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23. DIATOM OCCURRENCES, DEEP SEA DRILLING PROJECT HOLE 543[1]

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Samples from Holes 541 and 543 were examined for diatoms utilizing the techniques of Abbott (1978). Neither diatoms nor silicoflagellates were found in samples from Hole 541. Occurrences among Hole 543 samples were at best spotty and preservation was poor, but sufficient forms were found to make some biostratigraphic interpretations in two portions of the core.

Diatoms occur (Table 1) from Section 18-3 through Section 19-7. This span contains *Actinocyclus ingens* var. *ingens, A. ingens* var. *nodus, Cestodiscus peplum, Craspedodiscus coscinodiscus, Delphineis penelliptica*, and *Denticulopsis kanayae* suggesting that this interval is lower middle Miocene. The species present suggest that this interval is equivalent to Barron's (1980, 1981) *Denticulopsis lauta* Zone in the Pacific and to Abbott's (1978) *Delphineis pennelliptica* Zone in the Atlantic.

The second part of Hole 543 material containing diatoms is from Section 27-1 to Section 27-4. This material contains (Table 2) *Asteromphalus praemarylandicus, Coscinodiscus muhina, C. robustus, Melosira architexturalis, M. clavigera, Triceratium barbadense*, and *Macrora barbadense*, suggesting that the interval is uppermost Eocene to lower Oligocene. Unfortunately, too few specimens are preserved in this section to do refined stratigraphy, but the assemblage is equivalent to assemblages found in the Oceanic Formation of Barbados.

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Table 1. Lower middle Miocene diatom taxa, Hole 543.

Hole 543 sample (interval in cm)	*Actinocyclus ingens* v. *ingens*	*A. ingens* v. *nodus*	*A. ehrenbergi*	*Actinoptychus senarius*	*Cestodiscus peplum*	*Coscinodiscus marginatus*	*C. superbus*	*Craspedodiscus coscinodiscus*	*Delphineis penelliptica*	*Denticulopsis kanayae*	*Hemiaulus polymorphus*	*Liostephania* sp.	*Macrora stella*	*Melosira granulata*	*Sceptroneis grandis*	*Sceptroneis* sp.
18-3, 21-22				X	X							X				X
18-4, 21-22																
18-5, 21-22																
18-6, 21-22																
19-1, 20-21		X							X					X	X	
19-2, 20-21	X					X		X		X	X		X			
19-3, 20-21							X		X						X	
19-4, 20-21		X														
19-5, 20-21								X								
19-6, 20-21																
19-7, 20-21		X	X					X								

Note: X indicates presence in sample. All species were relatively rare.

Table 2. Upper Eocene/lower Oligocene diatom taxa, Hole 543.

Hole 543 sample (interval in cm)	*Actinocyclus ehrenbergi*	*Actinoptychus senarius*	*Arachnoidiscus ehrenbergi*	*Asteromphalus praemarylandicus*	*Cestodiscus pulchellus*	*Coscinodiscus muhina*	*C. robustus*	*Goniothecium odontella*	*Hemiaulus polycistinorum*	*H. polymorphus*	*Liostephania* sp.	*Macrora barbadense*	*Melosira architexturalis*	*M. clavigera*	*Paralia sulcata*	*Rhaphoneis* sp.	*Riedele claviger*	*Triceratium barbadense*	*Xanthiopyxis structuralis*
27-1, 38-39				X			X												
27-1, 56-58	X	X		X			X	X		X			X	X	X	X		X	X
27-2, 29-30				X			X								X				X
27-2, 37-38				X	X	X													
27-2, 56-58				X			X												
27-2, 95-97		X		X								X		X	X		X	X	
27-2, 144-46									X						X				
27-3, 38-39																			
27-3, 56-58										X									
27-4, 38-39																			
27-4, 55-57											X								
27-4, 70-72			X																
27-4, 100-02																			
27-4, 137-38														X					

Note: X indicates presence in sample. All species were relatively rare.

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