Dr. Dani Jones

web: https://danijonesocean.github.io/
email: dannes@umich.edu

Summary

Dani Jones is an Associate Research Scientist (Research Faculty) at the University of Michigan, working as part of the Cooperative Institute for Great Lakes Research (CIGLR). Jones has a background in physical oceanography, specializing in adjoint ocean modeling and unsupervised classification.

Currently, Jones is establishing the Great Lakes Artificial Intelligence Laboratory at CIGLR. This new initiative builds on a foundation of data science research and domain expertise, focusing on water level forecasting and observing network design.

The Great Lakes AI Lab aims to leverage the research community's robust observing assets, extensive datasets, modeling capacity, interdisciplinary expertise, and numerous regional partnerships to enhance our understanding and management of this invaluable natural resource. By utilizing advanced AI techniques, the lab ultimately seeks to improve decision-making processes for the management of the Great Lakes.

Publications

Jones, D., and Coauthors (2025). Mapping Out How Machine Learning and Artificial Intelligence Will Change Great Lakes Observations, Modeling, and Forecasting in the Coming Decade. *Bulletin of the American Meteorological Society*, 106, E378–E385. https://doi.org/10.1175/BAMS-D-24-0304.1

Yao, L., Taylor, J. R., **Jones, D. C.**, & Bachman, S. D. (2025). Identifying Ocean Submesoscale Activity from Vertical Density Profiles Using Machine Learning. *Earth and Space Science*, 12, e2022EA002618. https://doi.org/10.1029/2022EA002618

Pimm, C., Williams, R. G., **Jones, D.**, and Meijers, A.J.S. (2024). Surface heat fluxes drive a two-phase response in Southern Ocean mode water stratification. *Journal of Geophysical Research: Oceans*, 129, e2023JC020795. https://doi.org/10.1029/2023JC020795

Furner, R., Haynes, P., **Jones, D.C.**, Munday, D., Paige, B., Shuckburgh, E. (2024). The challenge of land in a neural network ocean model. *Environmental Data Science*, 3, e40. https://doi.org/10.1017/eds.2024.49

Twelves, A. G., Goldberg, D. N., Holland, P. R., Henley, S. F., Mazloff, M. R., & **Jones, D.C.** (2024). Chlorophyll production in the Amundsen Sea boosts heat flux to atmosphere and weakens heat flux to ice shelves. *Journal of Geophysical Research: Oceans*, 129, e2024JC021121. https://doi.org/10.1029/2024JC021121

Moat, B. I., and Coauthors (2024). Ocean Heat Convergence and North Atlantic Multidecadal Heat Content Variability. *Journal of Climate*, 37, 4723–4742. https://doi.org/10.1175/JCLI-D-23-0370.1

Poropat, L., **Jones, D.**, Thomas, S. D. A., and Heuze, C. (2024). Unsupervised classification of the northwestern European seas based on satellite altimetry data. *Ocean Science*, 20, 201-215, https://doi.org/10.5194/os-20-201-2024

Boland, E. J. D., Atkinson, E., **Jones, D.C.** (2023). A novel heuristic method for detecting overfit in unsupervised classification of climate model data. *Environmental Data Science*, 2, e46. https://doi.org/10.1017/eds.2023.40

Boland, E. J. D., Dittus, A. J., **Jones, D. C.**, Josey, S. A., and Sinha, B. (2023). Ocean heat content responses to changing anthropogenic aerosol forcing strength: Regional and multi-decadal variability. *Journal of Geophysical Research: Oceans*, 128, e2022JC018725. https://doi.org/10.1029/2022JC018725

Fahrin, F., **Jones, D. C.**, Wu, Y., Keeble, J., and Archibald, A. T. (2023). Technical note: Unsupervised classification of ozone profiles in UKESM1. *Atmos. Chem. Phys.*, 23, 3609-3627. https://doi.org/10.5194/acp-23-3609-2023

