You-Ting Wu (he/him)

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Research Interests/Keywords

climate modeling, polar climate change, climate risk, machine learning in climate change, energetic feedbacks

Education

Sept 2024–present | **Columbia University**, New York City, NY, USA
Ph.D., Applied Mathematics and Climate Science
— Advisors: Lorenzo Polvani and Michael Previdi
— Overall GPA: 4.00/4.00

Sept 2018 -July 2023 | **National Taiwan University** (NTU), Taipei, Taiwan
Double BSc., Mechanical Engineering and Atmospheric Sciences
— Climate Science Major GPA: 3.88/4.00

Publications

4. Liang, Y.-C., Polvani, L. M., Previdi, M., Dong, Y., **Wu, Y.-T.**, England, M.R., and Griffith, S. M. The importance of non-CO2 greenhouse gases for Arctic warming and sea ice loss. Submitted to *Nature Climate Change*.
3. Previdi, M., **Wu, Y.-T.**, Polvani, L. M., England, M. R., Sigmond, M., and Liang, Y.-C. Substantial twentieth-century global sea level rise caused by ozone-depleting substances. Submitted to *Science Advances*.
2. **Wu, Y.-T.**, Liang, Y.-C., Previdi, M., Polvani, L. M., England, M. R., Sigmond, M., and Lo, M.-H. (2024). Stronger Arctic Amplification from Anthropogenic Aerosols than from Greenhouse Gases. *npj Climate and Atmospheric Science* 7 (1), 142.
1. **Wu, Y.-T.**, Liang, Y.-C., Kuo Y.-N., Lehner, F., Polvani, L. M., Previdi, M., Lo, M.-H., Lan, C.-W. (2023). Exploiting SMILEs and the CMIP5 archive to understand Arctic climate change seasonality and uncertainty. *Geophysical Research Letters*, 50(2), e2022GL100745.

Research Experiences

Sept. 2024–present | **Graduate Research Assistant**, Columbia University
New York, NY, USA
– Quantifying and understanding the impacts of various anthropogenic emissions on future Arctic climate system using observations, climate models and data-driven statistical methods

June 2021–July 2024 | **Undergraduate Researcher**, Polar Climate Research Group, NTU
Taipei, Taiwan
– Implemented physics-based climate models to identify the impacts of different anthropogenic forcings on climate change
– Processed geospatial data to quantify key climate indices; translated complex data into accessible visuals to understand projected Arctic climate

June 2022–Aug 2022 | **Visiting Student**, Lamont-Doherty Earth Observatory, Columbia University
Palisades, NY, USA
– Utilized new climate models to analyze Arctic responses to aerosol emissions
– Sponsored by funding from Taiwan's Ministry of Science and Technology under the supervision of Prof. Yu-Chiao Liang

Working Experiences

July 2023–Sept 2023 | **Software Engineering Intern**, Formosa Climate Smart Service Limited
Taipei, Taiwan
– Built database infrastructure to convert engineering inputs into quantifiable Energy Use Intensity (EUI) metrics
– Developed front-end platform to visualize building EUI reports
– Designed a workflow to integrate geospatial data and engineering drawings into 3D building-EUI interfaces using AutoCAD, ArcGIS, and Python

Awards and Honors

Jun 2023	Excellent Undergraduate Research Project Award *Ministry of Science and Technology, Taiwan*
Jun 2022	Undergraduate Research Project Grants (US$ 2,200) *Ministry of Science and Technology, Taiwan*
Sep 2021	2^{nd} Place in Poster Competition - Undergraduate Summer Research Program *Department of Atmospheric Sciences, NTU, Taiwan.*

Presentations

June 2025	(oral, invited) Polar Teatime Seminar, National Central University, Taoyuan, Taiwan *Stronger Arctic amplification from anthropogenic aerosols than from greenhouse gases*
Dec 2024	(oral) AMS 2025 Denver Summit, Denver, CO *Stronger Arctic amplification from anthropogenic aerosols than from greenhouse gases*
Dec 2024	(poster) AGU24 Annual Meeting, Washington, D.C. *Stronger Arctic amplification from anthropogenic aerosols than from greenhouse gases*
Oct 2022	(oral) Seminar at Earth and Life Science Department, University of Taipei (with Yu-Chiao Liang) *The Arctic Amplification, and its Seasonal Migration, under Greenhouse Gases Forcings.*
Aug 2022	(oral) AMS 2022 Collective Madison Meeting, Madison, WI *Decomposing Projection Uncertainty for the Seasonal Evolution of Arctic Amplification.*
Aug 2022	(oral) The 19^{th} Annual Meeting of Asia Oceania Geosciences Society, virtual *Decomposing Projection Uncertainty for the Seasonal Evolution of Arctic Amplification.*
June 2022	(oral) The 27^{th} Annual CESM Workshop, virtual *Decomposing Projection Uncertainty for the Seasonal Evolution of Arctic Amplification.*
Apr 2022	(oral) Seminar at Institute of Hydrological and Oceanic Sciences, National Central University, Taoyuan, Taiwan (with Yu-Chiao Liang) *The Arctic Amplification, and its Seasonal Migration, under Greenhouse Gases Forcings.*
Mar 2022	(oral) Seminar at Institute of Oceanography, NTU, Taipei, Taiwan (with Yu-Chiao Liang) *The Arctic Amplification, and its Seasonal Migration, under Greenhouse Gases Forcings.*
Sept 2021	(poster) Undergraduate Summer Research Program, NTU, Taipei, Taiwan *Seasonal Evolution and Uncertainty of Arctic Amplification in Multi-Model Large Ensembles.*
Aug 2021	(poster) 2021 Climate Hotpot in Action Forum, virtual. *Seasonal Evolution and Uncertainty of Arctic Amplification in Multi-Model Large Ensembles.*
Sept 2020	(poster) Undergraduate Summer Research Program, NTU, Taipei, Taiwan *Response of Local Convection in Sumatra and Java Islands to Low-level Synoptic Cyclonic Flow Simulated in SPCAM.*

Teaching Experiences

Sept 2025– present	TA of Introduction of Atmospheric Science, Columbia University
Jan 2025–June 2025	TA of Statistics, Data Analysis, and Coding for Sustainability Science, Columbia University
Sepe 2024–Dec 2024	TA of Physics of Fluids, Columbia University
Feb 2023–June 2023 Feb 2022–June 2022	TA of Numerical Analysis (twice), NTU
Feb 2023–June 2023	TA of Workshop for Earth System Model, NTU
Feb 2023–June 2023	TA of Atmospheric Radiation, NTU
Sept 2022–Jan 2023	TA of Applied Mathematics I, NTU
Feb 2022–June 2022	TA of Middle-high Latitude Stratosphere-Troposphere Dynamics, NTU

Skills

Computer Languages	Python, MATLAB, Fortran, GrADS, C/C++, HTML, Javascript
Computer-aided Design	Autodesk AutoCAD, Autodesk Inventor
Computational Fluid Analysis	ANSYS Fluent
Language	Mandarin (native), English (fluent), German (basic)