

Dr. Marcus Lofverstrom

Department of Geosciences
1040 E. 4th Street
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Gould-Simpson, Room 322
lofverstrom@arizona.edu
<http://lofverstrom.github.io>

Chronology of Education

- 2009 – 2014 **Doctor of Philosophy in Atmospheric Sciences and Oceanography** (Awarded 11/2014). Stockholm University (*Stockholm, Sweden*) *Advisors:* Rodrigo Caballero & Johan Nilsson; *Dissertation:* On the interactions between ice sheets and the large-scale atmospheric circulation over the last glacial cycle
- 2005 – 2009 **Master of Science in Meteorology** (Awarded 06/2009). Stockholm University (*Stockholm, Sweden*) *Advisor:* Jonas Nycander; *Thesis:* Barotropic instability of eastward flow

Chronology of Employment

- 2025 – present **Associate Professor**, Department of Geosciences, University of Arizona (*Tucson, AZ, USA*)
- 2025 – present **Joint Associate Professor**, Department of Hydrology and Atmospheric Sciences, University of Arizona (*Tucson, AZ, USA*)
- 2021 – 2025 **Joint Assistant Professor**, Department of Hydrology and Atmospheric Sciences, University of Arizona (*Tucson, AZ, USA*)
- 2018 – 2025 **Assistant Professor**, Department of Geosciences, University of Arizona (*Tucson, AZ, USA*)
- 2017 – 2018 **Adjunct Assistant Professor**, Department of Earth & Environment, Boston University (*Boston, MA, USA*)
- 2015 – 2018 **Postdoctoral Fellow**, National Center for Atmospheric Research (*Boulder, CO, USA*)
- 2015 **Postdoctoral Fellow**, Stockholm University (*Stockholm, Sweden*)

Honors and Awards

- 2022 Bjerknes Visiting Fellow (University of Bergen), May-June 2022
- 2021 Outstanding Faculty Award, Geosciences Advisory Board (U. Arizona)
- 2021* Bjerknes Visiting Fellow (University of Bergen – postponed due to COVID-19)
- 2019 International Meteorological Institute, visiting researcher (Stockholm University)
- 2016 International Meteorological Institute, visiting researcher (Stockholm University)
- 2014 Bolin Center for Climate Research travel grant (Stockholm University)
- 2012 Wallenberg donation stipend
- 2011 Bolin Center for Climate Research travel grant (Stockholm University)
- 2010 Helge Ax:son Johnson donation stipend

Student Awards

- 2025 Asiya Badarunnisa, Best graduate poster, GeoDaze
- 2025 Kay Poonawala, Best undergraduate presentation, GeoDaze
- 2025 Kay Poonawala, Best undergraduate poster, AMS

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2025	Kay Poonawala, Excellence in Undergraduate Research Award (University of Arizona, Department of Geosciences)
2024	Kay Poonawala, Best undergraduate poster, GeoDaze
2024	Gigi Giralte, Outstanding undergraduate poster, El Dia
2023	Kay Poonawala, Runner-up best undergraduate poster, GeoDaze
2023	Holly Thomas, Best overall talk, GeoDaze

Service / Outreach

Doctoral and Masters Exam Committees (* Primary advisor, † Co-advisor, ‡ Committee member):

Kendall Wilde*, MS, University of Arizona	2025-present
Joaris Del Mar Morales-Hernandes‡, MS, University of Arizona	2025-present
Amanda Manoogian‡, MS, University of Arizona	2025-present
Leila Fischer‡, MS, University of Arizona	2025-present
Tran Trang‡, PhD, University of Arizona	2025-present
Maya Tessler‡, PhD, University of Arizona	2024-present
Holly Thomas*, PhD, University of Arizona	2023-present
Asiya Badarunnisa Sainudeen*, PhD, University of Arizona	2021-present
Mudith Weerabaddana‡, PhD, University of Arizona	2021-present
Dr. Charles Hoopes‡, PhD, University of Arizona	2024-2025
Hope Simonoko*, MS, University of Arizona	2022-2023
Holly Thomas*, MS, University of Arizona	2021-2023
Dr. Alice Chapman‡, PhD, University of Arizona	2021-2023
Allison Berry*, MS, University of Arizona	2020-2022
Dr. Dervla Meegan Kumar‡, PhD, University of Arizona	2019-2022
Dr. Jonathan King‡, PhD, University of Arizona	2019-2022
Dr. Emma Reed‡, PhD, University of Arizona	2021

Bachelor Students (* Primary advisor, † Co-advisor):

Benjamin Bucey*, BS student, University of Arizona (honors college)	2024-2025
Kay Ateka Poonawala*, BS student, University of Arizona (honors college)	2022-2025
Vicente Lopes Jr. *, BS student, University of Arizona	2024
Gigi Giralte*, BS student, University of Arizona	2022-2024
Michelle Uddin*, BS student, University of Arizona	2023
Brenna Freeman*, BS student, University of Arizona	2021-2022
Tyrel Malmgren*, BS student, University of Arizona	2021-2022

Other mentoring (* Primary advisor, † Co-advisor):

Anjelina Laferriere*, Core-to-clouds REU, University of Arizona	2024
Dr. Madelene Cook†, Postdoctoral Fellow, University of Arizona	2023-2024
Faulty mentor Epsilon Eta*, University of Arizona	2022-2023
Dr. Malin Odalen*, Postdoctoral Fellow, University of Arizona	2020

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Liling Chang*, PhD student, University of Arizona (<i>Women in STEM</i> mentoring program)	2020-2021
Dr. Aleah Sommers, Postdoctoral Fellow, National Center for Atmospheric Research (modeling and data analysis support)	2019-2021

Departmental Committees:

GEOS cluster hire search committee	2025
Climate science BA/BS	2024-2025
Graduate Policy Committee	2023-2025
Undergraduate Advisory and Policy Committee	2021-2024
Graduate Admissions Committee	2021/23/25
Annual Performance Evaluation Committee	2020-2022
Arizona Computational Geosciences Center	2018/19/20
Geodaze judge, outstanding climate presentation	2019-2023
Geodaze judge, climate posters	2021
IT Search Committee	2018/2022

University Committees:

Research Computing Governance Committee, High-Performance Computing (RCGC HPC) Refresh Committee	2019
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Other Committees:

Core member of <i>Land Ice Working Group</i> (LIWG) at the <i>National Center for Atmospheric Research</i> (NCAR)	2015-present
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Referee:

Journal of Climate; Journal of Geophysical Research: Atmospheres; Climate Dynamics; Geophysical Research Letters; Climate of the Past; Earth and Planetary Science Letters; Quaternary Science Reviews; Scientific Reports; Nature Geoscience; Nature Communications; Nature Earth and Environment; Geology; The Cryosphere; Cambridge University Press; European Research Council, National Science Foundation, Dutch Research Council, NASA

Teaching

2025	GEOS 437/537: Introduction to Earth-system modeling (fall) GEOS 596H-001: Python graduate workshop (spring) GEOS 285: Introduction to Python in Geosciences (spring)
2024	GEOS 342: The History of Earth's Climate (fall)
2023	GEOS 437/537: Introduction to Earth-system modeling (fall) GEOS 285: Introduction to Python in Geosciences (spring)
2022	GEOS 596H-003: Python graduate workshop (fall) GEOS 342: The History of Earth's Climate (fall) GEOS 285: Introduction to Python in Geosciences (spring)
2021	GEOS 437/537: Introduction to Earth-system modeling (fall)

