

Kaushal Gianchandani

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RESEARCH INTEREST

Oceanography and Climate Dynamics

WORK EXPERIENCE

MIT Sep 2023 - present
Postdoctoral Associate Cambridge, MA, US
Advisor: Prof. John Marshall

EDUCATION

Hebrew University of Jerusalem (HUJI) Oct 2017 - Jun 2023
Ph.D. in Oceanography Jerusalem, Israel
Thesis: Physical-biogeochemical dynamics of extreme paleoclimate events
Advisors: Prof. Hezi Gildor, Prof. Yosef Ashkenazy (Ben-Gurion University) and Prof. Eli Tziperman (Harvard University)

National Institute of Science Education and Research Aug 2012 - May 2017
Integrated B.Sc. - M.Sc. in Physics Bhubaneswar, Odisha, India
Thesis: Transition to turbulence in subcritical baroclinic flows [[view thesis](#)]
Advisor: Dr. Antoine Venaille (École Normale Supérieure de Lyon)

PUBLICATIONS[†]

Published in peer-reviewed journals:

1. **Kaushal Gianchandani**. "Recirculation through western boundary currents varies nonlinearly with the ocean basin's aspect ratio". *Physics of Fluids* 36.9 p. 096608 (2024). DOI: [10.1063/5.0226883](https://doi.org/10.1063/5.0226883). **Featured Article**.
2. **Kaushal Gianchandani**, Itay Halevy, Hezi Gildor, Yosef Ashkenazy, and Eli Tziperman. "Production of Neoproterozoic banded iron formations in a partially ice-covered ocean". *Nature Geoscience* 17.4 pp. 298–301 (2024). DOI: [10.1038/s41561-024-01406-4](https://doi.org/10.1038/s41561-024-01406-4).
3. **Kaushal Gianchandani** and Nathan Paldor. "Ekman pumping on the β -plane". *Physics of Fluids* 36.2 p. 026617 (2024). DOI: [10.1063/5.0194042](https://doi.org/10.1063/5.0194042).
4. **Kaushal Gianchandani**, Sagi Maor, Ori Adam, Alexander Farnsworth, Hezi Gildor, Daniel J Lunt, and Nathan Paldor. "Effects of paleogeographic changes and CO₂ variability on northern mid-latitudinal temperature gradients in the Cretaceous". *Nature Communications* 14 p. 5193 (2023). DOI: [10.1038/s41467-023-40905-7](https://doi.org/10.1038/s41467-023-40905-7).
5. **Kaushal Gianchandani**, Hezi Gildor, and Nathan Paldor. "On the role of domain aspect ratio in the westward intensification of wind-driven surface ocean circulation". *Ocean Science* 17.1 pp. 351–363 (2021). DOI: [10.5194/os-17-351-2021](https://doi.org/10.5194/os-17-351-2021).
6. Salvatore Campisi-Pinto, **Kaushal Gianchandani**, and Yosef Ashkenazy. "Statistical tests for the distribution of surface wind and current speeds across the globe". *Renewable Energy* 149 pp. 861–876 (2020). DOI: [10.1016/j.renene.2019.12.041](https://doi.org/10.1016/j.renene.2019.12.041).

[†]Underline: Mentee

AWARDS

- **NASA Postdoctoral Fellowship** 2026 - 28
Sponsor: NASA Postdoctoral Program — Astrobiology
\$187,904; awarded based on merit of the proposed scientific research and academic achievements.
- **Registration Grant**, OSM 2022 Feb - Mar 2022
- **Innovation in Science Pursuit for Inspired Research (INSPIRE) Fellowship** 2012 - 17
Sponsor: Department of Science and Technology, Government of India
Awarded to the top 1% of students in India pursuing an undergraduate degree in basic sciences.
- **Physics Summer Research Fellowship** Jun - Jul 2015
Sponsor: Institute of Mathematical Sciences, Chennai
Awarded to 15 students selected from applicants across India to pursue an internship in Physics at the institute.

