


# Nguyen, Ngoc Kim Hong (Ph.D. Candidate)

 Tsukuba, Ibaraki, Japan

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*"First-year Ph.D. candidate specializing in extreme climate events, statistical downscaling techniques, and land-atmosphere interaction mechanisms. Passionate about leveraging advanced data analysis and modeling to understand and address regional climate challenges. In my free time, I love traveling and hiking!"*

## EDUCATION

### University of Tsukuba

Ibaraki, Japan

Doctor of Philosophy (Ph.D.) in Engineering Mechanics and Energy

04.2024–03.2027 (expected)

### University of Tsukuba

Ibaraki, Japan

Master of Engineering (M.Eng.) in Engineering Mechanics and Energy 3.8/4.0 GPA

04.2022–03.2024

Thesis: Analysis of feedback process on water availability in Africa from the past to future

Courseworks: Computational Fluid Dynamics, Advanced Geotechnical Engineering, Disaster Information, Advanced Computational Mechanics

### University of Science and Technology of Hanoi

Hanoi, Viet Nam

Bachelor of Science and Technology in Space and Applications 3.5/4.0 GPA

09.2018–10.2021

Thesis: Building a high-resolution climate dataset for Vietnam based on ERA5-Land and in-situ data

Courseworks: Climate Modeling, Radar Remote sensing of Earth's surface, Photonics and Optoelectronics, Optical Astronomy, Quantum Mechanics, Introduction to Astronomy II

## PUBLICATIONS

### In progress

- Ngoc Kim Hong, Nguyen<sup>†</sup> & Dairaku, Koji. (2025.04). "Refining Regional Climate: High-Resolution Statistical Downscaling with Relative Humidity and Temperature over Southeast of the Greater Mekong Subregion", Advances in Science, Technology & Innovation (ASTI), Springer. Paper presented at 1<sup>th</sup> Earth Systems and Environment (ESEV) Journal Annual Meeting (ESEV-2025), Istanbul, Turkey.
- Ngoc Kim Hong, Nguyen<sup>†</sup> & Dairaku, Koji. (2025.04). "Extreme Precipitation Assessment in the South-east Greater Mekong Subregion: Insights from Statistical Downscaling", Advances in Science, Technology & Innovation (ASTI), Springer. Paper presented at 1<sup>th</sup> Earth Systems and Environment (ESEV) Journal Annual Meeting (ESEV-2025), Istanbul, Turkey.

### Proceedings

†: denotes corresponding author

- Muhammad, Umar Nadeem; Koji, Dairaku; Ngoc Kim Hong, Nguyen & Llorin, Alyssa Gewell Agena (2024.11). "Development and Evaluation of a Novel Precipitation Product for Extreme Events: A Principal Component Analysis Approach". Advances in Science, Technology & Innovation (ASTI), Springer. Paper presented at the Mediterranean Geosciences Union 2024 (MedGU-24), Barcelona, Catalonia, Spain.
- Ngoc Kim Hong, Nguyen<sup>†</sup> & Dairaku, Koji. (2024.05). "Unraveling Soil Moisture Response and Water Availability over Africa in the past and projection scenarios", Advances in Science, Technology & Innovation (ASTI), Springer. Paper presented at the 6<sup>th</sup> Euro-Mediterranean Conference for Environmental Integration 2024 (EMCEI 6<sup>th</sup>), Marrakech, Morocco.
- Ngoc Kim Hong, Nguyen<sup>†</sup> & Dairaku, Koji. (2023.11). "Soil Moisture Feedback and Moisture Convergence Associated with Surface Water over Africa in 1981-2019 and Projections under a Warming World". Advances in Science, Technology & Innovation (ASTI), Springer. Paper presented at the Mediterranean Geosciences Union 2023 (MedGU-23), Istanbul, Turkey.

