–Atmosphere Coupling Influence Summertime Temperature Variability in the Western United States?. *Journal of Climate*, **37**, 3457-3478.

Zhang, L. N., Short Gianotti, D. J., Entekhabi, D. (2023). Land Surface Influence on Convective Available Potential Energy (CAPE) Change during Interstorms. *Journal of Hydrometeorology*, **24**, 1365–1376.

Zhang, L. N., Woosley, R. J. (2021). Seasonal trends in the Southeast Florida current and shelf CO_2 fluxes. *Continental Shelf Research*, **229**, 104566.

Zhang, L. N., Solomon, S. Stone, K. A., Shanklin, J. D., Eveson, J. D., Colwell, S., et al. (2021). On the use of satellite observations to fill gaps in the Halley station total ozone record. *Atmospheric Chemistry and Physics*, **21**, 9829-9838.

Chen, H. W., Zhang, **L. N.**, Zhang, F., Davis, K. J., Lauvaux, T., Pal, S., et al. (2019). Evaluation of regional CO_2 mole fractions in the ECMWF CAMS real-time atmospheric analysis and NOAA CarbonTracker near-real-time reanalysis with airborne observations from ACT-America field campaigns. *Journal of Geophysical Research: Atmospheres*, **124**, 8119-8133.

Sieron, S. B., Zhang, F., Clothiaux, E. E., **Zhang, L. N.**, & Lu, Y. (2018). Representing precipitation ice species with both spherical and nonspherical particles for radiative transfer modeling of microphysics-consistent cloud microwave scattering properties. *Journal of Advances in Modeling Earth Systems*, **10**, 1011-1028.

INVITED TALKS

Washington State University-Vancouver Interdisciplinary Science Seminar

2024

CONFERENCE PRESENTATIONS

AMS Annual Meeting, Graduate Climate Conference, AGU Fall Meeting

2023

AMS Annual Meeting, Ocean Sciences Meeting, Graduate Climate Conference, AGU Fall Meeting

2022

EGU General Assembly, Global Monitoring Annual Conference (eGMAC), Astronaut Scholarship Technical Conference, Quadrennial Ozone Symposium (QOS), AGU Fall Meeting

2021

EPS Undergraduate Research Symposium, Astronaut Scholarship Technical Conference, AGU Fall Meeting

2020

TEACHING

*Climate and Climate Change (ATM S 211)***Graduate Teaching Assistant****2024***Electricity and Magnetism (8.02)***Undergraduate Teaching Assistant****2022***Classical Mechanics (8.01)***Undergraduate Teaching Assistant****2021***Science and Economics of Climate Change: Understanding Environmental Successes and Failures***MIT Summer HSSP, MIT Splash, MIT Spark Teacher****2020 – 2022***The Art and Science of Negotiation (11.111)***MIT Teaching Assistant****2020***How Does Global Warming Work? An Introduction to The Greenhouse Effect and Other Mechanisms***MIT Splash Teacher****2018, 2020**

LEADERSHIP AND OUTREACH

Graduate Climate Conference

Co-Chair (2024), Organizer (2023)**2023-Present**

Identity, Belonging and Inquiry in Science (IBIS)

Graduate Student Mentor**2023 – Present**

UW Atmospheric Sciences

Graduate Student Distinguished Visiting Lecturer Host (2024), Graduate Student Representative (2023-25), AMS Co-President (2023-2024), Prospective Student Visit Weekend Organizer (2022-2023), Outreach Coordinator (2022-2023)**2022 – Present**

UW Atmospheric Sciences Graduate-Undergraduate Mentorship Program (GUMP)

Mentor and Organizer**2022 – Present**

MIT School of Science Assistant Dean of Diversity, Equity, and Inclusion (DEI) Hiring Committee

Undergraduate Representative**2021**

Los Altos High School Women in STEM

Mentor**2020 – Present**

MIT EAPS Diversity, Equity, and Inclusion Committee (DEI-C)

Undergraduate Representative**2020 – 2021**

MIT EAPS Let's INvest in K12 (LINK12)

Organizer, Teacher**2020 – 2022**

Towards Inclusion and Diversity in EAPS (TIDE)

Reading Group Participant, Member**2020 – 2022**

askEAPS Youtube Channel

Owner**2019 – 2021**

MIT EAPS Student Advisory Committee

Undergraduate President**2019 – 2022**

MIT Educational Studies Program (ESP)

Splashcon Director, Splash Subdirector, Spark Subdirector, Publicity Officer, Treasurer, Teacher**2018 - 2022**

TECHNICAL SKILLS

MATLAB

Python

Java