INVITED TALKS[‡]

- Kotak School of Sustainability Seminar, Indian Institute of Technology (IIT) Kanpur Jul 2025
“Antarctic polynyas and bottom water under shifting winds”
- Earth, Ocean and Climate Sciences Seminar, IIT Bhubaneswar Jul 2025
“Antarctic polynyas and bottom water under shifting winds”
- Weekly Seminar Series, Lowell Center for Space Science and Technology (LoCSST) May 2025
“What lies beneath Europa’s ice shell?”
- Cryosphere Seminar, NASA Goddard Institute for Space Studies (GISS) Mar 2025
“Meridional wind anomalies, Southern Ocean polynyas & Antarctic Bottom Water”
- Atmospheric, Ocean, and Climate Dynamics Seminar, Yale University Oct 2024
“Revisiting the hard vs. soft snowball Earth debate”
- Virtual Seminar in Precambrian Geology, University of California, Riverside Jun 2024
“Revisiting the hard vs. soft snowball Earth debate”
- ROCKE-3D Seminar, NASA GISS Jun 2024
“Revisiting the hard vs. soft snowball Earth debate” [\[view recording\]](#)
- Atmospheres and Oceans Seminar, Johns Hopkins University Jan 2021
“Role of aspect ratio on westward intensification of wind-driven surface ocean circulation”

CONFERENCE PRESENTATIONS AND WORKSHOPS (Last 5)

- International Workshop and Summer School on Oceans in a Changing Climate and their Prediction (Invited Talk) Jul 2025
Indian Institute of Science, Bengaluru, India
- American Geophysical Union (AGU) Annual Meeting 2024 (2 Posters) Dec 2024
Washington DC, US
- ROCKE-3D Team Meeting 2024 (Talk) Sep 2024
NASA GISS, New York, NY, US
- GFD Days 2022 (Talk) Apr 2022
Ben-Gurion University of the Negev, Sede Boqer, Israel
- Ocean Sciences Meeting (OSM) 2022 (Talk) Feb - Mar 2022
Session: AI05 Role of ocean-atmosphere dynamics in global climate, Online

[‡]Besides the ones at conferences and workshops

SCHOOLS

- International Spring School: Hydrothermal Vents May 2021
European Astrobiology Network Association, Online
- Summer School on Fluid Dynamics of Sustainability and Environment Sep 2018
University of Cambridge

TEACHING AND MENTORSHIP

- Teaching Assistant, MIT Feb - May 2025
– Course: Weather and Climate Lab
- Sagi Maor (B.Sc. student), HUJI Nov 2021 - Oct 2022
– Undergraduate research project in paleo-oceanography that resulted in a publication
- Teaching Assistant, HUJI Oct 2020 - Jan 2021
– Course: Mathematical methods in scientific models [[view lecture notes](#)]

SERVICE

- Reviewer for *Journal of Climate*, *Nature Communications*, *Nature Geoscience* and *Palaeogeography, Palaeoclimatology, Palaeoecology*
- Reviewer for Outstanding Student Presentation Awards at AGU24 Dec 2024
- Member, Colloquium Committee for the Program in Atmospheres, Oceans and Climate (PAOC) at MIT EAPS Nov 2023 - Dec 2024
- Member, The Oceanography Society (TOS) Student Committee Sep 2021 - Aug 2023
- Co-chair, Session AI05[§] in OSM 2022 Feb - Mar 2022
Participant of the inaugural OSM Session Mentoring Program

OUTREACH ACTIVITIES

- MIT EAPS's [LINK-12 program](#) Sep 2024 - present
- TOS Panel Discussion for World Oceans Day Jun 2022
Title: [Using Ocean and Environmental Data to Address Socio-Economic Challenges](#)
– Organized and moderated a remote panel discussion with 50+ attendees (students, researchers and industry professionals) from 5 countries [[view recording](#)]
- [Young Data Scientists Quest](#) Jan - Apr 2022
– Mentored 30 students of Launch High School, Cedar City, UT, US for a 10-week data science bootcamp
– Designed two data science projects to complement the bootcamp
– Conducted multiple training sessions on data acquisition, visualization and analysis
– One of the projects was awarded the *Best Data Science Application: AI award*

TECHNICAL STRENGTHS

Programming Languages : Python, Fortran, Bash
General circulation models : MITgcm, ROCKE-3D, NASA GISS ModelE

[§]The role of ocean-atmosphere dynamics in global climate