

## Joshua Cuzzone

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### CURRENT APPOINTMENT

- Project Scientist, University of California-Los Angeles
- Affiliate, NASA Jet Propulsion Laboratory

### EDUCATION

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#### **Ph.D. in Ocean, Earth, and Atmospheric Sciences** **2014**

Oregon State University

Dissertation: *An Interdisciplinary approach towards understanding Late Pleistocene Ice Sheet change.*

Advisors: Peter Clark, Justin Wettstein

#### **M.S. in Atmospheric Science** **2010**

University of Wisconsin-Madison

Thesis: *The relationships between Arctic sea ice and cloud-related variables in the ERA-Interim reanalysis and CCSM3.*

Advisor: Steven Vavrus

#### **B.S. in Meteorology** **2007**

Rutgers University-New Brunswick

### PROFESSIONAL EXPERIENCE

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**University of California, Los Angeles** **October 2021 – present**  
Project Scientist in the Joint Institute for Regional Earth System Science and Engineering

**University of California, Irvine** **2019 – September 2021**  
Project Scientist in the department of Earth System Science.

**NASA Jet Propulsion Laboratory** **2015 – present**  
Affiliate in the Sea Level and Ice group.

**University of California, Irvine** **2016 – 2019**  
Postdoctoral Scholar in the department of Earth System Science.

**NASA JPL/Caltech** **2015 – 2016**  
Postdoctoral scholar in the Sea Level and Ice group.

**Expert Witness and Consultant, Meteorologist** **2017-Present**  
Weather Forecasting consultant for remote field operations and expert witness with testifying experience in forensic Meteorology.

## PUBLICATIONS

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Ye, Shan, Marcott, S, **Cuzzone, J**, Heyman, J., Licciardi, J., Quinn, D, Ward, D. A qualitative assessment of snow shielding effects on surface exposure dating from western North American  $^{10}\text{Be}$  data compilation. **Quaternary Geochronology**. 2022.

**Cuzzone, J.**, Morlighem, M., Young, N., Briner, J., Schlegel, N. Simulating the Holocene deglaciation across a marine terminating portion of Southwestern Greenland in response to marine and atmospheric forcings. **The Cryosphere**. 2022.

Payne, A. J, Nowicki, S., Abe-Ouchi, A., [et al, including **Cuzzone, J.**]. Future sea level change under CMIP5 and CMIP6 scenarios from the Greenland and Antarctic ice sheets. **Geophysical Research Letters**. 48. 2021.

Edwards, T., Nowicki, S., Marzeion, B., [et al, including **Cuzzone, J.**]. *Projected land ice contributions to twenty-first century sea level rise*. **Nature**. 593. 74-82. 2021.

Young, N.E., Lesnek, A., **Cuzzone, J.**, Briner, J., Badgeley, J., Balter-Kennedy, A., Graham, B., Cluett, A., Lamp, J., Schwartz, R., Tuna, T., Bard, E., Caffee, M., Zimmerman, S., Schaefer, J. *Cosmogenic isotope measurements from recently deglaciated bedrock as a new tool to decipher changes in Greenland Ice Sheet size*. **The Cryosphere**. 2021.

Briner, J.P., **Cuzzone, J.K.**, J.A. Badgeley, N.E. Young, E.J. Steig, M. Morlighem, N.-J. Schlegel, G.J. Hakim, J.M. Schaefer, J.V. Johnson, A.J. Lesnek, E.K. Thomas, E. Allan, O. Bennike, A.A. Cluett, B. Csatho, A. de Vernal, J. Downs, E. Larour and S. Nowicki, *Rate of mass loss from the Greenland Ice Sheet will exceed Holocene values this century*, **Nature**. 586 2020. 70-74.

H. Goelzer, S. Nowicki, A. Payne, E. Larour, H. Seroussi, W.H. Lipscomb, J. Gregory, A. Abe-Ouchi, A. Shepherd, E. Simon, C. Agosta, P. Alexander, A. Aschwanden, A. Barthel, R. Calov, C. Chambers, Y. Choi, **Cuzzone, J.K.**, C. Dumas, T. Edwards, D. Felikson, X. Fettweis, N.R. Golledge, R. Greve, A. Humbert, P. Huybrechts, S. Le clec 'h, V. Lee, G. Leguy, C. Little, D.P. Lowry, M. Morlighem, I. Nias, A. Quiquet, M. Rückamp, N.-J. Schlegel, D.A. Slater, R.S. Smith, F. Straneo, L. Tarasov, R. van de Wal and M. van den Broeke, *The future sea-level contribution of the Greenland ice sheet: a multi-model ensemble study of ISMIP6*, **The Cryosphere**. 14. 2020.

