TILL J.W. WAGNER

Curriculum Vitae

Atmospheric and Oceanic Sciences
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Preparation and Appointments

2021 -	**Assistant Professor,** Department of Atmospheric and Oceanic Sciences *University of Wisconsin–Madison*
2018 - 2021	**Assistant Professor,** Department of Physics and Physical Oceanography *University of North Carolina Wilmington*
2013 - 2017	**Postdoctoral Scholar,** Scripps Institution of Oceanography, *University of California San Diego* Advisor: Ian Eisenman (2013-2017), Co-advisor: Fiamma Straneo (2017)
2009 - 2013	**Doctor of Philosophy (Ph.D.) in Mathematics** *University of Cambridge, UK* Advisors: Dominic Vella, Peter Wadhams
2008 - 2009	**Master of Advanced Studies (MASt) in Mathematics (Part III)** *University of Cambridge, UK*
2004 - 2008	**Master of Science (M.Sci.) in Physics & Philosophy,** *University of Bristol, UK*

External Funding and Fellowships (selected)

2022-2026	**NSF Polar - Antarctic Ocean and Atmospheric Science Grant** ($622,183) *"Wave Erosion at Ice Cliffs"* Role: PI (Co-PIs Lucas Zoet, UW Geosciences; Nimish Pujara, UW Engineering)
2018 - 2021	**NSF Polar - Antarctic Ocean and Atmospheric Science Grant** ($289,502) *"Collaborative Research: Modeling Giant Icebergs and Their Decay"* Role: PI (Collaboration with Alistair Adcroft, Princeton University; $578,170 total)
2017 - 2021	**NSF Polar - Antarctic Ocean and Atmospheric Science Grant** ($399,570) *"The influence of sea ice motion on Antarctic sea ice expansion"* Role: Co-PI (PI: Eisenman)
2019	**Greenpeace International,** 3 weeks exclusive ship time on MY Arctic Sunrise *"Life on the edge: the marginal sea ice zone and the changing Arctic ecosystem"* Role: PI
2016 - 2017	**Frontiers of Innovation Scholars Program (FISP)** ($25,000) Project Fellowship for Postdoctoral Scholars
2012	**Mathematical Institute, University of Oxford** KAUST Visiting Student Fellowship

Publications (* denotes member of my group)

[28] A possible hysteresis in the Arctic Ocean due to release of ocean heat during sea ice retreat.
E. Beer, I. Eisenman, **T.J.W. Wagner**, Elizabeth C. Fine, *submitted*

[27] Spurious climate impacts in sea ice loss simulations
M.R. England*, I. Eisenman, **T.J.W. Wagner**, *Journal of Climate,* doi.org/10.1175/JCLI-D-21-0647.1 (2022)

[26] Asymmetry in the seasonal cycle of Antarctic sea ice due to insolation
L. Roach, I. Eisenman, **T.J.W. Wagner**, E. Blanchard, C. Bitz, *Nature Geoscience,* 15 (4) 277-281 (2022)

[25] How winds and currents determine the drift of floating objects
T.J.W. Wagner, I. Eisenman, A. Ceroli*, Navid Constantinou, *J Phys Oceanogr,* 52 (5) 907-916 (2022)

[24] How sea ice drift influences sea ice area and volume
T.J.W. Wagner, I. Eisenman, and H.C. Mason*, *Geophysical Research Letters*, e2021GL093069 (2021)

[23] The recent emergence of Arctic Amplification
M. R. England*, I. Eisenman, N. Lutsko, **T.J.W. Wagner**, *Geophysical Research Letters*, e2021GL094086 (2021)

[22] The Influence of Meltwater on Phytoplankton Blooms Near the Sea-Ice Edge
C.W. Lester*, **T.J.W. Wagner**, D.E. McNamara, M.R. Cape, *Geophys Res Lett*, 48 (2) , e2020GL091758 (2021)

[21] Modeling the breakup of tabular icebergs
M. R. England*, **T.J.W. Wagner**, I. Eisenman, *Science Advances,* 6 (51) eabd1273 (2020)

[20] Polar amplification due to enhanced heat flux across the halocline
E. Beer, I. Eisenman, **T.J.W. Wagner**, *Geophysical Research Letters,* 47, e2019GL086706 (2020)

[19] Viscous and elastic buoyancy stresses as drivers of ice-shelf calving
C. Mosbeux, **T.J.W. Wagner**, M. K. Becker, H. A. Fricker, *Journal of Glaciology,* 66.258, 643-657(2020)

[18] Large spatial variations in the flux balance along the front of a Greenland tidewater glacier
T.J.W. Wagner, F. Straneo, […], H. Singh, *The Cryosphere,* 13, 911–925 (2019)

