

IODP Proposal Cover Sheet

Scott Plateau Subseafloor Life

830

Apl

2

Title	Nature of Subseafloor Life in Mesozoic Sediment of the Scott Plateau		
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Abstract

Surface exposure of Mesozoic sediment on the Scott Plateau provides a wonderful opportunity to examine (i) the present ecosystem of Mesozoic marine sediment, and (ii) biogeochemical interaction between the modern ocean and life in very old sediment. With this APL, we propose to take advantage of that opportunity. At little additional cost to IODP, a single-site drilling project on the Scott Plateau will address important questions. Does sediment this ancient consistently contain a living ecosystem? Does this ecosystem vary with sediment history (e.g., from OAE horizons to background sediment)? Does the unconformable contact with the modern ocean affect habitability and community composition in this Mesozoic sediment?

Scientific Objectives

To test the following hypotheses:

1. Active microbial communities are present in this sediment, despite Jurassic-Cretaceous sediment age.
2. Distinct microbial communities are sustained in shallow Mesozoic sediment at fronts between (i) oxidized chemicals from the overlying ocean and (ii) reduced chemicals in the sediment [either dissolved chemicals (e.g., CH₄, H₂S, NH₃⁺, etc.) or solid phases (organic matter, metal sulfides)].

Non-standard measurements technology needed to achieve the proposed scientific objectives.

Proposed Sites

Site Name	Position (Lat, Lon)	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
SPL-01	-13.2084, 120.0660	2000	250	0	250	To test Hypotheses 1 and 2.