Andersson, T., W.P. Bruinsma, S. Markou, J. Requeima, A. Coca-Castro, A. Vaughan, A. Ellis, M.A. Lazzara, D. Jones, J.S. Hosking, and R.E. Turner (2023). Environmental sensor placement with convolutional Gaussian neural processes. *Environmental Data Science*, 2, E32. https://doi.org/10.1017/eds.2023.22

Aguiar, W., Lee, S.-K., Lopez, H., Dong, S., Seroussi, H., **Jones, D. C.**, and Morrison, A. K. (2023). Antarctic Bottom Water sensitivity to spatio-temporal variations in Antarctic meltwater fluxes. *Geophysical Research Letters*, 50, e2022GL101595. https://doi.org/10.1029/2022GL101595

Jones, D.C., Sonnewald, M., Zhou, S., Hausmann, U., Meijers, A. J. S., Rosso, I., Boehme, L., Meredith, M. P., and Naveira Garabato, A. C. (2023). Unsupervised classification identifies coherent thermohaline structures in the Weddell Gyre region. *Ocean Science*, 19, 857-885. https://doi.org/10.5194/os-19-857-2023

Furner, R., P. Haynes, D. Munday, B. Paige, **D.C. Jones**, and E. Shuckburgh (2022). Sensitivity analysis of a regression model of ocean temperature. *Environmental Data Science*, 1, e11. https://doi.org/10.1017/eds.2022.10

Sanders, R.N.C., **D.C. Jones**, S. Josey, B. Sinha, and G. Forget (2022). Causes of the 2015 North Atlantic cold anomaly in a global state estimate. *Ocean Science*. https://doi.org/10.5194/os-18-953-2022

Morrison, A., D. Waugh, A. Hogg, **D.C. Jones**, and R. Abernathey (2022). Ventilation of the Southern Ocean pycnocline. *Annual Review of Marine Science*, 14(1). https://doi.org/10.1146/annurev-marine-010419-011012

Thomas, S.D.A., **D.C. Jones**, A. Faul, E. Mackie, and E. Pauthenet (2021). Defining Southern Ocean fronts using unsupervised classification. *Ocean Science*, 17, 1545-1562. https://doi.org/10.5194/os-17-1545-2021

Sonnewald, M., R. Leguensat, **D.C. Jones**, P. Dueben, J. Brajard, and V. Balaji (2021). Bridging observations, theory and numerical simulation of the ocean using Machine Learning. *Environmental Research Letters*, 16, 073008. https://doi.org/10.1088/1748-9326/ac0eb0

Andersson, T., J.S. Hosking, M. Perez-Ortiz, B. Paige, A. Elliott, C. Russell, S. Law, **D.C. Jones**, J. Wilkinson, T. Phillips, J. Byrne, S. Tietsche, B.B. Sarojini, E. Blanchard-Wrigglesworth, Y. Aksenov, R. Downie, and E. Shuckburgh (2021). Seasonal Arctic sea ice forecasting with probabilistic deep learning. *Nature Communications*, 12, 5124. https://doi.org/10.1038/s41467-021-25257-4

Boland, E., **Jones, D.C.**, Meijers, A. J. S., Forget, G., and Josey, S. A. (2021). Local and remote influences on the heat content of Southern Ocean mode water formation regions. *Journal of Geophysical Research: Oceans*, 126, e2020JC016585. https://doi.org/10.1029/2020JC016585

Twelves, A., Goldberg, D. N., Henley, S. F., Mazloff, M. R., and **Jones, D.C.** (2021). Self-shading and meltwater spreading control the transition from light to iron limitation in an Antarctic coastal polynya. *Journal of Geophysical Research: Oceans*, 126, e2020JC016636. https://doi.org/10.1029/2020JC016636

Jones, D.C., Ceia, F.R., Murphy, E., Delord, K., Furness, R.W., Verdy, A., Mazloff, M., Phillips, R.A., Sagar, P.M., Sallee, J.-B., Schreiber, B., Thompson, D.R., Torres, L.G., Underwood, P.J., Weimerskirch, H., and Xavier, J.C. (2021). Untangling local and remote influences in two major petrel habitats in the oligotrophic Southern Ocean. *Global Change Biology*, 27, 5773-5785. https://doi.org/10.1111/gcb.15839