[17] Patterns of change in Antarctic sea ice extent from seasonal to longer timescales
C. Eayrs, D. Holland, D. Francis, **T.J.W. Wagner**, R. Kumar, X. Li, *Reviews of Geophysics,* 57, 631 (2019)

[16] Localized Plumes Drive Front-Wide Ocean Melting of A Greenlandic Tidewater Glacier
D. A. Slater, F. Straneo, S. B. Das, C. B. Richards, **T.J.W. Wagner**, P.W. Nienow, *GRL,* 45, 12350–12358 (2018)

[15] The influence of layering and barometric pumping on firn air transport in a 2-D model
Benjamin Birner, Christo Buizert, **T.J.W. Wagner**, J.P. Severinghaus, *The Cryosphere*, 12, 2021-2037 (2018)

[14] Wave inhibition by sea ice enables trans-Atlantic ice rafting of debris during Heinrich Events
T.J.W. Wagner, R.W. Dell, I. Eisenman, R.F. Keeling, L. Padman, J.P. Severinghaus, *EPSL,* 495, 157–163 (2018)

[13] On the Representation of Capsizing in Iceberg Models
T.J.W. Wagner, A.A. Stern, R.W. Dell, I. Eisenman, *Ocean Modelling,* 117, 88-96 (2017)

[12] An Analytical Model of Iceberg Drift
T.J.W. Wagner, R.W. Dell, I. Eisenman, *Journal of Physical Oceanography*, 47, 1605–1616 (2017)

[11] How Model Biases Skew the Distribution of Iceberg Meltwater
T.J.W. Wagner and I. Eisenman, *Geophysical Research Letters,* 44, 3691–3699 (2017)

[10] Journey of an Arctic Ice Island
A. Crawford, P. Wadhams, **T.J.W. Wagner**, […] K.W. Nicholls, *Oceanography*, 29, (2) 254-263 (2016)

[9] On the Role of Buoyant Flexure in Glacier Calving
T.J.W. Wagner, T.D. James, T. Murray, D. Vella, *Geophysical Research Letters,* 43, 1, 232-240 (2016)

[8] False Alarms: How Early Warning Signals Falsely Predict Abrupt Sea Ice Loss
T.J.W. Wagner and I. Eisenman, *Geophysical Research Letters,* 42, (23) 10333 (2015)

[7] Wind-Driven Upwelling around Grounded Tabular Icebergs
A.A. Stern, E. Johnson, D.M. Holland, **T.J.W. Wagner,** […] J.-E. Tremblay, *JGR-Oceans,* 120(8), 5820-5835 (2015)

[6] How Climate Model Complexity Influences Sea Ice Stability
T.J.W. Wagner and I. Eisenman, *Journal of Climate,* 28 (10) 3998-4014 (2015)

[5] The 'Footloose' Mechanism: Iceberg Decay from Hydrostatic Stresses
T.J.W. Wagner, […] K.W. Nicholls, *Geophysical Research Letters*, 41 (15) 5522 (2014)

[4] Switch on, Switch off: Stiction in Nanoelectromechanical Switches
T.J.W. Wagner and D. Vella, *Nanotechnology,* 24, 275501 (2013)

[3] The 'Sticky Elastica' – Delamination Blisters Beyond Small Deformations
T.J.W. Wagner and D. Vella, *Soft Matter*, 9, 1025-1030 (2013)

[2] The Sensitvity of Graphene 'Snap-Through' to Substrate Geometry
T.J.W. Wagner and D. Vella, *Applied Physics Letters*, 100, 233111 (2012)

[1] Floating Carpets and the Delamination of Thin Elastic Sheets
T.J.W. Wagner and D. Vella, *Physical Review Letters*, 107, 044301 (2011)

Invited Seminars & Talks (last 5 years)

2021 Iceberg Mechanics Session, Invited Presentation, **AGU Fall Meeting;** Nicholas School of the Environment, **Duke University;** CPEP, **University of Wisconsin–Madison**

2020 Geography 2050 Symposium, **American Geographical Society;** Department of Physical Oceanography, **Woods Hole Oceanographic Institution;** Department of Earth Sciences, **University of Oxford;** Department of Atmospheric and Oceanic Sciences, **University of Wisconsin–Madison;** Centre for Earth Observation Science Seminar, **University of Manitoba**

2019 Earth and Atmospheric Sciences Seminar, **Georgia Tech;** Southeastern Section Meeting, **American Physical Society,** Wrightsville Beach, NC; Global Marine Science Summit, **UNC Wilmington**

