**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.