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- GEOS 342: The History of Earth's Climate (fall)
GEOS 280: Programming and Data Analysis in the Earth Sciences (spring)
2020 GEOS 596H-001: Numerical Modeling Workshop (fall)
GEOS 596H-002: Climate Model-Paleoclimate "Proxy" Synthesis: the good, the bad, and the ugly (fall)
GEOS 596E-001: Department of Geosciences Extended Colloquium Discussion (fall)
GEOS 170A1: Earth from birth the death (spring)
2019 GEOS 437/537: Introduction to Earth-system modeling (fall)
GEOS 596H-003: Atmosphere and ocean circulation through time (spring)
2018 Computing Fridays (fall)

Guest lecturer:

- GEOS 502: Analytical and Numerical Modeling in Geosciences, U. Arizona, 2019 (1 class)
- ATOC-5050: Introduction to Atmospheric Dynamics, CU Boulder, 2017 (4 classes)

Summer schools and workshops:

- Community Earth System Model (CESM) tutorial, NCAR, Boulder, CO, 2015-2018
- Modeling and project work support at the International Arctic Research Center (IARC) summer school, Fairbanks, AK, 2011

Attended teaching and science communication courses:

- Effectively Communicating Science Annual Workshop, NSF Expert Witness Training Academy, Mitchell Hamline School of Law, St. Paul, MN, 2017
- University Pedagogy 1, Stockholm University, Stockholm, Sweden, 2012

Publications / Creative Activity

Peer-reviewed Manuscripts § Post-doctoral researcher advisee, † Graduate student advisee, ‡ Undergraduate Student Advisee, * Substantially based on work done as a graduate student

2025 Harley, G., K. L. DeLong, **M. Lofverstrom**, C. A. Reese, S. J. Bentley Sr., K. Xie, S. Gonzalez, J. T. Troung, K. J. Heeter, A. L. Kaiser, and A. Caporaso: Rapid decline and mortality of a Pleistocene-aged forest now submerged in the northern Gulf of Mexico, USA, *npj Climate and Atmospheric Science*, 8, (59), doi:1038/s41612-025-00951-y

2024 Bradley, S., R. Sellevold, M. Petrini, M. Vizcaino, S. Georgiou, J. Zhu, J., B.L. Otto-

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Bliesner, **M. Lofverstrom, M.** (2024): Surface mass balance and climate of the Last Glacial Maximum northern hemisphere ice sheets: simulations with CESM2.1, *Clim. Past*, 20, 211–235, doi: 10.5194/cp-20-211-2024

- 2023 Oster, J., S. Macarewicz, **M. Lofverstrom**, C. de Wet, I. Montañez, J. M. Lora, C. Skinner, C. Tabor (2023): North Atlantic meltwater during Heinrich Events drives wetter climate with more atmospheric rivers in western North America, *Sci. Adv.* 9, eadj2225, doi:10.1126/sciadv.adj2225
- Liu Z., Y. Bao, L.G. Thompson, E. Mosley-Thompson, C. Tabor, G.J. Zhang, **M. Lofverstrom**, I. Montanez, and J. Oster (2023): Tropical mountain ice core d18O: A Goldilocks indicator for global temperature change, *Sci. Adv.* 9, eadi6725, doi: 10.1126/sciadv.adi6725
- Lofverstrom, M.** and J. Zhu (2023): Tropical precipitation woes in the Community Earth System Model version 2, *Geophys. Res. Letters*, 50, e2023GL104416, doi: 10.1029/2023GL104416
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- 2022 Herrington, A. R., P. H. Lauritzen, **M. Lofverstrom**, W. H. Lipscomb, A. Gettelman, and M. A. Taylor (2022): Impact of grids and dynamical cores in CESM2.2 on the surface mass balance of the Greenland Ice Sheet, *J. Adv. Model. Earth Syst.*, 14, e2022MS003192, <https://doi.org/10.1029/2022MS003192>
- Lofverstrom, M.**, D. Thompson, B. Otto-Bliesner, and E. Brady (2022): The importance of Canadian Arctic Archipelago gateways for glacial expansion in Scandinavia. *Nat. Geosci.* 15, 482–488 (2022). <https://doi.org/10.1038/s41561-022-00956-9>
- Bush, M.B., S. Conrad, A. Restrepo, D. M Thompson, **M. Lofverstrom**, and J. L. Conroy (2022): Human-induced ecological cascades: extinction, restoration, and rewilding in the Galápagos highlands, *PNAS*, 119, e2203752119, doi:10.1073/pnas.2203752119
- Thompson, D. M., M. McCulloch, J. E. Cole, E. V. Reed, J. D'Olivo, K. Dyez, **M. Lofverstrom**, J. Lough, N. Cantin, A. W. Tudhope, A. H. Cheung, L. Vetter, and R. L. Edwards (2022): Marginal reefs under stress: physiological limits render Galápagos corals susceptible to warming and acidification, *AGU Advances*, 3, e2021AV000509, doi: 10.1029/2021AV000509
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- 2021 Sommers, A., B. Otto-Bliesner, W.H. Lipscomb, **M. Lofverstrom**, S. Shafer, P. Bartlein,

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E. Brady, E. Kluzek, G. Leguy, K. Thayer-Calder, and R. Tomas (2021): Retreat and regrowth of the Greenland Ice Sheet during the Last Interglacial as simulated by the CESM2-CISM2 coupled climate–ice sheet model. *Paleoceanography and Paleoclimatology*, 36, e2021PA004272, doi: 10.1029/2021PA004272

Tabor, C., **M. Lofverstrom**, J. Oster, B. Wortham, C. de Wet, I. Montanez, A. Rhoades, C. Zarzycki, C. He, and Z. Liu (2021): A Mechanistic Understanding of Oxygen Isotopic Changes in the Western United States at the Last Glacial Maximum, *Q. Sci. Review* (invited), 274, 107255, doi: 10.1016/j.quascirev.2021.107255

Menemenlis, S., J. Lora, **M. Lofverstrom**, and D. Chandan (2021): Influence of Stationary Waves on mid-Pliocene Atmospheric Rivers and Hydroclimate, *Global and Planetary Change*, 204, 103557, doi: 10.1016/j.gloplacha.2021.103557

Muntjewerf, L., W. J. Sacks, **M. Lofverstrom**, J. Fyke, W. H. Lipscomb, C. Ernani da Silva, C., M. Vizcaino K. Thayer-Calder, J. T. M. Lenaerts, and R. Sellevold (2021): Description and demonstration of the coupled Community Earth System Model v2 – Community Ice Sheet Model v2 (CESM2-CISM2), *J. Adv. Model. Earth Syst.*, 13, e2020MS002356, doi: 10.1029/2020MS002356

Kageyama, M., S. P. Harrison, M. Kapsch, **M. Lofverstrom**, J. M. Lora, U. Mikolajewicz, S. Sherriff-Tadano, T. Vadsaria, A. Abe-Ouchi, N. Bouttes, D. Chandan, L. Gregoire, R. Ivanovic, K. Izumi, A. N. LeGrande, F. Lhardy, G. Lohmann, P. A. Morozova, R. Ohgaito, A. Paul, W. R. Peltier, C. J. Poulsen, A. Quiquet, D. M. Roche, X. Shi, J. E. Tierney, P. J. Valdes, E. Volodin, and J. Zhu (2021): Status of the PMIP4 LGM experiments: first results, comparison to PMIP3 results and to new climatic reconstructions, *Clim. Past*, 17, 1065–1089, doi: 10.5194/cp-2019-169

Zhu, J., B. Otto-Bliesner, E. Brady, C. Poulsen, J. Tierney, **M. Lofverstrom**, and P. DiNezio (2021): Assessing equilibrium climate sensitivity of the Community Earth System Model version 2 through simulation of the last glacial maximum. *Geophys. Res. Letters*, 48 (3), e2020GL091220, doi: 10.1029/2020GL091220

