Curriculum Vitae - Nguyễn Trường An, PhD

Environmental Scientist | Water Quality Modeling | Biogeochemistry Researcher

truongan9393@yahoo.com | Phone: +33 662 04 98 13
ResearchGate | Orcid | GoogleScholar

PROFESSIONAL SUMMARY

Postdoctoral researcher specializing in **water quality modeling** and **biogeochemical processes** in rivers and estuaries. Expert in developing reactive transport models to understand nutrient dynamics, eutrophication, and greenhouse gas emissions in tropical aquatic systems. Extensive international research experience across France and Vietnam.

> **Key Expertise:** Biogeochemical Modeling • Water Quality Assessment • Greenhouse Gas Emissions • Eutrophication Management • Tropical Estuaries • Data Analysis & Scientific Programming

METRIC	VALUE
Publications	19 journal articles + 11 conference presentations
Research Areas	Modelling, Water Quality, Biogeochemistry, Climate Change
Experience	7+ years developing environmental models, 6+ years teaching at Grenoble INP
Languages	Vietnamese (native), English (B2), French (B1)
Programming	Python, C/C++, R, QGIS, ArcGIS

EDUCATION

PhD in Environmental Science 11/2018–12/2021
University of Grenoble Alpes (UGA), France
Thesis: Biogeochemical modeling in a tropical estuary and eutrophication management
Achievement: Developed C-GEM reactive transport model for tropical estuaries

Master's in Hydraulics 09/2017–08/2018
Grenoble Institute of Technology (Grenoble INP), France
Focus: Modeling nutrient dynamics in the Saigon River Estuary, Vietnam
Achievement: Implemented advanced nutrient dynamics model in C language

Bachelor's in Environmental Management 09/2011–02/2016
Ho Chi Minh City University of Technology (HCMUT), Vietnam
Research: Antibiotic pollution in the Saigon River, Vietnam

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher (26 months) 05/2024–06/2026
Institut Géosciences Environnement (IGE), Institut de recherche pour le développement (IRD)
Project: TROPECOS - Tropical Estuaries Greenhouse Gases

- Leading research on past, present, and future greenhouse gas emissions in tropical estuaries
- Developing predictive models for climate change impacts on estuarine biogeochemistry
- Managing international collaborations between French and Vietnamese institutions
- Planning to publish 4 peer-reviewed articles as first author

Postdoctoral Researcher (22 months) 05/2022–02/2024
INRAE, l'Institut national de recherche pour l'agriculture, l'alimentation et l'environnement
Project: Evolution of carbonate system in the Loire River using high-resolution datasets

- Analyzed multidecadal trends in CO_2 evasion and aquatic metabolism
- Training modelling and large dataset processing for EDF staff
- Published 2 peer-reviewed articles (1 article as first author)

> **Research Highlight:** First comprehensive analysis of 30-year trends in river metabolism and CO_2 dynamics, revealing significant shifts in aquatic ecosystem functioning due to environmental changes.

Doctoral Contract (37 months) 11/2018–12/2021
Institute of Environmental Geosciences (IGE), France
Project: Water quality and biogeochemical modeling for tropical estuaries

- Developed 1D reactive transport model (C-GEM) for nutrient dynamics and greenhouse gas emissions
- Conducted extensive field campaigns for water quality monitoring
- Published 8 peer-reviewed articles during doctoral period (3 articles as first author)

Master Internship (6 months) 08/2017–07/2018
Institute of Environmental Geosciences (IGE), France
Project: Nutrient dynamics model implementation for the Saigon River

- Implemented computational model using C programming language

Principal Investigator (6 months) 12/2016–08/2017
Young Investigator Project, HCMUT, Vietnam
Project: Pilot-scale constructed wetland design and wastewater analysis

- Led independent research project as undergraduate researcher
- Designed and operated pilot-scale treatment system
- Published 2 peer-reviewed articles as first author

Lab Technician (18 months) 12/2015–06/2017
Asian Center for Water Research (CARE-RESCIF), Vietnam

- Operated analytical instruments: ICP-OES analyzer, TOC-V
- Conducted water sampling campaigns and sample preparation
- Maintained laboratory quality control standards

Bachelor Internship (6 months) 06/2015–12/2015
HCMUT Environmental Research Laboratory, Vietnam
Project: Development of passive sampling methods for antibiotic analysis in rivers

- Developed and validated sampling methodologies
- Analyzed antibiotics in environmental water samples
- Published one peer-reviewed as first author and, one as co-author on methodology

TEACHING EXPERIENCE

Teaching Assistant 2019–2025
Grenoble Institute of Technology (Grenoble INP)

Water Quality and Treatment - Delivered lectures to master's students: - **River Water Quality Modeling** - Practical sessions for Seine water quality modelling - **Water Sampling and Laboratory** - Practical sessions for River water quality assessment - **Student Mentoring** - Supervised 2 students (Grenoble INP), 1 student (HCMUT) as master 1 level

> **Teaching Impact:** 6+ years of experience teaching environmental engineering students, covering theoretical foundations and practical applications of water quality management.

