

## PERSONAL INFORMATION

Stan Beaubien

## PERSONAL STATEMENT

A geochemist / hydrogeologist / geologist who has been involved in over 20 European Community funded research projects dealing with a wide range of environmental and resource-based issues.

## WORK EXPERIENCE

June 1996 to Present

**Research Geochemist**

Dip. Scienze della Terra, Università di Roma La Sapienza, Ple. Aldo Moro 5, Roma, Italia;  
<http://www.dst.uniroma1.it/>

- Designing and testing chemical monitoring tools (e.g., Mapper, GasPro) for CCS
- Developing, executing, and managing scientific research projects
- Organizing and conducting field sampling and geochemical mapping campaigns
- Performing field and laboratory chemical analyses (CO<sub>2</sub>, hydrocarbons, radon, etc.)
- Developing and executing laboratory experiments
- Writing ad hoc computer code
- Writing scientific reports and research articles

**Business or sector** University research

Sept. 1994 to Present

**Translator**

Freelance

- Translation of scientific articles from Italian to English
- Language revision of scientific articles written in English

**Business or sector** Translation

Sept. 1993 to Sept. 1994

**Research Hydrogeologist / Geochemist**

Waterloo Centre for Groundwater Research, University of Waterloo, 200 University Avenue West, Waterloo, Canada; <https://uwaterloo.ca/groundwater-research/>

- Designing and implementing field experiment for remediation of DNAPL in clay
- Organizing and conducting field sampling and mapping campaigns
- Performing laboratory chemical analyses
- Writing scientific reports and research articles

**Business or sector** University research

June 1988 to August 1990

**Exploration Geologist**

Noranda Exploration Ltd.; Rhino Resources Ltd; and Northwest Territories Government, Canada

- Geological mapping for gold and base metal exploration
- Drill core logging
- Writing mapping and drilling reports

**Business or sector** Mineral exploration

## EDUCATION AND TRAINING

October 2010 to January 2015

**PhD – Thesis Title: The mapping and quantification of CO<sub>2</sub> leakage and its potential impact on groundwater quality.**

Dipartimento Scienze Ambientale, Università Ca' Foscari Venezia, Italy

- Research related to monitoring Carbon Capture and Storage (CCS) sites
- Research related to potential impact of a CO<sub>2</sub> leak from a CCS site

Sept. 1990 to Sept. 1993

**MSc – Thesis Title: Chromium in Lake Ontario: Geochemical Cycling and the Role of Redox Speciation in Controlling Dissolved Phase Concentrations.**

Department of Earth Sciences, University of Waterloo, Waterloo, Canada

- Research related to anthropogenic inorganic contamination of the Great Lakes
- Development of analytical technique for chromium speciation
- Course study of physical and chemical hydrogeology, environmental geochemistry

Sept. 1983 to April 1988

**BSc – Thesis Title: Contact Metamorphism in the Host Rocks Surrounding the Falcon Lake Igneous Complex.**

Department of Geological Sciences, University of Manitoba, Winnipeg, Canada

- Research into contact metamorphism
- Course study of classical geological items (structural, tectonics, geochemistry, petrology, mineralogy, palaeontology, sedimentology, etc.)

## PERSONAL SKILLS

Mother tongue(s)

English

Other language(s)

Italian

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
C1	C2	C1	C1	B1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

Communication skills

- excellent written communication skills gained through my experience as translator / reviser of articles
- excellent oral communication skills gained through experience presenting at conferences / teaching

Organisational / managerial skills

- responsible for organisation of extensive field campaigns
- extensive managerial skills based on experience and responsibilities in over 20 EC research projects

Job-related skills

- extensive groundwater, surface water, soil gas and rock sampling experience
- extensive analytical chemistry experience with GFAAS, ICP-MS, GC, IC
- have contributed to, or led, the writing and submission of numerous funding proposals
- responsible for data management, data interpretation, and report writing on numerous projects

Digital competence

- highly proficient using Office suite (Word, Excel, PowerPoint), graphical software (CorelDraw Suite, Adobe CS5), and geological software (Golden Software suite)
- competent using GIS software (ESRI) and writing computer programs (Visual Basic)

## ADDITIONAL INFORMATION

Memberships

- American Geophysical Union (AGU) since 2005

Peer Review

- Int. Journal of Greenhouse Gas Control, Science of the Total Environment, Environmental Science & Technology, Geoderma, Greenhouse Gas Science and Technology, Oil & Gas Science and Technology, Terra Nova, Applied Geochemistry, Pure and Applied Geophysics, Geochemical Journal

