Kaushal Gianchandani

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RESEARCH INTEREST

(Paleo- and Exo-) Oceanography, Climate (Dynamics and Data Analysis)

WORK EXPERIENCE

Massachusetts Institute of Technology — Sep 2023 - present
Postdoctoral Associate — Cambridge, MA, USA
Advisor: Prof. John Marshall

EDUCATION

Hebrew University of Jerusalem — 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. DOI: 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* 17.4 298–301. DOI: 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. DOI: 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 CO_2 variability on northern mid-latitudinal temperature gradients in the Cretaceous". *Nature Communications* 14 p. 5193. DOI: 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. DOI: 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. DOI: 10.1016/j.renene.2019.12.041.

[†]Underline: Mentee

INVITED SEMINARS

- Virtual Seminar in Precambrian Geology, Uni. of California, Riverside, CA, USA — Jun 2024
  "Revisiting the hard vs. soft snowball Earth debate"
- ROCKE-3D Seminar, NASA Goddard Institute for Space Studies, New York, NY, USA — Jun 2024
  "Revisiting the hard vs. soft snowball Earth debate"
- Atmospheres and Oceans Seminar, Johns Hopkins Uni., Baltimore, MD, USA — Jan 2021
  "Role of aspect ratio on westward intensification of wind-driven surface ocean circulation"

CONFERENCE PRESENTATIONS AND WORKSHOPS (Last 5)

- GFD Days 2022 (Talk) — Apr 2022
  Ben-Guiron University of the Negev, Sede Boqer, Israel
- Ocean Sciences Meeting 2022 (Talk) — Feb - Mar 2022
  Session: AI05 Role of ocean-atmosphere dynamics in global climate, Online
- Next Generation Challenges in Energy-Climate Modeling Workshop (Poster) — Sep 2021
  University of Reading, Reading, UK, Online
- NASA PACE Applications Workshop — Sep 2021
  National Aeronautics and Space Space Administration, Online
- Wave Dynamics and Climate Workshop (Talk) — Sep 2019
  Inter-University Institute for Marine Sciences, Eilat, Israel

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, Cambridge, UK

TEACHING AND MENTORSHIP

- Sagi Maor (B.Sc. student), Hebrew University of Jerusalem — Nov 2021 - Oct 2022
  – Undergraduate research project in paleo-oceanography that resulted in a publication.
- Teaching Assistant, Hebrew University of Jerusalem — 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*
- 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 Ocean Science Meeting (OSM) 2022 — Feb - Mar 2022
  Participant of the inaugural OSM Session Mentoring Program

OUTREACH ACTIVITIES

- 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]

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

- Young Data Scientists Quest — Jan - Apr 2022
  - Mentored 30 students of Launch High School, Cedar City, UT 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* by a panel of experts.
- MIT EAPS's LINK-12 program — Sep 2024 - present

AWARDS

- **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.

TECHNICAL STRENGTHS

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