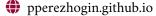
Pavel Perezhogin

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scholar.google.com/citations?user=HRXHqugAAAAJ



Education and Employment

2021 - Now

Postdoctoral Associate in Mathematics Department. Courant Institute of Mathematical Sciences, New York University, as part of M²LInES project.

Advisor: Dr. Laure Zanna

2017 - 2021

PhD in Mathematical Modeling, Numerical Methods and Software.
Marchuk Institute of Numerical Mathematics of the Russian Academy of Sciences (INM RAS)

Thesis Title: Stochastic and deterministic subgrid parameterizations for two-dimensional turbulence and their application in ocean circulation models (in Russian).

Advisor: Dr. Andrey Glazunov

2011 - 2017

BSc&MSc in Applied Mathematics and Physics. Moscow Institute of Physics and Technology (MIPT), Department of Control and Applied Mathematics.

Awards

2018

Medal of the Russian Academy of Sciences for students for the best scientific work in oceanology, atmospheric physics and geography.

Additional Experience

Teaching

Invited guest lectures "Machine Learning in Geophysics", Russia, Moscow, INM RAS (2023).

Mentoring

Grad. student Ivan Kobzar (co-advised with Andrey Glazunov, 2021) and Undergrad. Matias Ortiz (co-advised with Laure Zanna, 2023).

Reviewer

Journal of Advances in Modeling Earth Systems (JAMES) | Ocean Modeling | Geoscientific Model Development (GMD)

Selected Talks

Note: extended list of 31 presentations for 2016-2023 years can be found at ## pperezhogin.github.io/talks

2023

Courant Atmosphere Ocean Science Colloquium (**invited**) | AGU Fall Meeting | APS Division of Fluid Dynamics | CESM Workshop | CPT Annual Meeting | NEMO Machine Learning WG (**invited**) | CESM Ocean Model WG meeting

2022 AGU Fall Meeting | CPT Annual Meeting | NEMO Eddy Closure WG (invited)

TRR 181 Seminar (2021, invited) | EGU General Assembly (2020, 2021, online) | AGU Fall Meeting (2020, online) | ECMWF Annual seminar (2020, online) | Winter School in Les Houches (2019, poster) | 32nd-IUGG (2018) | CITES-2017

Publications

Note: *full list* of publications (**20**), including peer-reviewed in international journals (**6**) and Russian journals (**8**); preprints (**2**), conference papers (**3**) and open source education/software (**1**) can be found at preezhogin.github.io/publications

Submitted Preprints

- Falasca, F., **Perezhogin**, **P.**, & Zanna, L. (2023). A data-driven framework for dimensionality reduction and causal inference in climate fields. Odoi:https://doi.org/10.48550/arXiv.2306.14433
- Perezhogin, P., Zhang, C., Adcroft, A., Fernandez-Granda, C., & Zanna, L. (2023). Implementation of a data-driven equation-discovery mesoscale parameterization into an ocean model.

 Odoi:https://doi.org/10.48550/arXiv.2311.02517

Journal Papers

- Perezhogin, P., & Glazunov, A. (2023). Subgrid parameterizations of ocean mesoscale eddies based on germano decomposition. *Journal of Advances in Modeling Earth Systems*, 15(10).

 Odoi:https://doi.org/10.1029/2023ms003771
- Perezhogin, P., Zanna, L., & Fernandez-Granda, C. (2023). Generative data-driven approaches for stochastic subgrid parameterizations in an idealized ocean model. *Journal of Advances in Modeling Earth Systems*, 15(10), e2023MS003681. Odoi:https://doi.org/10.1029/2023MS003681
- Ross, A., Li, Z., **Perezhogin**, **P.**, Fernandez-Granda, C., & Zanna, L. (2023). Benchmarking of machine learning ocean subgrid parameterizations in an idealized model. *Journal of Advances in Modeling Earth Systems*, 15(1), e2022MS003258. Odoi:https://doi.org/10.1029/2022MS003258
- Zasko, G. V., Glazunov, A. V., Mortikov, E. V., Nechepurenko, Y. M., & **Perezhogin**, **P.** (2023). Optimal energy growth in stably stratified turbulent couette flow. *Boundary-Layer Meteorology*, 187(1-2), 395–421. Odi:https://doi.org/10.1007/s10546-022-00744-3
- Zhang, C., **Perezhogin**, **P.**, Gultekin, C., Adcroft, A., Fernandez-Granda, C., & Zanna, L. (2023). Implementation and evaluation of a machine learned mesoscale eddy parameterization into a numerical ocean circulation model. *Journal of Advances in Modeling Earth Systems*, 15(10), e2023MS003697. Odi:https://doi.org/10.1029/2023MS003697
- Perezhogin, P., Chernov, I., & Iakovlev, N. (2021). Advanced parallel implementation of the coupled ocean—ice model femao (version 2.0) with load balancing. *Geoscientific Model Development*, 14(2), 843–857. Odi:https://doi.org/10.5194/gmd-14-843-2021
- Perezhogin, P. (2020a). 2d turbulence closures for the barotropic jet instability simulation. Russian Journal of Numerical Analysis and Mathematical Modelling, 35(1), 21–35.

 Odoi:https://doi.org/10.1515/rnam-2020-0003
- Perezhogin, P. (2020b). Testing of kinetic energy backscatter parameterizations in the nemo ocean model. Russian Journal of Numerical Analysis and Mathematical Modelling, 35(2), 69–82.

 Odoi:https://doi.org/10.1515/rnam-2020-0006
- Perezhogin, P., Glazunov, A. V., & Gritsun, A. S. (2019). Stochastic and deterministic kinetic energy backscatter parameterizations for simulation of the two-dimensional turbulence. Russian Journal of Numerical Analysis and Mathematical Modelling, 34(4), 197–213.

 6 doi:https://doi.org/10.1515/rnam-2019-0017

- Dymnikov, V., & **Perezhogin**, **P.** (2018). Systems of hydrodynamic type that approximate two-dimensional ideal fluid equations. *Izvestiya*, *Atmospheric and Oceanic Physics*, *54*, 232–241. Odoi:https://doi.org/10.1134/S0001433818030040
- Perezhogin, P., & Dymnikov, V. (2017). Modeling of quasi-equilibrium states of a two-dimensional ideal fluid. *Doklady Physics*, 62, 248–252. Odi:https://doi.org/10.1134/S1028335817050032
- Perezhogin, P., Glazunov, A. V., Mortikov, E. V., & Dymnikov, V. P. (2017). Comparison of numerical advection schemes in two-dimensional turbulence simulation. *Russian Journal of Numerical Analysis and Mathematical Modelling*, 32(1), 47–60. Odo:https://doi.org/10.1515/rnam-2017-0005