## Editor

- Jenkins, C., Wright, I., Beaubien, S.E. and Kita, J. (Editors), 2021. Special Issue on Monitoring, Measurement and Verification for Offshore CCS: Outcomes of the STEMM-CCS project. International Journal of Greenhouse Gases.
- Lombardi, S., Altunina, L.K. and Beaubien, S.E. (Editors), 2006. Advances in the geological storage of carbon dioxide. NATO Science Series. IV. Earth and Environmental Sciences 65. Springer, 362 pp. DOI:10.1007/1-4020-4471-2

## Scopus

- 61 documents; 1907 citation in 1466 documents; H-index = 20 (accessed 19/02/2022)

## Selected Publications

- Beaubien, S.E., Ciotoli, G., Finoia, M.G., Lombardi, S. and Bigi, S., 2021. Monte Carlo simulations to assess the uncertainty of locating and quantifying CO<sub>2</sub> leakage flux from deep geological or anthropogenic sources. Stochastic Environmental Research and Risk Assessment, 36: 609-627. DOI:10.1007/s00477-021-02123-9
- Giustini, F., Ruggiero, L., Sciarra, A., Beaubien, S.E., Graziani, S., Galli, G., Pizzino, L., Tartarello, M.C., Lucchetti, C., Sirianni, P., Tuccimei, P., Voltaggio, M., Bigi, S. and Ciotoli, G., 2022. Radon Hazard in Central Italy: Comparison among Areas with Different Geogenic Radon Potential. International Journal of Environmental Research and Public Health, 19(2): 666.
- Barkwith, A. K. A. P., S. E. Beaubien, T. Barlow, K. Kirk, T. R. Lister, M. C. Tartarello, and H. Taylor (2020), Using near-surface atmospheric measurements as a proxy for quantifying field-scale soil gas flux, Geoscience Instrumentation, Methods and Data Systems, <https://doi.org/10.5194/gi-2020-8>.
- Casalbore, D., M. Ingrassia, M. Pierdomenico, S. E. Beaubien, E. Martorelli, S. Bigi, R. Ivaldi, M. DeMarte, and F. L. Chiocci (2020), Morpho-acoustic characterization of a shallow-water mud volcano offshore Scoglio d'Affrica (Northern Tyrrhenian Sea) responsible for a violent gas outburst in 2017, Marine Geology, 428, 106277, <http://www.sciencedirect.com/science/article/pii/S0025322720301651>
- Vachon, D., T. Langenegger, D. Donis, S. E. Beaubien, and D. F. McGinnis (2020), Methane emission offsets carbon dioxide uptake in a small productive lake, Limnology and Oceanography Letters, 5, 384-392, <https://aslopubs.onlinelibrary.wiley.com/doi/abs/10.1002/lol2.10161>
- Ju, Y., S. E. Beaubien, S.-S. Lee, D. Kaown, D. Hahm, S. Lee, I.-W. Park, K. Park, S.-T. Yun, and K.-K. Lee (2019), Application of natural and artificial tracers to constrain CO<sub>2</sub> leakage and degassing in the K-COSEM site, South Korea, International Journal of Greenhouse Gas Control, 86, 211-225, <http://www.sciencedirect.com/science/article/pii/S1750583618308077>
- Ciotoli, G., Voltaggio, M., Tuccimei, P., Soligo, M., Pasculli, A., Beaubien, S.E., and Bigi, S., 2017, Geographically weighted regression and geostatistical techniques to construct the Geogenic Radon Potential map of the Lazio region: a methodological proposal for the European Atlas of Natural Radiation: J. of Environmental Radioactivity, v. 166, p. 355-375, DOI:10.1016/j.jenvrad.2016.05.010.
- Martorelli, E., Italiano, F., Ingrassia, M., Macelloni, L., Bosman, A., Conte, A.M., Beaubien, S.E., Graziani, S., Sposato, A., and Chiocci, F.L.C., 2016, Evidence of a shallow water submarine hydrothermal field off Zannone Island from morphological and geochemical characterization: Implications for Tyrrhenian Sea Quaternary volcanism: Journal of Geophysical Research: Solid Earth, v. 121, p. 8396-8414.
- Beaubien, S.E., Ruggiero, L., Annunziatellis, A., Bigi, S., Ciotoli, G., Deiana, P., Graziani, S., Lombardi, S., and Tartarello, M.C., 2015, The importance of baseline surveys of near-surface gas geochemistry for CCS monitoring, as shown from onshore case studies in Northern and Southern Europe: Oil and Gas Science and Technology, v. 70, p. 615-633.
- Jones, D.G., Beaubien, S.E., Blackford, J.C., Foekema, E.M., Lions, J., De Vittor, C., West, J.M., Widdicombe, S., Hauton, C., and Queiros, A.M., 2015, Developments since 2005 in understanding potential environmental impacts of CO<sub>2</sub> leakage from geological storage: International Journal of Greenhouse Gas Control, v. 40, p. 350-377.
- Graziani, S., Beaubien, S.E., Bigi, S., and Lombardi, S., 2014, Spatial and temporal pCO<sub>2</sub> marine monitoring near Panarea Island (Italy) using multiple low-cost GasPro sensors: Environmental Science and Technology, v. 48, p. 12126-12133.
- Jones, D.G., Barkwith, A.K.A.P., Hannis, S., Lister, T.R., Gal, F., Graziani, S., Beaubien, S.E., and Widory, D., 2014, Monitoring of near surface gas seepage from a shallow injection experiment at the CO<sub>2</sub> Field Lab, Norway: International Journal of Greenhouse Gas Control, v. 28, p. 300-317.
- Beaubien, S.E., Jones, D.G., Gal, F., Barkwith, A.K.A.P., Braibant, G., Baubron, J.C., Ciotoli, G., Graziani, S., Lister, T.R., Lombardi, S., Michel, K., Quattrocchi, F., and Strutt, M.H., 2013, Monitoring of near-surface gas geochemistry at the Weyburn, Canada, CO<sub>2</sub>-EOR site, 2001-2011: International Journal of Greenhouse Gas Control, v. 16, pp. S236-S262.
- Oppermann, B.I., Michaelis, W., Blumenberg, M., Frerichs, J., Schulz, H.M., Schippers, A., Beaubien, S.E., and Kruger, M., 2010, Soil microbial community changes as a result of long-term

