

JESSICA WAN

Scripps Institution of Oceanography, University of California San Diego, La Jolla, CA, USA

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EDUCATION

Expected 2025	Scripps Institution of Oceanography, University of California San Diego , La Jolla, CA <i>PhD Oceanography</i> GPA: 3.97
2021	<i>MS Oceanography</i> GPA: 3.97
2020	Cornell University , Ithaca, NY <i>BS Environment & Sustainability with Distinction in Research</i> GPA: 4.06

RESEARCH EXPERIENCE

2020 — Present	Scripps Institution of Oceanography, University of California San Diego , La Jolla, CA <i>Graduate Student Researcher</i> Modeling the far-reaching climate responses of regional geoengineering proposals Advisor: Dr. Katharine Ricke Committee: Drs. Jennifer Burney, Simone Tilmes, Duncan Watson-Parris, Shang-Ping Xie
2017 — 2020	Cornell University, Department of Earth and Atmospheric Science , Ithaca, NY <i>Undergraduate Student Researcher</i> Improving Earth System Model representations of fire and dust aerosols for estimating climate Advisors: Drs. Natalie Mahowald and Douglas Hamilton
2018	Gulf of Maine Research Institute , Portland ME <i>Ecosystem Modeling Intern</i> Investigating the ecological impacts for diadromous fish populations to rising temperature Advisor: Dr. Katherine Mills
2017	Occidental College, Department of Geology , Los Angeles, CA <i>Undergraduate Student Researcher</i> Analyzing apatite fission-tracks for low-temperature thermochronology applications Advisor: Dr. Ann Blythe

AWARDS & FELLOWSHIPS

2024	NDSEG 5 th Annual Conference Honorable Mention for Presentation in Oceanography
2023	Achievement Rewards for College Scientists (ARCS) Foundation Fellowship
2023	Scripps Student Symposium Outstanding Presenter Award
2022	National Defense Science and Engineering Graduate (NDSEG) Fellowship
2020	Scripps Fellowship

PUBLICATIONS

GOOGLE SCHOLAR | ORCID: [HTTPS://ORCID.ORG/0000-0003-3757-6436](https://orcid.org/0000-0003-3757-6436)

Published/Accepted	
2024	Wan, J.S. , Chen, C.-C. J., Tilmes, S., Luongo, M. T., Richter, J. H., & Ricke, K. 2024. Diminished efficacy of regional marine cloud brightening in a warmer world. <i>Nat. Clim. Chang.</i> 14, 808–814. DOI: 10.1038/s41558-024-02046-7
2024	Feingold, G., Ghatge, V.P., Russell, L.M., Blossey, P., Cantrell, W., ... Wan, J.S. , ... & Zheng, X. 2024. Physical science research needed to evaluate the viability and risks of marine cloud brightening. <i>Sci. Adv.</i> 10, eadi8594. DOI: 10.1126/sciadv.adi8594
2023	Shah, S. H., O'Lenick, C. R., Wan, J. S. , et al. 2023. Connecting Physical and Social Science Datasets: Challenges and Pathways Forward. <i>Environmental Research Communications</i> , 5, 095007. DOI: 10.1088/2515-7620/acf6b4
2023	Ricke, K., Wan J.S. , Saenger, M., & Lutsko, N.J. 2023. Hydrological Consequences of Solar Geoengineering. <i>Annual Review of Earth and Planetary Sciences</i> . 51(1). DOI: 10.1146/annurev-earth-031920-083456
2022	Feingold, G., Ghatge, V.P., Russell, L.M., Blossey, P., Cantrell, W., ... Wan, J.S. , ... & Zheng, X. 2022. DOE-NOAA Marine Cloud Brightening Workshop. U.S. Department of Energy and Department of Commerce NOAA; DOE/SC-0207; NOAA Technical Report OAR ESRL/CSL-1. DOI: 10.2172/1902730
2022	Li, L., Mahowald, N. M., Kok, J. F., Liu, X., Wu, M., Leung, D. M., Hamilton, D. S., ... & Wan, J. 2022: Importance of different parameterization changes for the updated dust cycle modeling in the Community Atmosphere Model (version 6.1), <i>Geosci. Model Dev.</i> , 15, 8181–8219, DOI: 10.5194/gmd-15-8181-2022
2021	Kok, J. F., Adebisi, A. A., Albani, S., Balkanski, Y., Checa-Garcia, R., Chin, M., ... & Wan, J.S. 2021. Contribution of the world's main dust source regions to the global cycle of desert dust. <i>Atmospheric Chemistry and Physics</i> , 21(10), 8169–8193. DOI: 10.5194/acp-21-8169-2021
2021	Kok, J. F., Adebisi, A. A., Albani, S., Balkanski, Y., Checa-Garcia, R., Chin, M., ... Wan, J.S. & Whicker, C.A. 2021. Improved representation of the global dust cycle using observational constraints on dust properties and abundance. <i>Atmospheric Chemistry and Physics</i> , 21(10), 8127–8167. DOI: 10.5194/acp-21-8127-2021
2021	Wan, J. S. , Hamilton, D. S., & Mahowald, N. M. 2021. Importance of Uncertainties in the Spatial Distribution of Preindustrial Wildfires for Estimating Aerosol Radiative Forcing. <i>Geophysical Research Letters</i> , 48, e2020GL089758. DOI: 10.1029/2020GL089758
2019	Hamilton, D. S., Scanza, R. A., Feng, Y., Guinness, J., Kok, J. F., Li, L., ... Wan, J. S. , ... & Mahowald, N. M. 2019: Improved methodologies for Earth system modelling of atmospheric soluble iron and observation comparisons using the Mechanism of Intermediate complexity for Modelling Iron (MIMI v1.0), <i>Geosci. Model Dev.</i> , 12, 3835–3862. DOI: 10.5194/gmd-12-3835-2019
Submitted/In prep	
2024	Wan, J.S. , Fasullo, J.T., Rosenbloom, N., Chen, C.C., Ricke, K.: Targeted marine cloud brightening can dampen El Niño. In review. DOI: 10.48550/arXiv.2406.07853
In prep	Xing, C., Stevenson, S., Fasullo, J., Harrison, C., Chen, C.C., Wan, J.S. , Coupe, J., & Pflieger, C.: Subtropical Marine Cloud Brightening Suppresses the El Niño-Southern Oscillation. In prep.
In prep	Ricke, K., Khanna, G., Wan, J.S. , Lunghi, J., & Grigoryeva, I.: Global Migration Response to Climate and Climate Change. In prep.

