

# Hemant Khatri

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📍 Atmospheric and Oceanic Sciences, 300 Forrestal Road, Sayre Hall, Princeton, NJ 08540, USA

## Research Interests

Turbulence in the oceans and atmosphere, impacts of topography on the ocean circulation, heat and tracer transport by eddies.

## Education

- 2015 – 19    ■ **Ph.D., Mathematics, Imperial College London, UK**  
Thesis title: *Dynamics of ocean jets over topography*  
Advisor: Pavel Berloff
- 2013 – 15    ■ **M.Sc., Atmospheric & Oceanic Sciences, Indian Institute of Science (IISc), India**  
Thesis title: *Mesoscale turbulence on the ocean surface from satellite altimetry*  
Advisor: Jai Sukhatme | CGPA: 7.2/8
- 2009 – 13    ■ **B.E., Chemical Engineering, Birla Institute of Technology & Science, India**  
CGPA: 8.3/10, *First Class Honours*

## Professional Experience

- Oct'19 – Present    ■ **Postdoctoral Research Associate**, Princeton University, USA  
Project: *Southern Ocean dynamics*
- Feb'19 – Aug'19    ■ **Modelling Associate (Intern)**, Risk Management Solutions, London, UK  
Project: *Impacts of sea level rise on storm surge*
- Jan'13 – Jun'13    ■ **Research Assistant**, TIFR Centre for Interdisciplinary Sciences, India  
Project: *Water droplet growth in cloud formation*

## Fellowships and Awards

- Oct'16 – Jul'19    ■ **Research grants**, Mathematics for Planet Earth, Imperial College London, UK.
- Feb'16 – Jul'19    ■ **President's PhD scholarship**, Imperial College London, UK.
- Jan'14 – Jun'15    ■ **Jeremy Grantham fellowship**, Divecha Centre for Climate Change, IISc, India.
- Aug'13 – Oct'15    ■ **GATE fellowship**, Ministry of Human Resource Development, India.

## Publications

- Khatri, H. and Berloff, P. (2019). Tilted drifting jets over a sloped topography: effects of vanishing eddy viscosity, *Journal of Fluid Mechanics*.
- Khatri, H. and Berloff, P. (2018). Role of eddies in the maintenance of multiple jets embedded in eastward and westward baroclinic shears, *Fluids*.
- Khatri, H. and Berloff, P. (2018). A mechanism for jet drift over topography, *Journal of Fluid Mechanics*.
- Khatri, H., Sukhatme, J., Kumar, A. and Verma, M. K. (2018). Surface ocean enstrophy, kinetic energy fluxes, and spectra from satellite altimetry, *Journal of Geophysical Research: Oceans*.

## Conferences

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- **Apr 2019** – Dynamics of ocean jets formed over a sloped topography, *Workshop "Conservation Principles, Data, and Uncertainty in Atmosphere-Ocean Modelling"*, Potsdam, Germany.
- **Sep 2018** – Ocean surface turbulence: Is it QG or surface-QG like?, *CliMathNet Conference*, Reading, UK.
- **Jun 2018** – Dynamics of ocean jets formed over a sloped topography, *Gordon Ocean Mixing Conference*, Andover, USA.
- **Jun 2018** – Ocean surface spectral fluxes of kinetic energy, enstrophy and buoyancy, *Gordon Ocean Mixing Conference*, Andover, USA.
- **Sep 2017** – Drifting quasi-zonal jets, *Rotating Fluids Meeting*, University of Oxford, UK.
- **Jul 2017** – Random to organised motions in the oceans, *SIAM Annual conference*, Imperial College London, UK.
- **Jun 2017** – Effects of zonally varying topography on the dynamics of oceanic jets, *21<sup>st</sup> conference on atmospheric and oceanic fluid dynamics*, Portland, USA.
- **Apr 2017** – Kinetic energy and enstrophy fluxes on the ocean surface, *Meeting: Energy transfers in the atmosphere and oceans*, Hamburg, Germany.

## Invited Seminars

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- **Mar 2019** – Jet drift over topography and jet-topography interactions, *GFDL*, Princeton, USA.
- **Dec 2017** – Geophysical jets: formation and existence, *Queen Mary University*, London, UK.

## Workshops

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- Jun'18*    ■ Rossbypalooza — Understanding climate through simple models  
University of Chicago, USA
- Aug'17*    ■ Fundamental aspects of turbulent flows in climate dynamics  
School of Physics, Les Houches, France
- Jun'14*    ■ Global climate change: Environment, technology and society  
University of Exeter, UK

## Teaching Experience

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- Fall 2017    ■ **Teaching Assistant** – Mathematical Methods I, Multivariable Calculus
- Spring 2017    ■ **Teaching Assistant** – Mathematical Methods II, Numerical Analysis
- Fall 2016    ■ **Teaching Assistant** – Mathematical Methods I.
- Spring 2015    ■ **Teaching Assistant** – Geophysical Fluid Dynamics

## Miscellaneous

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- Reviewer    ■ Journal of Physical Oceanography, Ocean Modelling, Fluids, Journal of Physics: Conference Series (IOP).
- Programming    ■ MATLAB, Python, Fortran, R, C/C++, QGIS.

## References

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### **Dr Pavel Berloff**

Reader, Department of Mathematics,  
Imperial College London, UK.

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### **Dr Jai Sukhatme**

Associate Professor, Centre for Atmospheric &  
Oceanic Sciences,  
Indian Institute of Science, India.

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🌐 <http://caos.iisc.ac.in/faculty/jai.html>