Mackie, E., Shuckburgh, E., **Jones, D.C.**, and Vaughan, D. (2020). How climate change is affecting sea levels. *Weather*, 75, 280-280. https://doi.org/10.1002/wea.3716

Jones, D.C., E. Boland, A.J. Meijers, G. Forget, S. Josey, J. Sallee, and E. Shuckburgh (2020). The Sensitivity of Southeast Pacific Heat Distribution to Local and Remote Changes in Ocean Properties. *Journal of Physical Oceanography*, 50, 773-790. https://doi.org/10.1175/JPO-D-19-0155.1

Jones, D.C., E. Boland, A. Meijers, G. Forget, S. Josey, J.-B. Sallee, and E. Shuckburgh (2019). Heat distribution in the Southeast Pacific is only weakly sensitive to high-latitude heat flux and wind stress. *Journal of Geophysical Research - Oceans*, 124. https://doi.org/10.1029/2019JC015460

Jones, D.C. and T. Ito (2019). Gaussian mixture modeling describes the geography of the surface carbon budget. In: *Proceedings of the 9th Inter-*

national Workshop on Climate Informatics: CI 2019, Paris, France, October 2-4, 2019. University Corporation for Atmospheric Research (UCAR), 108-113. https://doi.org/10.5065/y82j-f154

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Jones, D.C., H.J. Holt, A. Meijers, and E. Shuckburgh (2019). Unsupervised clustering of Southern Ocean Argo float profiles. *Journal of Geophysical Research - Oceans*, 124, 390-402. https://doi.org/10.1029/2018JC014629

Jones, D.C., E. Shuckburgh, and E. Hawkins (2019). How is sea ice in the Arctic and Antarctic changing? *Weather*, 74, 30-30. https://doi.org/10.1002/wea.3381

Jones, D.C., G. Forget, B. Sinha, S. Josey, E. Boland, A. Meijers, and E. Shuckburgh (2018). Local and remote influences on the heat content of the Labrador Sea: an adjoint sensitivity study. *Journal of Geophysical Research - Oceans*, 123. https://doi.org/10.1002/2018JC013774

Mackay, N., J.R. Ledwell, M.-J. Messias, A. Naveira-Garabato, J.A. Brearley, A. Meijers, **D.C. Jones**, and A.J. Watson (2018). Diapycnal mixing in the Southern Ocean diagnosed using the DIMES tracer and realistic velocity fields. *Journal of Geophysical Research - Oceans*, 123. https://doi.org/10.1002/2017JC013536

Dittmar, T., A. Stubbins, T. Ito, and **D.C. Jones** (2017). Comment on "Dissolved organic sulfur in the ocean: Biogeochemistry of a petagram inventory". *Science*, 356(6340), 813. https://doi.org/10.1126/science.aam6039

Hammond, M.D. and **Jones, D.C.** (2016). Freshwater flux from ice sheet melting and iceberg calving in the Southern Ocean. *Geoscience Data Journal*, 3, 60-62. https://doi.org/10.1002/gdj3.43

Meijers, A., Meredith, M.P., Abrahamsen, E.P., Morales Maqueda, M.A., **Jones, D.C.**, and Naveira Garabato, A.C. (2016). Wind-driven export of Weddell Sea slope water. *Journal of Geophysical Research - Oceans*, 121. https://doi.org/10.1002/2016JC011757

Jones, D.C., A. Meijers, E. Shuckburgh, J.-B. Sallée, P. Haynes, E.K. McAufield, and M.R. Mazloff (2016). How does Subantarctic Mode Water ventilate the Southern Hemisphere subtropics? *Journal of Geophysical Research - Oceans*, 121. https://doi.org/10.1002/2016JC011680

