Stephane K. Ngueleu, Ph.D.

Postdoctoral Fellow
Ecohydrology Research Group
Department of Earth and Environmental Sciences
University of Waterloo
200 University Avenue West, Waterloo, Ontario, N2L 3G1, Canada
Office: EIT 2008
Phone: +1 519-888-4567, ext. 30214
Email: sngueleu@uwaterloo.ca

PERSONAL

- Fluent in English, French and German.
- Strong interpersonal, collaborative, management, leadership and effective communication skills.

CURRENT POSITION

Postdoctoral Fellow 04/2017 - present
Ecohydrology Research Group, Department of Earth and Environmental Sciences, University of Waterloo, Waterloo, Ontario, Canada

- My current research projects are on groundwater pollution by petroleum-derived contaminants. I combine controlled laboratory experiments and numerical modeling to understand the role of water table fluctuations on the coupled hydrological and biogeochemical processes that affect the degradation and partitioning of petroleum hydrocarbons.

EDUCATION

- **Ph.D. in Contaminant Hydrogeology** 03/2010 - 12/2013
  University of Tuebingen (Germany)
  Topic: Transport of particles and particle-bound compounds through saturated porous media.
- **M.Sc. in Applied Environmental Geoscience** 09/2007 - 12/2009
  University of Tuebingen (Germany) and EAWAG Water Research Institute (Switzerland)
  M.Sc. thesis: Integrated hydrogeological investigation on the vulnerability of a pumping station at a losing stream.
- **"Diplôme d'Etudes Approfondies" (equivalent to M.Sc.) in Earth Sciences** 10/2004 - 01/2007
  Major: Engineering Geology (Geotechnics and Hydrotechnics)
  University of Yaounde I (Cameroon)
  M.Sc. thesis: Evaluation of geotechnical characteristics of soils of the Yaounde area (Cameroon) for road construction.
- **"Maîtrise" (equivalent to first year M.Sc. studies) in Earth Sciences** 10/2003 - 09/2004
  Major: Engineering Geology (Geotechnics and Hydrotechnics)
  University of Yaounde I (Cameroon)
- **B.Sc. in Earth Sciences** 10/2000 - 06/2003
  University of Yaounde I (Cameroon)

CONTRIBUTIONS TO JOURNALS AND CONFERENCES

Peer-Reviewed Publications

- Ngueleu, S. K., Grathwohl, P., Cirpka, O. A., 2014. Altered transport of lindane caused by the retention of natural particles in saturated porous media. *J. Contam. Hydrol.* 162-163, 47-63.
- Ngueleu, S. K., Grathwohl, P., Cirpka, O. A., 2014. Particle-facilitated transport of lindane in water-saturated tropical lateritic porous media. *J. Environ. Qual.* 43(4), 1392-1403.
- Ngueleu, S. K., Grathwohl, P., Cirpka, O. A., 2013. Effect of natural particles on the transport of lindane in saturated porous media: laboratory experiments and model-based analysis. *J. Contam. Hydrol.* 149, 13-26.

Selected Conference Proceedings (* denotes presenter)

- Ngueleu, S.K., Rezanezhad, F., *Al-Raoush, R., Van Cappellen, P.: Sorption and biodegradation of petroleum hydrocarbons in (semi)-arid coastal soil environments as a function of salinity and temperature, *Geophys. Res. Abstr.* 20, **EGU2018-12298**, Vienna, Austria, 2018.
- *Ngueleu, S., Rezanezhad, F., Al-Raoush, R., Van Cappellen, P.: Groundwater pollution by petroleum-derived contaminants in coastal (semi)-arid environment, **ARC'18 (Energy and Environment)**, Doha, Qatar, 2018.
- *Ngueleu, S. K., Grathwohl, P., Cirpka, O. A.: Relevance of intra-particle diffusion in modeling hydrocarbon transport through dual-porosity porous media in the absence and presence of particles, **WaterTech 2015**, Kananaskis, Canada, April 20-22, 2015.
- *Ngueleu, S. K., Grathwohl, P., Cirpka, O. A.: Effect of natural particles on the transport of sorbing organic compounds in saturated porous media, **GeoConvention 2014**, Calgary, Canada, May 12-16, 2014.
- *Ngueleu, S. K., Grathwohl, P., Cirpka, O. A.: Enhanced and retarded transport of hydrophobic pesticides caused by particle transport in saturated porous media: laboratory experiments and model-based analysis, **WaterTech 2014**, Banff, Canada, April 9-11, 2014.
- *Ngueleu, S. K., Grathwohl, P., Cirpka, O. A.: Effect of natural abiotic colloids on the transport of lindane (gamma-hexachlorocyclohexane) through saturated porous media: laboratory experiments and model-based analysis, *Geophys. Res. Abstr.* 14, **EGU2012-3202**, Vienna, Austria, 2012.
- Ngueleu, S. K., *Vogt, T., Cirpka, O. A.: Integrated hydrogeological investigation on the vulnerability of a pumping station at a losing stream, *Geophys. Res. Abstr.* 12, **EGU2010-15152**, Vienna, Austria, 2010.

