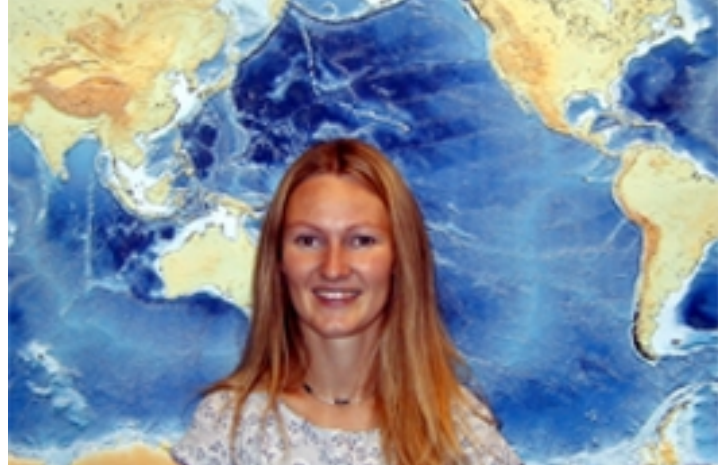


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QUATERNARY GEOLOGIC HISTORY OF THE NEW JERSEY MIDDLE AND OUTER SHELF

ABSTRACT

In my research I will investigate the Late Pleistocene- Holocene sedimentary record of the mid-outer continental shelf of New Jersey using ultra-high-resolution seismic, coupled with lithological and chronostratigraphic control from sediment cores that is planned to be collected in September/October 2002. The overall goal is to characterize the physical significance of these area as completely as possible- i.e. their stratigraphic architecture in three dimensions and physical properties, and determination of dispersal pattern that can be linked to known fluctuations of sea level. Detailed observations of small areas of recently glaciated continental shelves, made possible by the application of new tools and techniques, have lead to a new appreciation of the complex, small scale stratigraphic variability of this sea floor environment (Davies et al., 1996).

The objective of the my thesis work is to see how these depositional systems responded to various forcing agents, particular changing sea level. The on-

set of fairly high amplitude and rapid sea level changes during the late Quaternary has probably produced a marked change in the small-scale drainage pattern within the gross drainage system of the shelf. These changes in sea level have probably also contributed directly to the complex fill stratigraphy contained within the buried fluvial system. By mapping the distribution and routes of these valleys and their fills, this project will study the pattern of valley-fill sedimentation that has probably resulted from Quaternary sea level fluctuations of various frequencies.

Sediment cores that are planned to be drilled in September/October 2002 will provide ground truth for seismic facies interpretations and provide material for chronostratigraphical analysis. From the cores critical information can be obtained, carbonaceous material for radiocarbon dating and benthic and planktonic foraminifera for paleobathymetric work. Benthic foraminifera can also be used to generate an oxygen isotope record for the study area.

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SYLVIA NORDFJORD

Sylvia Nordfjord was born in Haugesund, Norway on January 25, 1976 to Marie Dybdahl Ugland and Sigve Nordfjord. After graduating from Vardafjell High School in 1995, she worked full-time in a kindergarten and part-time as a dance teacher in ballet, she also travelled as a backpacker in South-East Asia for three months. In 1996 she attended the Norwegian University of Science and Technology, NTNU, in Trondheim, Norway, where she majored in Petroleum Geological Engineering at the Department of Applied Earth Sciences. As part of her Bachelor of Science education she attended University of Texas at Austin through a reciprocal exchange program for two-long-session semesters, Fall 1999 and Spring 2000, where she took mainly graduate courses. She graduated in December, 2000, and as a part of the program a thesis was done in collaboration with the oil company, Norsk Agip A/S, in Stavanger, Norway. The thesis was entitled “The Smørbukk Field: A study of pressure regimes and the attempt to identify possible flow barriers.” She also completed an internship with Norsk Agip, during Summer 2000, where she worked in the Reservoir Geology area.

She entered The University of Texas at Austin as a graduate student in the Spring 2001 semester to pursue a Ph.D. degree in Geological Sciences. During Spring Semester 2001 she worked as a Graduate Research Assistant at the Bureau of Economic Geology in Austin, working on stratigraphic analysis of two of the major basins in Southern Mexico. Sylvia is presently studying the late Quaternary stratigraphy and geological history of the United States continental margin off New Jersey at the Institute of Geophysics, a research that is a part of the Office of Naval Research STRATAFORM initiative, and also is of primary interest for the ONR-sponsored “geoclutter” program. Her supervisors at the Institute are Dr. James A. Austin, Jr. and Dr. John Goff, and her academic supervisor is Dr. William E. Galloway at the Department of Geological Sciences. She has also participated in numerous field expeditions, including two cruises off New Jersey to collect seismic and lithostratigraphic data in the summer of 2001.