Young, N., Briner, J., Miller, G., Lesnek, A., Crump, S., Thomas, E., Pendleton, S., **Cuzzone, J.K.**, Lamp, J., Zimmerman, S., Caffee, M., Schaefer, J. Deglaciation of the Greenland and Laurentide ice sheets interrupted by glacier advance during abrupt coolings. **Quaternary Science Reviews**. 2020.

Lesnek, A., Briner, J., Young, N., **Cuzzone, J.** *Maximum Southwest Greenland Ice Sheet recession in the early Holocene*. **Geophysical Research Letters**. 2020.

**Cuzzone, J. K.**, Schlegel, N.-J., Morlighem, M., Larour, E., Briner, J. P., Serousi, H., and Caron, C.: *The impact of model resolution on the simulated Holocene retreat of the Southwestern Greenland Ice Sheet using the Ice Sheet System Model (ISSM)*, **The Cryosphere**, <https://doi.org/10.5194/tc-2018-249>. 2019.

Downs, J., Johnson, J., Briner, J., Young, N., Lesnek, A., and **Cuzzone, J.**: *West Greenland ice sheet retreat history reveals elevated precipitation during the Holocene thermal maximum*, **The Cryosphere**. 2019.

**Cuzzone, J. K.**, Morlighem, M., Larour, E., Schlegel, N., and Seroussi, H. *Implementation of higher-order vertical finite elements in ISSM v4.13. for improved ice sheet flow modeling over paleoclimate timescales*. 2018. **Geosci. Model Dev.**, <https://doi.org/10.5194/gmd-2017-319>.

Leydat, D.J., Carlson, A.E., Teller, J.T., Breckenridge, A., Barth, A.M., Ullman, S.J., Sinclair, G., Milne, G.A. **Cuzzone, J.K.**, Caffee, M.W. 2018. *Opening of glacial Lake Agassiz's eastern outlets by the start of the Younger Dryas cold period*. **Geology**. 46 (2): 155-158. <https://doi.org/10.1130/G39501.1>.

Barth, A.M, Clark, P.U., Clark, J., Roe, G.H., Marcott, S.A, McCabe, A.M., Caffee, M.W., He, F., **Cuzzone, J.K.**, Dunlop, P. 2017. *Persistent millennial-scale glacier fluctuations in Ireland between 24 ka and 10 ka*. **Geology**. 46 (2): 151-154. <https://doi.org/10.1130/G39796.1>.

Ullman, D., Carlson, A., Hostetler, S.W., Clark, P.U., **Cuzzone, J. K.**, Milne, G., Winsor, K., Caffee, M. 2016. *Final Laurentide ice-sheet deglaciation and Holocene climate-sea level change*. **Quaternary Science Reviews**. 152, [doi.org/10.1016/j.quascirev.2016.09.014](https://doi.org/10.1016/j.quascirev.2016.09.014)

**Cuzzone, J.K.**, Clark, P.U., Carlson, A, Ullman, D, Rinterknecht, V., Milne, G., Lunkka, J.P., Marcott, S., Caffee, S. 2016. *Final deglaciation of the Scandinavian Ice Sheet and implications for the Holocene global sea-level budget*. **Earth and Planetary Science Letters**. 448, [doi.org/10.1016/j.epsl.2016.05.019](https://doi.org/10.1016/j.epsl.2016.05.019)

**Cuzzone, J.K.**, Vavrus, S.J. 2011. *The relationship between Arctic sea ice and cloud related variables in the ERA-Interim reanalysis and CCSM3*. **Environ. Res. Lett.** 6, [doi:10.1088/1748-9326/6/1/014016](https://doi.org/10.1088/1748-9326/6/1/014016)

## **TEACHING EXPERIENCE**

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<b>Part-time Lecturer</b> California State University, Los Angeles 'Introduction to Physical Geography' 40 students (GEOG 1600)	<b>2019</b>
<b>Teaching Assistant</b> Oregon State University 'The Solid Earth', 32 students	<b>2014</b>
<b>Teaching Assistant</b>	<b>2013</b>

Oregon State University  
'Environmental Geology', 35 students

**Lab Manager and Mentor**

**2012-2014**

Oregon State University cosmogenic surface exposure laboratory

**AWARDS and GRANTS**

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2021-2025: PI. National Science Foundation: Collaborative Research: *Grate – Integrating data and modeling to quantify rates of Greenland Ice Sheet change, Holocene to Future*, \$404,363.