Jones, D.C., T. Ito, T. Birner, A. Klocker, and D. Munday (2015). Planetary-geometric constraints on isopycnal slope in the Southern Ocean. *Journal of Physical Oceanography*, 45(12), 2991-3004. https://doi.org/10.1175/JPO-D-15-0034.1

Ceia, F.R., J. Ramos, R. Phillips, Y. Cherel, **D.C. Jones**, R. Vieira, and J. Xavier (2015). Analysis of stable isotope ratios in blood of tracked wandering albatrosses fails to distinguish a δ^{13}C gradient within their winter foraging areas in the southwest Atlantic Ocean. *Rapid Communications in Mass Spectrometry*, 29, 2328-2336. https://doi.org/10.1002/rcm.7401

Xavier, J., B. Raymond, **D.C. Jones**, and H. Griffiths (2015). Biogeography of cephalopods in the Southern Ocean using habitat suitability prediction models. *Ecosystems*. https://doi.org/10.1007/s10021-015-9926-1

Jones, D.C., T. Ito, Y. Takano, and W-C. Hsu (2014). Spatial and seasonal variability of the air-sea equilibration timescale of carbon dioxide. *Global Biogeochemical Cycles*, 28, 1163-1178. https://doi.org/10.1002/2014GB004813

Jones, D.C., T. Ito, and N.S. Lovenduski (2011). The transient response of the Southern Ocean pycnocline to changing atmospheric winds. *Geophysical Research Letters*, 38, L15604. https://doi.org/10.1029/2011GL048145

Funding

Project title: 2024 Implementation of the GLOS Buoy and Mobile Platform Observing Systems
Status of Support: Current
Proposal/Award Number: IOOS098/YR4-OBS-36
Source of Support: Great Lakes Observing System
Primary Place of Performance: University of Michigan
Proposal/Active Project Start Date: 10/2024
Proposal/Active Project End Date: 09/2025
Total Anticipated Proposal/Project Amount: $122,000
Overall Objectives: The Great Lakes Observing System Regional Association (GLOS-RA) proposes to implement key observing system and modeling improvements as part of priority activities defined in their five-year cooperative agreement with NOAA's Integrated Ocean Observing System (IOOS). GLOS-RA's proposed activities focus on critical needs of the Great Lakes region, providing improved spatial and temporal coverage of key meteorological, hydrodynamic, and biological variables to support the development of improved databases and forecasts in climate change impacts, ecosystem and food web dynamics, public health protection, and navigation safety.

Project title: Prediction System for Great Lakes Water Levels and Lake Management Decisions
Status of Support: Current
Proposal/Award Number: NA23OAR4050594I
Source of Support: NOAA
Primary Place of Performance: University of Michigan
Proposal/Active Project Start Date: 07/2023
Proposal/Active Project End Date: 06/2027
Total Anticipated Proposal/Project Amount: $1,745,237
Overall Objectives: To develop the next-generation prediction system for de-

termining the mean and extreme net basin supply and water levels, providing foundational information for assessing coastal inundation risks and informing lake management decisions. This involves enhancing regional climate and hydrology predictability through stakeholder engagement, and utilizing ML/AI in forecasting models.

Project title: The Cooperative Institute for Great Lakes Research (CIGLR): A Non-Competitive Renewal Proposal
Status of Support: Current
Proposal/Award Number: NA22OAR4320150-T1-01
Source of Support: NOAA
Primary Place of Performance: University of Michigan
Proposal/Active Project Start Date: 07/2022
Proposal/Active Project End Date: 06/2027
Total Anticipated Proposal/Project Amount: $53,000,000
Overall Objectives: To accelerate NOAA's mission in the Great Lakes through primary research, fostering engagement with resource managers, career training, and public literacy initiatives.

