

CLEMENT P. BATAILLE

Chevron Corporation, Energy and Technology Company
Earth Science Department, Exploration and New Ventures
Hydrocarbon Charge Team
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EDUCATION

PhD *Geology/Geochemistry*

University of Utah, Geology and Geophysics Salt Lake City, UT 8/2012-8/2014

Purdue University, Earth and Atmospheric Sciences Lafayette, IN 8/2009-8/2012

Advisor: Gabriel J. Bowen

Thesis: "Modeling Spatial ⁸⁷Sr/⁸⁶Sr Variations in Earth Surface Pools for Regional Provenance Studies"

MSc *Hydrology/Hydrochemistry*

Institut Polytechniques de Toulouse Toulouse, France 8/2006-6/2008

H2SE Master Program: Hydrology, Hydrochemistry, Soil and Environment

Co-advisors: Philippe Behra and Chi Hua Huang

MSc *Agronomical and Environmental Sciences*

Institut Polytechniques de Toulouse Toulouse, France 8/2006-8/2008

Thesis: "Effect of Roughness and Water Content on Chemical Transfer from Soil to Runoff under Simulated Rainfall"

BA *Agronomical and Environmental Engineering*

Institut Polytechniques de Toulouse Toulouse, France 8/2005-8/2007

Advanced Biological and Geological Sciences Preparatory Program

Lycée Ozanne, CPGE BCPST Toulouse, France 8/2002-8/2004

PROFESSIONAL & RESEARCH EXPERIENCE

Earth Scientist – Hydrocarbon Charge/Petroleum Geochemistry R&D

Chevron Energy and Technology Company Houston, TX 9/2014-present

Research Assistant – Geology/Geochemistry

University of Utah, Geology and Geophysics Salt Lake City, UT 8/2012-8/2014

Professional Intern – Hydrocarbon Charge/Petroleum Geochemistry R&D team

Chevron Energy and Technology Company Houston, TX 5/2013-8/2013

Research Assistant – Geology/Geochemistry

Purdue University, Earth and Atmospheric Sciences Lafayette, IN 8/2009-8/2012

Research Assistant – Environmental and Agricultural Sciences

Purdue University, National Soil Erosion Laboratory Lafayette, IN 1/2008-6/2008

Research Assistant – Environmental and Agricultural Sciences

Purdue University, National Soil Erosion Laboratory Lafayette, IN 5/2007-8/2007

FUNDING

- **ACS-PRF New Directions Grant 2012**: "Linking Coastal Terrestrial Ecosystems and Eustatic Sea-Level Change in a Greenhouse World: A Case Study in the Tornillo Group" (\$100,000)
- **Graduate Student Research Grant 2012**, GSA (\$2,500)
- **Ed Picou Fellowship Grant** for Graduate Studies in Earth Science 2012 (\$2,000)

AWARDS

- **Outstanding PhD Student of the Year, 2014**, Geology and Geophysics, University of Utah
- **Graduate School Travel Assistance Award, 2013**, Geology and Geophysics, University of Utah

- **Michael Garner Memorial Award 2010 and 2011**, EAPS, Purdue University
- **Purdue EAPS Lowe Travel Award, 2010**, EAPS, Purdue University

PEER-REVIEWED PUBLICATIONS

In prep

3. **Bataille, C.P.**, Watford, D., Ruegg, S., Lowe, A., Bowen, G.J., (in prep). Chemostratigraphy-based age model for the Tornillo Group: Implications for climate controls on fluvial stratigraphy. *Sedimentology*
2. **Bataille, C.P.**, Arango, I., Lin, F., Katz, B., (in prep) Artificial Maturation of Woodford Shale: Geochemical Comparison of Hydrous Pyrolysis and Fischer Assay. *Organic Geochemistry*
1. Watford, D., Lowe, A., **Bataille, C.P.**, Ruegg, S., Bowen, G.J., (in prep). A coupling between temperature and soil weathering during the early Paleogene in sub-tropical North America. *Earth and Planetary Sciences*

