USE OF SEMESTER LONG DATA/RESEARCH PROJECTS IN INTRODUCTORY EARTH SCIENCE COURSES

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Dan E. Olson, Department of Natural Science, Edgewood College
Tina M. Johnson, Department of Geology & Geophysics, University of Wisconsin-Madison

Introduction

Semester long research projects are a partial substitute for traditional laboratory exercises. These projects have been implemented in two, ten-week semester-long introductory Earth Science sequences. One sequence is designed for traditional age students, the other for older students. The projects are designed for non-traditional age students, those who are non-traditional in age, at international institutions, and at distance learning sites. The projects require student access to networked computers with Internet browsers and a variety of databases/ software.

Objectives

The primary objective of the project is to promote a student-centered learning environment. The secondary objective is to develop a variety of skills that students find useful, including:

- Internet search skills and the ability to discern websites with trustworthy data
- The relationship of global climate phenomena (e.g. El Niño or La Niña)
- Collecting data and evaluating the validity of the data collected
- Organizing data and plotting a variety of data sets
- The usefulness and limitations in the use of modeling to comprehend earth processes
- Describing the nature of seismic processes and methods of study that are typical of the profession

Methods

Prior to the selection of their research question, students engage in laboratory activities to introduce them to the datasets and/or methods of study that are typical of the profession. The projects develop a number of other skills that students have found useful, including:

- Pedagogical strategies to promote this student-centered learning environment
- Library and computer lab staff were accessible and available
- Students' background in Math/Statistics and familiarity with modeling

Results

The projects have been implemented in two, ten-week courses for non-traditional age students. The projects were successful in helping students engage with "real-world" problems in the earth sciences. These types of activities provided a more focused research approach to problem solving, which is typical of the profession.

Conclusions:

The dependability of web-based resources cited in some courses. Some survey respondents indicated limitations of Internet access and funding for research projects. The projects are useful in helping students become engaged with "real-world" problems in the earth sciences. These types of activities provided a more focused research approach to problem solving, which is typical of the profession.

References