Edoardo Mazza

Research Scientist - University of Washington

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Research Interests

Multiscale climate dynamics, extreme weather events, uncrewed system observations, tropical meteorology, weather-climate interface, air-sea interactions

Education

Ph.D. in Atmospheric Sciences — *Seattle, WA*
University of Washington — 2020 - 2023
Advisor: Prof. Shuyi S. Chen

M.S. in Atmospheric Sciences — *Seattle, WA*
University of Washington — 2017 - 2020
Advisor: Prof. Shuyi S. Chen

B. Sc. with Honors in Geophysics and Meteorology — *Edinburgh, UK*
University of Edinburgh — 2009 - 2013
Advisor: Prof. Ruth Doherty

Professional Experience

Research Scientist — *Seattle, WA*
Cooperative Institute for Ocean and Ecosystem Studies, University of Washington — Jul. 2024 - present

NRC Postdoctoral Researcher — *Seattle, WA*
NOAA Pacific Marine Environmental Lab — Jul. 2023 - Jul. 2024
Advisor: Dr. Chidong Zhang

Publications In Preparation

Mazza, E., Chen S. S., Kerns, B. W., Vakil R. and C. Zhang, 2026: Persistent MJO Forcing and the Atmospheric-River Sequence Behind the December 2025 Pacific Northwest Floods., *In Preparation*

Mazza, E., Chiodi A. M., and C. Zhang, 2026: Upper oceanic response to the passage of Hurricane Fiona: co-located uncrewed system measurements and coupled modeling., *In Preparation*

Owoeye, K., Dixon A., Zhang, C., Troub, B., **Mazza, E.**, Foltz, G. R. and N-H. Chi, 2026: Validation of SMAP Sea Surface Salinity Retrieval against Observations from Uncrewed Surface Vehicles under Atlantic Hurricane Conditions., *In Preparation*

Peer-Reviewed Publications

Mazza, E., Zhang, C. and Chiodi, A. M., 2026: Virtual uncrewed system sampling in hurricane environment: 2. Surface vehicle and underwater glider coordination, *Front. Mar. Sci.* **13:1884763** doi: 10.3389/fmars.2026.1884763

Mazza, E., Zhang, C. and Chiodi, A. M., 2026: Virtual uncrewed system sampling in hurricane environment: 1. rigid-wing surface vehicle simulator, *Front. Mar. Sci.* **13:1884756** doi: 10.3389/fmars.2026.1884756

Foltz, G. R., Zhang, D., Looney, L., Chiodi, A., Zhang, J., Zhang, C., **Mazza, E.**, Chi, N. H., and Cokelet, E., 2025: Sea-state dependent hurricane drag revealed by ocean surface drones., *Sci. Adv.* **12** eaec7422

Mazza, E., Chen, S. S., Kerns, B. W., and Winters, A. C., 2025: Multiscale drivers of extreme southern California flooding: ENSO, MJO, North Pacific jet, and atmospheric rivers, *npj Clim. Atmos. Sci.* **8,** 376

Mazza, E., and Chen, S. S., 2025: Compound Dry-Dusty Air Intrusions During the Genesis of Tropical Storm Kate (2021): Observations From the CPEX-AW Field Campaign and Coupled Modeling., *J. Geophys. Res. Atmos.* **130,** e2024JD042653. https://doi.org/10.1029/2024JD042653

Nowottnick, E., Rowe, A., Nehrir, A., Zawislak, J., Piña, A., McCarty, W., Maring, H., Barton-Grimley, R., Bedka, K., Brammer, A., Chen, G., Chen, S.S., Chen, S., Colarco, P., Cooney, J., Crosbie, E., Doyle, J., Fehr, T., Ferrare, R., Harrah, S., Hristova-Veleva, S., Lambrigsten, B., Lawton, Q., Lee, A., Marinou, E., **Mazza, E.**, Močnik, G., Nunez Ocasio, K., Pu, Z., Reid, J.S., Rios-Berrios, R., Robinson, C., Rodriguez Monje, R., Rodenkirch, B., Salazar., V., Sakaeda, N., Shook, M., Thornhill, L., Veals, V., Vömel, H., Wong, S., Wu, S., Ziemba, L. and Zipser, E., 2024: Dust, Convection, Winds and Waves: The 2022 NASA CPEX-CV Campaign, *Bull. Am. Met. Soc.* **105,** E2097–E2125, https://doi.org/10.1175/BAMS-D-23-0201.1.

