

# Yanxu Chen

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## EDUCATION

<b>École Normale Supérieure (ENS), Université Paris Sciences et Lettres (PSL)</b>	Paris, France
<ul style="list-style-type: none"><li>• Ph.D., Laboratoire de Météorologie Dynamique (LMD)</li><li>• Thesis title: Ocean ventilation at the mesoscale.</li><li>• Advisor: Sabrina Speich</li></ul>	Dec 2018-Sep 2022
<b>McGill University</b>	Montreal, Canada
<ul style="list-style-type: none"><li>• M.Sc., Department of Atmospheric and Oceanic Sciences</li><li>• Thesis title: Flow-dependent Ekman theory.</li><li>• Advisor: David Straub and Louis-Philippe Nadeau</li></ul>	Sep 2016-Dec 2018
<b>Sun Yat-sen University (SYSU)</b>	Guangzhou, China
<ul style="list-style-type: none"><li>• B.Sc., School of Marine Sciences</li><li>• Thesis title: Combined effects of river discharge and tidal range on estuary water levels.</li><li>• Advisor: Qingshu Yang and Huayang Cai</li></ul>	Sep 2012-Jun 2016
<b>Hong Kong University of Science and Technology (HKUST)</b>	Hong Kong
<ul style="list-style-type: none"><li>• Summer Exchange</li></ul>	Jun-Aug 2014

## WORK EXPERIENCE

<b>Woods Hole Oceanographic Institution</b>	Woods Hole, US
<ul style="list-style-type: none"><li>• Postdoc Investigator, Department of Physical Oceanography</li><li>• Advisors: Viviane Menezes and Lisan Yu</li><li>• Research Project 1: Ocean mesoscale eddy-induced air-sea heat budgets.</li><li>• Research Project 2: NASA's SASSIE campaign: Chukchi-Beaufort Seas' summer meteorology.</li><li>• Research Project 3: Winter air-sea interaction in the Red Sea and Persian Gulf.</li><li>• Research Project 4: Modulation of heat loss by ocean stratification in tropical cyclone cold wakes.</li></ul>	Sep 2022-Current
<b>University of Alberta</b>	Edmonton, Canada
<ul style="list-style-type: none"><li>• Undergrad Research Intern, Department of Earth and Atmospheric Sciences</li><li>• Advisor: Paul Myers</li><li>• Research Project: Assessment of freshwater budget through major straits around the Greenland (by comparing numerical runs to investigate the stratification and freshwater transport).</li></ul>	May-Sep 2015

## FIELDWORK

<b>Wind Forecast Improvement Project (WFIP-3)</b>	Woods Hole, US
<ul style="list-style-type: none"><li>• Scientific Member</li><li>• Activities: Atmospheric sounding launches to investigate the marine boundary layer stability.</li></ul>	Sep 2024-Current

