

A Triumph for Dynamic Positioning

BY ELLEN THOMAS

ODP Leg 113 (Weddell Sea Antarctica, December 1986 to March 1987) is famous because of the recovery of the Paleocene-Eocene boundary and some of the oldest diatoms ever recovered. Personally, I'll never forget this leg: I went to sea after staying at home for half a year after the birth of my first child. Life at sea made me feel like being revived professionally, while guilty about going to sea for 2.5 months, leaving my husband holding the baby. Illogically, going that far away made it feel worse, especially with contact only via expensive satellite phone (better than the ham radio connections used on DSDP Legs 85 and 94).

The leg began by drilling two successful, now intensely studied sites (Sites 689 and 690), where we recovered the predicted carbonate and microfossil-rich Paleogene sections (I am still working on them). Problems started at the next site, where we had expected to examine the record of Cenozoic glaciation and to date the dipping reflectors seen on the seismic records. We started drilling in a canyon—while our support vessel was messing around with various icebergs and unsuccessfully trying to move them with water cannons and lassoing. In the canyon we hoped to make a shortcut to middle Miocene sediment in a thick sequence reaching into the Middle Jurassic. Unfortunately, we could not spud in at Site 691 because we met gravel and hard rock. After three attempts to start a hole, we gave up and moved to close-by Site 692, away from the inner canyon. The first hole was again un-drillable, but in the second attempt we did succeed after many problems with hole stability, recovering mixed-up gravel. Core 7 finally contained sediments, but did not look like any Miocene we had ever seen—laminated black to olive gray claystones, indurated and difficult to process. While we micropaleo-people were struggling with the samples, the hole stabilized and more cores made it on deck. Then, Core 10 was split, and all discussion about possible Miocene black shales ended: we had recovered an ammonite centered nicely in the core (“a triumph for dynamic positioning”).



So much for the detailed reconstruction of the seismic record, with recognition of all the “wiggles” in the seismic record as representing the “wiggles” in the Vail sea-level curve for the Cenozoic, and the dating of reflector U6 as Miocene. Overlying sediments were Hauterivian black shales (organic carbon up to 18 percent)—an age prediction off by greater than 115 million years!

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