Project title: Development of Next Generation Prediction System for Great Lakes (Bipartisan Infrastructure Law Supplemental)
Status of Support: Pending
Source of Support: NOAA
Primary Place of Performance: University of Michigan
Proposal/Active Project Start Date: 07/2025
Proposal/Active Project End Date: 06/2027
Total Anticipated Proposal/Project Amount: $370,700
Person Months per budget period Devoted to the Proposal/Active Project: 2025: 0.01, 2026: 0.01, 2027: 0.01
Overall Objectives: To enhance water level forecasting for the Great Lakes by refining prediction models, improving stakeholder engagement, and advancing operational integration, ultimately supporting risk assessments for coastal inundation and water management decisions.

Project title: Ocean-ice state estimates: new tools for understanding and monitoring key sea level regulators
Funder: UKRI Future Leaders Fellowship
Resource to my group: 7.0 FTE (PI and 3-year postdoc)
Principal Investigator: Dani Jones
Current status: Funded, concluded
Short name: SO-WISE
Role: Principal Investigator

Project title: The Gulf Stream control of the North Atlantic carbon sink
Funder: Natural Environment Research Council (NERC) and National Science Foundation (NSF) joint proposal
Resource to my group: 3.0 FTE (1.0 FTE/yr for 3 years)
Principal Investigator: Ric Williams (U. Liverpool)

Current status: Funded, active
Short name: C-STREAMS
Role: Co-investigator

Project title: Southern Ocean-Ice Shelf Interactions
Funding scheme: European Space Agency (ESA)
Principal investigator: Anna Hogg (U. Leeds)
Current status: Funded, active
Short name: SO-ICE
Role: Co-investigator

Project title: Climate change in the Arctic-North Atlantic Region and Impacts on the UK
Funder: Natural Environment Research Council (NERC)
Resource to my group: 4.0 FTE (0.8 FTE/yr for 5 years)
Principal Investigator: Len Shaffrey (U. Reading)
Current status: Funded, active
Short name: CANARI
Role: Co-investigator

Project title: Drivers and Effects of Fluctuations in sea Ice in the ANTarctic
Funding scheme: Natural Environment Research Council (NERC)
Resource to my group: 1.0 FTE (1.0 FTE/yr for 1 year)
Principal investigator: Jeremy Wilkinson (BAS)
Current status: Funded, active
Short name: DEFIANT
Role: Co-investigator

Project title: Environmental models: bridging the spatial scales, from surface sensors to satellite sensors
Funding scheme: Alan Turing Institute
Resource to my group: 2.0 FTE (1.0 FTE/yr for 2 years)
Principal investigator: Scott Hosking (BAS and Alan Turing Institute)
Current status: Funded, active
Short name: EnvSensors
Role: Co-investigator (BAS PI)

Project title: Drivers of Oceanic Change in the Amundsen Sea
Funding scheme: NERC Large Grant
Resource to my group: 5.0 FTE (1.0 FTE/yr for 5 years)
Principal investigator: Adrian Jenkins (U. Northumbria))
Current status: Funded, active
Short name: DeCAdeS
Role: Co-investigator

Project title: MITgcm optimized for use on ARCHER2 HPC
Funding body: University of Edinburgh, EPCC (eCSE)
Role: Co-investigator

Current status: Complete

Project title: NERC Research Experience Placement (REP) [multiple projects]
Project duration: Six different 10-week summer projects

Project title: Providing the ARCHER community with adjoint modelling tools for high-performance oceanographic and cryospheric computation
Funding body: University of Edinburgh, EPCC (eCSE03-09)
Result: optimized MITgcm build options for the UK ARCHER HPC platform
Role: Author and PI
Current status: Complete

Postdoc and researcher supervision experience

Supervisor(2023 -)
Lindsay Fitzpatrick, Environmental Data Specialist, CIGLR
Data-driven water level forecasting

Supervisor (2022 - 2023)
Ute Hausmann, Postdoctoral Researcher, BAS
The dynamics and sensitivity of the Weddell Gyre

Supervisor (2021 - 2023)
Tom Andersson, Data Scientist, BAS
Environmental sensors and artificial intelligence