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

Jan-Feb 2020

## PUBLICATIONS

- 2025** **Chen, Y.**, Yu, L., and Zhang, C. "Impacts of atmospheric near-surface stability on the Arctic summer air-sea heat budget assessed with uncrewed surface vehicles." *Journal of Geophysical Research: Oceans*. <https://doi.org/10.1029/2024JC022313>
- 2024** **Chen, Y.**, and Yu, L. "Mesoscale meridional heat transport inferred from sea surface observations." *Geophysical Research Letters*. <https://doi.org/10.1029/2023GL106376>
- Chen, Y.**, and Yu, L. "Signature of mesoscale eddies on air-sea heat fluxes in the North Indian Ocean." *Journal of Geophysical Research: Oceans*. <https://doi.org/10.1029/2023JC019878>
- Carrigg, J., Yu, L., Menezes, V., and **Chen, Y.** "Autumnal equinox shift in Arctic surface energy budget: Beaufort-Chukchi Seas case study." *Journal of Geophysical Research: Oceans*. <https://doi.org/10.1029/2023JC020788>
- 2023** Yu, L., **Chen, Y.**, Gonzalez, A., Zhang, C., and Foltz, G. "Dry air outbreak and significant surface turbulent heat loss during hurricane Ian: satellite and saildrone observations." *Geophysical Research Letters*. <https://doi.org/10.1029/2023GL105583>
- 2022** **Chen, Y.**, Speich, S., and Laxenaire, R. "Formation and transport of the South Atlantic subtropical mode water in eddy-permitting observations." *Journal of Geophysical Research: Oceans*. <https://doi.org/10.1029/2021JC017767>
- 2021** **Chen, Y.**, Straub, D., and Nadeau, L-P. "Interaction of nonlinear Ekman pumping, near-inertial oscillations, and geostrophic turbulence in an idealized coupled model." *Journal of Physical Oceanography*. <https://doi.org/10.1175/JPO-D-20-0268.1>
- Stevens, B., ... **Chen, Y.**, ... et al. "EUREC4A." *Earth System Science Data*. <https://doi.org/10.5194/essd-13-4067-2021>
- Under review** **Chen, Y.**, Menezes, V., and Yu, L. "Physical phenology of air-sea heat budget for the Beaufort Sea autumn freeze-up." under review in the *Journal of Climate*.
- Chen, Y.**, and Speich, S. "Role of mesoscale eddies in global mode water distribution and ventilation." in revision for the *Geophysical Research Letters*.
- Chen, Y.**, Barnier, S., and Yu, L. "Mixed-layer heat loss in cold wakes of rapidly intensifying tropical cyclones." in preparation.
- Chen, Y.**, Speich, S., and Straub, D. "Water mass subduction in an isopycnal coordinate." in preparation.

## TEACHING EXPERIENCE

- Mentor for the Summer Student Fellow (WHOI)** Summer 2025
- SSF student: Chelone Laws from University of Wisconsin-Madison
  - Study on hurricane intensification induced by ocean freshwater pools.
- 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.

<b>One lecture in the course: Submesoscale Ocean Processes (WHOI)</b> • Course instructor: Amala Mahadevan	Fall 2022
<b>Teaching Assistant: Introduction to Oceanic Sciences (McGill)</b> • Course instructor: Carolina Dufour	Winter 2018
<b>Teaching Assistant: Natural Disasters (McGill)</b> • Course instructor: John Gyakum and Souad Guernina	Fall 2017
<b>Teaching Assistant: Pearl River Delta Field Trip (SYSU)</b> • Field trip instructor: Yaping Lei	Fall 2015

## PRESENTATIONS

<ul style="list-style-type: none"> <li>• <b>WHOI Polar Day 2025</b> Short talk: Physical phenology of air-sea heat budget for the Beaufort Sea autumn freeze-up</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>WHOI Physical Oceanography Seminar 2025</b> Talk: Seabird foraging along tropical cyclones: linking marine ecology and ocean dynamics</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>University of Rhode Island PO Seminar 2025</b> Talk: Eddy-induced air-sea coupling in momentum and heat budgets</li> </ul>	Narragansett, US
<ul style="list-style-type: none"> <li>• <b>WHOI Postdoc Symposium 2025</b> Talk: Mixed-layer heat loss in cold wakes of rapidly intensifying tropical cyclones</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>WHOI Physical Oceanography Seminar 2024</b> Talk: Eddy-induced air-sea coupling in momentum and heat budgets</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>Ocean Sciences Meeting 2024</b> Poster: Physical phenology of air-sea heat budget in the Beaufort Sea autumn freeze-up</li> </ul>	New Orleans, US
<ul style="list-style-type: none"> <li>• <b>CAMAS Workshop 2024</b> Talk: Physical phenology of air-sea heat budget in the Beaufort Sea autumn freeze-up</li> </ul>	Santa Fe, US
<ul style="list-style-type: none"> <li>• <b>Eddy Energy Annual Meeting 2023</b> Talk: Signature of mesoscale eddies on air-sea heat fluxes: strong compensation between SSH-SST coherent and incoherent eddies</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>Mesoscale and Frontal-Scale Air-Sea Interactions Workshop 2023</b> Talk: Signature of mesoscale eddies on air-sea heat fluxes: strong compensation between SSH-SST coherent and incoherent eddies</li> </ul>	Boulder, US
<ul style="list-style-type: none"> <li>• <b>Imaginary Futures Workshop (Arts and Sciences) 2022</b> Creation: Sound waves in water</li> </ul>	Paris, France
<ul style="list-style-type: none"> <li>• <b>Laws of Nature Conference (Philosophy) 2022</b> Short talk: The role of ocean in the warming climate</li> </ul>	Munich, Germany
<ul style="list-style-type: none"> <li>• <b>FDSE Summer School 2022</b> Poster: Water mass subduction in the isopycnal coordinate</li> </ul>	Paris, France
<ul style="list-style-type: none"> <li>• <b>EUREC4A-OA Workshop 2022</b> Talk: Water mass subduction in the isopycnal coordinate</li> </ul>	Paris, France
<ul style="list-style-type: none"> <li>• <b>BGC-Argo Science Webinar (SOCCOM) 2022</b> Talk: Global mode water detection and its representation in heat transport</li> </ul>	Virtually
<ul style="list-style-type: none"> <li>• <b>Ocean Sciences Meeting 2022</b> Talk: Global mode water detection and its representation in heat transport</li> </ul>	Virtually