Published

8. Crowley, B., Miller, J. **Bataille, C.P.** (in press) Strontium isotopes ($87\text{Sr}/86\text{Sr}$) in terrestrial ecological and paleoecological research: empirical efforts and recent advances in continental-scale models for the United States. *Biological Reviews*.
7. **Bataille, C.P.** 2014. Predictive models for strontium isotope distributions in bedrock, water and environmental materials for regional provenance studies. ProQuest, UMI Dissertations Publishing
6. **Bataille, C.P.**, Brennan, S.R., Hartmann, J., Moosdorf, N., Wooller, M.J., Bowen, G.J. (2014) A geostatistical framework for predicting variations in strontium concentrations and isotope ratios in Alaskan rivers. *Chemical Geology*, 389, 1-15. doi:10.1016/j.chemgeo.2014.08.030
5. Brennan, S.R., Fernandez, D.P., Mackey, G., Cerling, T.E., **Bataille, C.P.**, Bowen, G.J., Wooller, M.J. (2014) Strontium isotope variation and carbonate versus silicate weathering in rivers from across Alaska: Implications for provenance studies. *Chemical Geology*, 389, 167-181. doi:10.1016/j.chemgeo.2014.08.018
4. **Bataille C. P.**, Mastalerz M., Tipple B. J. and Bowen G. J. (2013) Influence of provenance and preservation on the carbon isotope variations of dispersed organic matter in ancient floodplain sediments. *Geochemistry, Geophysics, Geosystems*. 14, 11, 4874-4891. doi: 10.1002/ggge.20294
3. **Bataille C.P.**, Laffoon J., Bowen G.J. 2012. Mapping multiple source effects on the strontium isotopic signatures of ecosystems from the circum-Caribbean region. *Ecosphere*3: art118. <http://dx.doi.org/10.1890/ES12-00155.1>
2. **Bataille C. P.** and Bowen G. J. (2012) Mapping $87\text{Sr}/86\text{Sr}$ variations in bedrock and water for large scale provenance studies. *Chemical Geology*, 304-305, 39-52. doi:10.1016/j.chemgeo.2012.01.028.
1. Kennedy C. D., **Bataille C. P.**, Liu Z., Ale S., VanDeVelde J., Roswell C. R., Bowling L. C. and Bowen G. J. (2012) Dynamics of nitrate and chloride during storm events in agricultural catchments with different subsurface drainage intensity (Indiana, USA). *Journal of Hydrology*, 466-467, 1-10. doi:10.1016/j.hydrol.2012.05.002.

PEER-REVIEWED TECHNICAL REPORT

3. **Bataille, C.P.**, Lin, F., Arango, I., Katz, B., 2015. Artificial maturation of Woodford Shale: geochemical comparison of hydrous pyrolysis and Fischer Assay. Chevron, Energy and Technology Company, Technical Report
2. **Bataille, C.P.**, Lin, F., Arango, I., Katz, B., 2015 Gas isotope anomaly: a review. Chevron, Energy and Technology Company, Technical Report
1. **Bataille, C.P.**, Lin, F. 2013. Geochemical evaluation of Marcellus Shale: expected and unexpected. Chevron, Energy and Technology Company, Technical Report

TEACHING EXPERIENCE

Teaching Assistant

University of Utah, Geology and Geophysics Salt Lake City, UT
GG 5760: "Stratigraphy and Sedimentary Processes"

08/2013-12/2013

Teaching Assistant

Purdue University, Earth and Atmospheric Sciences Lafayette, IN
EAPS 100: "Planet Earth" 08/2010-12/2010
EAPS 106: "Geosciences in the Cinema" 01/2012-06/2012

Professional Tutor

Academia Company, Paris, France
Tutor in Mathematics, Physics, Chemistry and Biology 08/2008-06/2009

Principal Certified Instructor - A.G.S.E Toulouse, France 08/2002-08/2008

Regularly give training courses to future Boy Scout leader for educational methods and safety practices

Full time volunteer – Arches Agen, France 01/2004-03-2004

Mentored and helped people with intellectual disabilities to integrate towards a professional occupation

PROFESSIONAL EXPERIENCE

Earth Scientist – Chevron Corporation, ETC, Hydrocarbon Charge Team, Houston, TX 9/2014-present

- Assisted petroleum exploration by estimating the hydrocarbon charge risk in several sedimentary basins
- Assessed and mapped the presence, distribution and quality of petroleum source rocks using geochemical data
- Contributed to R&D project to characterize the geochemistry of organic material contained and expelled from source rocks during pyrolysis experiments to better predict stages of petroleum generation and maturity parameters evolution in unconventional plays
- Contributed to R&D project aiming to better understand isotopic changes in hydrocarbon gases with increasing maturity

Intern – Chevron Corporation, ETC, Hydrocarbon Charge Team, Houston, TX 5/2013-8/2013

- Assessed and mapped the quality and maturity of different lithostratigraphic units of the Marcellus shale gas play
- Assessed the potential of organic petrography and Rock-Eval as thermal maturity parameters for unconventional plays

Intern— E.A.R.L la Butte aux Singes Amiens, France 09/2006-04/2007

- Managed a team project with 5 student engineers to perform an environmental diagnostic and generate a practical guide for rehabilitating a gravel pit into a natural reservation for migratory ducks

Intern - S.A.R.L en Lance Verfeil, France 06/2005-10/2005

- Conducted a technical, environmental and financial diagnostic of a farm

Principal Executive - A.G.S.E Toulouse, France 08/2002-08/2008

- Acted as principal executive for an international Boy Scout Association

Humanitarian Labor Volunteer Cherato, Mexico 06/2003-09-2003

- Participated in the construction of a school

CONFERENCE PRESENTATIONS

SESSION CHAIR

- GCAGS 2015: "Chemostratigraphy and Paleontology"

ORAL PRESENTATION

- **Bataille, C.P.**, Watford, D., Ruegg, S., Lowe, A., Bowen, G.J., 2015, Chemostratigraphy Based Age Model for the Black Peaks Formation: Implications for Early Paleogene Paleoclimate in Sub-Tropical North America. GCAGS, Houston
- **Bataille, C.P.**, Lin, F., Arango, I., Katz, B. Geochemical comparison of fluids generated during hydrous and anhydrous pyrolysis of black shales. Chevron, Energy and Technology Company, Technical Talk, Houston

