Summer Internship Program for Undergraduates (June 1st-August 10th, 2010)

Themes: Analyzing Global Databases

The Lamont-Doherty Summer Intern Program offers the chance to experience scientific research as an undergraduate. The program is open to US citizens or permanent residents who have completed their junior or sophomore year in college with majors in earth science, environmental science, chemistry, biology, physics, mathematics, or engineering. Neither graduating seniors nor international students are eligible for this internship. Minorities and women are encouraged to apply.

Applicants should have an interest in conducting research in the Earth or ocean sciences. Two previous Earth-or ocean-science courses are desirable if they are available to the student. All students are required to have at least one year of calculus. Students choosing research in geochemistry and chemical oceanography are required to have at least two semesters of college-level chemistry. Students choosing research in marine biology are required to have at least two semesters of college-level biology. Students choosing research in geophysics should have at least three semesters of college-level physics.

The Marine Geoscience Data System group at Lamont provides a freely-available tool called GeoMapApp that allows the exploration and visualization of global data sets (www.geomapapp.org). With GeoMapApp, users can create custom maps and grids, import their own data sets and grids, and explore and visualize a wide range of global data sets. These include a multi-resolutional digital elevation model of the oceans and continents; plate tectonic information; undersea feature names; shipboard topography, gravity and magnetics data; earthquake catalogues; deep sea core data; Alvin submersible photos around hydrothermal vents; rock sample geochemistry; satellite-derived gravity and geoid grids; seismic reflection profiles, and more. GeoMapApp is written in Java and works on any type of computer. All interns will be instructed in the use of GeoMapApp during the second week of the intern program. Interns will be encouraged to use GeoMapApp during their research projects, as well as after they have returned to their undergraduate institutions. However, both the student and the supervisor will design the research program, and therefore individual projects may contain variable amounts of data collection and data analysis.

The following members of the Lamont research staff will act as research mentors:

**David Schaff.** Expertise: **Earthquake Location, Seismology.** Current Research: Testing Predictions from the Cascade and Pre-Seismic Slip Models for Foreshock Occurrence with the Best High Precision Earthquake Catalog in the World: Northern California.

**Geoff Abers, Donna Shillington, and Josh Calkins.** Expertise: **Seismology, Marine Geophysics.** Current Research: Using Seismic Methods to Determine the Crustal Structure and Composition of the Aleutian Island Arc.

Alberto Malinverno. Expertise: **Marine Geophysics, Quantitative Data Analysis, Geophysical Inverse Problems.** Current Research: A New Magnetic Polarity Time Scale for the Late Jurassic-Early Cretaceous.

Elizabeth Pierce. Expertise: **Paleoclimate/ Paleoceanography, Thermochronology, Geology of Antarctica.** Current Research: Marine Sedimentary Evidence for Ice-Sheet History: $^{40}\text{Ar}/^{39}\text{Ar}$ Ages of Glacially Transported Hornblende and Biotite Grains from East Antarctica.


Sidney Hemming. Expertise: **Isotope Geochemistry, Paleoceanography, Paleoclimate.** Current Research: Marine Sedimentary Evidence for Missoula and Other Glacial Lake Floods.

Adi Torfstein. Expertise: **Paleoclimate, Paleolimnology, Geochemistry.** Current Research: Sources of Late Glacial Dust to the Middle East: A Study of Sediments from the Dead Sea.

Dallas Abbott. Expertise: **Impact Ejecta, Tsunami Deposits, Marine Geology and Geophysics.** Current Research: Did a Circa 2300 BP Extraterrestrial Bolide Produce a NY-NJ Tsunami Catastrophe? Have Terrestrial Shoemaker Levy Type Events Produced Large Climate Downturns?


**STIPEND:** Students will receive a stipend of $5000 for this 10-week program. In addition, the student will receive free, air-conditioned housing at Columbia University in the City of New York. (Local students who are accepted to the program and who prefer to live at home will receive an additional $1000.) Students will also receive free bus transportation between the Columbia campus and Lamont. Students who are traveling to New York for this internship from more than 200 miles away will be reimbursed for a round-trip supersaver fare.

**APPLICATION DEADLINE:** Application form must be submitted by **March 15, 2010.**

**There is an online application form. It is posted at:** [http://webapp.ldeo.columbia.edu/interns](http://webapp.ldeo.columbia.edu/interns)

**The online application form asks for the following files:**

- Resume with description of computer skills (if any).

- A statement of interest. This statement can include a description of a particular research project that the student wishes to undertake or it can be a more general statement of the three areas of current research that interest the student most. We recognize that students with no prior research experience may have difficulty formulating a research project and we will not penalize students who do not submit a detailed project description. The goal of our program is to teach students about the research process and we encourage students with no prior research experience to apply. The student should also include a statement of the characteristics of a good scientist.
-letters of recommendation

In addition to the online application form, send the following material by regular mail (NOT email):

-Official college transcript(s);

The transcript(s) must be mailed on or before March 15, 2010.

Mail to: Dr. Dallas Abbott
         Summer Internship Program
         Lamont-Doherty Earth Observatory
         Palisades, New York 10964
         Email: dallas@ldeo.columbia.edu

For more information, look at our web page: http://www.ldeo.columbia.edu/education/programs/summer-internship/intern-program-faqs. Decisions for all but the waiting list will be made on or before April 15, 2010. Every year the research projects and advisors change. Please look for the yearly posting of new projects on the first of February.