Dow, W., A. Maycock, **M. Lofverstrom**, and C. J. Smith (2021): The effect of anthropogenic aerosols on the Aleutian Low, *J. Climate*, 34 (5), pp 1725–1741, doi: 10.1175/JCLI-D-20-0423.1

2020

Muntjewerf, L., R. Sellevold, M. Vizcaino, C. Ernani da Silva, M. Petrini, K. Thayer-Calder, M. Scherrenberg, S. Bradley, J. G. Fyke, W. H. Lipscomb, **M. Lofverstrom**, and W. J. Sacks (2020): Accelerated Greenland ice sheet mass loss under high

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greenhouse gas forcing as simulated by the coupled CESM2.1-CISM2.1, *J. Adv. Model. Earth Syst.*, 12, e2019MS002031, doi: 10.1029/2019MS002031

Lofverstrom, M., J. G. Fyke, K. Thayer-Calder, L. Muntjewerf, M. Vizcaino, W. J. Sacks, W. H. Lipscomb, B. L. Otto-Bliesner, and S. L. Bradley (2020): An efficient ice-sheet/Earth system model spinup procedure for CESM2-CISM2: description, evaluation and broader applicability, *J. Adv. Model. Earth Syst.*, 12, e2019MS001984, doi: 10.1029/2019MS001984

Rehfeld, K., R. Hebert, J. Lora, **M. Lofverstrom**, and C. Brierley (2020): Variability of surface climate in simulations of past and future, *Earth Syst. Dynam.*, 11, 447–468, doi: 10.5194/esd-11-447-2020

Muntjewerf, L., M. Petrini, M. Vizcaino, C. Ernani da Silva, R. Sellevold, M. Scherrenberg, K. Thayer-Calder, S. Bradley, J. Lenaerts, W. H. Lipscomb, and **M. Lofverstrom** (2020): Greenland Ice Sheet Contribution to 21st Century Sea Level Rise as Simulated by the Coupled CESM2.1-CISM2.1, *Geophys. Res. Lett.*, 47, e2019GL086836, doi: 10.1029/2019GL086836

Tulenko, J. P., **M. Lofverstrom**, and J. P. Briner (2020): Ice sheet influence on atmospheric circulation explains the patterns of Pleistocene alpine glacier records in North America, *EPSL*, 534, doi: 10.1016/j.epsl.2020.116115

Lofverstrom, M. (2020): A dynamic link between precipitation extremes in western North America and Europe at the Last Glacial Maximum, *EPSL*, 534, doi: 10.1016/j.epsl.2020.116081

2018 Liakka, J. and **M. Lofverstrom** (2018): Arctic warming induced by the Laurentide ice sheet topography, *Clim. Past* 14, 887–900, doi: 10.5194/cp-14-887-2018

Fyke, J.G., O. Sergienko, **M. Lofverstrom**, J. Lenaerts, and S. Price (2018): An overview of interactions and feedbacks between ice sheets and the Earth system, *Reviews of Geophysics* 56, doi: 10.1029/2018RG000600

Lofverstrom, M., and J. Liakka (2018): The influence of atmospheric grid resolution in a climate model-forced ice sheet simulation, *The Cryosphere*, 12, 1499–1510, doi: 10.5194/tc-12-1499-2018 (highlighted)

2017 **Lofverstrom, M.**, and J. M. Lora (2017): Abrupt regime shifts in the North Atlantic atmospheric circulation over the last deglaciation, *Geophys. Res. Lett.*, 44, doi: 10.1002/2017GL074274

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- 2016 Otto-Bliesner, B., A. Jahn, R. Feng, E. Brady, A. Hu, and **M. Lofverstrom** (2016): Changes in Arctic Gateways Amplify North Atlantic Warming in the Late Pliocene, *Geophys. Res. Letters*, 44, doi: 10.1002/2016GL071805 (highlighted)
- Lofverstrom, M.**, and J. Liakka (2016): On the limited ice intrusion in Alaska at the Last Glacial Maximum, *Geophys. Res. Letters*, 43, doi: 10.1002/2016GL071012
- ***Lofverstrom, M.**, R. Caballero, J. Nilsson, and G. Messori (2016): Stationary wave reflection as a mechanism for zonalising the Atlantic winter jet at the LGM, *J. Atm. Sci.*, 73, 3329–3342, doi: 10.1175/JAS-D-15-0295.1
- Liakka, J., **M. Lofverstrom**, and F. Colleoni (2016): The impact of the North American glacial topography on the evolution of the Eurasian ice sheet over the last glacial cycle, *Clim. Past.*, 12, 1225–1241, doi: 10.5194/cp-12-1225-2016
-
- 2015 Pausata, F., and **M. Lofverstrom** (2015): On the enigmatic similarity in Greenland d18O between the Oldest and Younger Dryas, *Geophys. Res. Letters*, 42, doi: 10.1002/2015GL066042
- ***Lofverstrom, M.**, J. Liakka, and J. Kleman (2015): The North American Cordillera – an impediment to growing the continent-wide Laurentide Ice Sheet, *J. Climate*, 28, 9433–9450, doi: 10.1175/JCLI-D-15-0044.1
-
- 2014 ***Lofverstrom, M.**, R. Caballero, J. Nilsson, and J. Kleman, (2014): Evolution of the large-scale atmospheric circulation in response to changing ice sheets over the last glacial cycle, *Clim. Past.*, 10, 1453– 1471, doi: 10.5194/cp-10-1453-2014
-
- 2011 Liakka, J., J. Nilsson, and ***M. Lofverstrom** (2011): Interactions between stationary waves and ice sheets: linear versus nonlinear atmospheric response, *Clim. Dyn.*, 38, 1249– 1262, doi: 10.1007/s00382-011-1004-6
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Other Publications

Lofverstrom, M. and K. Thirumalai: Thermal forcing modulates the North American Monsoon, doi: <https://doi.org/10.31223/X5Q634>

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Lofverstrom, M. and D. Thompson (2022): Closed ocean gateways in the Canadian archipelago are key to glaciation in Scandinavia, *Nature Geoscience Research Briefing*

Zhu, J., B. Otto-Bliesner, E. Brady, C. Poulsen, J. Tierney, **M. Lofverstrom**, and P. DiNezio (2021): Ice Age Testing Reveals Challenges in Climate Model Sensitivity, *EOS Research Spotlight*

Otto-Bliesner, B., **M. Lofverstrom**, P. Bakker, and R. Feng (2019): Arctic warming and the Greenland Ice Sheet during the Last Interglacial as simulated by climate models: Responses and feedbacks to orbital forcing, *PAGES Science Highlights: Past Sea-Level Changes*

Fyke, J.G., O. Sergienko, **M. Lofverstrom**, J. Lenaerts, and S. Price (2018): Icy interactions, *Eos*, 99, doi: 10.1029/2018EO100915

***Lofverstrom, M.** (2014): On the interaction between ice sheets and the large-scale atmospheric circulation over the last glacial cycle, *PhD thesis*, ISBN: 978-91-7649-010-5

Work in Progress

Abella-Gutiérrez, J. L., **M. Lofverstrom**, D. Thompson, V. Trouet, and B. A. Black: Three centuries of interdecadal covariance between North Pacific sea surface temperature and western North American hydroclimate

†Badarunnisa A., **M. Lofverstrom**, and D. Thompson: Evaluating the representation of South American summer precipitation characteristics in CMIP6 pre-industrial simulations, in review in *J. Climate*

†Badarunnisa A., **M. Lofverstrom**, and D. Thompson: Evolution of ENSO in the 21st Century and Its Impact on Amazon Rainfall During the Monsoon Season from the Perspective of a Multi-Model Large Ensemble, in preparation for *J. Climate*

