

Cathrene Lagare

Department of Geophysics, Graduate School of Science, Tohoku University, Sendai, Japan

cathrene@tohoku.ac.jp <https://cathlagare.github.io/>

Education

Tohoku University, Japan

PhD Geophysics

September 2025

- Supervisor: Dr. Takeshi Yamazaki, Co-advisors: Dr. Junshi Ito and Dr. Giuseppe Torri
- Jointly Supervised Degree with University of Hawai'i at Manoa
- Atmospheric Science Group

Tohoku University, Japan

MSc Geophysics

2022

- Supervisor: Dr. Takeshi Yamazaki, Co-advisor: Dr. Junshi Ito
- Atmospheric Science Group

Ateneo de Davao University, Philippines

BSc Environmental Sciences, Minor in Sociology

2018

Research and Work Experience

Postdoctoral Fellow

Atmospheric Science Group, Department of Geophysics, Tohoku University

Sendai, Japan

October 2025 - Present

- Multiscale interactions between midlatitude cold-air outbreaks and tropical mesoscale convective systems during the Northern Hemisphere winter
- Japan Society for the Promotion of Science (JSPS) Fellowship (Change from DC to PD category)

Visiting PhD Student

Department of Atmospheric Sciences, University of Hawai'i at Manoa

Honolulu, HI, USA

2023 - 2025

- Research on the development of cold surge vortices over the Maritime Continent (Hosted by Dr. Giuseppe Torri)

Research Assistant

Regional Climate Systems Laboratory, Manila Observatory

Quezon City, Philippines

2019-2020

- Research on multi-scale characteristics of TC activities in the Western North Pacific under the Southeast Asia Regional Climate Downscaling/Coordination Initiative for Climate Downscaling/Coordinated Regional Climate Downscaling Experiment for Southeast Asia (SEACLID/CORDEX-SEA) project

Professional Service

Chapter Scientist

Intergovernmental Panel on Climate Change (IPCC), AR7, WGI, Chapter 4

January 2026 - Present

Publications

4. **Lagare, C.**, Ito, J., Torri, G., & Yamazaki, T., Cold surge vortices and their relation to tropical heavy rainfall during MJO. *In Preparation*
3. **Lagare, C.**, Ito, J., Yamazaki, T., & Torri, G. Seasonal characteristics of mesoscale convective systems over the Philippines. *Under Revision*
2. **Lagare, C.**, Yamazaki, T., & Ito, J. (2023). Numerical simulation of a heavy rainfall event over Mindanao, Philippines, on 03 May 2017: mesoscale convective systems under weak large-scale forcing. *Geoscience Letters*, 10(1), 23.
1. **Lagare, C.**, Coronel, R., Cruz, F., Narisma, G. T., Villafuerte, M., & Tibay, J. (2022). Impacts of planetary boundary layer parameterization in RegCM4. 7 on the intensity and structure of simulated tropical cyclones over the Philippines. *Climate Dynamics*, 59(9), 2915-2928.

Honors and Awards

Young Leaders Overseas Program, Tohoku University (若手リーダー海外派遣プログラム)	2026
American Geoscience Union (AGU) Outstanding Student Presentation Award	2024
DC2 Japan Society for the Promotion of Science (JSPS) Research Fellow	2025
The International Joint Graduate Program in Earth and Environmental Sciences (GP-EES) Research Grant of Tohoku University, Japan	2021-2025
Monbukagakusho Scholarship (MEXT)	2020-2022
29th Bank of the Philippine Islands Foundation and the Department of Science and Technology, Philippines (BPI-DOST) Science Awardee	2018

Selected Conference and Workshop Presentations

- **Lagare, C.**, Ito, J., Torri, G., Yamazaki, T., (2025, December) Cold surge vortices, heavy rains, and the MJO: A study in the Maritime Continent. Poster presentation at the American Geophysical Union Meeting (AGU), USA.
- **Lagare, C.**, Ito, J., Torri, G., Yamazaki, T., (2025, November) Cold surge vortices, heavy rains, and the MJO: A study in the Maritime Continent. Poster presentation at the 7th International Workshop on Nonhydrostatic Models (NHM-WS 2025), Japan.
- **Lagare, C.**, Ito, J., Torri, G., Yamazaki, T., (2025, August) Cold Surge Vortices and Their Relation to Tropical Heavy Rainfall During MJO. Poster presentation at the IX Convection Permitting Climate Modeling (CPCM) Workshop, Hong Kong.
- **Lagare, C.**, Ito, J., Torri, G., Yamazaki, T., (2025, May) Cold Surge Vortex Dynamics and Their Impact on Tropical Heavy Rainfall During MJO. Poster presentation at the Japan Geoscience Union Meeting (JpGU), Japan.
- **Lagare, C.**, Ito, J., Torri, G., Yamazaki, T., (2024, December) Cold Surge Vortices and Their Relation to Tropical Heavy Rainfall During MJO. Poster presentation at the American Geophysical Union Meeting (AGU), USA.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2024, July) Climatological Characteristics of Mesoscale Convective Systems in the Philippines. Poster presentation at the 4th Workshop on Convective Organization and Precipitation Extremes (WCO4), Italy.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2024, May) Climatological Characteristics of Mesoscale Convective Systems in the Philippines. Oral presentation at the Japan Geoscience Union Meeting (JpGU), Japan.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2023, August) Mesoscale Convective Systems Under Weak Large-Scale Conditions over Mindanao, Philippines. The 6th International Workshop on Nonhydrostatic Models (NHM-WS2023), Japan.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2023, May) A Case Study of a Heavy Rainfall Event Associated with Mesoscale Convective Systems under Weak Large-Scale Conditions over Mindanao, Philippines. Oral presentation at the Japan Geoscience Union Meeting (JpGU), Japan.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2023, April) Characteristics of Mesoscale Convective Systems in the Philippines. Poster presentation at the European Geoscience Union Meeting (EGU), Austria.
- **Lagare, C.**, Yamazaki, T., Ito, J. (2022, May) Numerical Simulation of Heavy Rainfall over Mindanao, Philippines. Poster presentation at the Japan Geoscience Union (JpGU) Meeting 2022, Japan.
- **Lagare, C.**, Coronel, R. (2019, July) Numerical Simulations of Heavy Rainfall and Streamflow over Davao City, Philippines: A Baseline Study for the Development of a Hydro-Meteorological Flood Forecasting System. Poster presentation at the 16th Annual Meeting of the Asia Oceania Geosciences Society (AOGS), Singapore.

Skills

Languages: Python, Bash (intermediate). CDO/NCO, Fortran, NCL (basic)

Models: WRF, RegCM