

RAFAEL DE CARVALHO BUENO



I am a Ph.D. candidate in Environmental Engineering at the Federal University of Paraná
My research interests are in physical limnology and dynamic of stratified flows.

CONTACT

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SKILLS

Scientific competences

Internal waves
Gravity currents
Physical limnology
Numerical modelling
Software development
Sensor development

Programming skills

Python
C++
Arduino
Fortran
Matlab

general skills

LaTeX
Microsoft Office Skills
Microcontroller

Languages

Portuguese
English
Spanish

ABOUT ME

I am a Ph.D. candidate in Environmental Engineering at the Federal University of Paraná (Brazil) and a visiting Ph.D. student in the Environmental Physics group at the University of Koblenz-Landau (Germany). I am a member of the Research Group of Environmental Monitoring, Modeling and Management of Reservoirs, Estuaries, and Catchments (REMARE). B.Eng and M.Eng in Environmental Engineering from Federal University of Paraná with a long term in Institute of Technology Tralee (Ireland). My research interests are in physical limnology and dynamic of stratified flows.

EDUCATION

📅 Atual
📍 Federal University of Paraná, Brazil
GPA 2.94/3.00 (98%)
Ph.D., Environmental Engineering

📅 2019
📍 Federal University of Paraná, Brazil
GPA 2.88/3.00 (96%)
MEng., Environmental Engineering

📅 2016
📍 Federal University of Paraná, Brazil
Institute of Technology Tralee, Ireland
BEng., Environmental Engineering

COMPLEMENTARY COURSES

📅 2020
📍 Heidelberg University, Germany
Helmholtz Centre for Env. Research
Physical Limnology Course

📅 2019
📍 University of Freiburg, Germany
University computing centre
Research Data Management

EXPERIENCE

📅 02/2020 - Actual
📍 University of Koblenz-Landau, Germany
Guest scientist
Visiting PhD student in the physical limnology research group at the University of Koblenz-Landau under the orientation of professor Dr. Andreas Lorke. Research focus on environmental fluid mechanics, physical limnology, numerical modelling and sensor development.

📅 01/2017 - Actual
📍 Federal University of Paraná, Brazil
Teaching assistant
Teaching assistant in the Environmental Engineering Department and the Graduate Program of Environmental Engineering (PPGEA) at UFPR for the following courses: Fluid Mechanics, Applied Mathematics to Environmental Engineering (undergraduate level) and Hydrodynamics of Environmental Aquatic System (Graduate level).

📅 02/2015 - 12/2016
📍 Federal University of Paraná
Internationalization Scholarship
Apoio em traduções de artigos científicos e material institucional da UFPR, promovendo a melhoria da visibilidade e internacionalização da produção científica da Universidade Federal do Paraná.

📅 02/2012 - 12/2014
📍 LACTEC institutes
Intern
Desenvolvimento de projetos e estudos hidrológicos, geoprocessamento, desenvolvimento de modelos numéricos relacionados aos fenômenos ambientais (hidrológicos e topográficos).

02/2011 - 12/2012

Department of Computer Science (UFPR) **Program of Initiation to Teaching**
Support for the following courses: programming language (C++).

COURSES TAUGHT

2021

FLUXNET-ECN Spring Workshop 2021
Teacher

Python Course

2020

KIT (Karlsruhe), Germany
Professor's Assistant

Hydrodynamic modelling

2019

Federal University of Paraná, Brazil
Professor's Assistant

Hydrodynamics of aquatic ecosystems

2019

Federal University of Paraná, Brazil
Professor's Assistant

Applied Mathematics I

2018 - 2019

Federal University of Paraná, Brazil
Professor's Assistant

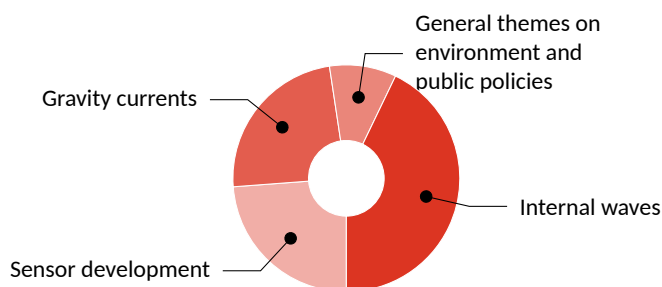
Environmental Fluid Mechanics I

2018 - 2019

Federal University of Paraná, Brazil
Professor's Assistant

Environmental Fluid Mechanics II

RESEARCH INTERESTS



ONGOING SCIENTIFIC PROJECTS

Sensors development for environmental monitoring

This project is a group of studies focused on the development of low-cost sensors to control continuously the environmental conditions, which is a key parameter to establish circumstances in which human activities carry the risk of harmful effects on the natural environment.

