

## **High-Resolution Stratigraphy of Organic Matter from the Lower Aptian Oceanic Anoxic Event at Shatsky Rise, ODP Leg 198**

Mirela Dumitrescu  
Indiana University, Department of Geological Sciences  
Bloomington, Indiana  
mdumitre@indiana.edu

The term Oceanic Anoxic Events has been employed to describe discrete intervals of time (typically less than one million years) when widespread organic-rich sediments were deposited and preserved under oxygen-deficient conditions. The precise causes and the controls on the development and termination of these events remain enigmatic. The purpose of this research is to evaluate the role of possible triggers, such as anoxia, iron release during emplacement of the Ontong Java-Manihiki igneous province, and/or methane dissociation in the formation of such event in the Lower Aptian.

Few studies have sought, or been able, to combine high-resolution, elemental, isotopic, and molecular analyses in examination of temporal variations in sources of organic matter, characteristics of the depositional environment, and evidence for perturbations of global carbon cycling during the Lower Aptian. This study of organic-rich sediments recovered from ODP Leg 198, Shatsky Rise, Northwestern Pacific offers such an opportunity. A suite of geochemical analyses will be conducted on 100 samples taken at cm-scale intervals from the Lower Aptian organic-rich sediments. Samples will be examined for: (1) organic-carbon and sulfur contents, (2) major and trace element concentrations, (3) distributions and abundances of biomarkers, and (4) carbon isotopic composition of organic matter and individual biomarkers.

The results of these analyses will contribute to a better understanding of the changes that took place in the nature of the mid-Cretaceous ocean-climate system and led to enhanced sequestration of organic matter, which in turn contributed to the formation of significant amounts of hydrocarbons in Cretaceous sedimentary sequences.