2018 BiSEPPS Seminar Series, **Harvard University;** Center for Coastal Physical Oceanography Seminar, **Old Dominion University;** Applied Mathematics Colloquium, **University of North Carolina Chapel Hill**

2017 5th Postdoctoral Research Symposium, **UCSD** (Award for Best Presentation); Frontiers of Innovation Scholars Program (FISP) Symposium, **UCSD;** Sack Lunch Seminar, EAPS, **Massachusetts Institute of Technology;** Physics & Physical Oceanography Seminar, **University of North Carolina Wilmington**

Teaching

2022 –	*Global Warming Science and Impacts, GEOG 332,* **UW–Madison**
2021 –	*Ice and Climate Dynamics, AOS 801,* **UW–Madison**
2018 – 2021	*Fluid Mechanics, PHY 350,* **UNCW**
2018 – 2021	*Elementary College Physics,* **UNCW**
2016 – 2018	Developing course materials and training high school teachers to incorporate *Climate Science* in the **Next Generation Science Standards, State of California**

Advising

Postdocs	Mark England (2019-2021, then UC Santa Cruz), Lettie Roach (visiting 2019, then NASA)
PhD Students	Clark Zimmerman (2022 -), Nicolas Sartore (2022 -)
MS Students	Andrew Castagno (2019-2021, then Fulbright Scholar in Iceland)
Undergraduates	Elizabeth Bailey (2019-2021, then at Yale University), Conner Lester (2019-2021, then at Duke University), Hassan Mason (2018-2020, then at New York University), Amanda Ceroli (2018-2020, then Fulbright Scholar in the UK)

Seagoing Polar Expeditions

May 2019	**Fram Strait**, Sea ice–ecosystem interactions during spring blooms (PI)
Jul - Aug 2012	*"Operation Iceberg"*, **West Baffin Bay (West Greenland/Canada),** Iceberg decay processes
Jul 2012	**Fram Strait,** Sea ice deformation in the marginal ice zone
Sept 2011	*"Arctic Climate Impact Tour"*, **Fram Strait (East Greenland/Svalbard)** Sea ice thickness & morphology in the marginal ice zone
Oct - Dec 2010	**Weddell & Bellingshausen Seas (Western Antarctica)** Sea ice & snow conditions in spring in Western Antarctica

Service and Memberships (selected)

Working Group Lead *of the NSF-funded* Greenland Ice Sheet-Oceans Interactions Network (GRISO) *working group on* "Ocean-Forcing-Ice"

Committee Member of *the American Meteorological Society Polar Meteorology and Oceanography Committee (2016-2019) ;* UNCW *Coastal and Marine Science Council (2018 - 2020)*

Primary Convener *AGU Fall Meeting 2017, 2018, 2022*; **Co-Convener** *EGU General Assembly 2019 and 2020*

Reviewer for *Nature, Nature Climate Change, Nature Communications, Science Advances, Journal of Climate, Geophysical Research Letters, The Cryosphere, JGR - Atmosphere, JGR - Oceans, JGR - Earth Surface, Journal of Glaciology, Annals of Glaciology, Atmospheric Science Letters, Climate Dynamics, Earth Systems Science Data, npj Climate and Atmospheric Science, Cold Regions Science and Technology, Polar Research, Arctic, Scientific Reports, Ecological Indicators, Frontiers of Marine Science, Natural Sciences and Engineering Research Council of Canada, NSF Polar, NSF Ocean Sciences, IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*

Panel Reviewer for NASA, Earth Science Division; NSF**,** Office of Polar Programs

Selected Outreach

Presentations and workshops for non-expert audiences:

2022	Wednesday Night @ The Lab; CIMMS Weather Camp; Earth Day Panelist (all UW-Madison)
2021	Climate Science Workshop for K-12 teachers, San Diego Unified School District (remote)
2020	Planet Ocean Evening Seminar, Center for Marine Science, UNCW
2019	Osher Lifelong Learning Institute, Wilmington, NC; Marine Quest UNCW
2018	STEAM Team Summer Camp, UNCW; Summer Ventures in Science & Mathematics, UNCW
2014 - 2017	BE WiSE (Better Education for Women in Science & Engineering) Birch Aquarium, UCSD
2016	Ostercamp #1 Future Factory, Kammerspiele Theatre Munich, Germany

Media interviews with news outlets covering field work (incl. *CNN, BBC Science, TIME Magazine, The Sun, The Guardian, National Geographic, NPR, ARTE, Discovery News, Bloomberg*)

Communication workshop on Climate Change "*Revealing the New Arctic"*, invited speaker, AGU, SF, 2015

Exhibition of frozen scaled sea ice floe replica at Architectural Association, London (collaboration with *ScanLAB Projects*, 2013)