



VOLCANOES, GLACIERS, AND EARTHQUAKES IN NEW ZEALAND (EES 3865: Field Investigations)

Guil Gualda & Dan Morgan, Earth & Environmental Sciences

SCOPE: We will study Earth and Environmental processes and systems in the field, with an emphasis on field methods. The course will be held in New Zealand, which will give us the opportunity to study a variety of topics, including past volcanic activity, earthquake geology and hazards, the effect of glaciers on the landscape, evolution of the Earth's landforms, geothermal energy, and environmental issues.

MOTIVATION AND GOALS: Rocks preserve the most extensive record of the evolution of the planet, from which we are able to retrace Earth's history over 4.5 billion years. Field geology plays a particularly important role in decoding this complex record, but its interpretation requires proper understanding of geologic processes and of the methods of field geology. We will study volcanic supereruptions and their deposits, associated hazards, and energy resources associated with magmatic systems in the Taupo Volcanic Zone of the North Island. We will also study mountain building and destruction processes, effects of glaciers on landforms, earthquakes and associated hazards in the South Island. Part of the fieldwork performed will contribute to an active NSF-funded project focusing on the evolution of supereruption-forming magma bodies, which includes Gualda, his graduate students, and colleagues from the University of Canterbury.

PROGRAM: The course will start in Auckland on May 09 and finish in Christchurch on June 2, 2017. We will visit both the North and South Islands of New Zealand over the length of the course, and the topical focus will change accordingly:

- **TAUPO VOLCANIC ZONE (North Island):** Introduction to geology; volcanism in the Taupo Volcanic Zone; geothermal energy harvesting; field research of super eruption deposits, in connection with NSF-funded CAREER project.
- **SOUTH ISLAND:** Mountain building; glaciers as agents of surface transformation; earthquake geology

EVALUATION: Course evaluation will be based on participation, field exercises (outcrop descriptions, geologic cross-sections and maps), and oral presentations.

CREDITS: 3 (This course is listed as MNS in AXLE)

REQUISITES: Students with all levels of expertise in Earth and environmental sciences are encouraged to apply. Activities will be adjusted to take into account prior experience and course-work.

EXPENSES: Course fee includes tuition, lodging, transportation, most meals (depending on location), entrance fees to National and State Parks. It does not include airfare from Nashville to Auckland or from Christchurch to Nashville, transportation from and to airports, regular meals in major cities, incidental expenses.

CONTACT INFORMATION:

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FINANCIAL SUPPORT: www.vanderbilt.edu/studyabroad

APPLICATION: <https://webapp.mis.vanderbilt.edu/studioabroad/>

MORE INFORMATION: <https://goo.gl/forms/jgR0c78j2vZRYvRs2>