†Badarunnisa A., **M. Lofverstrom**, D. Thompson, K. Anchukaitis: South American Summer Monsoon Moisture Sources and Pathways: Insights from High-Resolution Simulations of the Mid-Holocene and the Current Warming World, in preparation for *J. Climate*

Cole, Thompson, Dyez, Tripp, Tudhope, **Lofverstrom**, Stevenson, Okun, Lawson, Conroy, Jimenez, Edward: Recent intensification of eastern Pacific ENSO is unprecedented across the last millennium, in review in *Science*

Hlohowskyj S., D. M. Thompson, S. Gowrisankaran, M. Lofverstrom, Jessica L. Conroy, A. Badarunnisa Sainudeen, D. T. Rodbell, M. Bush: El Niño events recorded by redox sensitive trace elements in sedimentary records from Genovesa Lake, Galápagos, in review in *Science of the Total Environment*

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†Kojima, A. C, D. M. Thompson, and **M. Lofverstrom**: Characterizing the temporal variability of western equatorial Pacific Trade Winds via spectral analysis, in preparation for *J. Climate*

†Kojima, A. C, D. M. Thompson, J. E. Carilli, **M. Lofverstrom**, T. M. Marchitto, H. R. Sayani, G. A. Farfan, Z. E. Benson, V. G. Javier, M. M. Weerabaddana, D. L. Dettman, and K. M. Cobb: Coral Mn/Ca: A Window into Pacific Trade-wind Behavior, in preparation for *J. Climate*

Lofverstrom, M., A. Herrington, A. Born, and R. Beadling: Toward a realistic representation of katabatic storms in Greenland in reanalysis data and global Earth System Models, in review in *JGR: Atmospheres*

Meegan Kumar, D., J. E. Tierney, T. Bhattacharya, **M. Lofverstrom**, J. Zhu, and J. W. Murray: Response of the North American Monsoon to Glacial–Interglacial Climate Forcings, in preparation

Osman, M., J. Tierney, **M. Lofverstrom**, J. Schnaubelt, C. Tabor, B. Markle, M. Aquino-Lopez: Global warming and Greenland ice sheet decay during the Last Interglacial, in review in *Science*

‡Poonawala, K., and **M. Lofverstrom**: Is the Last Interglacial warm period a good process analog for future Greenland mass balance, in preparation for *Geophys. Res. Letters*

Richey J., K. Thirumalai, **M. Lofverstrom**, S. Truebe, and J. Cole: Holocene Deterioration of the Rio Grande outflow into the Gulf of Mexico: A multiproxy perspective, in preparation for *Nature*

†Thomas, H. and **M. Lofverstrom**: On the representation of sudden stratospheric warming events in a low-top and a high-top atmosphere model, in preparation for *Geophys. Res. Letters*

†Thomas, H., J. Russell, R. Stouffer, and **M. Lofverstrom**: An Updated Inter-Reanalysis Comparison of Tropical Expansion & Edge Metrics, in review in *J. Climate*

Thompson D., J. D'Olivo, **M. Lofverstrom**, E. V. Reed, J. E. Cole, G. L. Foster, M. McCulloch, N. Cantin, K. Dyez, and J. Lough: Metabolic processes dictate corals capacity to upregulate their internal growth medium, in preparation for *Science Advances*

Media

USA Today (link)	2023
BBC (glacial climate documentary)	2022
UN News (link)	2022
Interview in <i>Alberta Views Magazine</i>	2018

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Conferences / Scholarly Presentations (since joining UA in fall 2018)

Convener & Meeting Organizer	<i>European Geophysical Union: Palaeoclimate modeling: from time-slices and sensitivity experiments to transient simulations into the future</i>	2023
	Multi-institutional (NSF) project meeting at the Florida Institute of Technology (20+ participants from U. Arizona, Union College, FIT)	2023

Invited Seminars & Colloquia

- Lofverstrom, M.**, A. Badarunnisa, D. Thompson, M. Bush, D. Rodbell (2025): Assessing precipitation sources: a case study for Galapagos and South America, Island System Symposium, Eugene, OR
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2023): Gateways to Glaciation, *Cornell*
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2022): Gateways to Glaciation, International Quaternary Webinar (U. Mass. Amherst)
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2022): Gateways to Glaciation, Bjerknes Seminar, University of Bergen, Bergen, Norway
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2022): Gateways to Glaciation, University of Utrecht, Utrecht, Netherlands
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner, W. Sacks, M. Petrini, S. Bradley (2022): The importance of Arctic gateways for Northern Hemisphere glacial inception, AMQUA
- Lofverstrom, M.**, and M. Kageyama (2020): The PMIP4-CMIP6 Last Glacial Maximum experiments: preliminary results and comparison with the PMIP3-CMIP5 simulations, NCAR winter Meeting, Boulder, CO
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner, W. Sacks, M. Petrini, S. Bradley (2019): The importance of Arctic gateways for Northern Hemisphere glacial inception, University of Arizona, Geosciences, Tucson, AZ
- Lofverstrom, M.**, R. Caballero, J., Nilsson, G. Messori (2019): A dynamic link between high-intensity precipitation events in southwestern North America and Europe at the Last Glacial Maximum, University of Arizona, Hydrology & Atmospheric Sciences, Tucson, AZ

Conference Presentations: § Post-doctoral researcher advisee, † Graduate student advisee, ‡ Undergraduate Student Advisee, * Other Graduate or Undergraduate Student

- Cole, J., D. Thompson, **M. Lofverstrom**, S. Stevenson (2025): Recent intensification of eastern Pacific ENSO is unprecedented across the last millennium, *Oral Presentation*, Ocean Sciences
- Osman, M, J. Tierney, **M. Lofverstrom**, J. Schnaubelt, C. Tabor (2025): Reconstructing the coupled Greenland Ice Sheet--climate evolution during the Last Interglacial warm period, *Oral Presentation*, Int. Conf. on Paleo Oceanography
- Abdelkader Di Carlo, I, F.S.R. Pausata, M. Kageyama, C. Davrinche, **M. Lofverstrom**, U. Ninnemann (2025): Ice-sheet topography changes in North America affect teleconnection patterns on glacial time scales, EGU