<ul style="list-style-type: none"> <li>• <b>WHOI Polar Day 2025</b> Short talk: Physical phenology of air-sea heat budget for the Beaufort Sea autumn freeze-up</li> </ul>	Woods Hole, US
<ul style="list-style-type: none"> <li>• <b>TRIATLAS General Assembly 2021</b> Poster: Formation and transport of the South Atlantic subtropical mode water in eddy-permitting observations</li> </ul>	Virtually
<ul style="list-style-type: none"> <li>• <b>LMD Webinar 2021: Mesoscale dynamics and air-sea interactions</b> Talk: The South Atlantic subtropical mode water in eddy-permitting observations</li> </ul>	Virtually
<ul style="list-style-type: none"> <li>• <b>AGU Fall Meeting 2020</b> Talk: Effect of mesoscale eddies on mode water formation, transport and heat uptake in the world ocean</li> </ul>	Virtually
<ul style="list-style-type: none"> <li>• <b>EGU General Assembly 2020</b> Talk: Effect of mesoscale eddies on subtropical mode water formation and ocean heat storage</li> </ul>	Virtually
<ul style="list-style-type: none"> <li>• <b>EUREC4A Planning Workshop 2019</b> Talk: The effect of mesoscale eddies on air-sea interactions</li> </ul>	Paris, France
<ul style="list-style-type: none"> <li>• <b>EGU General Assembly 2019</b> Talk: Flow-dependent Ekman theory and its application to shallow water models</li> </ul>	Vienna, Austria
<ul style="list-style-type: none"> <li>• <b>McGill AOS Student Seminar 2018</b> Talk: Flow-dependent Ekman theory</li> </ul>	Montreal, Canada
<ul style="list-style-type: none"> <li>• <b>Ocean Mixing Gordon Research Conference 2018</b> Poster: Flow-dependent Ekman theory</li> </ul>	Andover, US
<ul style="list-style-type: none"> <li>• <b>Seminar at École Normale Supérieure 2018</b> Talk: Flow-dependent Ekman theory</li> </ul>	Paris, France
<ul style="list-style-type: none"> <li>• <b>Ocean Sciences Meeting 2018</b> Poster: A shallow water model forced by flow-dependent Ekman pumping</li> </ul>	Portland, US
<ul style="list-style-type: none"> <li>• <b>Ocean Mesoscale Eddy Interaction with the Atmosphere Workshop 2018</b> Poster: The application of flow-dependent Ekman transport to a two-layer shallow water model</li> </ul>	Portland, US
<ul style="list-style-type: none"> <li>• <b>McGill AOS Student Seminar 2017</b> Talk: Wind-driven Ekman transport of curvilinear flows</li> </ul>	Montreal, Canada
<ul style="list-style-type: none"> <li>• <b>51st CMOS Congress 2017</b> Poster: Frequency analysis of wind forcing over ocean gyres</li> </ul>	Toronto, Canada
<ul style="list-style-type: none"> <li>• <b>University of Alberta Summer Poster Symposium 2015</b> Poster: Comparison of different ANHA simulations and analysis of time series for straits near Greenland</li> </ul>	Edmonton, Canada

