Han Wang

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RESEARCH INTERESTS	**Physical Oceanography and Fluid Dynamics** – Wave-current interactions and disentanglement – Submesoscale ocean dynamics – Statistical fluid mechanics – Deep learning

EDUCATION

2015-2020, **Courant Institute, New York University(NYU)**
Ph.D. Atmosphere-Ocean Science and Mathematics
Dissertation advisor: Oliver Bühler

2011-2015, **University of Science and Technology of China(USTC)**
B.S. Atmospheric Sciences
Dissertation advisor: Rui Li

WORK EXPERIENCE

2020/09–2022/03 (1.5 years), Postdoctoral Researcher
Department of Physics, University of Toronto
Supervised by Nicolas Grisouard

2022/04-2024/04 (expected 2 years), Postdoctoral Research Associate
School of Mathematics, University of Edinburgh
Supervised by Jacques Vanneste and William R. Young

REFEREED ARTICLES

[4] Wang, H., Grisouard, N., Salehipour, H., Nuz, A., Poon, M., and Ponte, A. L. (2022). *A deep learning approach to extract internal tides scattered by geostrophic turbulence.* Geophysical Research Letters, 49(11), e2022GL099400.

[3] Khatri, H., Griffies, S. M., Uchida, T., Wang, H., and Menemenlis, D. (2021). *Role of mixed-layer instabilities in the seasonal evolution of eddy kinetic energy spectra in a global submesoscale permitting simulation.* Geophysical Research Letters, 48(18), e2021GL094777.

[2] Wang, H., and Bühler, O. (2021). *Anisotropic statistics of Lagrangian structure functions and Helmholtz decomposition.* Journal of Physical Oceanography, 51(5), 1375-1393.

[1] Wang, H., and Bühler, O. (2020). *Ageostrophic corrections for power spectra and wave–vortex decomposition.* Journal of Fluid Mechanics, 882.
– Highlighted in Focus on Fluids

RESEARCH IN PROGRESS

– Bôas, A.B.V., Vanneste J., Wang, H., and Young, W.R. *Swell scattering.* [slides]

– Balwada, D., Wang, H., and Xie, J.-H. *Lagrangian-filtered second order structure functions and applications to surface drifter data.* [slides] [talk]

– Grisouard, N., Jeffery U. and Wang, H., *Synergy with surface density observations in a deep learning approach to disentangle balanced flows and internal tides.* [slides]

TEACHING

– Workshop tutor (University of Edinburgh): Mathematics in Action (Fluid Dynamics)
– Undergraduate recitation leader (Courant Institute): Vector Calculus
– Graduate course grader (Courant Institute): Applied Stochastic Analysis, Fluid Dynamics

RESEARCH SUPERVISION	– Undergraduate students: Kerryn Van Rooyen, University of Toronto, 2022/05-2022/08; Lingxiao Guan, University of Michigan, 2021/07-2021/11 – Graduate students: Jeff Uncu, University of Toronto, 2022/10-present
SELECTED CONFERENCE PRESENTATIONS	– "Dynamical insights from frequency-filtered Lagrangian structure functions". TRR 181 Eddy-Wave Meeting, virtual, Feb 2023 – "Imprint of ocean currents on significant wave height." 103rd American Meteorological Society Annual Meeting (23rd Conference on Air-Sea Interaction), virtual, Jan 2023 – "A deep learning approach to extract surface internal tidal signals scattered by geostrophic turbulence." Oberwolfach Workshop 2238 - Multiscale Wave-Turbulence Dynamics in the Atmosphere and Ocean, Oberwolfach, Germany, Sep 2022 – "Internal tidal extraction: challenges from scatterings by vortices, and hopes for a deep learning solution", Surface Water and Ocean Topography (SWOT) Science Team Meeting, virtual, Jun 2022 – "Extraction of tidal signals from a machine learning approach", The challenge of understanding rapidly changing small-scale ocean dynamics: preparation for SWOT, Ocean Sciences Meeting, virtual, Apr 2022 – "Generalizing the "BCF14" method to anisotropic cases". Meeting on eddies and internal waves with TRR Mercator fellows, TRR 181, virtual, Mar 2021 – "Anisotropic Helmholtz decomposition of Lagrangian Tracer Data". Poster session for Mesoscale and Submesoscale Ocean Dynamics, 22nd Conference on Atmospheric and Oceanic Fluid Dynamics, Maine, USA, Jun 2019 – "Wave-Vortex Decomposition of 1D ship-track data with weak nonlinearity in the balanced flow". Poster session for Theoretical Advances in AOFD, 21st Conference on Atmospheric and Oceanic Fluid Dynamics, Oregon, USA Jun 2017
HONORS	– MacCracken Fellowship, five-year graduate student award at NYU, 2015-2020 – *Zhao Jiuzhang* Sci-Tech Elite Class of Modern Earth and Space Science, USTC, 2013-2015
EDUCATIONAL EXPERIENCE	– 2017/07–2017/08, Participant of Les Houches Summer School on Fundamental Aspects of Turbulent Flows in Climate Dynamics, Les Houches, France; funded by organizer – 2014/06–2014/08, Visiting scholar at University of Michigan, Ann Arbor, USA. Conducted pedagogical experiments on CMIP5 Models, advised by Xianglei Huang; funded by China Scholarship Council – 2013/09–2014/01, Exchange student in Physics Department, National Tsing Hua University(NTHU), Taiwan; funded by NTHU and USTC
SERVICE	– Journal Referee: Geophysical Research Letters, Journal of Physical Oceanography, Quarterly Journal of the Royal Meteorological Society, Journal of Advances in Modeling Earth Systems, Journal of Atmospheric and Oceanic Technology – Student Organizer: various seminars and colloquium lunches at CAOS, Courant Institute (2015–2019) – Social Volunteer and outreach: Courant cSplash (2019/04), NYC H2O (2018-2020)