- Watford, D., **Bataille, C.P.**, Ruegg, S., Lowe, A., Bowen, G.J., 2014 Early Paleogene Terrestrial Paleoclimate Record from the Black Peaks Formation, Big Bend National Park, TX. GSA Annual Meeting 2014, Vancouver (British Columbia)
- **Bataille, C.P.**, Brennan, S.R., Hartmann, J., Moosdorf, N., Wooller, M.J., Bowen, G.J., 2014. A geostatistical framework to predict strontium isotopes variations in bedrock and rivers, Goldschmidt, Sacramento
- **Bataille C.P.**; Bowen G.J, Mastalerz M. Influence of Organic Provenance and Preservation on the Carbon Isotope Variations of Dispersed Organics in Ancient Floodplain Sediments. GSA Annual Meeting 2013, Denver (Colorado)
- **Bataille, C.P.**, Lin, F. 2013. Geochemical evaluation of Marcellus Shale: expected and unexpected. Chevron, Energy and Technology Company, Technical Talk, Houston
- Bowen G.J, **Bataille C.P.**, Kennedy C. Zhang T., West J. Integrating Environmental Isoscapes for Spatiotemporal Assignment, EGU 2012, Vienna (Austria)
- **Bataille C.P.**; Bowen G.J, Mapping $^{87}\text{Sr}/^{86}\text{Sr}$ Variations in Bedrock and Water for Provenance Studies. GSA Annual Meeting 2011, Minneapolis (Minnesota)

POSTER PRESENTATION

- Ruegg S., **Bataille C.P.**, Lowe A. and Bowen G.J. Environmental and Global Carbon Cycles Signals Recorded in 6 Million Year Carbon Isotope Record from the Paleocene Black Peak Formation, Big Bend National Park. GSA Annual Meeting 2013, Denver (Colorado)
- **Bataille C.P.**, Bowen G.J, Mapping $^{87}\text{Sr}/^{86}\text{Sr}$ Variations in Bioavailable Sr for Regional Provenance Studies. Isoecol Meeting 2012, Brest (France)
- **Bataille C.P.**; Bowen G.J, Mapping $^{87}\text{Sr}/^{86}\text{Sr}$ Variations in Bedrock and Water for Provenance Studies. Isoscape Meeting 2011, Lafayette (Indiana)
- Srinivasaraghavan V., Vandavelde J.H., **Bataille C.P.** and Bowen G.J. Vertical and Lateral Variation of Carbonate Isotope Ratios within Paleosol Profiles of the Willwood Formation, Wyoming. GSA Annual Meeting 2011, Minneapolis (Minnesota)
- **Bataille C.P.**, Bowen G.J, High Resolution Carbon Isotopic Variations of Bulk Organic Matter in Paleosols. GSA Annual Meeting 2011, Minneapolis (Minnesota)
- **Bataille C.P.**, Bowen G.J, A Lithology-Based Model for $^{87}\text{Sr}/^{86}\text{Sr}$ Values of Bedrock and Water in the Conterminous US. AGU Fall Meeting 2010, San Francisco (California)
- **Bataille C.P.**, Huang C.H, Effect of Roughness on Chemical Transfer from Soil to Surface Runoff under Surface Hydrologic Conditions. ASA Annual Meeting 2008, Houston (Texas)

UNDERGRADUATE STUDENTS ADVISED:

Vishnu Srinivasaraghavan (Spring 2011-Spring 2012)

Alex Lowe (Fall 2012 - current)

Stephen Ruegg (Fall 2012 - current)

PROFESSIONAL SERVICES:

Proposal reviews:

U.S National Science Foundation (2015)

Manuscript reviews:

Chemical Geology (2013, 2014, 2015)

Geochimica et Cosmochimica Acta (2015)

Applied Geochemistry (2015)

Isotopes in Environmental & Health Studies (2014)

MEDIA/SCIENCE NEWS COVERAGE

- EarthChem featured dataset of the month: <http://www.earthchem.org/featured/bataille> (2015)

PROFESSIONAL MEMBERSHIP:

Geological Society of America
American Geophysical Union
Gulf Coast Association of Geological Societies
Geochemical Society

LANGUAGES & TECHNICAL SKILLS

Languages: French (native), English (fluent), Spanish (fluent)

Software: programming (Matlab, VBA), database (Access), OS (UNIX), geostatistics/statistics (R, SGems), GIS (ArcGIS, Surfer), remote sensing (ENVI), climate code (CCSM4), chemistry code (PhreeQc), hydrology code (HEC-HMS), GCMS trace interpretation (Malcom, ChromeEdge), climate models (Merlin, Gandolf, GeTech), geochemical database (Robertson/Frogi, NefTex, RFDbase, RAPID, EGI), basin modeling (Trinity, PetroMod)

Analytical: Mass Spectrometry (TC/EA-IRMS, ICP-MS, GC-MS, CRDS), Ion Chromatography, Organic Petrography, Rock-Eval, FTIR and IR-Spectrometry, XrD, XrF