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- †Thomas, H., J. Russell, **M. Lofverstrom**, R. Stouffer (2025): Revisiting Tropical Expansion: A Comparative Study of Metrics Across Reanalysis Products, *Poster Presentation*, GeoDaze
- †Badarunnisa, A., **M. Lofverstrom**, and D. Thompson (2025): South American summer precipitation in CMIP6 models, *Poster Presentation*, GeoDaze
- ‡Poonawala, K., and **M. Lofverstrom** (2025): Is the Last Interglacial Warm period a good analog for future Greenland mass balance, *Poster Presentation*, AMS (Best Undergraduate Poster Award)
- Osman, M, J. Tierney, **M. Lofverstrom**, J. Schnaubelt (2024): Reconstructing the coupled Greenland Ice Sheet--climate evolution during the Last Interglacial warm period, *Oral Presentation*, AGU
- †Thomas, H., J. Russell, **M. Lofverstrom** (2024): Revisiting Tropical Expansion: A Comparative Study of Metrics Across Reanalysis Products, *Poster Presentation*, AGU
- Thatcher, D., A. Hauser, A. Wanamaker, B. Black, D. Thompson, **M. Lofverstrom** (2024): Decoding the Salinity and Temperature Signal from δ 18O of a NE Pacific Geoduck (*Panopea generosa*): High-resolution SIMS and Traditional Bulk Mass Spectrometry, *Poster Presentation*, AGU
- †Badarunnisa, A., **M. Lofverstrom**, and D. Thompson (2024): South American summer precipitation in CMIP6 models, *Oral Presentation*, GeoDaze
- ‡Poonawala, K., and **M. Lofverstrom** (2024): Mass Balance of the Greenland Ice Sheet in Past and Future Climates, *Poster Presentation*, GeoDaze
- ‡Giralte, G., and **M. Lofverstrom** (2024): Mechanistic Drivers of the North American Monsoon, *Poster presentation*, *Poster Presentation*, GeoDaze
- ‡Giralte, G., and **M. Lofverstrom** (2024): Mechanistic Drivers of the North American Monsoon, *Poster presentation*, *Poster Presentation*, El Dia (HAS, UofA)
- Liu Z., Y. Bao, L.G. Thompson, E. Mosley-Thompson, C. Tabor, G.J. Zhang, **M. Lofverstrom**, I. Montanez, and J. Oster (2024): Tropical mountain ice core d18O: A Goldilocks indicator for global temperature change, *Oral Presentation*, EGU
- Osman, M, J. Tierney, **M. Lofverstrom** (2024): Reconstructing the coupled Greenland Ice Sheet--climate evolution during the Last Interglacial warm period, *Oral Presentation*, EGU
- Oster, J., S. Macarewich, **M. Lofverstrom**, C. de Wet, I. Montañez, J. M. Lora, C. Skinner, C. Tabor (2023): North Atlantic meltwater during Heinrich Events drives wetter climate with more atmospheric rivers in western North America, *Oral Presentation*, AGU
- Liu Z., Y. Bao, L.G. Thompson, E. Mosley-Thompson, C. Tabor, G.J. Zhang, **M. Lofverstrom**, I. Montanez, and J. Oster: Tropical mountain ice core d18O: A Goldilocks indicator for global temperature change, *Oral Presentation*, AGU
- †Badarunnisa, A., **M. Lofverstrom**, and D. Thompson (2023): South American summer precipitation in CMIP6 models, *Poster Presentation*, AGU
- †Thomas, H. and **M. Lofverstrom** (2023): Cold weather in a warmer world, *Oral Presentation*, GeoDaze
- ‡Poonawala, K., and **M. Lofverstrom** (2023): Mass Balance of the Greenland Ice Sheet in Past and Future Climates, *Poster Presentation*, GeoDaze
- Tabor, C., M. Lofverstrom, I. Montañez, J. Oster, C. Zarzycki (2023): Simulating Changes in Tropical Cyclone Activity During the Deglaciation, *Oral Presentation*, EGU (invited)
- Richey J., K. Thirumalai, **M. Lofverstrom**, S. Truebe, and J. Cole (2022): Holocene Deterioration of the Rio Grande outflow into the Gulf of Mexico: A multiproxy perspective, *Oral Presentation*, ICP
- Otto-Bliesner et al. **M. Lofverstrom** (2022): The Greenland Ice Sheet During the Last Interglacial in CESM2-CISM2, *Oral presentation*, IPICS

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- Abella-Gutiérrez, J. L., **M. Lofverstrom**, D. Thompson, V. Trouet, and B. A. Black (2022): Three centuries of multidecadal covariance between North Pacific sea surface temperature and western North American hydroclimate, *Oral presentation*, International Sclerochronology Conference
- Oster, J. S. Macarewicz, C. Tabor, **M. Lofverstrom**, B. Wortham, C. de Wet, I. Montañez (2022): North Atlantic freshwater forcing during Heinrich Events drives wetter climate in western North America, *Oral Presentation*, GSA
- †Thomas, H. and **M. Lofverstrom** (2022): Cold weather in a warmer world, *Poster presentation*, AGU
- †Badarunnisa, A. and **M. Lofverstrom** (2022): Understanding the ‘new norm’ of extreme events: Atmospheric rivers and climate change, AGU
- Lofverstrom, M.** (2022), Is the Last Interglacial warm period a good analog for the future? *Oral Presentation*, CESM Workshop
- †Berry, A., and **M. Lofverstrom** (2022): Summer precipitation patterns influence Greenland Ice Sheet regrowth during the Last Interglacial Period, *Oral Presentation*, GeoDaze
- †Thomas, H., and **M. Lofverstrom** (2022): Cold weather in a warmer world, *Poster Presentation*, GeoDaze
- †Badarunnisa, A., and **M. Lofverstrom** (2022): Understanding the ‘new norm’ of extreme events: Atmospheric rivers and climate change, *Poster Presentation*, GeoDaze
- ‡Malmgren, T., and **M. Lofverstrom** (2022): Differences in Annual Surface Temperature Between the Preindustrial Reference Period and the Last Interglacial Period, *Oral Presentation*, GeoDaze
- ‡Freeman, B., and **M. Lofverstrom** (2022): Analysis of the Spatial and Temporal Frequency of Greenland’s Regional, Major Precipitation Events at the End of the 21st Century, *Oral Presentation*, GeoDaze
- Tabor, C.R., **M. Lofverstrom**, J. Oster, B. Wortham, C. de Wet, C., and I. Montanez (2021): Hydrologic and isotopic changes in the Western United States at the Last Glacial Maximum, *Oral Presentation*, 30th anniversary PMIP
- *Menemenlis, S. J. M. Lora, **M. Lofverstrom**, D. Chandan: Atmospheric rivers influenced by stationary wave changes in model of mid-Piacenzian climate, *Oral Presentation*, 30th anniversary PMIP, 2021
- Oster J., C. Tabor, **M. Lofverstrom**, B. Wortham, C. de Wet, I. Montañez (2021): Estimating deglacial precipitation change in western North America from speleothem records and isotope enabled model simulations, *Oral Presentation*, KR Online
- †Berry, A., **M. Lofverstrom** (2021): The Climate Response to Greenland's Deglaciation in Past, Present, and Future Climates, *Oral Presentation*, GeoDaze
- Tabor, C. R., **Lofverstrom, M.**, Oster, J., Wortham, B., de Wet, C., Montanez, I. (2021): Storminess and Isotopic Changes in the Western United States at the Last Glacial Maximum, *Oral Presentation*, CESM Workshop
- Herrington, A., **M. Lofverstrom**, P. Lauritzen, A. Gettelman (2021): Update: Variable-resolution Arctic simulations, *Oral Presentation*, CESM Workshop
- Lofverstrom, M.**, D. Thompson, B. Otto-Bliesner, E. Brady (2021): Closure of the Canadian Arctic Gateways as a key prerequisite for glacial inception in Scandinavia, *Oral Presentation*, CESM Workshop
- Brady, E. C., B. L. Otto-Bliesner, J. Zhu, R. Feng, R. Tomas, P. DiNezio, **M. Lofverstrom**, N. Rosenbloom (2020): Sensitivity of the Atlantic Meridional Overturning Circulation to Different

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Paleoclimate States Simulated with the Community Earth System Model, *Oral Presentation*, AGU Fall Meeting