Supervisor (2021 - 2022)
Rachael Sanders, Postdoctoral Researcher, BAS
Using state estimates to study North Atlantic interannual variability

Supervisor (2020 - 2023)
Emma Boland, Physical Oceanographer, BAS
Using adjoint models to study Southern Ocean heat content

Student supervision experience - current

Supervisor (i.e. advisor) (2021 -)
Simon Thomas, PhD student, University of Cambridge
Using machine learning to quantify storm surge risk

Student supervision experience - previous

Co-supervisor (2018 - 2024)
Rachel Furner, PhD student, University of Cambridge
Using machine learning to derive data-driven ocean models

Co-supervisor (2018 - 2023)
Ciara Pimm, PhD student, University of Liverpool
Adjoint modelling applications in the Southern Ocean

Co-supervisor (2018 - 2022)
Andrew Twelves, PhD student, University of Edinburgh
The effect of iron in glacial meltwater on coastal biogeochemical cycles (Student

has successfully defended their PhD thesis)

Supervisor (2019 - 2021)
Fouzia Fahrin, MS student, Georgia Southern University
Unsupervised classification of ozone profiles in UKESM1
(Student now a PhD student at Iowa State University)

Supervisor (Oct 2018 - June 2019)
Petr Dolezal, MS student, University of Cambridge
Climate clusters: applying machine learning to climate data
(Student now a PhD student at University of Cambridge)

Supervisor (Oct 2018 - June 2019)
Edward Derby, MS student, University of Cambridge
Can we treat oceanic eddy fluxes as (macro)turbulence?
(Student now a PhD student at University of Oxford)

Supervisor (Oct 2017 - June 2018)
Shahel Khan, MS student, University of Cambridge
What can machine learning tell us about the Southern Ocean?
(Student now works in finance)

Supervisor (Summer 2018)
Lille Borresen, NERC REP Student
Using machine learning to reveal hidden structures in the Southern Ocean
(Student now an MPhys graduate from Cardiff University)

Supervisor (Summer 2018)
Matthew Koster, NERC REP Student
Uncovering a hidden oceanic pathway using particle tracking experiments
(Student now works as a software engineer)

Supervisor (Summer 2017)
Ben Schreiber, NERC REP Student
What controls the location of two remote, open ocean top predator habitats?
(Work ultimately became part of a paper)

Supervisor (Summer 2017)
Harry Holt, NERC REP Student
What can machine learning tell us about Southern Ocean heat content?
(Student went into space science)

Supervisor (2015-2016)
Mark Hammond, MS student, U. Cambridge
Controls on stratification, vertical mixing, and polynya formation
(Dr. Hammond is now a research fellow at University of Oxford)

Supervisor (Summer 2015)

Mark Hammond, NERC REP Student
The impact of ice sheet melting and iceberg calving on freshwater in the SO
(Produced a paper and a data product that was used in B-SOSE)

Teaching experience

Guest lecturer (2020 - 2022)
Artificial Intelligence for Environmental Risk, University of Cambridge
- Delivered graduate-level guest lectures on ocean circulation, unsupervised classification, and ocean data

Supervisor for tutorials (2014 - 2016)
University of Cambridge, UK
- One-on-one or one-on-two meetings with undergraduate maths students, specifically for computational projects (CATAM) and statistical physics
- Marking problem sets, providing detailed feedback

Guest lecturer (2011 - 2013)
Georgia Institute of Technology
- Delivered lectures on oceanography for upper-level undergraduates

Master's thesis committee (2013)
Wei-Ching Hsu, Georgia Institute of Technology
The variability and seasonal cycle of Southern Ocean carbon flux
- Thesis available here: http://hdl.handle.net/1853/49079
- Helped review master's thesis work, provided constructive feedback

Honors project committee (2013)
Loretta Lutackas, Department of Biology, Colorado State University
- Assisted with design of laboratory experiment (carbonate chemistry)
- Examiner for final evaluation