Scientific Paper Review

- Journal of Environmental Monitoring and Assessment (EMAS)

RESEARCH EXPERIENCE

External Research Programs

Qatar University (Qatar) 01/2018 - 06/2018
Department of Civil and Architectural Engineering

- Field sampling and controlled laboratory experiments to study the biodegradation, biogeochemical drivers, and transport of petroleum hydrocarbons in subsurface soils from coastal (semi)-arid environments.

Johns Hopkins University (USA) 01/2012 - 03/2012
Department of Geography and Environmental Engineering

- Laboratory investigations on particle and particle-facilitated contaminant transport in subsurface environments.

Ph.D. Research 03/2010 - 12/2013
Department of Geosciences, University of Tuebingen (Germany)

- Determination of the sorption isotherms between the pesticide lindane (gamma-hexachloro-cyclohexane) and lignite particles (also known as brown coal), and between lindane and two types of porous media.
- Characterization of the major processes controlling separate and joint transport of lindane and lignite particles in saturated porous media.
- Numerical modeling of separate and joint transport of lindane and lignite particles in saturated porous media.

Relevant M.Sc. Thesis Research 04/2009 - 11/2009
Department of Geosciences, University of Tuebingen (Germany) and
EAWAG Water Research Institute (Switzerland)

- Assessment of groundwater-surface water interactions near a water supply well.
- Investigation on the origins of groundwater (infiltrated river or stream water) extracted at a water supply well using numerical modeling.
- Estimation of groundwater residence times in an alluvial aquifer and assessment of water budgets between a river, streams and an aquifer using numerical modeling.

Research Assistant in the Geophysics Research Group 04/2008 - 08/2009
Department of Geosciences, University of Tuebingen (Germany)

- Sampled and measured magnetic susceptibility on hydrocarbon contaminated soils for the purpose of checking their natural remediation through biodegradation.
- Measured magnetic susceptibility on rock core samples for paleomagnetic analysis.

TEACHING AND MENTORING EXPERIENCE

University of Waterloo (Canada)
Department of Earth and Environmental Sciences

Student Trainer 05/2017 - present

- Teach Ph.D., M.Sc. and co-op students laboratory experiments on soil characterization, batch sorption and biodegradation, and solute transport, as well as data analysis and modeling.
- Students trained so far and their latest known levels: **Heather Townsend**, undergraduate thesis student, University of Waterloo; **Sierra Cranmer-Smith**, undergraduate student, University of Waterloo; **Reem Ismail**, Ph.D. student, Qatar University; **Reem Azzam**, M.Sc. student, Qatar University.

University of Tuebingen (Germany)
Center for Applied Geoscience

Teaching Assistant 07/2009 and 08/2013
Course name: Hydrogeology Field Course

- Assisted in teaching practical courses on Hydrogeological Field Techniques to 1st to 10th semester students (number of students: approximately 40).

Teaching Assistant Summer 2013
Course name: Environmental Modeling

- Assisted in teaching surface water flow modeling using HEC-RAS to 1st semester Master's students (number of students: approximately 40).

Teaching Assistant Winters 2008/2009, 2009/2010 and 2012/2013
Course name: Laboratory Methods in Applied Geology, Soil Mechanics

- Assisted in (i) developing and teaching and (ii) preparing and correcting exam questions for practical courses on Soil Mechanics (Geotechnical Engineering) to 1st to 10th semester students (number of students: approximately 40).

Tutor Winters 2009/2010 and 2012/2013
Course name: Hydrogeological Environments Case Studies

- Responsible for helping 3rd semester Master's students to numerically simulate hydrogeological, hydrogeochemical, and biological processes occurring in aquifers using MATLAB.

Tutor Winter 2012/2013
Course name: Environmental Modeling

- Responsible for helping 1st semester Master's students to write MATLAB codes for the delineation of multi-well capture zones in aquifers, evaluate groundwater travel times, and provide detailed modeling reports.

Graduate Trainer 11-12/2011
Course name: Scientific Practice

- Trained a Master's student to conduct laboratory experiments and analyze the results for a project entitled "Investigation on the contribution of dissolved organic particles in the transport of lindane through saturated porous media at high ionic strength."

Tutor 09/2010
Course name: Geo-mathematics

- Gave tutorials to 1st semester Master's students on mathematical methods applied to environmental sciences (number of students: approximately 25).