- *Dow, W., A. Maycock, **M. Lofverstrom**, J. Smith (2020): The Influence of Anthropogenic Aerosols on the Aleutian Low, *Poster Presentation*, AGU Fall Meeting
- Zhu, J., B. L. Otto-Bliesner, E. C. Brady, C. J. Poulsen, J. Tierney, **M. Lofverstrom**, P. DiNezio (2020): Constraining the climate sensitivity in CESM2 through simulation of the Last Glacial Maximum, *Oral Presentation*, AGU Fall Meeting
- §Odalen M., **M. Lofverstrom** (2020): How ocean circulation and its forcing are linked to global ocean carbon storage in warm climates simulated with CESM2, *Poster Presentation*, AGU Fall Meeting
- *Menemenlis, S., J. M. Lora, **M. Lofverstrom**, D. Chandan, D. E. Ibarra (2020): Regional precipitation influenced by stationary wave changes in model of mid-Piacenzian climate, *Oral Presentation*, AGU Fall Meeting
- *Menemenlis, S., J. M. Lora, **M. Lofverstrom**, D. Chandan (2020): Atmospheric rivers influenced by stationary wave changes in model of mid-Piacenzian climate, *Oral Presentation*, IARC
- Rehfeld, K., R. Hebert, **M. Lofverstrom**, J. Lora, C. Brierley (2020): Surface climate variability of the Earth in past and future, *Oral Presentation*, PMIP4 Nanjing
- Rehfeld, K., R. Hebert, **M. Lofverstrom**, J. Lora, C. Brierley (2020): Variability of surface climate in simulations of past and future, *Oral Presentation*, European Geosciences Union
- *Muntjewerf L., M. Petrini, M. Vizcaino, C. Ernani da Silva, R. Sellevold, M. Scherrenberg, K. Thayer-Calder, S. Bradley, J. Lenaerts, W. Lipscomb, **M. Lofverstrom** (2020): Greenland ice sheet Contribution to 21st century sea level rise as modelled by the coupled CESM2.1-CISM2.1, *Oral Presentation*, European Geosciences Union
- Vizcaino, M., L. Muntjewerf, R. Sellevold, C. Ernani da Silva, M. Petrini, K. Thayer-Calder, M. Scherrenberg, S. Bradley, J. Fyke, W. Lipscomb, **M. Lofverstrom**, W. Sacks (2020): Coupled ice-climate simulation of future Greenland ice sheet evolution: mechanisms, thresholds and feedbacks for accelerated mass loss, *Oral Presentation*, European Geosciences Union
- *Dow, W., A. Maycock, **M. Lofverstrom**, C.J. Smith (2020): The Influence of Anthropogenic Aerosols on the Aleutian Low, *Poster Presentation*, European Geosciences Union
- Sommers, A., B. Otto-Bliesner, B., W.H. Lipscomb, **M. Lofverstrom**, S. Shafer, P. Bartlein, E. Brady, E. Kluzek, G. Leguy, K. Thayer-Calder, R. Tomas (2020): Retreat of the Greenland Ice Sheet during the Last Interglacial, *Oral Presentation*, NCAR Paleo working group meeting (winter)
- Tabor, C., **M. Lofverstrom**, I.P. Montanez, C. de Wet, B. Wortham (2020): Using iCESM to Understand Hydroclimate in Southwest North America, *Oral Presentation*, NCAR Paleo working group meeting (winter)
- Bradley, S.L., M. Petrini, M., Vizcaino, E., Kluzek, B.S. Lecavalier, J. Ely, W.H. Lipscomb, W. Sacks, **M. Lofverstrom**, C. Clark (2020): Fully coupled simulation of the Northern Hemisphere climate and ice sheets during the Last Glacial Maximum with CESM2.1/CISM2.1, *Oral Presentation*, Quaternary Research Associations
- Herrington, A., P.H. Lauritzen, **M. Lofverstrom**, A. Gettelman, W. Lipscomb, G. Leguy, R. Wijngaard, C. Craig, B. Eaton, C. Fisher, E. Kluzek (2020): Progress on vr-CESM for polar science, *Oral Presentation*, NCAR Polar working group meeting (summer)
- Herrington, A., P.H. Lauritzen, **M. Lofverstrom**, A. Gettelman, W. Lipscomb, C. Craig, B. Eaton, C. Fisher, E. Kluzek (2020): Impact of horizontal resolution on the meteorology and climate of Greenland, *Oral Presentation*, NCAR Polar working group meeting (summer)

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- Oster, J.L., C. Tabor, **M. Lofverstrom**, I.P. Montanez, C. de Wet, B. Wortham, C. He, Z. Liu, J. Lora (2020): Estimating deglacial precipitation changes in western North America from speleothem records and isotope-enabled model simulations, *Oral Presentation*, K9, Innsbruck
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2020): The importance of Arctic gateways for Northern Hemisphere glacial inception, *Oral Presentation*, AMQUA, Seattle, WA
- Lofverstrom, M.**, M. Kageyama (2020): The PMIP4-CMIP6 Last Glacial Maximum experiments: preliminary results and comparison with the PMIP3-CMIP5 simulations, *Oral Presentation*, NCAR paleoclimate working group meeting (winter)
- Tabor, C., **M. Lofverstrom**, J. Oster, I. P. Montanez, C. de Wet, B. Wortham, C. He, Z. Liu, J. Lora (2019): High-Resolution Simulations for Understanding the Climate of Southwest North America at the Last Glacial Maximum, *Oral Presentation*, American Geophysical Union
- Sommers, A., B. Otto-Bliesner, B., W.H. Lipscomb, **M. Lofverstrom**, S. Shafer, P. Bartlein, E. Brady, E. Kluzek, G. Leguy, K. Thayer-Calder, R. Tomas (2019): Retreat of the Greenland Ice Sheet during the Last Interglacial, *Oral Presentation*, American Geophysical Union
- Oster, J.L., C. Tabor, **M. Lofverstrom**, I.P. Montanez, C. de Wet, B. Wortham, C. He, Z. Liu (2019): Comparing Precipitation Seasonality During the Last Deglaciation from Speleothem Records and Isotope-enabled Model Simulations, *Oral Presentation*, American Geophysical Union
- Ashokkumar, L., C. Harig, **M. Lofverstrom** (2019): 21st century estimates of volume and mass loss rates from glaciers using a GRACE constrained mass balance model under climate emission scenarios, *Poster Presentation*, American Geophysical Union
- Lofverstrom, M.**, D. Thompson, E. Brady, B. Otto-Bliesner (2019): The importance of Arctic gateways for Northern Hemisphere glacial inception, *Oral Presentation*, American Geophysical Union (AGU)
- Lofverstrom, M.** (2019): On the link between waveguides, quasi-stationary waves, and jet zonalisation at the Last Glacial Maximum, *Poster Presentation*, Past 2 future (P2F) University College London, London, UK
- Tabor, C., **M. Lofverstrom**, B. Wortham I.P. Montanez Oster, J.L., , C. de Wet, C. He, Z. Liu (2019): Climate Change in Southwest North America During the Last Deglaciation, *Poster Presentation*, NCAR Isotope Modeling Workshop
- Lipscomb, W., et al. **M. Lofverstrom** (2019): Land Ice Working Group overview, *Oral Presentation*, NCAR Land-ice working group meeting
- Lofverstrom, M.** (2019): On the link between waveguides, quasi-stationary waves, and jet zonalisation at the Last Glacial Maximum, *Oral Presentation*, CESM Winter Workshop, Boulder, CO
- Bradley, S. L., M. Petrini, M., Vizcaino, E., Kluzek, B. S. Lecavalier, J. Ely, W. H. Lipscomb, W. Sacks, **M. Lofverstrom**, C. Clark (2019): Fully coupled simulation of the Northern Hemisphere climate and ice sheets during the Last Glacial Maximum with CESM2.1/CISM2.1, *Oral Presentation*, International Union for Quaternary Research
- *Muntjewerf, L., W. Lipscomb, K. Thayer-Calder, W. Sacks, S. Bradley, **M. Lofverstrom**, J. Fyke, C. Ernani da Silva, R. Sellevold, M. Petrini, M. Vizcaino (2019): Future evolution of the Greenland Ice Sheet in a coupled climate and ice sheet model: CESM2.1-CISM2.1 contribution to ISMIP6, *Oral Presentation*, European Geosciences Union
- Sommers, A., **M. Lofverstrom**, W. Lipscomb, B. Otto-Bliesner (2019): Characteristics of the Greenland ice sheet during the Last Interglacial: A view from previous simulations, and upcoming plans, *Oral Presentation*, NCAR Land-ice working group meeting