exposure to a natural CO<sub>2</sub> vent: *Geochimica et Cosmochimica Acta*, v. 74, p. 2697-2716.

- Jones, D.G., Barlow, T., Beaubien, S.E., Ciotoli, G., Lister, T.R., Lombardi, S., May, F., Muller, I., Pearce, J.M., and Shaw, R.A., 2009, New and established techniques for surface gas monitoring at onshore CO<sub>2</sub> storage sites, *Energy Procedia*,
- Annunziatellis, A., Beaubien, S.E., Bigi, S., Ciotoli, G., Coltella, M., and Lombardi, S., 2008, Gas migration along fault systems and through the vadose zone in the Latera caldera (central Italy): Implications for CO<sub>2</sub> geological storage: *Int. Journal of Greenhouse Gas Control*, v. 2, p. 353-372.
- Bateson, L., Vellico, M., Beaubien, S.E., Pearce, J.M., Annunziatellis, A., Ciotoli, G., Coren, F., Lombardi, S., and Marsh, S., 2008, The application of remote-sensing techniques to monitor CO<sub>2</sub>-storage sites for surface leakage: Method development and testing at Latera (Italy) where naturally produced CO<sub>2</sub> is leaking to the atmosphere: *Int Journal of Greenhouse Gas Control*, v. 2, p. 388-400.
- Beaubien, S.E., Ciotoli, G., Coombs, P., Dictor, M.C., Krueger, M., Lombardi, S., Pearce, J.M., and West, J.M., 2008, The impact of a naturally occurring CO<sub>2</sub> gas vent on the shallow ecosystem and soil chemistry of a Mediterranean pasture (Latera, Italy): *Int J Greenh Gas Control*, v. 2, p. 373-387.
- Naudts, L., Greinert, J., Artemov, Y., Beaubien, S.E., Borowski, C., and Batist, M.D., 2008, Anomalous sea-floor backscatter patterns in methane venting areas, Dnepr paleo-delta, NW Black Sea: *Marine Geology*, v. 251, p. 253-267.
- Pettinelli, E., Beaubien, S.E., Lombardi, S., and Annan, A.P., 2008, GPR, TDR, and geochemistry measurements above an active gas vent to study near-surface gas-migration pathways: *Geophysics*, v. 73.
- McGinnis, D.F., Greinert, J., Artemov, Y., Beaubien, S.E., and Wuest, A., 2006, Fate of rising methane bubbles in stratified waters: How much methane reaches the atmosphere? *Journal of Geophysical Research: Oceans*, v. 111.
- Pearce, J., Czernichowski-Lauriol, I., Lombardi, S., Brune, S., Nador, A., Baker, J., Pauwels, H., Hatzianis, G., Beaubien, S., and Faber, E., 2004, A review of natural CO<sub>2</sub> accumulations in Europe as analogues for geological sequestration, *Geological Society Special Publication*, v. 233, p. 29-41.
- Beaubien, S.E., Ciotoli, G., and Lombardi, S., 2003, Carbon dioxide and radon gas hazard in the Alban Hills area (central Italy): *Journal of Volcanology and Geothermal Research*, v. 123, p. 63-80.
- Beaubien, S., Nriagu, J., Blowes, D., and Lawson, G., 1994, Chromium speciation and distribution in the Great Lakes: *Environmental Science & Technology*, v. 28, p. 730-736.

