Flor Vanessa Maciel

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Education

University of California Los Angeles — June 2027
Doctor of Philosophy in Atmospheric and Oceanic Sciences

San Jose State University — Aug. 2022
Master of Science in Meteorology
Thesis: *"The Influence of Aerosols on Ice and Mixed-phase Clouds Based on In-situ Observations and CAM6 Simulations"*

University of California Santa Cruz — June 2019
Earth Sciences BS & Environmental Studies BA

Research Interests

- Aerosol-Cloud Interactions (ACI) and Aerosol-Radiation Interactions (ARI).
- The influence of air pollution, specifically aerosols, on the climate.
- The mechanisms of pyro-cloud formation and their impacts on the climate.
- The effects of climate change on extreme weather and wildfires.

Research Experience

Graduate Student Researcher — Aug. 2022 - Present
Advisor: Dr. Jasper Kok, UCLA Aerosol-Climate Interactions Group, Los Angeles, CA

- Maintaining a compilation of dust concentrations from airborne field campaigns.
- Quantifying how dust concentrations have changed in the upper troposphere using aircraft and satellite data.
- Comparing the in-situ dust concentrations to those in the DustCOMM dataset, regionally and seasonally.
- Reading new literature in the field and keeping a summary of relevant scientific articles.

Graduate Student Researcher — Sept. 2020 - Aug. 2022
Advisor: Dr. Minghui Diao, SJSU Cloud and Aerosol Group, San Jose, CA

- Researched the relationship between clouds (cirrus and mixed-phased) and aerosols.
- Quality controlling, with hourly-time series and images from 2DC probe, an in-situ dataset composed of 7 NSF flight campaigns.
- Coding with MATLAB to analyze the dataset with plots such as PDFs, particle size distributions and geometric means, among others.
- Creating script with MATLAB to differentiate between different cirrus cloud evolution phases and mixed-phase cloud transition phases.

Berkeley Lab Undergraduate Research Intern — June 2020 - Aug. 2020
Advisor: Dr. Christina M. Patricola, Lawrence Berkeley National Lab, Berkeley, CA

- Project aim was to inform the City of San Francisco how storms will change in the future due to climate change.
- 5 past storms were chosen previously to model under their historical climate conditions and under RCP8.5 end-century climate conditions.

- Used Python and NetCDF to organize, map and analyze the data on the National Energy and Research Scientific Computing's supercomputer, Cori.
- Wrote a final paper on the project and presented a poster virtually at the Berkeley Lab summer intern symposium.

Undergraduate Student Researcher — Oct. 2018 - June 2019

Advisor: Dr. Nicole Feldl, UCSC Climate Dynamics Lab, Santa Cruz, CA

- Developed a senior thesis project that explored the effects of stratospheric sulfate geoengineering on Earth's net shortwave radiation.
- Obtained data from NCAR's Stratospheric Aerosol Geoengineering Large Ensemble Project and organized it on a remote Linux server, which was connected to with PuTTY.
- Used Python to analyze the data with the Approximate Partial Radiative Perturbation method and mapped the results with the Cartopy package.
- Received a $2000 scholarship from the Koret Foundation for this research and was named a Koret Scholar.
- Wrote a final and comprehensive thesis on the project.
- Presented a poster at AGU 2019 and at the Koret Research Slam.

Undergraduate Summer Research Intern — June 2018 - Sept. 2018

Advisor: Dr. Geeta Persad, Carnegie Science Department of Global Ecology, Stanford, CA

- Developed an independent research project on how aerosol emissions, from 8 previously identified countries, affect the precipitation rate in Indonesia.
- Read and synthesized academic papers related to research question to inform project.
- Used Python and NetCDF Operators to organize, analyze, and map data previously produced by advisor with NCAR's Community Atmosphere Model 5.
- Gave an oral presentation on the project results to the department.
- Presented a poster at the 2019 American Meteorological Society's student conference.

Peer-reviewed Publications

- **Maciel, F. V.,** and Minghui Diao. "The Transition from Supercooled Liquid Water to Ice Crystals in Mixed-phase Clouds based on Airborne In-situ Observations." Atmospheric Measurements and Technology, [preprint], in review, https://doi.org/10.5194/amt-2022-256.
- **Maciel, F. V.,** Minghui Diao, and Ryan Patnaude (2023). Examination of aerosol indirect effects during cirrus cloud evolution, Atmospheric Chemistry and Physics, https://doi.org/10.5194/acp-23-1103-2023.
- Patricola C. M., Michael F. Wehner, Emily Bercos-Hickey, **Flor Vanessa Maciel**, Kris May, Michael Mak, Olivia Yip, Anna Roche, and Susan Leal. (2021). "Future Changes in Extreme Precipitation over the San Francisco Bay Area: Dependence on Atmospheric River and Extratropical Cyclone Events." Weather and Climate Extremes, https://doi.org/10.1016/j.wace.2022.100440.

