

NGOC B. NGUYEN

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EDUCATION

Ph.D. in Ecosystem Modeling, University of California at Berkeley <i>Department of Environmental Science, Policy, and Management</i> (Advised by Dr. Trevor F. Keenan)	2021- 2026 (Expected) Berkeley, California
Honors B.S., University of Denver Major: Environmental Science (GPA 3.87/4.0); Minors: Mathematics, Leadership	2017-2021 Denver, Colorado

RESEARCH INTERESTS

Summary: I study climate-ecosystem carbon flux interactions by synthesizing large ecological datasets and applying novel machine learning approaches. My research focuses on modeling and predicting global ecosystem CO₂ fluxes and pools under high climate variability and elevated CO₂, using in-situ eddy-covariance observations, Dynamic Global Vegetation Models (DGVMs), and remote sensing data.

Key words: *Ecosystem Carbon Flux Modeling, Ecosystem Respiration, Vegetation Productivity, Machine Learning, Deep Learning, Large Language Models, Time Series Classification/Forecasting, DGVMs*

RESEARCH EXPERIENCE

Visiting Researcher, University of Oslo, Norway & University Center in Svalbard (UNIS) Studying the contribution of planktons on Arctic marine carbon budget under climate extremes through data synthesis and modeling (Mentored by Dr. Dinh Khuong).	12/24-02/25
Visiting Researcher, European Commission Joint Research Centre, Italy Globally upscaling ecosystem respiration using FLUXNET Eddy-covariance and remote sensing data (Mentored by Dr. Mirco Migliavacca).	09-11/23
Graduate Student Researcher, University of California, Berkeley Incorporating mechanistic ecological processes into site to global scaled carbon flux models, funded by the LEMONTREE project.	08/21-05/26
Undergraduate Researcher, University of Denver Evaluated the past and future hydrological responses in Nicaragua's coastal area and the Czech Republic's central mountain area (Mentored by Dr. Michael Daniels).	09/18-05/20
NSF-REU awardee, Oregon State University Collected field data for the Detrital Input and Removal (DIRT) international project (Mentored by Dr. Kate Lajtha).	06-09/18
Third Place, International Science and Engineering Fair (ISEF) in Arizona	05/16

AWARDS & GRANTS

UC Berkeley Peder Sather Grant Award (PIs: Trevor Keenan, Dinh Khuong; Ph.D. student: Ngoc Nguyen)	\$20,000	06/23
FLUXNET Secondment Program Research Exchange Fellowship	~\$10,000	04/22
UC Berkeley Conference Travel Grant Award	\$1500	09/22
University of Denver (DU) Department Award for Outstanding Undergraduate Research	\$150	05/21
DU Grand Challenge Research Assistant Fellowship	\$1000	02-05/21

DU Grand Challenge Student Scholar Grant	\$5000	02-09/20
DU Summer Internship Award	\$2500	05/20
Undergraduate Summer Research Grant	\$3500	05/19
University Honors Program Research Grant	\$1000	05/20
American Water Resources Association (AWRA) Undergraduate Scholarship	\$2000	08/19
Undergraduate Spring Research Grant	\$1500	03/19
STEM Outreach Leadership Development Grant (x2)	\$2000	05/20

PUBLICATIONS

N Nguyen, M Migliavacca, M Bassiouni, D Baldocchi, L Gherardi, J Green, D Papale, M Reichstein, KH Cohrs, C Alessandro, TD Nguyen, H Nguyen, Q Nguyen, TF Keenan (2025). Widespread underestimation of rain-induced carbon losses across global drylands. *Nature Geoscience (In press)*

H Zhang, H Wang, IJ Wright, I Prentice, S Harrison, N Smith, A Westerland, L Rowland, L Plavcová, H Morris, P Reich, S Jansen, TF Keenan, **N Nguyen** (2025). Thermal acclimation of stem respiration implies a weaker carbon-climate feedback. *Science (In press)*

X Luo, R Zhao, H Chu, A Collalti, S Fatichi, TF Keenan, X Lu, **N Nguyen**, I Prentice, W Sun, L Yu (2025). Global variation in vegetation carbon use efficiency inferred from eddy covariance observations. *Nature Ecology & Evolution (In press)*

CONFERENCES

KH Cohrs, **N Nguyen**, (2025). A Protocol to Evaluate Carbon Dioxide Flux Partitioning Methods for Eddy Covariance Data. *EGU Annual Meeting 2025*.