Areas of Teaching Interest:

- Environmental Modeling and Simulation
- Water Quality Management and Treatment
- Biogeochemical Processes in Aquatic Systems
- Data Analysis and Statistical Methods for Environmental Sciences
- GIS Applications in Environmental Research

TECHNICAL COMPETENCES

Programming & Modeling:

- **Languages:** Python (advanced), C/C++ (proficient), R (proficient)
- **Applications:** Water quality modeling, reactive transport models, statistical analysis

Data Analysis & Visualization:

- Large-scale dataset processing and time series analysis
- Statistical modeling and uncertainty quantification
- Publication-quality figure generation

Geospatial Analysis:

- **Software:** QGIS (advanced), ArcGIS (proficient)
- **Applications:** Spatial analysis, watershed delineation, remote sensing data processing

Laboratory & Field Skills:

- Water quality sampling and monitoring
- Analytical chemistry (ICP-OES, TOC analysis, spectrophotometry)
- Field equipment operation and maintenance

Languages:

- **Vietnamese:** Native speaker
- **English:** Proficient (B2 level) - Academic and technical communication
- **French:** Basic professional proficiency (B1 level)

PUBLICATIONS

> **Publication Record:** 19 peer-reviewed journal articles (8 as first author) + 11 conference presentations

Journal Articles (Peer-Reviewed)

First Author Publications:

1. **Nguyen, A. T.**, Abril, G., Diamond, J. S., Lamouroux, R., Martinet, C., & Moatar, F. (preprint). Multidecadal trends in CO_2 evasion and aquatic metabolism in a large temperate river. *EGUsphere*, 2025, 1-27. 10.5194/egusphere-2025-1478
2. **Nguyen, A. T.**, Dao, T. S., Strady, E., Nguyen, T. T. N., Aimé, J., Gratiot, N., & Némery, J. (2022). Phytoplankton characterization in a tropical tidal river impacted by a megacity: The case of the Saigon River (Southern Vietnam). *Environmental Science and Pollution Research*, 29(3), 4076–4092. 10.1007/s11356-021-15850-x
3. **Nguyen, A. T.**, Némery, J., Gratiot, N., Dao, T. S., Le, T. T. M., Baduel, C., & Garnier, J. (2022). Does eutrophication enhance greenhouse gas emissions in urbanized tropical estuaries? *Environmental Pollution*, 303(September 2021). 10.1016/j.envpol.2022.119105
4. **Nguyen, A. T.**, Némery, J., Gratiot, N., Garnier, J., Dao, T. S., Thieu, V., & Laruelle, G. G. (2021). Biogeochemical functioning of an urbanized tropical estuary: Implementing the generic C-GEM (reactive transport) model. *Science of the Total Environment*, 784, 147261. 10.1016/j.scitotenv.2021.147261
5. **Nguyen, A. T.**, Némery, J., Gratiot, N., Dao, T. S., Thieu, V., Garnier, J., & Laruelle, G. (2020). Evaluating the response of water quality to pollutant loading in the Saigon River system (Vietnam): modelling scenarios by C-GEM, an estuarine biogeochemical model. In Water, Megacities and Global Change conference December 2020.
6. **Nguyen, T. A.** (2018). Antibiotics And Pesticides In Water And Sediments From Intensive Shrimp Farms In Southern Vietnam. *Vietnam Journal of Science and Technology*, 54, 146. 10.15625/2525-2518/54/4B/12035
7. **Nguyen, A. T.**, Le, T. M. T., Tran, V. Q., Truong, V. N., Nguyen, L. T., Nguyen, P. H. T., & Nguyen, T. H. T. (2017). Effect of oxygen states in horizontal subsurface flow constructed wetlands on the removal of organic matter, nutrients, some metals and octylphenol. *VNUHCM Journal of Science and Technology Development*, 20(K9), Article K9. 10.32508/stdj.v20iK9.1676
8. **Nguyen, T. A.**, Tam, L. T. M., Viet, T. Q., Viet, T. N., Luan, N. T., Minh, N. V., Trang, N. T. H., & Tuc, D. Q. (2017). Recommendation of optimal design and operation parameters for constructed wetland for sludge treatment based on the effect of hydraulic retention time, sludge loading rate and vegetation. *VNUHCM Journal of Science and Technology Development*, 20(K8), Article K8. 10.32508/stdj.v20iK8.1669