Presentations

- Maciel, F. V., Minghui Diao, & Ryan Patnaude (2022, August). "The Respective Aerosol Indirect Effects of Five Cirrus Cloud Evolution Phases." Oral, American Meteorological Society Collective Madison Meeting, Virtual.
- Maciel, F. V., Minghui Diao, Ryan Patnaude, Ching An Yang, Xiaohong Liu & Xi Zhao (2022, January). "The Influence of Aerosols on Ice and Mixed-Phase Clouds based on In-situ Observations and CAM6 Simulations." Oral, American Meteorological Society Annual Meeting, Virtual.
- Maciel, F. V., Minghui Diao & Ryan Patnaude. (2021, December). "Influence of Atmospheric Aerosols on Cirrus Clouds based on In-Situ Observations." Poster, American Geophysical Union Fall Meeting, Virtual.
- Maciel, F. V. & Minghui Diao. (2020, December). "The Influence of Anthropogenic Aerosols on Cirrus Clouds Determined from In-Situ Observations." Poster, American Geophysical Union Fall Meeting, Virtual.

- Maciel, F. V. & Christina M. Patricola. (2020, October). "Anthropogenic Influences on Extreme Precipitation Events over the San Francisco Bay Area in a High-Resolution Regional Climate Model." Poster, The Society for Advancement of Chicanos/Hispanics and Native Americans in Science Annual Conference, Virtual.
- Maciel, F. V. & Christina M. Patricola. (2020, August). "Anthropogenic Influences on Extreme Precipitation Events over the San Francisco Bay Area in a High-Resolution Regional Climate Model." Poster, LBNL Intern Research Symposium, Virtual.
- Maciel, F. V. & Nicole Feldl. (2019, December). "The Shortwave Cloud and Surface Albedo Response to Stratospheric Sulfate Aerosol Geoengineering." Poster, American Geophysical Union Fall Meeting, San Francisco, CA.
- Maciel, F. V. & Nicole Feldl. (2019, June). "The Influence of Stratospheric Sulfate Aerosol Geoengineering on Earth's Net Shortwave Radiation." Poster, Koret Research Slam, Santa Cruz, CA.
- Maciel, F. V. & Geeta Persad. (2019, January). "The Dependence of Indonesia's Precipitation Response to Anthropogenic Aerosols on Emission Location." Poster, American Meteorological Society Annual Student Conference, Phoenix, AZ

Honors & Scholarships

- Competitive Edge Fellowship, *UCLA Graduate Education*, Summer 2022
- Eugene V. Cota-Robles Fellowship, *UCLA Graduate Education*, Summer 2022
- Walker Scholarship, *SJSU Department of Meteorology and Climate Science*, Fall 2020 & Fall 2021
- Crown College Research Project Fund, *UCSC Crown College*, Spring 2019
- Koret Undergraduate Research Scholarship, *UCSC Honors and Research*, Winter 2019
- HSF Scholar, *Hispanic Scholar Federation*, Winter 2019
- Latinos in Technology Scholarship, *Silicon Valley Community Foundation*, Winter 2017

Professional Memberships & Societies

- American Meteorological Society, 2018 - present
- American Geophysical Union, 2019 - present
- SACNAS, 2019 - present
- GeoLatinas, 2019 - present

Work Experience

Math Learning Skills Advisor — Sept. 2019 - Aug. 2020

UCSC Academic Excellence Program, Santa Cruz, CA

- Prepared curriculum and led ACE problem-solving sessions for lower-division calculus courses.
- Fostered a safe space for students to learn and facilitated collaborative learning between students.
- Served as a mentor to students that needed guidance in navigating the university resources.

Library Aerial Photo GIS Project Assistant — Oct. 2018 - Sept. 2019

UCSC Mchenry Library, Santa Cruz, CA

- Used ArcGIS to georectify the library's aerial photo indexes collection.
- Updated the indexes to be modern and easy to read.
- Assisted on instruction manual on the georectification process for future employees.

Learning Support Services Tutor — Oct. 2017 - Aug. 2019

UCSC Learning Support Services, Santa Cruz, CA

- Facilitated a collaborative learning environment during weekly sessions where students could interact with their peers and learn the course material together.

- Served as a peer mentor and role model for college success at UCSC.
- Past positions include Climate Statistics, Biostatistics, Introductory Chemistry I, and Introductory Physics II.

Crown & Merrill Student Sustainability Advisor — Sept. 2017 - June 2018

UCSC Sustainability Office, Santa Cruz, CA

- Created and implemented sustainability themed programs for housing residents of Crown and Merrill.
- Created flyers with Canva and share them across the residential housing area.
- Researched energy star appliances in campus housing to implement explicit policy on their procurement.
- Participated in weekly group meetings and food recovery pick-up and deliveries.

Climate Change Internship — Sept. 2016 - Dec. 2016

Monterey Bay National Marine Sanctuary Exploration Center, Santa Cruz, CA

- Researched current knowledge on climate change.
- Wrote a reference guide to explain climate change in simple terms for docents to easily understand.