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- Lipscomb, W., et al. M. Lofverstrom (2019): Progress in modeling ice sheets in the CESM, *Oral Presentation*, NCAR Land-ice working group meeting (winter)
- *Muntjewerf, L., W. Lipscomb, K. Thayer-Calder, W. Sacks, S. Bradley, **M. Lofverstrom**, J. Fyke, C. Ernani da Silva, R. Sellevold, M. Petrini, M. Vizcaino (2019): Future evolution of the Greenland Ice Sheet in a coupled climate and ice sheet model: CESM2.1-CISM2.1 contribution to ISMIP6, *Oral Presentation*, NCAR Polar working group meeting (winter)
- *Muntjewerf, L., **M. Lofverstrom**, W. Lipscomb, K. Thayer-Calder, W. Sacks, S. Bradley, J. Fyke, C. Ernani da Silva, R. Sellevold, M. Petrini, M. Vizcaino (2019): Processes in the future evolution of the Greenland Ice Sheet in a coupled climate and ice sheet model, *Oral Presentation*, NCAR Land-ice working group meeting (winter)
- *Muntjewerf, L., **M. Lofverstrom**, W. Lipscomb, K. Thayer-Calder, W. Sacks, S. Bradley, J. Fyke, C. Ernani da Silva, R. Sellevold, M. Petrini, M. Vizcaino (2019): Ice-sheet/climate model coupling: An efficient spin-up procedure for CESM2.1 and CISM2.1, *Oral Presentation*, NCAR Land-ice working group meeting (winter)
- Bradley, S.L., M. Petrini, M., Vizcaino, E., Kluzek, B.S. Lecavalier, J. Ely, W.H. Lipscomb, W. Sacks, **M. Lofverstrom**, C. Clark (2019): Simulating the Northern Hemisphere climate and ice sheets during the last deglaciation with CESM2.1/CISM2.1, *Oral Presentation*, NCAR Land-ice working group meeting (winter)
- Tabor, C., **M. Lofverstrom**, I. Montañez, J. Oster, B. Wortham, C. de Wet (2019): A mechanistic understanding of precipitation isotopic changes in the Western United States since the LGM, *Oral Presentation*, European Geosciences Union
- *Tulenko, J, **M. Lofverstrom**, J. Briner (2018): Preserving the MIS 4 Glacial Record in Beringia: Laurentide Ice Sheet Configuration Disrupts Largescale Atmospheric Circulation During MIS2, *Poster Presentation*, American Geophysical Union

Awarded Grants and Contracts

Federal

2023-2026	<p>Title of Grant: Collaborative Research: Millennial-Length Histories of Northeastern Pacific Climate Variability from Bivalve Mollusks and Trees</p> <p>Commitment (person-month) (Y1/Y2/Y3): 0.5/0.5/0.5</p> <p>Role: co-PI</p> <p>Other PIs/co-PIs: B. Black (PI), D. Thompson (co-PI), A. Wannamaker (co-PI)</p> <p>Source of support: NSF-AGS-P2C2</p> <p>Period covered: 7/1/2023 – 2026</p> <p>Total Award Amount: \$639,466</p>
2022-2026	<p>Title of Grant: REU Site: From the Clouds to the Core: A Place-Based REU for Southwestern US Community/Tribal College Students to Increase Under-Represented Group Recruitment to the Geosciences</p> <p>Commitment (person-month) (Y1/Y2/Y3): 0/0/0</p> <p>Role: unfunded collaborator</p> <p>Other PIs/co-PIs: A. Cohen, K. Thirumalai</p>

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	<p>Source of support: NSF-EAR Period covered: 11/1/2022 – 10/31/2025 Total Award Amount: \$402,893 (Lofverstrom \$0)</p>
2022-2026	<p>Title of Grant: A Paleoclimate reanalysis of the coupled Greenland Ice Sheet – climate evolution during the Last Interglacial Commitment (person-month) (Y1/Y2/Y3): 0.5/0.5/0.5 Role: co-PI Other PIs/co-PIs: M. Osman (PI), J. Tierney (co-PI) Source of support: NSF-OPP Period covered: 9/1/2022 – 6/30/2026 Total Award Amount: \$387,546</p>
2020-2026	<p>Title of Grant: High resolution simulations of hydroclimate changes in South America through the Holocene and instrumental era Commitment (person-month) (Y1/Y2/Y3/Y4): N/A Role: PI Source of support: University Corporation for Atmospheric Research (UCAR), Computational & Information Systems Lab (CISL) Period covered: 11/1/2020 – 6/30/2026 Total Award Amount: 9,475,000 core-hours on the Cheyenne Supercomputer</p>
2020-2026	<p>Title of Grant: Unravelling the Signals in Tropical Pacific Lake Archives: Towards Improved Holocene Hydroclimate Reconstructions Commitment (person-month) (Y1/Y2/Y3): 0.5/0.5/0.5/0.0 Role: PI Other PIs/co-PIs: D. Thompson (co-PI), M. Bush (co-PI); D. Rodbell (co-PI) Source of support: NSF-AGS-P2C2 Period covered: 7/1/2020 – 6/30/2026 Total Award Amount: \$751,462 (UA: \$547,191)</p>
2019-2023	<p>Title of Grant: High resolution simulations of the last deglaciation for understanding abrupt hydroclimate change in Southwest North America Commitment (person-month) (Y1/Y2/Y3): N/A Role: co-PI Other PIs/co-PIs: C. Tabor (PI) Source of support: University Corporation for Atmospheric Research (UCAR), Computational & Information Systems Lab (CISL) Period covered: 10/1/2019 – 8/31/2021 Total Award Amount: 15,800,000 core-hours on the Cheyenne Supercomputer</p>
2018-2023	<p>Title of Grant: Moisture source and storm track variability in western North America during the last deglaciation and Holocene Commitment (person-month) (Y1/Y2/Y3/Y4): N/A</p>

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- Role:** co-PI
Other PIs/co-PIs: J. Oster (PI), C. Tabor (co-PI), I. Montanez (co-PI)
Source of support: University Corporation for Atmospheric Research (UCAR), Computational & Information Systems Lab (CISL)
Period covered: 5/1/2018 – 8/31/2021
Total Award Amount: 10,000,000 core-hours on the Cheyenne Supercomputer
- 2019 **Title of Grant:** Collaborative Research: Multi-Time-Scale Climate Dynamics in California: An Integrated Multi-Proxy Stalagmite, Monitoring, and Modeling Approach
Commitment (person-month) (Y1): N/A
Role: co-PI
Other PIs/co-PIs: C. Tabor (PI)
Source of support: National Center for Supercomputing Applications (NCSA)
Period covered: 5/1/2019 – 12/31/2019
Total Award Amount: 21,000,000 core-hours on the Bluewaters Supercomputer
- 2017-2019 **Title of Grant:** Transient evolution of the Greenland Ice Sheet over the Last Interglacial warm period
Commitment (person-month) (Y1/Y2): N/A
Role: PI
Other PIs/co-PIs: none
Source of support: University Corporation for Atmospheric Research (UCAR), Computational & Information Systems Lab (CISL)
Period covered: 5/1/2017 – 8/31/2019
Total Award Amount: 8,400,000 core-hours on the Cheyenne Supercomputer

University of Arizona

- 2019-2021 **Title of Grant:** Thermal and topographic control of the extratropical atmospheric circulation
Commitment (person-month) (Y1/Y2): 1/1
Role: PI
Other PIs/co-PIs: none
Source of support: University of Arizona
Period covered: 7/1/2019 – 7/31/2021
Total Award Amount: \$15,000

Pending Grants and Contracts

Foundations

- 2025 **Title:** Atlas of Galápagos Coral Refugia Across Depths

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Commitment (person-month) (Y1/Y2/Y3): 1/1/1

Role: co-PI (20% credit; 20% effort)

Other PIs/co-PIs: A.B. Yanez Suarez (PI), A. Atwood (co-PI), M. Jarrin (co-PI),
D. Thompson (co-PI)

Source of support: CORDAP

Period Covered: 2026–2029

Total Award Amount: \$1,500,000

Status: Pending

University of Arizona

2025

Title: Bridge funding: student support

Commitment (person-month) (Y1/Y2): 0/0

Role: PI (50% credit; 50% effort)

Other PIs/co-PIs: Diane Thompson (co-PI)

Source of support: RII

Period Covered: 2025–2026

Total Award Amount: 1-semester graduate student support

Status: Pending

Grants and Contracts not awarded

Federal

2024 (un-awarded)

Title of Grant: CAREER: Constraining future Greenland mass loss and
extratropical climate interactions: what can we learn from interglacial warm
states?

