



USGS NSF GRIP Opportunity

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USGS Center:	Woods Hole Coastal and Marine Science Center
Project Title:	Seismic stratigraphy and deep-ocean sedimentary processes along the Northwestern Atlantic margin
Project Hypothesis or Objectives:	<p>Continental margin sediments record the history of sediment distribution and reworking by, for example, ocean-bottom currents and submarine landslides. In the Northwestern Atlantic, the effects of these processes are observed along the continental slope and rise, but also out to 100s of kilometers offshore. The USGS has recently collected a large 2D marine multichannel seismic reflection dataset along the US Atlantic margin. These data support the US Extended Continental Shelf program and image sediments and oceanic crust over a region extending ~1000 km along the US mid-Atlantic margin and up to ~800 km offshore. The same region is well mapped by a new, contiguous multibeam bathymetry and backscatter grid. These new datasets, along with those collected off the adjacent Canadian margin, provide an unprecedented view how slope, rise, and deep ocean sedimentary processes interact along continental margins. The goals of this project are to interpret sedimentary stratigraphy using the new seismic data and use this regional framework to study how marine geologic processes shaped the seafloor and evolved through time in the Northwestern Atlantic.</p> <p>More information about the seismic data collection can be found at:</p> <p>http://soundwaves.usgs.gov/2014/12/ http://soundwaves.usgs.gov/2015/11/fieldwork2.html</p>
Duration:	6-12 months
Internship Location:	Woods Hole, MA
Field(s) of Study:	Marine Geology, Sedimentology, Marine Seismology, Geophysics

● **Expected Outcome:**

This project will produce a revised and expanded stratigraphic model for the slope to deep ocean sediments of the US Atlantic margin. The intern will gain applied experience using a range of geologic and geophysical datasets (e.g., seismic reflection, cores, well logs) while under the mentorship of USGS geologists, geophysicists, and geographers. The intern is expected to present results at a national meeting, such as the Geologic Society of America or American Geophysical Union annual meetings. This work will provide the USGS with an improved understanding of sedimentary systems along the Atlantic margin, which is a key part of the Extended Continental Shelf project and of scientific interest in general.

● **Special skills/training Required:**

A background in marine geology is required. Prior experience with seismic interpretation software, geographic information systems (GIS), and general computer skills will be particularly helpful, but is not strictly required.

● **Duties/Responsibilities:**

The GRIP intern will use newly acquired and processed multichannel seismic reflection data, along with legacy seismic datasets and well logs, to interpret sedimentary stratigraphy along the Northwestern Atlantic margin. Sedimentary lithologies and ages have been well studied along the slope and rise along this margin, and a main focus of this project will involve interpreting the new data within this existing framework. The intern will use this revised and expanded stratigraphic model to study how marine sedimentary processes interact and change through time to shape continental margins.