Tutor 08-09/2008 and 09-10/2009

- Helped 1st semester international Master's students during registration procedures at the University and during preparatory classes.

University of Yaounde I (Cameroon)
Department of Earth Sciences

Teaching Assistant Academic years 2005-2006 and 2006-2007
Course name: Practical Work of General Geology

- Assisted in developing and teaching practical courses of cartography and petrography to 2nd to 6th semester students (number of students: approximately 35).

RELEVANT ADDITIONAL COURSES AND SKILLS

- Four-Day Course in Geostatistics 06/2016
  University of Alberta (Canada)

- Course on Numerical Methods in Subsurface Hydrology 04/2010 - 08/2010
  University of Tuebingen (Germany)
  Main topics: Statistical data analysis (e.g., standard statistical measures, linearized error propagation, and calculation of sensitivities), inverse methods in subsurface hydrology, spatial discretization by the finite element method (FEM).
- Computer skills: MS Office (Word, PowerPoint, Excel, VBA, Access), MATLAB, Python, PHREEQC, ArcGIS, QGIS, Surfer, HEC-RAS, FEFLOW, MODFLOW, MODPATH, PMPATH, MT3D, RT3D, PEST, SMART streamtube model, PHAST, SUTRA, SEEP/W (GEO-SLOPE), R, AQTESOLV-Pro, AquiferTest-Pro, CorelDRAW, WinEdt (LaTeX), RICHY-1D (Linux), Visual Modflow, Groundwater Vistas, ModelMuse, PMWIN, and basics of HydroGeoSphere.
- Relevant safety training: Standard first aid, laboratory safety training, petroleum safety training, H_2S alive, transportation of dangerous goods, WHMIS, respiratory protection equipment, and oil sands safety association safe work permit.

FUNDING AND AWARDS

- **Funding** from NSERC for an international research exchange at Qatar University in Doha, Qatar through the TERRE-CREATE Exchange Program (January 2018 - April 2018).
- **Second Best Poster Award** at the annual "Geosymposium and Quenstedt Celebration" of year 2011, University of Tuebingen, Germany.
- **Award of the Best Student** for the academic year 2003 - 2004 in the Faculty of Science, University of Yaounde I, Cameroon.

DEPARTMENTAL/UNIVERSITY SERVICE

- Coordinator of a weekly environmental geoscience seminar 04/2010 - 07/2010
  University of Tuebingen, Germany

NON-ACADEMIC WORK

Associate Hydrogeologist 06/2016 - 03/2017
Orr & Associates, Kennewick (Washington, USA), Edmonton (Alberta, Canada)

- My areas of expertise included groundwater and surface water interactions; aquifer testing; and numerical modeling of groundwater flow, surface water flow, and contaminant transport.

Hydrogeologist/Environmental Scientist 01/2014 - 04/2016
Advisian/WorleyParsons Canada Services Ltd., Edmonton, Alberta, Canada

- Site characterization studies and follow-up reporting activities (e.g., drilling, well installation, groundwater and surface water sampling, and soil logging and sampling).
- Environmental site assessments.
- Technical report writing.
- Hydrogeological assessment, planning and implementation.
- Work plans development and cost estimates.
- Groundwater modeling

Part-Time Geologist 01/2006 - 01/2007
Soil & Water Investigation Inc. (Geo-Engineering Firm), Cameroon

- Involved in drilling/coring projects and geotechnical testing of soils and rocks for civil engineering purposes.

SELECTED REPORTS IN ENVIRONMENTAL CONSULTING

- Project Report, 2016. 2015 Groundwater Monitoring - Horizon Mine (Alberta, Canada). Report written with Advisian/WorleyParsons Canada Services Ltd. for Canadian Natural Resources Ltd. (CNRL). 1222 pages.
- Project Report, 2015. 2015 Groundwater Quality Monitoring - Beverly Channel Monitoring Wells (Alberta, Canada). Report written with WorleyParsons Canada Services Ltd. for the Northeast Capital Industrial Association (NCIA). 221 pages.
- Project Report, 2014. 2014 Groundwater Monitoring Program - Swan Hills Gas Plant (Alberta, Canada). Report written with WorleyParsons Canada Services Ltd. for Pengrowth Energy Corporation. 161 pages.

SKILLS-BASED VOLUNTEERING

Hydrogeologist 2014 - present
Hydrogeologists Without Borders (HWB)

- Provided support for a water supply project in Cameroon.
  Project link: http://www.cameroontcatalyst.org/about-us/projects/2015-water-sanitation/

PROFESSIONAL MEMBERSHIPS

- Member of the American Geophysical Union (AGU).
- Member of the European Geosciences Union (EGU).
- Member of the Association of Professional Engineers and Geoscientists of Alberta (APEGA).