#### EC-funded Projects

- Radon rEal time monitoring System and Proactive Indoor Remediation - LIFE-RESPIRE (LIFE16 ENV / IT / 000553).
- ENabling Onshore CO<sub>2</sub> Storage in Europe – ENOS. (Project number – 653718; 2016-2020).
- Research and Civil Society Dialogue towards a low-carbon society - R&Dialogue. (Contract no. 288980; 2012-2015).
- Sub-seabed CO<sub>2</sub> Storage: Impact on Marine Ecosystems (ECO<sub>2</sub>). Call FP7-ENERGY-2010-1. (Project number: 265847; 2011-2015).
- Pan-European coordination action on CO<sub>2</sub> Geological Storage (CGS Europe) Call FP7-ENERGY-2010-1. (Project number: 256725. Start date: 2010-2013).
- Characterisation of European CO<sub>2</sub> storage (SiteChar). (Contract no. 256705; 2011-2013).
- Research into Impact and Safety in CO<sub>2</sub> storage (RISCS) – (Contract N° 240837; 2010-2013).
- CO<sub>2</sub> Re.Mo.Ve – EU Integrated Project on Research into Monitoring and Verification Technology of CO<sub>2</sub> Geological Storage – SES6- (Contract Number 518350 2006-2011).
- Assessment of the feasibility of the CO<sub>2</sub> storage in the Russian permafrost. (Contract no. INTAS 2006-1000025-9220; 2007-2009).
- MOVECBM - Monitoring and verification of CO<sub>2</sub> storage and ECBM in Poland (Contract Number 038967; 2006-2008).
- Intailrisk Assessment of Environmental Risk of Radioactively Contaminated Industrial Tailings (contr. N. INCO-CT-2004-509214; 2004-2007).
- CO<sub>2</sub>GeoNet, Network of Excellence for CO<sub>2</sub> Geological Storage (Contract no. 502816; 2004- 2009).
- Contribution of high density gas seeps in the Black Sea to methane emission in the atmosphere. CRIMEA. (Contract no. EVK-2-CT-2002-00162; 2003-2006).
- The Weyburn CO<sub>2</sub> Monitoring Project – “Weyburn” Project n° NNE5-2000-00096 (sub-contractor).
- Assessment and Prognosis of Environmental Changes in Lake Issyk-Kul (Kyrgystan) (APELIK). (Contract n° ICA2-CT-2000-10003; 2000-2004).
- Natural Analogues to the Storage of CO<sub>2</sub> in the Geological Environment (NASCENT). (Contr. No.

ENK5-CT-2000-00303; 2000-2003).

- Natural analogue of the thermo-hydrochemical and thermo-hydromechanical response of clay barriers (Contr. n° F14W CT 95014; 1996-1999).
- Project of research into gas generation and migration in radioactive waste repository systems (PROGRESS) (Contr. n° F14W- CT96- 0024; 1996-1999).
- Geochemical method seismic zonation - seismic hazard: a multi-disciplinary approach using fluid-geochemistry (Contr. n° ENV 4-CT96-0291 ; 1996-1998).
- Analysis of the geo-environmental conditions as morphological evolution factors of the sand-clay series of the Tiber Valley and Dunarobba forest preservation (Contr. n° FI 2W/0121 ; 1992-1994; project leader).

Bassano Romano, 23/02/2022

Stanley Eugene Beaubien