# PRESENTATIONS/CONFERENCES

## Oral presentations

\*: denotes presenting author

- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2025.01.14-expected). "Quantifying Extreme Climate Events: A Case Study of Drought in Africa and Moist Heatwaves in Southeast Asia". 38<sup>th</sup> Conference on Climate Variability and Change sponsored by the American Meteorological Society (AMS). 105<sup>th</sup> AMS Annual Meeting, New Orleans, Louisiana, 12–16 January 2025.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2023.05.26). "Investigating Soil Moisture Feedback on Water Availability and Drought Impacts over Africa in the Past and Projected Scenarios". Japan Geoscience Union (JpGU) Meeting 2024, Chiba, Japan, 25–31 May 2024.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2024.05.17). "Unraveling Soil Moisture Response and Water Availability over Africa in the past and projection scenarios". The 6<sup>th</sup> European-Mediterranean Conference for Environmental Integration Meeting (EMCEI), Marrakech, Morocco, 15–18 May 2024.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2023.11.27). "Soil moisture feedback and moisture convergence associated with surface water over Africa in 1981-2019 and projections under a warming world". Mediterranean Geosciences Union Annual Meeting (MedGU-23), Istanbul, Turkey, 26–30 November 2023.
- *Nguyen, Ngoc Kim Hong\**; Thanh, Ngo Duc & Koji, Dairaku. (2023.05.22). "A contribution to the development of high-resolution climate-gridded temperature, precipitation dataset for Vietnam from 1981-2019." Japan Geoscience Union (JpGU) Meeting 2023, Chiba, Japan, 21–26 May 2023.

## Posters

- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2025.01.7-expected). "Assessing Current Trends and Downscaling of Moist Heatwaves in Southern Vietnam and Cambodia to Uncover Formation Mechanisms and Dynamic". 24<sup>th</sup> Annual Student Conference, 105<sup>th</sup> American Meteorological Society (AMS) Annual Meeting, New Orleans, Louisiana, 12–16 January 2025.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2024.10.16). "Quantifying Droughts and Moist Heatwaves in a Warmer Climate". Scientific Forum for Numerical Simulation of Asian Regional Climate Change and Earth System Process, Suzhou Campus of Nanjing University, 14–16 October 2024.
- *Nguyen, Ngoc Kim Hong*; Koji, Dairaku\* & Fumiya Aoki. (2024.06.25). "Investigating the Evolving Feedback Mechanisms Influencing Water Availability in Africa from the Past to Future Prospects". 21<sup>st</sup> Annual Meeting of the Asia Oceania Geosciences Society (AOGS2024), Pyeongchang, Gangwon-do, South Korea, 23–28 June 2024.
- *Nguyen, Ngoc Kim Hong*; Koji, Dairaku\* & Fumiya Aoki. (2024.06.25). "Analyzing the Interplay of Soil Moisture, Precipitation, and Evapotranspiration and Drought Conditions in Anticipation of Water Availability Challenges Across the African Continent". 21<sup>st</sup> Annual Meeting of the Asia Oceania Geosciences Society (AOGS2024), Pyeongchang, Gangwon-do, South Korea, 23–28 June 2024.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2024.01.25). "Soil Moisture Feedbacks and Their Sources over Africa with Potential Impacts on Water Availability under RCP 8.5 Pathway". American Geophysical Union (AGU) Annual Meeting 2023, San Francisco, California, United States, 11–15 December 2023.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2024.01.23) "Investigating Atmospheric Moisture Source and Vapor Pressure Deficit over the African Continent in Historical and Warmer Climate Scenarios". American Geophysical Union (AGU) Annual Meeting 2023, San Francisco, California, United States, 11–15 December 2023.
- *Nguyen, Ngoc Kim Hong\**; Thanh, Ngo Duc & Koji, Dairaku. (2023.09.28). "Development of a High-Resolution Gridded Climate Dataset for Vietnam by blending ERA5-Land and in-situ data in the period 1981-2019". International Conference on Regional Climate ICRC-CORDEX 2023, Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, 25–29 September 2023.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2023.09.27). "Drought-related Impacts and the Role of Soil Moisture Feedback in Africa". International Conference on Regional Climate ICRC-CORDEX 2023, Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, 25–29 September 2023.
- *Nguyen, Ngoc Kim Hong\** & Koji, Dairaku. (2023.05.23) "Soil moisture feedbacks and drought-related

impacts over Africa". Japan Geoscience Union Meeting 2023 (JpGU), Chiba, Japan.

- *Nguyen, Ngoc Kim Hong\**; Thanh, Ngo Duc & Koji, Dairaku. (2022.12.16). "BUILDING A HIGH-RESOLUTION CLIMATE DATASET FOR VIETNAM BASED ON ERA5-LAND AND IN-SITU DATA". American Geophysical Union (AGU) Fall Meeting 2022, Chicago, Illinois, United States.
- *Nguyen, Ngoc Kim Hong\**; Thanh, Ngo Duc & Koji, Dairaku. (2022.12.15). "AN APPROACH FOR INDEPENDENT ANALYSIS IN BUILDING A HIGH-RESOLUTION CLIMATE DATASET FOR VIETNAM BY USING CRESSMAN INTERPOLATION METHOD". American Geophysical Union (AGU) Fall Meeting 2022, Chicago, Illinois, United States.

