Flor Vanessa Maciel

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Education

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

San José 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 & Aerosol-Radiation Interactions.
- 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

- Working on creating a compilation of dust concentrations from airborne field campaigns for a dust climatology for use in GCMs.
- 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 cirrus and mixed-phased clouds and aerosols.
- Quality controlled, with hourly-time series and images from 2DC probe, an in-situ dataset composed of 7 NSF flight campaigns.
- Used MATLAB to analyze datasets with plots such as PDFs, particle size distributions and geometric means, among others.
- Wrote a script in MATLAB to differentiate between 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.**,Diao, M., & Yang, C. A. (2024). Partition between supercooled liquid droplets and ice crystals in mixed-phase clouds based on airborne in situ observations. *Atmospheric Measurement Techniques*, 17(16), 4843–4861. https://doi.org/10.5194/amt-17-4843-2024.
- **Maciel, F. V.**, Diao, M., & Patnaude, R. (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., Wehner, M. F., Bercos-Hickey, E., **Maciel, F. V.**, May, K., Mak, M., Yip, O., Roche, A., & Leal, S. (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., Kok, J. & Froyd, K. (2023, May). Quantifying the Size-Resolved Dust Concentration at Cirrus-Forming Heights. Poster presentation at the UC Dust Symposium.
- Maciel, F. V., Diao, M., & Patnaude, R. (2022, August). The respective aerosol indirect effects of five cirrus cloud evolution phases. Oral presentation at the American Meteorological Society Collective Madison Meeting, Virtual.
- Maciel, F. V., Diao, M., Patnaude, R., Yang, C. A., Liu, X., & Zhao, X. (2022, January). The influence of aerosols on ice and mixed-phase clouds based on in-situ observations and CAM6 simulations. Oral presentation at the American Meteorological Society Annual Meeting, Virtual.
- Maciel, F. V., Diao, M., & Patnaude, R. (2021, December). Influence of atmospheric aerosols on cirrus clouds based on in-situ observations. Poster presentation at the American Geophysical Union Fall Meeting, Virtual.
- Maciel, F. V., & Diao, M. (2020, December). The influence of anthropogenic aerosols on cirrus clouds determined from in-situ observations. Poster presentation at the American Geophysical Union Fall Meeting, Virtual.
- Maciel, F. V., & Patricola, C. M. (2020, October). Anthropogenic influences on extreme precipitation events over the San Francisco Bay Area in a high-resolution regional climate model. Poster presentation at The Society for Advancement of Chicanos/Hispanics and Native Americans in Science Annual Conference, Virtual.
- Maciel, F. V., & Patricola, C. M. (2020, August). Anthropogenic influences on extreme precipitation events over the San Francisco Bay Area in a high-resolution regional climate model. Poster presentation at the LBNL Intern Research Symposium, Virtual.
- Maciel, F. V., & Feldl, N. (2019, December). The shortwave cloud and surface albedo response to stratospheric sulfate aerosol geoengineering. Poster presentation at the American Geophysical Union Fall Meeting, San Francisco, CA.
- Maciel, F. V., & Feldl, N. (2019, June). The influence of stratospheric sulfate aerosol geoengineering on Earth's net shortwave radiation. Poster presentation at the Koret Research Slam, Santa Cruz, CA.
- Maciel, F. V., & Persad, G. (2019, January). The dependence of Indonesia's precipitation response to anthropogenic aerosols on emission location. Poster presentation at the American Meteorological Society Annual Student Conference, Phoenix, AZ

Honors & Scholarships

- Center for Diverse Leadership in Science (CDLS) Fellowship, UCLA Institute of the Environment and Sustainability, Fall 2023
- 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 - 2020
- GeoLatinas, 2019 - 2020

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.