## FELLOWSHIPS AND AWARDS

- 2025 **Travel Award:** Polar Early Career World Summit (PECWS)
- 2024 **Travel Award:** Consortium for the Advancement of Marine Arctic Science (CAMAS) Workshop
- 2023 **Travel Award:** Mesoscale and Frontal-Scale Air-Sea Interactions Workshop
- 2019 **Research Grant:** PhD study in École Normal Supérieure from the CHANEL company
- 2018 **Travel Award:** Graduate Research Enhancement and Travel Award (McGill)
- 2017 **Research Grant:** Stephen and Anastasia Mysak Graduate Fellowship (McGill)
- Research Grant:** Graduate Excellence Fellowship (McGill)
- Travel Award:** Graduate Research Enhancement and Travel Award (McGill)
- Travel Award:** World Climate Research Programme (WCRP)

- 2016 **Research Grant:** Stephen and Anastasia Mysak Graduate Fellowship (McGill)  
**Research Grant:** Graduate Excellence Fellowship (McGill)  
**Research Grant:** Mitacs Globalink Graduate Fellowship (Mitacs)  
**Study Award:** Outstanding Graduate of Sun Yat-sen University (Rank #1 in GPA)
- 2015 **Study Award:** Sun Yat-sen University Scholarship for Outstanding Students  
**Study Award:** Research Scholarship from China Scholarship Council  
**Study Award:** Second Prize of the National Ocean Knowledge Competition
- 2014 **Study Award:** Sun Yat-sen University Scholarship for Outstanding Students  
**Study Award:** Baogang Scholarship for Excellent Students (top 3 students in SYSU)  
**Research Grant:** Province-based Research Training Program (SYSU)  
**Research Grant:** National Entrepreneurship Training Program (SYSU)
- 2013 **Study Award:** Sun Yat-sen University Scholarship for Outstanding Students  
**Study Award:** National Scholarship at Sun Yat-sen University (Rank #1 in GPA)

## SERVICES AND OUTREACH

- |                             |   |
|-----------------------------|---|
| <b>Peer Reviews</b>         | <ul style="list-style-type: none"> <li>• Geophysical Research Letters (American Geophysical Union)</li> <li>• Journal of Geophysical Research: Oceans (American Geophysical Union)</li> <li>• Journal of Physical Oceanography (American Meteorological Society)</li> <li>• Journal of Climate (American Meteorological Society)</li> <li>• Journal of Atmospheric and Oceanic Technology (American Meteorological Society)</li> <li>• Frontiers in Marine Science (Frontiers Media)</li> <li>• Journal of Operational Oceanography (Taylor &amp; Francis Group)</li> </ul> |
| <b>Conference Convening</b> | <ul style="list-style-type: none"> <li>• Arctic-Antarctic Connections: Physics, Conservation, and Society (Polar Early Career World Summit 2025)</li> <li>• Upcoming Session: Mesoscale Air-Sea Interaction (AGU 2025)</li> </ul>   |
| <b>Outreach</b>             | <ul style="list-style-type: none"> <li>• <b>Education Program:</b> Exhibitor at Falmouth Schools preK-12 STEAM Fair 2025</li> <li>• <b>Education Program:</b> Representative at WHOI-MBL-NOAA Girls Empowerment and Leadership (GELI) Summit 2025</li> <li>• <b>Cultural Program:</b> Exhibitor at Falmouth Annual Multicultural Fair 2025</li> <li>• <b>Visual Arts Program:</b> Artist for Falmouth Art Center Fundraiser Program 2024</li> <li>• <b>Music Program:</b> Musician for WHOI Tunes at Noon 2024</li> </ul>   |
| <b>Management</b>           | <ul style="list-style-type: none"> <li>• Organizer for postdoc lunch with WHOI PO scientists and staff 2025</li> <li>• Coordinator for WHOI PO seminars 2025</li> <li>• Leader for a global survey on peer review and publishing in Earth sciences 2025</li> </ul>  |

## MISCELLANEOUS

Other languages: mother tongue in Chinese Mandarin and B2 level of French.