### Workshops/ Summer school

- Short course: Monitoring the El Niño – Southern Oscillation and its Impacts on the Weather. By the American Meteorological Society (AMS) Committee on Satellite Meteorology, Oceanography, and Climatology (SatMOC), virtual, 18, 25, 27 June and 16, July 2024.
- International Workshop On Geospatial Analysis Using Google Earth Engine (GEE) And Machine Learning With Python. By Centre for Education & Research in Geosciences, Osaka Metropolitan University, I2IT, Naresuan University, 6&9, May 2023.
- International Plasma Physics School in Vietnam, Within the XV<sup>th</sup> Rencontres du Vietnam at the International Centre for Interdisciplinary Science Education (ICISE), Quy Nhon, Vietnam, 1–6, July 2019.

## SKILLS

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- **Operating systems:** Linux, Windows; experienced in using Supercomputer (Wisteria/BDEC-01 System)
- **Proficient in:** GIS-related software, Python, R, CDO/NCO, HTML,  $\LaTeX$ , OpenOffice
- **Familiar with:** Handling and maintaining large datasets in HDF4/5, netCDF; raster/ vector, GeoJson; meteorological data; and imaginary satellite data in remote sensing
- **Others:** Writing, communication, attention to details.

## ACHIEVEMENTS

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### AWARDS

- **Degree Program Director's award** 03.2024  
*By Degree Program in Engineering Mechanics and Energy (EME), University of Tsukuba*
- **Outstanding Student Presentation Award (OSPA) AGU 2022 Fall Meeting (\$200)** 02.2023  
*By American Geophysical Union (AGU) in Atmospheric Sciences section*  
*The awards are given to the top 3–5% of entrees in each section annually.*
- **Bronze Honor** 07.2020  
*By International Astronomy and Astrophysics Competition (IAAC)*

### SCHOLARSHIPS/FELLOWSHIPS

- **Research Encouragement Tsukuba Scholarship (¥100000)** 03.2024  
*By University of Tsukuba*
- **Japanese Government (Monbukagakusho: MEXT) Scholarship (¥147000 monthly)** 04.2022–03.2027  
*By The Ministry of Education, Culture, Sports, Science and Technology of Japan*

## EXPERIENCES

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- **Tutor** 04.2024–09.2024  
*A program of UT is mainly to aid foreign students in Japanese and everyday life guidance.*
- **Teaching Assistant (TA)** for the Mechanics II course Spring AB 2024, 2025  
*Course topics covered systems of particles, kinematics, rigid body motion, and analytical vector mechanics. Responsibilities included managing classes, monitoring attendance, and supporting grading processes.*
- **Internship** 06.2021–09.2021  
*Meteorological data processing and high-resolution data set development for Vietnam.*

## PROFESSIONAL AFFILIATION

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| – <i>American Meteorological Society (AMS)</i>   | 08.2024–Present |
| – <i>Asia Oceania Geosciences Society (AOGS)</i> | 03.2024–Present |
| – <i>Japan Geoscience Union (JpGU)</i>           | 05.2023–Present |
| – <i>American Geophysical Union (AGU)</i>        | 11.2022–Present |

## OTHER SERVICES

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|---|-----------------|
| – Host a collaboration-exchange meeting between Vietnam-Japan University and UT | 21.11.2024      |
| – Give feedback on OSPA AGU 2023 presentations                                  | 12.2023–01.2024 |

## LANGUAGES

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|---------------------|-------------------------------------|
| – <i>Vietnamese</i> | <b>Mothertongue</b>                 |
| – <i>English</i>    | <b>Con conversationally fluent</b>  |
| – <i>Français</i>   | <b>Basic words and phrases only</b> |

## MEDIA COVERAGE

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- *Chọn USTH, chọn bước ra khỏi vùng an toàn để tận hưởng ngày mới thật tinh tươm.* 2023. USTH Newsletter.
- *Ms. Nguyen Ngoc Kim Hong received AGU 2022 Outstanding Student Presentation Award (OSPA).* 2023. UT Newsletter.