

# Devin W. Cairns, M.Sc., P.Geo.

P. 403.797.4817

E. [devin.cairns@bluegeo.ca](mailto:devin.cairns@bluegeo.ca)

Devin is a hydrogeologist and geospatial developer with over a decade of experience consulting on a dynamic range of projects of geospatial origin, primarily related to water, land use, and population. Devin has worked in both North and Central America in technical leadership and project management roles for clients ranging from individual households to multinational companies. Devin is versed in programming, primarily using open-source languages and libraries such as Python and GDAL. He has facilitated the creation of dynamic applications and simulation tools in containers and on the web, with overarching knowledge of the underlying technologies. Devin provides pragmatic integration of geoscience, geographic principles, and software to create solutions to complex problems that require input from many disciplines.

## Experience

*March 2015 – Present*

### **Scientific Development Manager**

Blue Geosimulation, Calgary, AB

Managing a team of programmers and scientists dedicated to the pursuit of innovative and efficient approaches to water, land use, and population problems. Working with exceptional people to integrate various open-source technologies into containers and web applications to provide custom data pipelines and tools for use by both professionals and the public to approach otherwise daunting projects.

*January 2014 – March 2015*

### **Hydrogeologist & Geospatial Analyst**

Integrated Sustainability Consultants Ltd., Calgary, AB

Conceptualizing and implementing hydrogeological and spatial computational tools for groundwater risk, exposure analysis, subsurface fluid disposal, groundwater/surface water interaction, monitoring optimization, and regional-scale hydrological modelling. Development of custom applications for use by water stakeholders and industry operators to enhance understanding of natural systems and facilitate decision making.

*January 2011 – December 2011*

### **Hydrogeologist & Technical Lead**

Stantec Consulting Panama SA, Panama City, Panama

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Planned and oversaw environmental site assessments, groundwater characterization, and data analysis/interpretation at multiple locales in Central America and the United States. Responsibilities also included mentoring local Panamanian and American employees on technical and safety practices.

*May 2006 – December 2010*

**Hydrogeologist & Geology Intern**

Stantec Consulting Ltd, Edmonton, AB

Performed hydrogeological assessments, including groundwater supply, groundwater quality evaluation, geothermal applications, carbon sequestration and storage, site assessment and remediation programs for a diverse range of clients and projects.

**Education**

*January 2012 – December 2014*

**University of Lethbridge, Lethbridge, AB**

M.Sc., Environmental Science

Researched surficial geology and groundwater flow modelling in mountain watersheds and developed novel techniques for the simulation of shallow unconfined groundwater flow for data-scarce regions.

*February 2013 – May 2013*

**University of Twente, Enschede, Netherlands**

Graduate Study Segment

Completed concentrated study in Applied Groundwater Modelling with Emphasis on Data Integration at the Faculty of Geo-Information Science and Earth Observation.

*September 2003 – April 2008*

**University of Alberta, Edmonton, AB**

B.Sc., Environmental Earth Science

Completed a Bachelor's degree with specialization in Environmental Earth Science.

Resume: Devin Cairns

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**Professional Accreditations**

- **Professional Geologist.** Association of Professional Engineers and Geoscientists of Alberta.
- **Professional Geoscientist** Association of Professional Engineers and Geoscientists of British Columbia.

**Skills and Attributes**

- Groundwater and surface water analysis (hydrogeology, hydrology)

- Programming primarily using Python (with extensive usage of NumPy, SciPy, h5py, scikit-image, and the GDAL API), with minor experience using VBA, Fortran, JS, CSS, HTML
- Geographic Information Science and Geospatial Development
- Geology (sedimentary, geomorphology, environmental geophysics)
- Data visualization, mapping, and detailed reporting
- Project, personnel, and small business management

## Publications

**Cairns, D.C.**, 2014. Simulation of Groundwater Flow in Mountain Watersheds. University of Lethbridge Master of Science Thesis.

## Publications in Preparation

**Cairns, D.C.**, Jiskoot, H., Byrne, J.M., McKenzie, J., Johnson, D., [2016]. Novel geomorphometric classification of heterogeneity of unconsolidated sediments for hydrogeologic characterization in mountain watersheds. Target journal: Journal of Hydrology

**Cairns, D.C.**, McKenzie, J. Byrne, J.M., Jiskoot, H., Johnson, D., [2016]. Groundwater Model Discretization and Computation Using Geomorphic-Derived Data for Estimating Unconfined Topographically Driven Groundwater Flow in Mountain Watersheds. Journal to be determined.

## Presentations

Fennell, J., **Cairns, D.C.**, 2014. Water Disposal in the Oil Sands: Challenges and Strategies. Oral Presentation: ESAA WaterTech Symposium 2014.

**Cairns, D.C.**, Byrne, J.M., Jiskoot, H., McKenzie, J., Johnson, D., 2013. The use of a geomorphometric classification to identify heterogeneity in the unconsolidated sediments of mountain watersheds. Oral Presentation: Western Division of Canadian Association of Geographers. Poster Presentation: American Geophysical Union Fall Meeting, San Francisco, California, 2013

**Cairns, D.C.**, Byrne, J.M., Jiskoot, H., J., Johnson, D., 2012. A GIS based geomorphic assessment to quantify spatially distributed groundwater recharge in mountain watersheds. Poster Presentation: American Geophysical Union Fall Meeting, San Francisco, California, 2012.

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## If you're still reading

Devin enjoys unwinding by participating in sports, doing something outdoors, or playing music. He enjoys volleyball, basketball, baseball, hockey, and bouldering, while outdoors he prefers exploring, mountain biking, and yard work. While held indoors he explores the exciting technologies available in the geospatial world, and plays the guitar or piano. All while being resolutely dedicated to his family.

## Detailed Project Experience and References

Further detail and descriptions of project-related experience and client specifics are available and may be obtained by contacting Devin.

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