



Rebecca Pearce

CCSF Award Winner 2017-2018, Blakes Scholarship

Rebecca Pearce is a PhD student in Geosciences at University College London, in the London Natural Environment Research Council (NERC) Doctoral Training Partnership, a programme under which students receive training at world-leading research centres covering a breadth of environmental science research, from those driven by contemporary environmental challenges to those exploring complex questions about the evolution of the planet.

Rebecca's PhD work is contributing to a four-year project between UCL and Pontificia Universidad Católica de Chile that aims to better understand the geothermal and mineral deposits of the Southern region of the Chilean Andes, with the ultimate aim to help Chile exploit its geothermal energy resources.

Geothermal energy is considered to be one of the cleanest, most efficient and reliable green energy sources, but accessing the resources is particularly difficult in the resource-rich but dynamic tectonic and geographically remote environment of the Southern Andes. Rebecca's work applying the method of magnetotellurics, which allows the detection of conductors to depths of up to 80km below the earth's surface, will help the research team better understand the controls of mountain building and the transport of magma in volcanic settings. The fundamental knowledge that the project is uncovering using geophysics is expected to be relevant to other regions which have not yet fully exploited their geothermal energy potential, including regions of Alberta and the Northwest Territories of Canada.

As a young Canadian with an enthusiasm for physical challenges and the great outdoors, Rebecca likely only dreamed of leading expeditions into remote mountain villages and across volcanoes, but that is exactly what she is doing: she spent eight months in Chile over 2016-2017 leading a project team to install magnetic and electric-field measuring stations in a tiny village that is built around a volcano-fuelled hot spring. So far she hasn't had to dodge any flowing magma, "although that would be cool", she admits. She credits the warm and generous reception from the local communities and her fellow researchers in Chile as indispensable to her ability to surmount challenges she's faced in the field, which have included conquering pages of equipment-

import-licence regulations (in Spanish), navigating around national strikes, landslides and mudslides, adopting the art of driving a four-by-four, and coaxing cooperation out of pack mules.

Rebecca is immensely grateful for the recognition of the 2017 Blakes award from the CCSF. As of



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writing she has departed for a two-month residency at the Earthquake Research Institute at the University of Tokyo, with further activities this year to include the major American Geophysical Union conference in New Orleans, and a further year of research and field work in Chile. She embraces the intellectual, physical and mental challenges demanded by her PhD program, which are necessary to develop a professional-level understanding of fundamental geophysical processes and to support her ultimate mission to contribute to the momentous and revolutionary motion towards clean energy for Canada.