Chiodi, A. M., Hristova, H., Foltz, G. R., Zhang, J.R. , Mordy, C., Edwards, C., Zhang, C., Meinig, C., Zhang, D., **Mazza, E.**, Cokelet, E.D., Burger, E.F., Bringas, F., Goni, G.J., Kim, H-S., Chen, S., Trinanes, J.A., Bailey, K., O'Brien, K.M., Morales-Caez, M., Lawrence, N.S., Chen, S. S., and Chen, X., 2024: Surface ocean warming near the core of Hurricane Sam and its representation in forecast models, *Frontiers in Marine Science, section Ocean Observation,* **10** , 1-17

Zhang, C., Foltz, G. R., Chiodi, A., Mordy, C. W., Edwards, C. R., Meining, C., Zhang, D., **Mazza, E.**, Cokelet, E. D., Burger, E. F., Bringas, F., Goni, G. J., Hristova, H., Kim, H-S., Trinanes, J. A., Zhang, J. Z., Bailey, K. E., O'Brien, K. M., Morales-Caez, M., Lawrence-Slavas, N., Jenkins, R., Chen, S. S. and Chen, X., 2023: Hurricane Observations by Uncrewed Systems, *Bull. Am. Met. Soc.,* **104** , E1893–E1917

Mazza, E., and Chen, S. S., 2023: Tropical Cyclone Rainfall Climatology, Extremes, and Flooding Potential from Remote Sensing and Reanalysis Datasets over the Continental United States, *J. Hydromet.,* **24** , 1549–1562

Mazza, E., and Chen, S. S., 2023: Modulation of Tropical Cyclone Tracks and Rainfall by the North Atlantic Oscillation, *J. Geophys. Res. Atmos.,* **128** , e2022JD038107

Mazza, E., and Chen, S. S., 2021: Subsidence Warming in the Tropical Cyclogenesis of Cindy (2017): CPEX observations and Coupled Modeling, *J. Atmos. Sci.,* **70**(10) , 3385-3400

Mazza, E., Ulbrich, U. and Klein, R., 2016: The Tropical Transition of the October 1996 medicane in the Western Mediterranean: a warm seclusion event, *Mon. Wea. Rev.,* **145** , 2575 - 2595

Tett, S. F. B., Deans, K., **Mazza, E.** and Mollard, J., 2013: Are Recent Wet North Western European Summers a response to sea-ice retreat? [in 'Explaining Extreme Events of 2012 from a Climate Perspective'], *Bull. Am. Met. Soc.,* **94** , 9

Grants and Funding

NOAA - GOMO: AI and Data Management Pilot – Co-PI *$200,000 - Awarded*
AI-assisted route planning for co-located uncrewed vehicles 2026 - 2028

NOAA - OAR: TEPEX Central – Co-PI *$750,000 - Awarded*
Lead flight scientist (NOAA P3 Research Aircraft) 2025 - 2028

NRC - Research Associateship Programs (RAP) *$60,000*
Postdoctoral Fellowship 2023-2024

DAAD - Kurzstipendie für Doktoranden *$10,000*
Graduate Fellowship 2016

GeoSim - Freie Universität Berlin *$18,000*
Graduate Fellowship 2013

Leadership and Fieldwork Experience

Mission Manager - NOAA-Oshen — *UW CICOES - NOAA/PMEL*
Atlantic Hurricane Mission — 2025
- Develop sampling strategies
- Direct c-star USV Navigation
- Coordinate measurements with other UxS
- Post-mission data analysis and validation

Mission Manager - NOAA-Saildrone — *UW CICOES - NOAA/PMEL*
Atlantic Hurricane Mission — 2023-2024
- Develop sampling strategies
- Direct Saildrone USV Navigation
- Coordinate measurements with other UxS
- Post-mission data analysis and validation

Lead Flight Scientist - NASA CPEX-CV — *Cabo Verde*
NASA Convective Processes Experiment - Cabo Verde Field Campaign — 2022
- Plan and direct NASA DC-8 airborne missions
- Coordinate Instrument Teams and ground crews
- Perform post-flight debriefs and analysis

Forecasting Team Coordinator - NASA CPEX-AW — *St. Croix - USVI*
NASA Convective Processes Experiment - Aerosol and Wind Field Campaign — 2020-2021
- Instruct and Coordinate the Forecasting Team
- Oversee daily weather forecasts to support mission science

Forecasting Team Member - NASA CPEX — *Ft. Lauderdale, FL*
NASA Convective Processes Experiment Field Campaign — 2017
- Perform daily weather forecasts to support mission science
- Participate in research flights and operate GPS dropsondes

Teaching and Research Experience

Graduate Teaching Assistant — *University of Washington*
ATMS 301 'Introduction to Atmospheric Sciences', instructor: Prof. Shuyi Chen — 2019

Graduate Teaching Assistant — *University of Washington*
ATMS 101 'Weather', instructor: Prof. Clifford Mass — 2018

Graduate Research Assistant — *University of Washington*
University of Washington - Dept. of Atmospheric and Climate Science — 2017 - 2023

Student Intern - DRIHM Cooperation Manager — *Savona, IT*
CIMA Research Foundation, advisor: Dr. Antonio Parodi — 2012