Instructor of Mathematics and Science (2011 - 2013)
Atlanta Metropolitan State College
- Taught undergraduate courses in algebra, trigonometry, and calculus
- Taught practical laboratory courses in physics, chemistry, and biology
- Held one-on-one or small group meetings with students
- Course sizes ranged from 5 to roughly 40

Teaching Assistant (2010 - 2011)
Department of Atmospheric Science, Colorado State University
- Assisted with year-long graduate course in atmospheric dynamics
- Gave guest lectures on specific topics (e.g. phase speed, group velocity)
- Marked homework problem sets, provided detailed feedback

Instructor of Physics (2007 - 2009)
Department of Physics, Georgia Southern University

- Designed and taught course in environmental physics (i.e. connections between energy, environment, and climate)
- Taught lecture courses and practical laboratory/observatory sessions in solar system astronomy, stellar and galactic astronomy, and physics
- Implemented research-backed active teaching methods (e.g. "studio physics")

Service

Southern Ocean Observing System (SOOS)

- *Co-chair*, Observing System Design Working Group (Jan 2022 -)
- New role consistent with future research direction

Artificial Intelligence for Environmental Risk, Centre for Doctoral Training, University of Cambridge

- *Member*, equity, diversity, and inclusion committee (Feb 2022 -)
- New role consistent with EDI objectives

North Atlantic climate system project (ACSIS), NERC

- BAS ACSIS lead, responsible for managing budget, monitoring progress towards relevant work package objectives
- BAS representative on ACSIS management board (2018 - 2021)

British Antarctic Survey

- *Web Editor*, Polar Oceans (2015 - 2023)
- *Library Representative*, Polar Oceans (2014 - 2023)
- *Coordinator*, Polar Oceans Seminar Series (2013 - 2015)
- *Coordinator*, Director's Choice Seminar Series (2014 - 2015)

Cambridge Centre for Climate Science

- *Network Coordinator*, organised climate-related events to encourage interdisciplinary collaboration between departments and institutes across Cambridge (2015-2016)
- served as point of contact for the climate science community in Cambridge

Techniques, advances, and challenges in ocean modelling [adjoint] (TACOMA)

- *Founder*, TACOMA interest group
- *Organiser*, international workshop at U. Oxford (2018)
- *Organiser*, international workshop at U. Cambridge (2014)
  - Outcome: plan for further development of open-source adjoint tool (some success with "divided adjoint" approach, work ongoing)
  - Outcome: plan for collaborative proposal (funded, complete)

Darwin College, University of Cambridge

- *Volunteer*, Darwin College Lecture Series (2014 - 2019)

Georgia Institute of Technology

- *Organizer*, Geophysical Fluid Dynamics Seminar Series (2011 - 2013)
- *Judge*, Graduate Research Symposium (2011 - 2013)
- *Staff*, The Tower Undergraduate Research Journal

Colorado State University

- *Member*, Graduate Student Council (2009 - 2011)
- *Member*, College of Engineering Tech Fee Committee (2009 - 2011)
- *Volunteer*, Little Shop of Physics (2009 - 2011)

Georgia Southern University

- *Chair*, Faculty Community on Learner-centered Teaching (2007 - 2009)
- *Member*, Physics Department Colloquium Committee (2007 - 2009)
- *Presenter*, Planetarium Public Evening (2005 and 2008)
- *Presenter*, High school physics outreach (2007 - 2009)
- *Volunteer*, Astronomy and Space Day (2007 - 2009)
- *Volunteer*, Physics Open House (2007 - 2009)

University of Kentucky (2005 - 2007)

- *Member*, Graduate Student Council
- *Instructor*, Strategies for Taking the Physics Subject Test

Selected peer-review service

Referee for **research papers** submitted to:

- Earth and Space Science
- Geophysical Research Letters (at least 6)
- Geoscientific Model Development
- Journal of Physical Oceanography (at least 3)
- Journal of Geophysical Research: Oceans (at least 9)
- Journal of Advances in Modeling Earth Systems (JAMES)
- Philosophical Transactions of the Royal Society A
- Journal of Marine Systems
- EGU Ocean Science
- Science Advances
- Journal of Climate