Contributing Author Publications:

1. Le, T. M. T., **Nguyen, T. A.**, Nguyen, T. T., Nguyen, T. T., Nguyen, P. D., Némery, J., & Baduel, C. (2025). Assessing Spatial Trends and Land Use Impacts on Surface Water Quality: A Case Study of the Saigon and Vam Co Rivers in Southern Vietnam. *Case Studies in Chemical and Environmental Engineering*, 101225. 10.1016/j.cscee.2025.101225
2. Thi-Minh-Tam Le, Trung-Tin Nguyen, **Truong-An Nguyen**, Thi-Huyen-Trang Nguyen, Phuoc-Dan Nguyen (2025). Water Quality Assessment of Urban Canals in Ho Chi Minh City, Vietnam: Effectiveness of Renovation Efforts in Minimizing Pollution. *Journal of Water Management Modeling*. 10.14796/JWMM.S545

3. Diamond, J. S., **Nguyen, T.A.**, Abril, G., Bertuzzo, E., Chanudet, V., Lamouroux, R., & Moatar, F. (2025). Inorganic carbon dynamics and their relation to autotrophic community regime shift over three decades in a large, alkaline river. *Limnology and Oceanography*. 10.1002/lno.70016
4. Caracciolo, R., Escher, B. I., Lai, F. Y., **Nguyen, T. A.**, Le, T. M. T., Schlichting, R., Tröger, R., Némery, J., Wiberg, K., Nguyen, P. D., & Baduel, C. (2023). Impact of a megacity on the water quality of a tropical estuary assessed by a combination of chemical analysis and in-vitro bioassays. *Science of The Total Environment*, 877(February), 162525. 10.1016/j.scitotenv.2023.162525
5. Garnier, J., Billen, G., G Laruelle, G., Le Gendre, R., Némery, J., **Nguyen, T.A.**, Romero, E., Thieu, V., & Wei, X. (2023). Coastal marine system and estuary functioning is driven by the upstream river basin. In *Reference Module in Earth Systems and Environmental Sciences* (p. B9780323907989000093). Elsevier. 10.1016/B978-0-323-90798-9.00009-3
6. Camenen, B., Gratiot, N., Cohard, J. A., Gard, F., Tran, V. Q., **Nguyen, A. T.**, Dramais, G., van Emmerik, T., & Némery, J. (2021). Monitoring discharge in a tidal river using water level observations: Application to the Saigon River, Vietnam. *Science of the Total Environment*, 761, 143195. 10.1016/j.scitotenv.2020.143195
7. Nguyen, T. T. N., Némery, J., Gratiot, N., Garnier, J., Strady, E., Nguyen, D. P., Tran, V. Q., **Nguyen, A. T.**, Cao, S. T., & Huynh, T. P. T. (2020). Nutrient budgets in the Saigon–Dongnai River basin: Past to future inputs from the developing Ho Chi Minh megacity (Vietnam). *River Research and Applications*, 36(6), 974–990. 10.1002/rra.3552
8. Noncent, D., Strady, E., Némery, J., Thanh-Nho, N., Denis, H., Mourier, B., Babut, M., **Nguyen, T. A.**, Nguyen, T. N. T., Marchand, C., Desmet, M., Tran, A. T., Aimé, J., Gratiot, N., Dinh, Q. T., & Nguyen, P. D. (2020). Sedimentological and geochemical data in bed sediments from a tropical river-estuary system impacted by a developing megacity, Ho Chi Minh City—Vietnam. *Data in Brief*, 31, 105938. 10.1016/j.dib.2020.105938
9. Nguyen, T. T. N., Némery, J., Gratiot, N., Garnier, J., Strady, E., Tran, V. Q., **Nguyen, A. T.**, Nguyen, T. N. T., Golliet, C., & Aimé, J. (2019). Phosphorus adsorption/desorption processes in the tropical Saigon River estuary (Southern Vietnam) impacted by a megacity. *Estuarine, Coastal and Shelf Science*, 227(August), 106321. 10.1016/j.ecss.2019.106321
10. Nguyen, T. T. N., Némery, J., Gratiot, N., Strady, E., Tran, V. Q., **Nguyen, A. T.**, Aimé, J., & Peyne, A. (2019). Nutrient dynamics and eutrophication assessment in the tropical river system of Saigon – Dongnai (southern Vietnam). *Science of the Total Environment*, 653, 370–383. 10.1016/j.scitotenv.2018.10.319
11. Dinh, Q. T., **Nguyen, T. A.**, Moreau-Guigon, E., Alliot, F., Teil, M. J., Blanchard, M., & Chevreuil, M. (2017). Trace-Level Determination of Oxolinic Acid and Flumequine in Soil, River Bed Sediment, and River Water Using Microwave-Assisted Extraction and High-Performance Liquid Chromatography with Fluorimetric Detection. *Soil and Sediment Contamination*, 26(3), 247–258. 10.1080/15320383.2017.1276154