Dynamic of lakes and reservoirs

This project is a group of studies investigating the hydrodynamic of lakes and reservoirs, including the effect of internal waves and gravity current on the biogeochemical fluxes, sediment resuspension, and greenhouse gases emissions in lakes and reservoirs.

REFERENCES

Dr.-Ing. Tobias Bleninger

Env. Engineering Department (UFPR)
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Advisor

Dr. Michael Mannich


Env. Engineering Department (UFPR)
Tel: +55(41) 3361 3030
Email: mmannich@gmail.com
Collaborating researcher


Dr. Andreas Lorke

Head of Env. Physics Group (UKL)
Tel: +49 06341 28031317
Email: lorke@uni-landau.de
Advisor

PEER-REVIEWED JOURNAL ARTICLES


Internal wave analyzer for thermally stratified lakes

 **de Carvalho Bueno, R.**; R., Bleninger, T.; Lorke, A.

 2021  Environ. Model. Softw.

[DOI](#)


An empirical parametrization of internal seiche amplitude including secondary effects

 **de Carvalho Bueno, R.**; Bleninger, T.; Yao, H.; Rusak, J.

 2021  Environ. Fluid Mech.

[DOI](#)

Wind-induced internal seiches in Vossoroca reservoir, PR, Brazil


 **de Carvalho Bueno, R.**; Bleninger, T.



 2018  Revista Brasileira de Recursos Hídricos, Scielo Brasil

[DOI](#)

CONFERENCE PRESENTATIONS AND TALKS

Dynamic: Automatic dye tracing software applied to gravity currents

 **Silva, N. S.**; de Carvalho Bueno, R.; Diniz, A.; Bleninger, T.

 2021  XXIV Simpósio Brasileiro de Recursos Hídricos, Belo Horizonte (Brazil)

Dinâmica de lagos em período de estratificação térmica: Ocorrência de Seichas Internas

 **de Carvalho Bueno, R.**; Bleninger, T.


 2020  XIII Simpósio Brasileirade Recursos Hídricos, Foz do Iguaçu (Brazil)



Desenvolvimento de um sensor de turbidez da água de baixo custo utilizando um Arduino

 **de Carvalho Bueno, R.**; Diniz, A.; Ribeiro, C.; Bleninger, T.

 2020  XIII Simpósio Brasileirade Recursos Hídricos, Foz do Iguaçu (Brazil)

Experimental analysis of gravity currents on smooth and rough bottom and in an unstratified and stratified ambient

 **de Carvalho Bueno, R.**; Hoeltgebaum, L.; Colombo, G.; Mannich, M.; Bleninger, T.


 2019  AHR World Congress, Panama City (Panama)

Avaliação e detecção de ondas internas em lagos

 **de Carvalho Bueno, R.**; Bleninger, T.

 2018  I Encontro de Pesquisa e Desenvolvimento Tecnológico da UFPR

Análise experimental da formação de ondas internas gravitacionais a partir de correntes de gravidade

 **de Carvalho Bueno, R.**; Hoeltgebaum, L.; Colombo, G.; Mannich, M.; Bleninger, T.

 2018  II Encontro Sul Brasileiro de Engenharia Ambiental e Sanitária, Foz dolguaçu-PR (Brazil)



Análise experimental da estratificação causada por correntes de gravidade sobre fundo liso e rugoso.

 **Hoeltgebaum, L.**; Colombo, G.; de Carvalho Bueno, R.; Bleninger, T.; Mannich, M.

 2018  II Encontro Sul Brasileiro de Engenharia Ambiental e Sanitária, Foz dolguaçu-PR (Brazil)



Gravity currents produced by lock-exchange and intrusion.

 **de Carvalho Bueno, R.**; Marcon, L.; Wosiacki, L.; Romero, M.; Bleninger, T.; Mannich, M.

 2017  XXII Simpósio Brasileira deRecursos Hídricos, Florianópolis-SC (Brazil)



Avaliação experimental da dispersão da pluma de um jato denso.

 **Romero, M.**; Marcon, L.; de Carvalho Bueno, R.; Wosiacki, L.; Mannich, M.; Bleninger, T.

 2017  XXII Simpósio Brasileira deRecursos Hídricos, Florianópolis-SC (Brazil)

Verificação da ocorrência de ondas internas no reservatóriodo Vossoroca.

 **de Carvalho Bueno, R.**; Bleninger, T.

 2017  XXII Simpósio Brasileira deRecursos Hídricos, Florianópolis-SC (Brazil)