Service and Mentoring

Reviewer
Journals: Monthly Weather Review, Climate Dynamics, Journal of Hydrometeorology, npj Climate and Atmospheric Science, Theoretical and Applied Climatology — 2023 - present
Funding Agencies: National Science Foundation

Conference Session Chair
AGU Fall Meeting — 2026

Hiring Committee Member - CICOES
Research Scientists 2 — 2024

Summer Intern Co-Advisor - CICOES
Tenzin Larkin — 2022

Senior Project Advisor - University of Washington
Rachael Fewkes — 2022

Scholarships & Awards

NASA Group Achievement Award
CPEX-AW and CPEX-CV Field Campaigns 2024

Honorable Mention Student Poster Award *103^{rd} AMS Meeting*
Symposium on the MJO 2023

Best Student Presentation Award *102^{nd} AMS Meeting*
Symposium on the Coastal Environment 2022

Conference Presentations

Mazza, E., Chen, S. S., Kerns, B. W. and A. Winters: Extreme Rainfall and Flooding in Southern California: A Perfect Multiscale Interaction between the MJO, the North Pacific Jet and Atmospheric Rivers During the 2023-2024 El Niño., *2024 American Geophysical Union Annual Meeting*, Washington D.C., Dec. 2024

Mazza, E. and Zhang, C.: Learning to Coordinate: Virtual Sampling of the Tropical Air-Sea Transition Zone with Saildrones and Underwater Gliders., *2024 American Geophysical Union Annual Meeting*, Washington D.C., Dec. 2024

Mazza, E. and Zhang, C.: Virtual Sampling of the Tropical Air-Sea Transition Zone Using Coordinated Uncrewed Systems., *103^{rd} American Meteorological Society Annual Meeting*, Baltimore, Jan. 2024

Mazza, E. and Chen, S. S.: Compound Dry-Dusty Air Intrusions during the Genesis of Tropical Storm Kate (2021): Observations from the CPEX-AW Field Campaign and Coupled Modeling., *103^{rd} American Meteorological Society Annual Meeting*, Baltimore, Jan. 2024

Mazza, E. and Chen, S. S.: MJO-North Pacific Jet Interaction and its Influence on Western US Rainfall., *102^{nd} American Meteorological Society Annual Meeting*, Denver, Jan. 2023

Mazza, E. and Chen, S. S.: Modulation of Tropical Cyclones and Rainfall by the North Atlantic Oscillation., *European Geophysical Union - General Assembly*, Vienna - AUT, May 2022

Mazza, E. and Chen, S. S.: Aeolus and CPEX-AW Observations of Winds and Dry-Air Intrusions in Tropical Cyclones., *35^{th} Conference on Hurricanes and Tropical Meteorology*, New Orleans, May 2022

Mazza, E. and Chen, S. S.: Aeolus and CPEX-AW Observations of Winds and Dry-Air Intrusions in Tropical Cyclones., *3^{rd} AEOLUS Anniversary Conference*, Taormina - IT, Mar. 2022

Mazza, E. and Chen, S. S.: Modulation of Tropical Cyclones and Rainfall by the North Atlantic Oscillation., *102^{nd} American Meteorological Society Annual Meeting*, Houston, Jan. 2022

Mazza, E. and Chen, S. S.: Cyclogenesis of TS Cindy (2017): CPEX Observations and Coupled Modeling., *34^{th} Conference on Hurricanes and Tropical Meteorology*, Virtual Meeting, May 2021

Mazza, E. and Chen, S. S.: Landfalling Tropical Cyclone Rainfall: QPEs from Various in situ and Remote Sensing Observations from 2002-2020., *101^{st} American Meteorological Society Annual Meeting*, Virtual Meeting, Jan. 2021

Mazza, E. and Chen, S. S.: Kinematic and Thermodynamic Structure of Tropical Storm Cindy (2017): Results from the CPEX Field Campaign., *19^{th} Cyclone Workshop*, Seeon - DE, Sep. 2019

Mazza, E. and Chen, S. S.: Impact of Hurricane Florence (2018)- Coupled Modeling of Wind, Waves, Rainfall and Coastal Water Levels., *99^{th} American Meteorological Society Annual Meeting*, Phoenix, Jan. 2019

Mazza, E. and Chen, S. S.: Insight into Tropical Storm Cindy from DAWN and Dropsondes., *Convective Processes Experiment Science Meeting*, Salt Lake City, Jun. 2018

Mazza, E. : Citizen Science, how citizens can contribute to scientific research., *International EXPO - Aqua Pavillion*, Venice, Jun. 2015

Skills

Programming and OS	Python, FORTRAN, MATLAB, bash, Linux, LaTeX
Numerical Models	Unified Wave Interface Coupled Model (WRF, HYCOM, UMWM), COSMO-CLM
Languages	Italian (Native), English (Fluent), French-Spanish-German (basic)