

**BASTIEN POUX, P.Geo.**

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**SUMMARY**

Bastien is a Senior Geothermal Geologist, registered as a Professional Geoscientist (P.Geo.) in British Columbia, with 15 years of experience in geothermal resource exploration and evaluation, wellsite geology and 3-D modelling. He has worked on resource exploration and evaluation of numerous geothermal projects in different geological contexts in the United States, Iceland, France, Croatia, Mexico, the Caribbean and in South America. He also been wellsite geologist on more than 25 deep geothermal wells, including the Iceland Deep Drilling Project IDDP-2. Bastien is an expert in the use of Leapfrog 3-D modelling software to compile extensive exploration and drilling data sets, as well as building complex geological models.

**KEY SKILLS**

• GEOTHERMAL EXPLORATION

Regional studies, Field mapping, Structural Geology, Petrology, Mineralogy, Remote Sensing, Geophysical surveys, GIS database implementation, Conceptual models, Recommendations and Supervision for surveys, Drilling site selection.

• RESOURCE EVALUATION

Data review and interpretation including Geochemistry, Geology, Geophysics and Well data, Stored heat calculation and Power Density Estimates, Conceptual model development, GIS data compilation, Well planning.

• WELLSITE GEOLOGY

Mudlogging and Wellsite Geology supervision, Clay content determination, Drilling Operations Summaries, Alteration mineralogy, Casing point selection, Digital logs and well diagrams, Temperature/Pressure surveys planning and supervision, Geophysical well logging surveys and interpretation, 3-D well path visualization, Well testing supervision.

• 3-D MODELLING:

Preparation and integration of data in Leapfrog, Initial models for early Exploration, Data visualization, Interpretation and interactive 3-D well planning, Comprehensive models for Developed Fields, Well data correlation, Complex geological model development, Advanced Workflows and Calculation development.

• BUSINESS DEVELOPMENT

Proposal writing, Budget estimate, Project timeline, Supervision & training of staff, Identify and pursue new business opportunities, Prepare and present technical papers at workshops and conferences.

**WORK HISTORY AND WORK EXPERIENCE**

Aetna Geothermal Limited	2022 – present	Senior Geothermal Geologist, Director
Seequent	2019-2022	Technical Sales Advisor
Dewhurst Group LLC.	2018-2019	Senior Geothermal Geologist
ISOR Iceland GeoSurvey	2016-2017	Wellsite Geologist
Sigra Pty Ltd.	2015	Senior Geologist
EGS Inc	2009-2014	Project Geologist

- Senior Geothermal Geologist, Director – Aetna Geothermal Limited, Canada
  - Independent Consultant offering services for the Geothermal and Lithium Brine industry: Geological exploration, Resource Assessment, Wellsite Geology and 3-D modelling.
    - Comprehensive 3D modelling for private geothermal developers in the USA (Nevada and California), integration of well data, geology, geophysics and planned wells.
    - Wellsite geologist at Puga Geothermal project, Ladakh U.T, India, and Galle le Goma, Djibouti. Planning and supervision of well logging and well testing operations.
    - 3-D modelling and technical support to National Renewable Energy laboratory for the DEEPEN project, establishing a Play Fairway methodology to characterize supercritical resources.
    - Resource evaluation and 3-D modelling for lithium resources in geothermal brines, USA. Planning of geophysical survey and selection of drilling targets.
    - Exploration and resource assessment for private geothermal project in USA, Canada and Croatia.
    - Prefeasibility study for direct-use project in Whitehorse, Yukon (CA). Planning of additional surface studies.
    - Resource evaluation, Conceptual model development and temperature gradient hole campaign planning for a geothermal project in British Columbia, Canada.
    - 3D modeling for geothermal and lithium resources in eastern France for private developer.
  
- Technical Sales Advisor, Geothermal Energy, Americas – Seequent, Canada
  - Expert Technical support for Seequent geothermal customers in North and Latin America for Leapfrog Geothermal, Leapfrog Edge and Seequent Central solutions.
  - 3-D modelling projects: Long Valley Caldera, USA, Volve O&G, FORGE Utah, Fagradalsfjall eruption, Iceland, Statistical modelling of temperature for the Great basin, USA.
  - Product Testing, Research and Development of new features and advanced workflows; 3-D Play Fairway Analysis and Confidence Modelling for Geothermal Exploration and Development, Formation properties modelling in sedimentary context, Integration of Discrete Fracture Networks for Geothermal reservoirs.
  - Development and Organization of trainings and workshops, creation of new training material.
  