N Nguyen, TD Nguyen, H Nguyen, Q Nguyen, YH Kang, TF Keenan (2024). FLUXPULSE: Detecting rain-induced carbon emissions across biomes. *AGU Annual Meeting 2024*.

HQ Wang, YH Kang, **N Nguyen**, TF Keenan (2024). Assessing Land Carbon Storage Capacity and Its Environmental Limitations. *AGU Annual Meeting 2024*.

N Nguyen, M Migliavacca, M Bassiouni, D Baldocchi, L Gherardi, J Green, D Papale, M Reichstein, KH Cohrs, C Alessandro, TD Nguyen, H Nguyen, Q Nguyen, TF Keenan (2024). Unaccounted carbon losses across global drylands. *AmeriFlux Annual Meeting 2024. Oral Presentation*

S Paulus, R Orth, S Lee, JA Nelson, A Hildebrandt, **N Nguyen**, M Reichstein, M Migliavacca (2024). Mapping soil moisture uptake by dry soils across Eddy covariance measurement sites. *EGU Annual Meeting 2024*.

X Luo, R Zhao, H Chu, S Fatichi, X Lu, **N Nguyen**, W Sun, TF Keenan (2023). Using eddy covariance data to derive carbon use efficiency and partition ecosystem respiration. *AGU Annual Meeting 2023*.

N Nguyen, M Migliavacca, J Green, M Bassiouni, C Alessandro, L Gherardi, D Papale, D Baldocchi, Keenan TF (2023). Detection and Attribution of Dryland Respiration Pulses in Eddy Covariance Measurements. *AGU Annual Meeting 2023. Oral Presentation*

N Nguyen, X Yu, TF Keenan, J Liu (2023). Examining Ecosystem Respiration Sensitivity to Temperature and Water Availability during Droughts. *AGU Annual Meeting 2023*.

N Nguyen, TF Keenan, M Migliavacca, JK Green, M Bassiouni (2022). Using Water Availability to Develop Respiration Models for Eddy-covariance Observations. *AGU Annual Meeting 2022*.

N Nguyen, TF Keenan, M Migliavacca, JK Green, M Bassiouni (2022). Incorporating Water Availability into Ecosystem Flux Partitioning". *ICOS Conference 2022. Oral Presentation*

N Nguyen, H Duong, M Daniels, B Majestic (2021). Sediment Heavy Metal Pollution of an Urban River in Vietnam. *AAG Annual Conference 2021*.

TALKS

Science talk series, Max Planck Institute of Biogeochemistry, Germany	10/23
Monthly meeting, Bio-Economy (Unit D1), European Commission Joint Research Centre, Italy	10/23
Guest Lecture, Fulbright University, Vietnam	04/23

REVIEWER EXPERIENCE

Global Change Biology	2024
Journal of Global Ecology and Biogeography	2022

OUTREACH

Manager, Terrestrial Ecosystems Journal Club, UC Berkeley	2022-2025
Guest Lecture, Fulbright University, Vietnam x2	04/23, 04/24
Organizer, Department International Student Lunch, UC Berkeley	04/23
Project Mentor, Data Science Discovery Program, UC Berkeley	01-05/23
Conference Organizer, Vietnam Education Fellow 2.0 Annual Conference x2	08/22, 08/24
Interpreter, Consulate General of Vietnam in San Francisco	2022-2024
Grant Award Judge, Colorado Science and Engineering Fair x2	04/20, 04/21
Organizer, Science for the Future Fair 2020	08/19-08/20
After-school Program Organizer, STRIVE Prep Middle School	09/18-06/19

COURSES & WORKSHOPS

Fluxcourse, Colorado	06/23
A Crash Course in Causality, Coursera	10/23
New Advances in Land Carbon Cycle Modeling, Northern Arizona University	06/22
DeepLearning.AI Machine Learning Specialization Certification (3 courses)	09/22

SKILLS

Programming Languages: R (Advanced), Python (Advanced).

Machine Learning & Deep Learning Libraries: PyTorch, TensorFlow

Software & Tools: Google Colab, OpenAI API, RStudio, Jupyter Notebook, Google Earth Engine, ArcGIS, LaTeX

Languages: Vietnamese (Native), English (Fluent), Chinese (Intermediate – HSK4 level), Spanish (Beginner)

REFERENCES

Ph.D. Advisor: Trevor F. Keenan

Ph.D. committee members: Dennis Baldocchi, Lau Gherardi

Mentors at visiting institutions: Mirco Migliavacca, Dinh Khuong

Undergraduate mentors: Michael Daniels, Kate Lajtha