(I've lost count of the actual numbers of reviews submitted)

Reviewer for **funding proposals** submitted to:

- National Science Foundation (NSF)
- The Royal Society - University Research Fellowship
- German Research Foundation (Deutsche Forschungsgemeinschaft)

Outreach

- *Producer and Host*, the *Climate Scientists* podcast - https://anchor.fm/climate-scientists
- Active science twitter account - https://twitter.com/DanJonesOcean
- *Contributor/Reviewer*, Climate Feedback https://climatefeedback.org/
- *Presenter*, Polar Pride Day and LGBTQ+ in STEM Day
- *Organizer and Host*, Cambridge Science Festival (annual climate-relevant events, 2015-2021)
- *Speaker*, CamTalks local speaker series, Cambourne, UK
- *Science rep*, community engagement event, Avonmouth, UK
- *Guest Speaker*, Bourn CofE Primary Academy, Cambridge University Primary School, Monkfield Park Primary School
- *Guest Speaker*, Cheltenham Science Festival 2016 ("The Ocean Debate")
- *Guest*, The Naked Scientist Podcast, 2016 (Available: https://goo.gl/XLXwpr)
- *Guest Speaker*, "How does climate modelling work?" Meetup Group
- *Organiser*, Understanding the Paris climate summit (16/11/15)

Selected conference participation

- Co-convener, AGU interpretable machine learning session (2022, 2023)
- Co-convener, EGU Southern Ocean session (2021, 2022)
- Co-convener, AGU Ocean Sciences adjoint modelling session (2022)
- Regular presenter at AGU Fall Meeting, AGU Ocean Sciences, and EGU

Fieldwork experience

Oceanographic research cruise and labwork

- Served on research cruise JR15006 on the *RRS James Clark Ross* to the Weddell Sea, South Georgia Island, and Signy Island
- Carried out CTD casts, bottled samples for oxygen isotope and salinity analysis, managed data and processing for the vehicle-mounted ADCP, operated the salinometer
- Used hand-operated ice corer to extract sea ice cores, collected surface ocean samples during small boat excursions

Datasets generated

Jones D.C. and Hammond M. (2016). Southern Ocean Freshwater Flux Field. British Oceanographic Data Centre - Natural Environment Research Council, UK. doi:10/bngj.

Honors

- Laws Prize, British Antarctic Survey (2021)
- Going the Extra Mile (GEM) Award, British Antarctic Survey (2020)
- Best Student Presentation Award, CSU Research Symposium (2010)
- Atmospheric Science Alumni Scholarship, CSU (2009 - 2010)
- Dan R. Reedy Quality Fellowship Award, U, Kentucky (2005 - 2007)
- Karl E. Peace Undergraduate Award, Georgia Southern U. (2001)

Education

PhD, Atmospheric Science, Colorado State University (2013)

MS, Mathematics, Georgia Southern University (2009)

MS, Physics, University of Kentucky (2007)

BS, Physics, Georgia Southern University (2005)

Positions

Associate Research Scientist (2023 -), Cooperative Institute for Great Lakes Research (CIGLR), University of Michigan, Ann Arbor, MI

Physical Oceanographer (2013 - 2023), British Antarctic Survey, NERC, UKRI, Cambridge, UK

Instructor of Mathematics and Science (2011 - 2013), Atlanta Metropolitan State College, Atlanta, GA

Research Scientist (2011 - 2013), School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA

Instructor of Physics (2007 - 2009), Department of Physics, Georgia Southern University, Statesboro, GA

Other Affiliations

Honorary Researcher (2024 -), British Antarctic Survey, NERC, UKRI, Cambridge, UK

Affiliate Faculty (2020 -), Department of Mathematical Sciences, Georgia Southern University, Statesboro, GA

Senior Member (2017 -), Darwin College, University of Cambridge

Research Associate (2013 - 2017), Darwin College, University of Cambridge