- Senior Geothermal Geologist – Dewhurst Group, LLC, Canada/Colombia
  - Technical reviewer for Surface studies and Exploration drilling grant applications for the Latin America Geothermal Development Facility (GDF- LATAM), a 50M\$ fund by the European Union and the German Federal Ministry for Economic Cooperation and development through KfW.
  - Geothermal exploration and drilling target selection in British Columbia, Canada for private developer.
  - Preliminary resource assessment for various geothermal projects in central France and La Reunion.
  
- Wellsite Geologist – ISOR Iceland GeoSurvey, Iceland
  - Wellsite geologist at several drilling sites in Iceland (Svartsengi, Hellisheiði, Krafla, Theistareykir) and in the Caribbeans (Montserrat, BWI).
  - Wellsite geologist and member of the scientific team for the Iceland Deep Drilling Project, IDDP-2 in the Reykjanes Geothermal field, Iceland.
  - Comprehensive 3D modelling of Hellisheiði and Nesjavellir Geothermal fields using Leapfrog Geo (Geology, Structure, Temperature, Geophysics).
  - Select new drilling targets for future development in Nesjavellir Geothermal field.
  - Low enthalpy projects wellsite geology and conceptual modelling in Iceland (Hoffell, Laugaland).
  - Global geothermal resource capacity evaluation of Romania.

- Senior Geologist – Sibra Ltd. Coal mining and Coal Seam gas, Australia
  - Analysis of gas content measurement, Gas production data and stress measurement to evaluate future development plans in underground Coal mining in New South Wales.
  - R&D project to develop new method to evaluate gas content while drilling in underground mining.
- Project Geologist – EGS, Inc. / Thermasource, USA
  - Mudlogging and wellsite geology on several drilling sites in California: The Geysers, Bottle Rock, Wendel Amedee. Casing point selection, daily reporting, mineralogy, MWD/LWD, clay determination, well testing .
  - Geothermal resource evaluation for Oski Energy prospects in the western United States; geoscientific literature and data compilation, drilling site selection and drilling operation follow-up, well testing.
  - Exploration data review and interpretation for US Navy GPO projects in Nevada and California.
  - Geothermal project development consulting for BM Holdings, Turkey, build 3D geologic model for reservoir engineering study.
  - 3D modelling for geothermal project development using Rockworks 15 and Leapfrog Geothermal, for Long Valley Caldera, CA, Cove Fort, UT, The Geysers, Imperial Valley CA, Rye Patch and Blue Mountain, NV.
  - Resource assessment and capacity estimates for geothermal projects in the USA, Mexico, Chile and Caribbeans.
  - Geothermal exploration in Montserrat (BWI) including geology, geophysics and geochemistry studies, selection of exploratory drilling targets.
  - Complete 3D well modelling of Bottle Rock field, part of The Geysers, with temperature, production intervals and well completion for reservoir management.
  - Low temperature project evaluation in Calistoga, CA, for direct-use applications.

### **EDUCATION**

- National Geothermal Academy 2011, University of Reno, modules on Geothermal Exploration and Business Principles
- M.S. (2009), Geology, LaSalle Beauvais Polytechnic Institute, France
- B.S. (2007), Geology, LaSalle Beauvais Polytechnic Institute, France

### **TEACHING EXPERIENCE**

- Leapfrog Geothermal fundamental and advanced trainings at conferences, online or private sessions for various geothermal companies.
- Advanced Geothermal Exploration Techniques, 2017. Iceland School of Energy – Reykjavik University, Iceland
- Wellsite geological data acquisition and reporting using Logplot, 2016. United Nations University – Geothermal Training Program, Reykjavik, Iceland
- GIS and Geological Mapping instructor 2009. LaSalle Beauvais, France.

### **TECHNICAL PUBLICATIONS**

Poux, B., Banks, G. -2022- Visualize and Communicate Confidence in 3-D Geological Models for Geothermal Exploration and Development. Geothermal Resource Council Transactions 46, p. 2160-2173.

