

Malte F. Jansen

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Education	Massachusetts Institute of Technology (MIT)	Cambridge, MA, USA
	PhD in Climate Physics and Chemistry	February 2013
	Thesis title: "Equilibration of an Atmosphere by Geostrophic Turbulence" Advisor: Raffaele Ferrari	
	IFM-GEOMAR / University Kiel	Kiel, Germany
	Diplom (\approx M.Sc.), with distinction, in Meteorology	June 2007
	Thesis title: "Simple Conceptual models for Tropical Ocean-Atmosphere Interactions on Interannual Timescales". Advisor: Dietmar Dommenges	
	University of Heidelberg	Heidelberg, Germany
	Vordiplom (\lesssim B.S.) in Physics	October 2003
Employment	Department of the Geophysical Sciences, The University of Chicago	Chicago, IL
	Assistant Professor	Jan 2015 - present
	Geophysical Fluid Dynamics Laboratory / Princeton University	Princeton, NJ, USA
	NOAA Climate and Global Change Postdoctoral Fellow	Jul. 2013 – Dec. 2014
	AOS Postdoctoral Research Associate	Apr. 2013 – Jun 2013
	Department of Earth, Atmospheric and Planetary Sciences, MIT	Cambridge, MA, USA
	Postdoctoral Associate	Nov. 2012 – Mar 2013
Selected Awards and Fellowships	National Science Foundation CAREER award	2019-2024
	Nicholas P. Fofonoff Award from the American Meteorological Society	2019
	NOAA Climate and Global Change Postdoctoral Fellowship	2013-2014
	Carl-Gustaf Rossby Award for the best PhD thesis completed in the preceding year in the Program in Atmospheres, Oceans and Climate, MIT	2013
	GFD Fellow at Woods Hole Oceanographic Institution	2008
	Shrock Fellowship in MIT's Department of Earth, Atmospheric, and Planetary Sciences	2007-2008
	Fellow of the German National Academic Foundation	2004-2007

Teaching	Introduction to Research in the Geophysical Sciences, University of Chicago	Fall 2017/18/19
	Turbulence and Transport Processes in the Atmosphere and Oceans, University of Chicago	Fall 2016 / Spring 2018
	Ocean Circulation, University of Chicago	Winter 2016 / Spring 2017/19/20/21
	Introduction to Atmosphere, Ocean and Climate Modeling, University of Chicago	Fall 2020
	Lecturer at „Rossbypalooza“ Summer School, University of Chicago	Summer 2016/18
Advising	PhD Students:	
	Tatsu Monkman, University of Chicago	2018-present
	Hailu Kong, University of Chicago	2015- 2020
	Undergraduate Students:	
	Krista Sowkey, University of Chicago (Mirco-Metcalf intern)	2020
	Lily Mansfield, University of Chicago (Mirco-Metcalf intern)	2020
	David Vishny, University of Chicago (Honors 2019, co-advised with D. Archer) (Now PhD student at Scripps Institution of Oceanography)	2018-2019
	Kendall Mehling, University of Chicago (Now PhD student at CU Boulder)	2018-2019
	Francisco Spaulding-Astudillo, University of Chicago (Now PhD student at UCLA)	2016-2017
	Summer Students:	
	Yaoxuan Zeng, University of Chicago (guest student from Peking University) (Starting as PhD student in my group Fall 2021)	Summer 2019
	Ashley Payne, Woods Hole GFD program (Now Asst. Prof. at University of Michigan)	Summer 2014
	Lei Wang (co-advised with Ryan Abernathy), Woods Hole Oceanogr. Inst. (Now postdoctoral scholar at Harvard)	Summer 2014
	Postdoctoral scholars:	
	Hailu Kong, University of Chicago	2021-present
Chiung-Yin (Jenny) Chang, University of Chicago	2019-present	
Sina Khani, University of Chicago (co-advised with Alistair Adcroft at Princeton) (Now postdoctoral scholar at University of Washington)	2016-2019	
Alice Marzocchi, University of Chicago (Now Research Scientist at the National Oceanography Center, Southampton)	2016-2018	

Service

Member of US CLIVAR Paleo AMOC Task Team, 2018-present

Member of the AMS' committee on Atmospheric and Oceanic Fluid Dynamics, 2017-present

Panelist and reviewer for the *National Science Foundation*, and *NASA*

Reviewer for *Climate Dynamics*, *Clim. Past*, *Geophys. Res. Lett.*, *JAMES*, *J. Climate*, *J. Fluid Mech.*, *J. Geophys. Res.*, *J. Phys. Oceanogr.*, *Nature Geoscience*, *Nature Communications*, *Ocean Modelling*, *Ocean Science*, *Paleoceanography*, *Physics of Fluids*, and *Science*

