Yanxu Chen

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EDUCATION

École Normale Supérieure (ENS), Université Paris Sciences et Lettres (PSL) — **Paris, France**

- Ph.D., Department of Geosciences (Laboratoire de Météorologie Dynamique) — Dec 2018-Sep 2022
- Thesis title: Ocean ventilation at the mesoscale.
- Advisor: Sabrina Speich

McGill University — **Montreal, Canada**

- M.Sc., Department of Atmospheric and Oceanic Sciences — Sep 2016-Dec 2018
- Thesis title: Flow-dependent Ekman theory.
- Advisors: David Straub and Louis-Philippe Nadeau

Sun Yat-sen University (SYSU) — **Guangzhou, China**

- B.Sc., School of Marine Sciences — Sep 2012-Jun 2016
- Thesis title: Combined effects of river discharge and tidal range on estuary water levels.
- Thesis advisors: Qingshu Yang and Huayang Cai

Hong Kong University of Science and Technology (HKUST) — **Hong Kong**

- Summer Exchange — Jun-Aug 2014

WORK EXPERIENCES

Woods Hole Oceanographic Institution — **Woods Hole, US**

- Postdoc Investigator, Department of Physical Oceanography — Sep 2022-Current
- Advisors: Viviane Menezes and Lisan Yu
- Research Project 1: The global imprint of ocean mesoscale dynamics on air-sea heat fluxes. (PI: Lisan Yu)
- Research Project 2: NASA's SASSIE campaign: Arctic air-sea heat budget and boundary layer stability in the Beaufort-Chukchi Seas. (WHOI PIs: Viviane Menezes and Seth Zippel)
- Research Project 3: Air-sea interactions in the Red Sea and Persian Gulf. (PI: Viviane Menezes)

University of Alberta — **Edmonton, Canada**

- Undergrad Research Intern, Department of Earth and Atmospheric Sciences — May-Sep 2015
- Advisor: Paul Myers
- Research project: Assessment of freshwater budget through major straits around the Greenland (by comparing numerical runs to investigate the stratification and freshwater transport).

FIELDWORK

Wind Forecast Improvement Project (WFIP-3) — **Woods Hole, US**

Scientific Member — Sep 2024 until now

Project: Launches of atmospheric soundings and comparisons with numerical simulations, to investigate the near-surface marine boundary layer stability.

EUREC4A Campaign R/V L'Atalante **south of Barbados**

Scientific Crew Member Jan-Feb 2020

Project: Deployments of several instruments, mainly CTD casts, uCTDs, XBTs and Argo floats; Water mass (mode water) detection with the proceeding shipborne data.

PUBLICATIONS

2024 Chen and Yu. "Mesoscale meridional heat transport inferred from sea surface observations." Geophysical Research Letters. doi.org/10.1029/2023GL106376

Chen and Yu. "Signature of mesoscale eddies on air-sea heat fluxes in the North Indian Ocean." Journal of Geophysical Research: Oceans. doi.org/10.1029/2023JC019878

Carrigg, Yu, Menezes and Chen. "Autumnal equinox shift in Arctic surface energy budget: Beaufort-Chukchi Seas case study." Journal of Geophysical Research: Oceans. doi.org/10.1029/2023JC020788

Chen, Menezes and Yu. "Physical phenology of air-sea heat budget for the Beaufort Sea autumn freeze-up." under review in the Journal of Climate.

Chen, Yu and Zhang. "Impacts of atmospheric near-surface stability on the Arctic summer air-sea heat budget assessed with uncrewed surface vehicles." under review in the Journal of Geophysical Research: Atmospheres.

Chen and Speich. "Role of mesoscale eddies in global mode water distribution and ventilation." in revision for the Geophysical Research Letters.

2023 Yu, Chen, Gonzalez, Zhang and Foltz. "Dry air outbreak and significant surface turbulent heat loss during hurricane Ian: satellite and saildrone observations." Geophysical Research Letters. doi.org/10.1029/2023GL105583

2022 Chen, Speich and Laxenaire. "Formation and transport of the South Atlantic subtropical mode water in eddy-permitting observations." Journal of Geophysical Research: Oceans. doi.org/10.1029/2021JC017767

2021 Chen, Straub and Nadeau. "Interaction of nonlinear Ekman pumping, near-inertial oscillations, and geostrophic turbulence in an idealized coupled model." Journal of Physical Oceanography. doi.org/10.1175/JPO-D-20-0268.1

Stevens et al. "EUREC4A." Earth System Science Data. doi.org/10.5194/essd-13-4067-2021

TEACHING EXPERIENCES

- **Mentor for the Summer Student Fellow (WHOI)** **Summer 2024**
  SSF student: Sean Barnier from Embry-Riddle Aeronautical University
  Study on ocean's responses to tropical cyclones.
- **Mentor for the Summer Student Fellow (WHOI)** **Summer 2023**
  SSF student: Joe Carrigg from Oregon State University
  Study on air-sea heat budget in the Arctic Ocean.
- **One lecture in the course: Submesoscale Ocean Processes (WHOI)** **Fall 2022**
  Course instructor: Amala Mahadevan
- **TA in the course: Introduction to Oceanic Sciences (McGill)** **Winter 2018**
  Course instructor: Carolina Dufour
- **TA in the course: Natural Disasters (McGill)** **Fall 2017**
  Course instructors: John Gyakum and Souad Guernina
- **TA in the course: Pearl River Delta Field Trip (SYSU)** **Fall 2015**