Conference Presentations

Selected International Presentations:

1. **T.A. Nguyen**, et al., (2025). Greenhouse Gas Emissions and Drivers in Tropical Estuaries: Insights from the Mekong Delta and Saigon River (Vietnam). *International Conference I.S.Rivers*, 30 June to 4 July 2025, Lyon, France. Oral presentation
2. **T.A. Nguyen**, et al., (2024). Past, Present, and Future Greenhouse Gases in Tropical Estuaries. *FairCarboN*, 25 to 27 Nov 2024, Sète, France. Oral Presentation
3. **T.A. Nguyen**, et al., (2022). Spatial and temporal variation of greenhouse gas emissions in an urbanized tropical estuary (the Saigon River, Vietnam). *ECSA 59*, September 5-8, 2022, Kursaal, San Sebastian, Spain. Poster
4. **T.A. Nguyen**, et al., (2022). Eutrophication management scenarios in the Saigon River by using C-GEM, an estuarine biogeochemical model. *ECSA 59*, September 5-8, 2022, Kursaal, San Sebastian, Spain. Poster
5. **T.A. Nguyen**, et al., (2022). Impact of anthropogenic inputs on greenhouse gas emissions in the tropical Saigon River Estuary. *International Symposium on Water Sustainability & Green Technologies*, November 25-26, 2022, Ho Chi Minh City, Vietnam. Poster
6. **T.A. Nguyen**, et al., (2022). Modeling the seasonal nutrients dynamics and phytoplankton development in Saigon River Estuary, Vietnam. *International Symposium on Ecohydraulics*, July 4-8, 2022, Lyon, France. Poster
7. **T.A. Nguyen**, et al., (2020). Modelling scenarios by C-GEM, an estuarine biogeochemical model. *International Conference on Water, Megacities and Global Change*, December 1-4, 2020, Paris (Web-Seminar), Vietnam. Oral presentation
8. **T.A. Nguyen**, et al., (2020). Evaluating estuarine responses to modification of nutrient loads from megacity by a generic reactive-transport model. *International Symposium on Ecohydraulics*, December 23-24, 2019, Lyon, France. Oral presentation
9. **T.A. Nguyen**, et al., (2019). Self-purification capacity of a tropical estuary using a generic reactive-transport estuarine model. *Green Technologies for Sustainable Water*, December 1-5, 2019, Ho Chi Minh City, Vietnam. Poster
10. **T.A. Nguyen**, et al., (2019). Modelling nutrient dynamics in a tropical estuary under human pressure: case study of the Saigon tidal River (Southern Vietnam). *International Conference on Water Resources and Coastal Engineering*, April 25, 2019, Da Nang City, Vietnam. Oral

11. **T.A. Nguyen**., et al., (2016). Analysis of antibiotic and pesticide residues in shrimp farm waters using passive sampling. *SETAC Asia/Pacific Conference*, September 16-19, 2016, Singapore. Oral presentation

PROFESSIONAL REFERENCES

Julien Némery, PhD
Professor-Researcher
Institute of Environmental Geosciences (IGE)
Grenoble Institute of Technology, France
julien.nemery@grenoble-inp.fr

Nicolas Gratiot, PhD
Research Fellow
Institut de recherche pour le développement (IRD)
Institute of Environmental Geosciences (IGE), Grenoble, France
nicolas.gratiot@ird.fr

Florentina Moatar, PhD
Senior Researcher
Institut national de recherche pour l'agriculture, l'alimentation et l'environnement (INRAe)
Lyon, France
florentina.moatar@inrae.fr

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