Session Chair, 19th, 20th, 21st and 22nd Conference on Atmospheric and Oceanic Fluid Dynamics, 2013, 2015, 2017, 2019, and Ocean Sciences Meeting 2016 and 2020

Open-source software development: PyMOC (<https://pymoc.github.io>, founder) and PyQG (<https://pyqg.readthedocs.io/en/latest/>, co-founder)

Publications

Chang C-Y. and M.F. Jansen, 2021: Distinct controls on the strength of the abyssal overturning circulation: channel versus basin dynamics, *J. Phys. Oceanogr.*, <https://doi.org/10.1175/JPO-D-20-0316.1>

Chen, X., Tissot, F.L.H., Jansen, M.F., Bekker, A., Liu, C.X., Nie, N.X., Halverson, G.P., Veizer, J. and Dauphas, N., 2021: Uranium Isotopic Record of Shales and Carbonates Through Geologic Time. *Geochimica et Cosmochimica Acta*. 300, pp. 164-191.

Kong, H. and M.F. Jansen 2021: The impact of topography and eddy parameterization on the simulated Southern Ocean circulation response to changes in surface wind stress. *J. Phys. Oceanogr.*, 51(3), pp.825-843.

Miyawaki, O., Tan, Z., Shaw, T.A. and Jansen, M.F., 2020: Quantifying Key Mechanisms That Contribute to the Deviation of the Tropical Warming Profile From a Moist Adiabatic. *Geophys. Res. Lett.* 47(20), e2020GL089136.

Whitt, D. and M.F. Jansen 2020: Slower nutrient stream suppresses Subarctic Atlantic biological productivity in global warming. *Proc. Natl. Acad. Sci.*, 117 (27) 15504-15510.

Nadeau, L-P* and M.F. Jansen* 2020: Overturning circulation pathways in a two basin ocean model, *J. Phys. Oceanogr.*, 50(8), 2105-2122.

Olson, S.L., M.F. Jansen, and D.S. Abbot 2020: Oceanographic Constraints on Exoplanet Life, *Astrophysical Journal*, 895, 19.

Cael, B. B. and M.F. Jansen 2020: On freshwater fluxes and the Atlantic meridional overturning circulation. *Limnol. Oceanogr.*, 5(12), 185–192.

Khani, S., Jansen, M. F., & Adcroft, A. 2019: Diagnosing subgrid mesoscale eddy fluxes with and without topography. *J. Adv. Model. Earth Syst.*, 11, 3995–4015.

Checlair, J.H., S.L. Olson, M.F. Jansen and D.S. Abbot 2019: No snowball on habitable tidally locked planets with a dynamic ocean. *Astrophysical Journal*, 884(2).

Adcroft, A., W. Anderson, C. Blanton, M. Bushuk, C. O. Dufour, J. P. Dunne, S. M. Griffies, R. W. Hallberg, M. J. Harrison, I. Held, M. F. Jansen, J. John, J. P. Krasting, A. Langenhorst, S. Legg, Z. Liang, C. McHugh, A. Radhakrishnan, B. G. Reichl, T. Rosati, B. L. Samuels, A. Shao, R. Stouffer, M. Winton, A. T. Wittenberg, B. Xiang, N. Zadeh, and R. Zhang, 2019: The GFDL global ocean and sea ice model OM4.0: Model description and simulation features. *J. Adv. Model. Earth Syst.*, 11, 3167–3211.