Field trip instructor: Yaping Lei

PRESENTATIONS

- **WHOI Physical Oceanography Seminar 2024** — **Woods Hole, US**
  Talk: Eddy-induced air-sea coupling in momentum and heat budgets
- **Ocean Sciences Meeting 2024** — **New Orleans, US**
  Poster: Physical phenology of air-sea heat budget in the Beaufort Sea autumn freeze-up
- **CAMAS Workshop 2024** — **Santa Fe, US**
  Talk: Physical phenology of air-sea heat budget in the Beaufort Sea autumn freeze-up
- **Eddy Energy Annual Meeting 2023** — **Woods Hole, US**
  Talk: Signature of mesoscale eddies on air-sea heat fluxes: strong compensation between SSH-SST coherent and incoherent eddies
- **Mesoscale and Frontal-Scale Air-Sea Interactions Workshop 2023** — **Boulder, US**
  Talk: Signature of mesoscale eddies on air-sea heat fluxes: strong compensation between SSH-SST coherent and incoherent eddies
- **Imaginary Futures Workshop (Arts and Sciences) 2022** — **Paris, France**
  Creation: Sound waves in water
- **Laws of Nature Conference (Philosophy) 2022** — **Munich, Germany**
  Short talk: The role of ocean in the warming climate
- **FDSE Summer School 2022** — **Paris, France**
  Poster: Water mass subduction in the isopycnic coordinate
- **EUREC4A-OA Workshop 2022** — **Paris, France**
  Talk: Water mass subduction in the isopycnic coordinate
- **BGC-Argo Science Webinar (SOCCOM) 2022** — **virtually**
  Talk: Global mode water detection and its representation in heat transport
- **Ocean Sciences Meeting 2022** — **virtually**
  Talk: Global mode water detection and its representation in heat transport
- **TRIATLAS General Assembly 2021** — **virtually**
  Poster: Formation and transport of the South Atlantic subtropical mode water in eddy-permitting observations
- **LMD Webinar 2021: Mesoscale dynamics and air-sea interactions** — **virtually**
  Talk: The South Atlantic subtropical mode water in eddy-permitting observations
- **AGU Fall Meeting 2020** — **virtually**
  Talk: Effect of mesoscale eddies on mode water formation, transport and heat uptake in the world ocean
- **EGU General Assembly 2020** — **virtually**
  Talk: Effect of mesoscale eddies on subtropical mode water formation and ocean heat storage
- **EUREC4A Planning Workshop 2019** — **Paris, France**
  Talk: The effect of mesoscale eddies on air-sea interactions
- **EGU General Assembly 2019** — **Vienna, Austria**
  Talk: Flow-dependent Ekman theory and its application to shallow water models
- **McGill AOS Student Seminar 2018** — **Montreal, Canada**
  Talk: Flow-dependent Ekman theory
- **Ocean Mixing Gordon Research Conference 2018** — **Andover, US**

Poster: Flow-dependent Ekman theory

- **Seminar at Laboratoire de Météorologie Dynamique, École Normale Supérieure** **Paris, France** **2018**

  Talk: Flow-dependent Ekman theory

- **Ocean Sciences Meeting 2018** **Portland, US**

  Poster: A shallow water model forced by flow-dependent Ekman pumping

- **Ocean Mesoscale Eddy Interaction with the Atmosphere Workshop 2018** **Portland, US**

  Poster: The application of flow-dependent Ekman transport to a two-layer shallow water model

- **McGill AOS Student Seminar 2017** **Montreal, Canada**

  Talk: Wind-driven Ekman transport of curvilinear flows

- **51st CMOS Congress 2017** **Toronto, Canada**

  Poster: Frequency analysis of wind forcing over ocean gyres

- **University of Alberta Summer Poster Symposium 2015** **Edmonton, Canada**

  Poster: Comparison of different ANHA simulations and analysis of time series for straits near Greenland

FELLOWSHIPS AND AWARDS

2024	Travel Grant for early career scientists from the CAMAS Workshop	CAMAS
2023	Travel Grant from the Mesoscale and Frontal-Scale Air-Sea Interactions Workshop	CLIVAR
2019	Chaire Chanel Research Grant for the PhD study	ENS
2018	Graduate Research Enhancement and Travel Award	McGill
2017	Stephen and Anastasia Mysak Graduate Fellowship	McGill
	Graduate Excellence Fellowship	McGill
	Graduate Research Enhancement and Travel Award	McGill
	Travel Grant from the World Climate Research Programme (WCRP)	WCRP
2016	Stephen and Anastasia Mysak Graduate Fellowship	McGill
	Graduate Excellence Fellowship	McGill
	Mitacs Globalink Graduate Fellowship	Mitacs
	Outstanding Graduate of Sun Yat-sen University (Rank #1 in GPA)	SYSU
2015	Sun Yat-sen University Scholarship for Outstanding Students	SYSU
	Research Scholarship from China Scholarship Council	China Scholarship Council
	Second Prize of the National Ocean Knowledge Competition	State Oceanic Administration
2014	Sun Yat-sen University Scholarship for Outstanding Students	SYSU
	Baogang Scholarship for Excellent Students (only three students in the university)	SYSU
	Award from Province-based Research Training Program	Education Bureau of China
	Award from National Entrepreneurship Training Program	Education Bureau of China
2013	Sun Yat-sen University Scholarship for Outstanding Students	SYSU
	National Scholarship (Rank #1 in GPA)	Education Bureau of China

MISCELLANEOUS

- Peer reviews for: Geophysical Research Letters, Journal of Climate, Journal of Physical Oceanography, and Journal of Atmospheric and Oceanic Technology.
- Versed in skills for numerical modeling, statistical analysis and visualizations (e.g., familiar with the Linux System, Fortran, Matlab, Python, Latex Editing, Photoshop etc).
- Other languages: mother tongue in Chinese Mandarin and B2 level of French.