Commitment (person-month) (Y1/Y2/Y3/Y4/Y5): 1/1/1/1/1

Role: PI

Other PIs/co-PIs: N/A

Source of support: NSF

Period covered: 7/1/2025 – 6/30/2030

Total Award Amount: \$712,762

2024 (un-awarded)

Title of Grant: Collaborative Research: Pliocene paleoclimate in the North
American monsoon belt and implications for future climate change in the region

Commitment (person-month) (Y1/Y2/Y3/Y4/Y5): 0.3/0.3/0.3/0.3/0.3

Role: co-PI

Other PIs/co-PIs: A. Cohen (PI), J. Quade (co-PI) D. Thompson (co-PI), K.
Thirumalai (co-PI)

Source of support: NSF-FRES

Period covered: 10/1/2024 – 9/30/2029

Total Award Amount: \$2,121,695

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- 2023 (un-awarded) **Title of Grant:** CAREER: Greenland mass loss and global climate feedbacks: to what extent can past warm states inform the future?
Commitment (person-month) (Y1/Y2/Y3/Y4/Y5): 1/1/1/1/1
Role: PI
Other PIs/co-PIs: N/A
Source of support: NSF
Period covered: 7/1/2024 – 6/30/2029
Total Award Amount: \$683,646
- 2023 (un-awarded) **Title of Grant:** Collaborative Research: Pliocene paleoclimate in the North American monsoon belt and implications for future climate change in the region
Commitment (person-month) (Y1/Y2/Y3/Y4/Y5): 0.3/0.3/0.3/0.3/0.3
Role: co-PI
Other PIs/co-PIs: A. Cohen (PI), J. Quade (co-PI) D. Thompson (co-PI), K. Thirumalai (co-PI)
Source of support: NSF-FRES
Period covered: 10/1/2023 – 9/30/2028
Total Award Amount: \$2,121,695
- 2022 (un-awarded) **Title of Grant:** Collaborative Research: Millennial-Length Histories of Northeastern Pacific Climate Variability from Bivalve Mollusks and Trees
Commitment (person-month) (Y1/Y2/Y3): 1/1/1
Role: Co-PI
Other PIs/co-PIs: B. Black (PI), D. Thompson (co-PI), A. Wannamaker (co-PI)
Source of support: NSF-OCE (MG&G)
Period covered: 7/1/2023 – 6/30/2026
Total Requested: \$611,990
- 2021 (un-awarded) **Title of Grant:** Collaborative Research: Millennial-Length Histories of Northeastern Pacific Climate Variability from Bivalve Mollusks and Trees
Commitment (person-month) (Y1/Y2/Y3): 1/1/1
Role: Co-PI
Other PIs/co-PIs: B. Black (PI), D. Thompson (co-PI), A. Wannamaker (co-PI)
Source of support: NSF-OCE (MG&G)
Period covered: 7/1/2022– 6/30/2025
Total Requested: \$566,350
- 2021 (un-awarded) **Title of Grant:** NASA-Earth Venture Mission 3; Southern Ocean Storms – Zephyr: Measuring Southern Ocean Winds from Space to Close the Carbon Budget
Commitment (person-month) (Y1/Y2/Y3/Y4/Y5): 1/1/1/1/1
Role: Co-I
Other PIs/co-PIs: Russell, J. (PI), D. Long (deputy PI), P. Chang (co-I), E.

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Churchister (co-I), M. Dinniman (co-I), P Goodman (co-I), Z. Jelanak (co-I), J. Klink (co-I), N. Lovenduski (co-I), M. Mazloff (co-I), E. Rodriguez (co-I), O. Schofield (co-I), R. Stouffer (co-I), R. Wanninkhof (co-I), X. Zheng (co-I), A. Stouffelen (collaborator), C. Coe (industry partner), M. Cowell (industry partner), M. Davis (industry partner), S. Petroy (industry partner), Q. Remund (industry partner), C. Weimer (industry partner), C. Fellow (project manager)

Source of support: NASA

Period covered: 7/1/2022– 6/30/2025

Total Requested: \$190,800,000

- 2021 (un-awarded) **Title of Grant:** Sudden stratospheric warming events in the Community Earth System model: Examining differences in event structure between high top and low top configurations
Commitment (person-month) (Y1/Y2/Y3/Y4): 0/0/0/0
Role: PhD supervisor
Other PIs/co-PIs: Holly Thomas (PI)
Source of support: NSF GRFP
Period covered: 2022–2025
- 2021 (un-awarded) **Title of Grant:** The Climate Response to Greenland’s Deglaciation in Past, Present, and Future Climates
Role: PhD supervisor
Other PIs/co-PIs: Allison Berry (PI)
Source of support: NSF GRFP
Period covered: 2021–2024
- 2020 (un-awarded) **Source of support:** NOAA Climate and Global Change Fellowship Program
Role: Postdoc supervisor
Other PIs/co-PIs: Majoi Nascimento (PI), D. Thompson (co-Postdoc supervisor)
Period covered: 2020–2022
- 2020 (un-awarded) **Source of support:** NOAA Climate and Global Change Fellowship Program
Role: Postdoc supervisor
Other PIs/co-PIs: Stephanie Arcusa (PI), K. Anchukaitis (co-Postdoc supervisor)
Period covered: 2020–2022
- 2019 (un-awarded) **Source of support:** NOAA Climate and Global Change Fellowship Program
Role: Postdoc supervisor
Other PIs/co-PIs: Adam Herrington (PI)
Period covered: 2019–2021
- 2021 (un-awarded) **Source of support:** Sloan Research Fellowship
Commitment (person-month) (Y1/Y2): 0/0

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Role: PI
Other PIs/co-PIs: N/A
Period covered: 2021–2023
Total Requested: \$80,000

2021 (un-awarded) **Title of Grant:** Assessing high-latitude storm characteristics in a warming world
Source of support: CNRS-UArizona IRC Graduate Fellowship Program
Commitment (person-month) (Y1/Y2): 0/0
Role: PI
Other PIs/co-PIs: Gwendal Riviere (co-PI)
Period covered: 2021–2023
Total Requested: 2-year graduate student support

2021 (un-awarded) **Title of Grant:** SEASENS: Calibrating seasonality to assess climate sensitivity in warm climates
Source of support: CNRS-UArizona IRC Graduate Fellowship Program
Commitment (person-month) (Y1/Y2): 0/0
Role: co-PI
Other PIs/co-PIs: Clara Bolton (PI), Guillaume Leduc (co-PI), Thibault de Garidel Thoron (co-PI), Kaustubh Thirumalai (co-PI), Lael Vetter (co-PI)
Period covered: 2021–2023
Total Requested: 2-year graduate student support