- Marzocchi, A. and M.F. Jansen 2019: Global cooling linked to increased glacial carbon storage via changes in Antarctic sea ice. *Nature Geosci.*, 12, 1001–1005.
- Komacek, T.D., M.F. Jansen, E.T. Wolf, and D.S. Abbot 2019: Scaling relations for terrestrial exoplanet atmospheres from baroclinic criticality. *Astrophysical Journal*, 883(1).
- Jansen, M.F., A. Adcroft, S. Khani, and H. Kong 2019: Toward an energetically consistent, resolution aware parameterization of ocean mesoscale eddies. *J. Adv. Model. Earth Syst.*, 11, 2844–2860.
- Nadeau, L.P., R. Ferrari and M.F. Jansen 2019: Antarctic sea ice control on the depth of North Atlantic Deep Water. *J. Climate*, 32, 2537–2551.
- Jansen, M.F. and L.-P. Nadeau 2019: A toy model for the response of the residual overturning circulation to surface warming. *J. Phys. Oceanogr.*, 49, 1249–1268.
- Klöwer, M., M.F. Jansen, M. Claus, R.J. Greatbatch, and S. Thomsen 2018: Energy budget-based backscatter in a shallow water model of a double gyre basin. *Ocean Modelling*, 132, 1–11.
- Jansen, M.F., L-P Nadeau, T.M. Merlis 2018: Transient vs. equilibrium response of the ocean’s overturning circulation to warming. *J. Climate*, 31, 5147–5163.
- Hoffman P.F., D. S. Abbot, Y. Ashkenazy, D. I. Benn, J. J. Brocks, P. A. Cohen, G. M. Cox, J. R. Creveling, Y. Donnadieu, D. H. Erwin, I. J. Fairchild, D. Ferreira, J. C. Goodman, G. P. Halverson, M. F. Jansen, G. Le Hir, G. D. Love, F. A. Macdonald, A. C. Maloof, C. A. Partin, G. Ramstein, B. E. J. Rose, C. V. Rose, Peter M. Sadler, E. Tziperman, A. Voigt and S. G. Warren, 2017: Snowball Earth climate dynamics and Cryogenian geology–geobiology. *J. Science Advances*, 3, 11.
- Kong, H. and M.F. Jansen, 2017: The eddy diffusivity in barotropic β -plane turbulence. *Fluids*, special issue on *Geophysical Fluid Dynamics* 2,54.
- Marzocchi, A. and Jansen, M.F., 2017. Connecting Antarctic sea ice to deep-ocean circulation in modern and glacial climate simulations. *Geophys. Res. Lett.*, 44(12), 6286–6295.
- Yang J., M. F. Jansen, F. A. Macdonald, and D. S. Abbot, 2017: Persistence of a freshwater surface ocean after a snowball Earth, *Geology* 45 (7), 615–618.
- Jansen, M.F., 2017. A note on: “A Gaussian-product stochastic Gent–McWilliams parameterization”. *Ocean Modelling*, 110, 49–51.
- Jansen, M.F., 2017. Glacial ocean circulation and stratification explained by reduced atmospheric temperature. *Proc. Natl. Acad. Sci.*, 114(1), 45–50.
- Jansen, M.F. and L-P. Nadeau, 2016: The effect of Southern Ocean surface buoyancy loss on the deep-ocean circulation and stratification. *J. Phys. Oceanogr.*, 46, 3455–3470.
- Chai, J., M. Jansen, and G. Vallis, 2016: Equilibration of a baroclinic planetary atmosphere toward the limit of vanishing bottom friction. *J. Atmos. Sci.*, 73, 3249–3272.
- Jansen, M. F., 2016: The turbulent circulation of a Snowball Earth ocean. *J. Phys. Oceanogr.*, 46(6), 1917–1933.
- Wang, L., M. Jansen, and R. Abernathy, 2016: Eddy Phase Speeds in a two-layer model of quasigeostrophic baroclinic turbulence with applications to ocean observations. *J. Phys. Oceanogr.*, 46, 1963–1985.
- Cronin, T. W. and M. F. Jansen, 2016: Analytic radiative-advective equilibrium as a model for high-latitude climate. *Geophys. Res. Lett.*, 43, 449–457.

- Payne, A. E., M. F. Jansen, and T. W. Cronin, 2015: Conceptual model analysis of the influence of temperature feedbacks on polar amplification, *Geophys. Res. Lett.*, 42, 9561–9570.
- Jansen, M.F., I.M. Held, A.J. Adcroft, and R. Hallberg, 2015: Energy budget-based backscatter in an eddy permitting primitive equation model. *Ocean Modelling*, 94, 15-26.
- Zurita-Gotor, P., I.M Held, and M. F. Jansen, 2015: Kinetic energy-conserving hyperdiffusion can improve low resolution atmospheric models. *J. Adv. Model. Earth Syst.*, 7(3), 1117-1135.
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- Burke, A., Stewart, A.L., Adkins, J.F., Ferrari, R., Jansen, M.F. and Thompson, A.F., 2015. The glacial mid-depth radiocarbon bulge and its implications for the overturning circulation. *Paleoceanography*, 30(7), pp.1021-1039.
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- Jansen, M.F. and I.M. Held, 2014: Parameterizing subgrid-scale eddy effects using energetically consistent backscatter. *Ocean Modeling*, 80, 36-48.
- Ferrari, R., M. Jansen, J. Adkins, A. Burke, A.L. Stewart, and A. Thompson, 2014: Antarctic sea ice control on ocean circulation in present and glacial climates. *Proc. Natl. Acad. Sci.*, 111 (24) 8753-8758.
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- Jansen, M. and R. Ferrari, 2013: The vertical structure of the eddy diffusivity and the equilibration of the extra-tropical atmosphere. *J. Atmos. Sci.*, 70, 1456–1469.
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- Jansen, M.F., D. Dommenges, and N. Keenlyside, 2009: Tropical atmosphere–ocean interactions in a conceptual framework. *J. Climate*, 22, 550–567.

* Authors contributed equally