Hickson, C.J., Noone, F., Raymond, J., Dusseault, M., Fraser, T., Huang, K., Marcia, K., Miranda, M., Poux, B., Fiess, K., Ebell, J., Ferguson, G., Dale, J., Groenewoud, L., Banks, J., Unsworth, M., Brunskill, B., Grasby, S., and Witter, J. -

- 2021- Geothermal Energy in Canada – Kickstarting an Industry, In Proceedings World Geothermal Congress, Reykjavik, Iceland, May 2021.
- Podgorney, R., Simmons, S., Finnilla, A., McLennan, J., Neupane, G., O'Brien, J., Elliott, J., Wannamaker, P., Williams, B., Poux, B., Moore, J. -2021- A Framework for Coordinated Earth and Numerical Modeling and Simulation of the Utah FORGE Site. World Geothermal Congress 2020+1, Iceland.
- Poux, B., O'Brien, J., Williams, B., Alcaraz, S. -2020- The role of Three-Dimensional Models in Geothermal Energy, from Exploration to Production. Proceedings, World Geothermal Congress 2020+1, Iceland.
- Poux, B., O'Brien, J. -2020- A conceptual approach to 3-D "Play Fairway" Analysis for Geothermal Exploration and Development, Proceedings 42nd New Zealand Geothermal Workshop, November 24-26 2020, Waitangi, New Zealand, ISSN 2703-4275
- Lindsey, C.R., Trainor-Guitton, W., Ayling, B., Poux, B. -2020- Statistical modelling of subsurface temperatures in the Great Basin. In: Proceedings 45th Workshop on Geothermal Reservoir Engineering, Stanford, California, February 10-12, 2020 SGP-TR-216.
- Poux, B., Gunnarsdóttir, S.H. -2016- 3D modelling of Hellisheiði Geothermal Field using Leapfrog Geo. Presented at the GEORG Geothermal Workshop, Reykjavik, Iceland, November 25-26, 2016 and at the JFI (Geological Society of Iceland) 2016 Fall meeting, Reykjavik, Iceland, November 15<sup>th</sup>, 2016.
- Brophy, P., Poux, B., Suemnicht, G., Hirtz, P., Ryan, G. -2014- Preliminary Results of Deep Geothermal Drilling and Testing on the Island of Montserrat. Stanford Geothermal Reservoir Engineering Workshop, Stanford, CA, USA.
- Brophy, P., Poux, B. -2013- Status of Geothermal Development in the Caribbean Islands. Geothermal Resource Council Meeting 2013, International Session, Las Vegas, USA.
- Poux, B., Brophy, P., Suemnicht, G. -2013- Geothermal Exploration in the island of Montserrat, Caribbean. Presented at the Association of American Petroleum Geologist (AAPG) Pacific Section Meeting, SEG & SEPM, Monterey, California, April 19-25, 2013.
- Poux, B., Serrano, V., Brophy, P. -2012- Direct Use of Geothermal Water at the Solage Calistoga Resort, Napa County, California. Geothermal Resource Council Transactions 37, 9p.
- Poux, B., Brophy, P. -2012- Geothermal Exploration on the island of Montserrat, Caribbean. Geothermal Resource Council Transactions 37, 13p.
- Poux, B., Suemnicht, G. -2012- Use of GIS Geoprocessing to select the most favorable sites for Geothermal Exploration in Oregon. Geothermal Resource Council Transactions 37, 8p.
- Brophy P., Lippmann M.J., Dobson P.F., Poux B. -2010- The Geysers Geothermal Field, Update 1990-2010. Geothermal Resources Council Special Report No. 20, 248p.
- Poux B. -2009- Geothermal prospection methodology: recognition, exploration and characterization of the reservoir, Geologist Master thesis, LaSalle Beauvais Library, n°369, 83p.
- Poux B., Kostecki, J. -2007- East Flank sliding of Mount Etna (Sicilia, Italy) and its relation to the N140° faulting zone of Santa Tecla: neotectonics and analogical approaches, Geological thesis, LaSalle Beauvais Library, n°395, 99p.

#### **PERSONAL INFORMATION**

Professional Associations: Engineers and Geoscientist of British Columbia (EGBC), Geothermal Canada, International Geothermal Association (IGA), Geothermal Rising (GRC), Women in Geothermal (WING)

Languages: French (Native); fluent English; good Spanish, basic Bahasa Indonesian.

Citizenships: France and Canada

Countries with working experience – France, Italy, USA, Montserrat, Australia, Iceland, Canada, India, Djibouti.