

# JESSICA WAN

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

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## EDUCATION

- 2020 — Present** **PhD Oceanography**, Scripps Institution of Oceanography, University of California San Diego  
**GPA: 3.97**
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- 2020 — 2021** **MS Oceanography**, Scripps Institution of Oceanography, University of California San Diego  
**GPA: 3.97**
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- 2017 — 2020** **BS Environment & Sustainability with Distinction in Research** (concentration in Land, Air, and Water Resources), Cornell University  
**GPA: 4.06**

## RESEARCH EXPERIENCE

- 2020 — Present** **Graduate Student Researcher**, Scripps Institution of Oceanography, University of California San Diego  
**Advisor:** Dr. Katharine Ricke  
*Modeling the far-reaching climate responses of regional geoengineering proposals*
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- 2017 — 2020** **Undergraduate Student Researcher**, Department of Earth and Atmospheric Science, Cornell University  
**Advisors:** Dr. Douglas Hamilton and Dr. Natalie Mahowald  
*Improving Earth System Model representations of fire and dust aerosols for estimating climate*
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- 2018** **Ecosystem Modeling Intern**, Gulf of Maine Research Institute  
**Advisor:** Dr. Katherine Mills  
*Investigating the ecological impacts for diadromous fish populations to rising temperature*
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- 2017** **Undergraduate Student Researcher**, Department of Geology, Occidental College  
**Advisor:** Dr. Ann Blythe  
*Analyzing apatite fission-tracks for low-temperature thermochronology applications*

## AWARDS & FELLOWSHIPS

- 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)

**In prep/Submitted**

- In prep** **Wan, J.S.**, Fasullo, J.T., Rosenbloom, N., Chen, C.C., Ricke, K.: Targeted marine cloud brightening can modify El Niño-Southern Oscillation. In prep.
- In prep** Xing, C., Stevenson, S., Fasullo, J., Harrison, C., Chen, C.C., **Wan, J.S.**, Coupe, J., Pflieger, C.: Tropical 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.

**Accepted/Published**

- 2024** **Wan, J. S.**, Chen, C. C., Tilmes, S., Luongo, M. T., Richter, J. H., Ricke, K.: Diminished efficacy of regional marine cloud brightening in a warmer world. *Nature Climate Change*, accepted. <https://doi.org/10.21203/rs.3.rs-3250111/v1>
- 2024** Feingold, G., **et al.** . 2024. Physical science research needed to evaluate the viability and risks of marine cloud brightening. *Sci. Adv.*10, eadi8594. DOI:[10.1126/sciadv.adi8594](https://doi.org/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. *Environmental Research Communications*, 5, 095007. <https://doi.org/10.1088/2515-7620/acf6b4>
- 2023** Ricke, K., **Wan J.S.**, Saenger ,M., Lutsko, N.J. 2023. Hydrological Consequences of Solar Geoengineering. *Annual Review of Earth and Planetary Sciences*. 51(1). <https://doi.org/10.1146/annurev-earth-031920-083456>
- 2022** Feingold G., V. P. Ghate, L. M. Russell, **et al.** 2022. DOE-NOAA Marine Cloud Brightening Workshop. U.S. Department of Energy and U.S. Department of Commerce NOAA; DOE/SC-0207; NOAA Technical Report OAR ESRL/CSL-1
- 2022** Li, L., Mahowald, N. M., Kok, J. F., Liu, X., Wu, M., Leung, D. M., Hamilton, D. S., Emmons, L. K., Huang, Y., Sexton, N., Meng, J., and **Wan, J.** 2022: Importance of different parameterization changes for the updated dust cycle modeling in the Community Atmosphere Model (version 6.1), *Geosci. Model Dev.*, 15, 8181–8219, <https://doi.org/10.5194/gmd-15-8181-2022>
- 2021** Kok, J. F., Adebisi, A. A., Albani, S., Balkanski, Y., Checa-Garcia, R., Chin, M., **et al.** 2021. Contribution of the world's main dust source regions to the global cycle of desert dust. *Atmospheric Chemistry and Physics*, 21(10), 8169–8193. <https://doi.org/10.5194/acp-21-8169-2021>
- 2021** **Kok**, J. F., Adebisi, A. A., Albani, S., Balkanski, Y., Checa-Garcia, R., Chin, M., **et al.** 2021. Improved representation of the global dust cycle using observational constraints on dust properties and abundance. *Atmospheric Chemistry and Physics*, 21(10), 8127–8167. <https://doi.org/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. *Geophysical Research Letters*, 48, e2020GL089758. <https://doi.org/10.1029/2020GL089758>
- 2019** Hamilton, D. S., Scanza, R. A., Feng, Y., Guinness, J., Kok, J. F., Li, L., Liu, X., Rathod, S. D., **Wan, J. S.**, Wu, M., and 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), *Geosci. Model Dev.*, 12, 3835–3862, <https://doi.org/10.5194/gmd-12-3835-2019>

## PRESENTATIONS

### Oral

- 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 II Oral
- 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:**

- California Louis Stoke Alliance for Minority Participation (CAMP) program: Madison Beltran (2023 – Present); Sarina Ghadiali (2024 – Present)

## SERVICE

**Peer review:**

- Geophysical Research Letters

**Conference & workshop organization:**

- Early career convener for AGU Fall Meeting, GC100. Solar Radiation Modification for Climate Intervention (2023)
- Co-organizer for Scripps Institution of Oceanography Marine Geoengineering Workshop (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

### **Languages:**

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