PRESENTATIONS

Oral

- 2025 (upcoming)** AMS Annual Meeting, 17th Symposium on Aerosol-Cloud-Climate Interactions [invited]
- 2024 (upcoming)** AGU Fall Meeting, GC009: Advances in Climate Engineering Science [invited]
- 2024** Project Save the World, podcast Episode 621: Oceans and Spray [invited]
- 2024** MEERTALKS [invited]
- 2024** NDSEG Fellowship Program 5th Annual Conference
- 2024** CESM workshop 2024
- 2024** Climate Engineering Gordon Research Seminar
- 2024** Solar Climate Intervention Virtual Symposium [invited]
- 2023** Scripps Student Symposium
- 2023** CalGFD
- 2022** AGU Fall Meeting, GC16A: Advances in Solar Radiation Modification (SRM) Research
- 2022** NCAR Early Career Innovator Program PI Symposium

Poster

- 2024** Climate Engineering Gordon Research Conference
- 2023** AGU Fall Meeting, A31K: Marine Cloud Brightening: Exploring Inadvertent and Deliberate Perturbations to Understand Aerosol-Cloud Interactions Poster
- 2023** NCAR|UCAR|UCP Student Poster Symposium
- 2022** Climate Engineering Gordon Research Conference & Seminar
- 2021** AGU Fall Meeting, GC45P: Environmental Changes and Human Migration: Advances in Modeling and Analysis II Poster [virtual]
- 2020** AGU Fall Meeting, A092: Natural Aerosols: Climate Response to Perturbations by Human Activity and Their Relevance for the Quantification of Climate Sensitivity I Posters [virtual]

TEACHING & MENTORING

SIO 60: Experiences in Oceanic and Atmospheric Sciences, UC San Diego. September– December 2023.

- Teaching assistant for undergraduate laboratory course on the fundamental principles of oceanic and atmospheric science. I assisted with lab experiments, graded assignments, held weekly office hours, organized the Canvas webpage, and helped supervise a weekend cruise aboard the R/V Sproul.

GEOG 360: Human Dimensions of Climate Change, San Diego State University. September 2023.

- Guest lecturer for undergraduate course.

ESYS 102: Solid and Fluid Earth, UC San Diego. March 2023.

- Guest lecturer for undergraduate course.

Research mentor for 2 undergraduate students:

- Madison Beltran (2023–24): California Louis Stokes Alliance for Minority Participation (CAMP) program
- Sarina Ghadiali (2024): Triton Research & Experiential Learning Scholars (TRELS)

SERVICE

Peer review:

- Geophysical Research Letters, Nature Communications

Conference & workshop organization:

- Co-organizer for Solar Geoengineering Scenarios Development Workshop in India in collaboration with The Energy and Resources Institute (TERI) and the Alliance for Just Deliberation on Solar Geoengineering (DSG) (December 2024, upcoming).
- Early career convener for AGU Fall Meeting, GC100. Solar Radiation Modification for Climate Intervention (December 2023)
- Co-organizer for Scripps Institution of Oceanography Marine Geoengineering Workshop (March 2023)

Committee memberships & outreach:

- Mentor and leadership for SIO Applicant Support and Knowledge-base program
- Mentor and leadership for Climate Science Curricular Group Peer Mentor Program
- Committee member for joint SIO/HDSI faculty hire
- Student host for SIO Open House
- Assistant coach for UC San Diego women's club ultimate frisbee team

OTHER QUALIFICATIONS**Computer skills:**

- Programming languages: Python, R, and Linux commands, limited proficiency in MATLAB
- Community Earth System Model (CESM; versions 1 and 2)
- Adobe Photoshop and Illustrator, Inkscape, Canva

Languages:

- English: native.
- Dutch: proficiency in reading, writing, and speaking.
- Spanish: proficiency in reading, writing, and speaking.