2021-2026: PI. National Science Foundation: Collaborative Research: *Ice forcing in Arc Magma Plumbing Systems (IF-AMPS)*, \$214,006.

2022-2025: PI. Collaborative Research: Assessing the timing and characteristics of deglacial Laurentide Ice Sheet thinning in the northeast United States through paired data-model analyses Collaborators from Rowan University. \$192,850

2016-2019: Served as Postdoc: National Science Foundation: *Ice sheet sensitivity in a changing Arctic system - using data and modeling to test the stable Greenland Ice Sheet hypothesis*, \$610,187.

Geologic Society of America student research grant, 2011 (\$4,000)

**SUBMITTED GRANTS**

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2022: PI. National Science Foundation: Collaborative Research. *Improving model representations of Antarctic ice-shelf instability and break-up due to surface meltwater processes*. Collaborators from University of Colorado-Boulder, University of Washington, University of Chicago. \$269,022.

2021: PI. National Science Foundation: Collaborative Research. *Climate drivers of western North American glacial retreat following the Penultimate and Last Glacial Maximum*. Collaborators from University of Wisconsin-Madison, University of Utah, University of New Hampshire. To be Submitted October 2021. \$140,244.

2021: PI. NASA: *Will decadal-scale internal climate variability dictate Greenland Ice Sheet's future evolution and regional sea level response? What we can learn from models and data*. Submitted August 2021. \$115,862.

**STUDENTS SUPERVISED**

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**Mentor through NASA/JPL Maximizing Student Education in Stem**

**2022** Cheyenne Senesac

California State University, Long Beach

**Mentor through NASA Direct Stem Program**

**2019 – 2020** Chelsy Salas California State University, Los Angeles  
Thesis project: Monthly Detection of Irrigation in California Central Valley Using SMAP

**2019 – 2020** Jessica Kromer California State University, Los Angeles  
Thesis project: Determining the Impact of Precipitation Biases on the Surface Mass Balance over Greenland

## **FIELD EXPERIENCE**

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**Adirondacks, New York** Summer 2022  
Sampling glacial erratics, bedrock, thinning profiles

**Greenland** Summer 2016  
Sampling glacial erratics, piston coring of proglacial lakes.

**Collier Glacier, Oregon USA** 2010-2012  
Installation of meteorological instruments, snow density tests, and the drilling and setting of ablation stakes.

**Norway, Sweden, and Finland** Summer 2010/2011  
Planned, coordinated with foreign faculty, travel and budget, sampling of glacial erratics.

## **SERVICE AND OUTREACH**

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- Working group member of the Greenland Ice Sheet Ocean Science Network **2021-present**
- JPL Diversity and Inclusion advisory board (Earth Science Section) **2021-present**
- Participant in Unlearning Racism in Geoscience (URGE) **2021**
- Reviewer for Journal of Climate, EPSL, Nature Geoscience, Geophysical Research Letters, Quaternary Science Reviews.
- Convener and session organizer: AGU Fall Meeting, “*Merging Ice Sheet and Climate Reconstructions with Numerical Models to Understand the Mechanisms and Rates of Ice-Sheet Change*” in **2019**.
- Mentor, NASA Direct Stem Program **2019 – 2020**
- Speaker, NASA Direct Stem Speaker Series **2020**
- Contributing member of the Ice Sheet Model Intercomparison Project for CMIP6 (ISMIP6)
- High School Cycling Coach, **2016 - present**  
San Gabriel Composite, National Interscholastic Cycling Association

## **MEMBERSHIP**

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American Geophysical Union  
Geological Society of America  
American Meteorological Society

## **REFERENCES**

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**Dr. Mathieu Morlighem**  
Department of Earth Science  
Dartmouth University

**Dr. John Reager**  
Jet Propulsion Laboratory  
4800 Oak Grove Drive

Hanover, NH 03755  
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**Dr. Jason Briner**  
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