

24. DINOFLAGELLATES FROM LEG 19, SITES 183 AND 192 DEEP SEA DRILLING PROJECT

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SUMMARY

Twelve samples from Sites 183 and 192 were processed by standard palynological methods and were examined for dinoflagellates and other palynomorphs. The only identifiable dinoflagellates encountered were from Site 183, Core 35 (390m) and represented a single species, *Areosphaeridium diktyoplokus* (Klumpp). Other samples yielded pollen and spores. Results are in Table 1. Although the single dinoflagellate identified does not require that the upper Eocene at Site 183 was deposited at a high latitude, the same species does occur in sediment of similar age on Adak Island. The spores and pollen from other Eocene horizons at Site 183 suggest that the locus of deposition was both nontropical and relatively near shore, in contrast to tropical and open ocean. The three samples processed from Site 192 failed to yield any recognizable fossil remains.

BEARING OF PALYNOMORPHS ON LOCUS OF DEPOSITION OF UPPER EOCENE SEDIMENTS FROM SITE 183

Areosphaeridium diktyoplokus (Klumpp) is a distinctive species of dinoflagellate with a broad geographic distribution, especially well documented in the upper Eocene. To the occurrences summarized by Eaton (1971, p. 360),

which include Lower Tertiary (mostly upper Eocene) records from Europe, South America, and Antarctica, can be added an occurrence in upper Eocene sediments on Adak Island in the Aleutians (Scholl, Greene, and Marlow, 1970). Although this common feature of Adak and Site 183 sediments would be consistent with proximity of the two areas in the late Eocene, the occurrence of this lone species of dinoflagellate in the upper Eocene at Site 183, in view of the known broad geographic distribution of the species, does not require this interpretation. On the other hand, the likelihood that deposition at Site 183 in the middle and late Eocene took place not too far from sources of land-derived materials is favored by the conspicuous, if not large, number of spores, gymnosperm pollen, and angiosperm pollen that was recovered from samples below that providing *A. diktyoplokus*. The presence of pollen of *Tsuga* and *Alnus*, among others, points to nontropical sources for the pollen.

Systematic Paleontology

Class DINOPHYCEAE

Genus AREOSPHAERIDIUM Eaton 1971

***Areosphaeridium diktyoplokus* (Klumpp 1953)**

(Plate 1, Figures 1-2)

Hystrichosphaeridium diktyoplokus Klumpp 1953, *Palaeontographica* 103 (5-6), p. 392, pl. 18, figs. 3-7.

TABLE 1
Dinoflagellates, Spores, and Pollen – Leg 19

Site	Core	Depth (m)	Stanford Sample No.	Indicated Age	Dinoflagellates	Spores and Pollen
183	23	230	4273	Oligocene or lower Miocene ^a	None.	Gymnosperm pollen.
	26	255	4277	lower(?) Oligocene ^a	A few fragments.	Abundant angiosperm and gymnosperm pollen.
	30	285	4282	lower(?) Oligocene ^a	None.	None.
	33	342	4285	lower(?) Oligocene ^a	A few fragments.	Abundant angiosperm and gymnosperm pollen, rare spores.
	34	360	4286	Eocene-Oligocene ^a	None.	A few grains only.
	35	390	4287	Upper or middle Eocene	<i>Areosphaeridium diktyoplokus</i> and other fragments.	None.
	36	415	4288	Upper or middle Eocene ^a	None.	Rare gymnosperm and angiosperm pollen.
	37	445	4289	middle or middle Eocene ^a	None.	Rare gymnosperm and angiosperm pollen.
	38	475	4290	middle or lower Eocene ^a	None.	Rare gymnosperms only.
192	3a	975	4297	lower upper Eocene ^a	None.	None.
	4a	1020	4298	Maestr.-Eocene ^a	None.	None.
	5a	1045	4299	M. Maestrichtian ^a	None.	None.

^aBased on nannofossil assignments.



Figures 1 and 2. *Areosphaeridium diktyoplokus* (Klumpp).
Core 183-25.

1. Cyst lacking only the operculum, X525.

2. Detail showing characteristic perforate structure of
process tips, X1150.

Cordosphaeridium diktyoplokus (Klumpp) Eisenack, 1963, Neues
Jahrb. Geol. Paläont., Abh., 118 (3), p. 262, pl. 29, fig. 1.

Areosphaeridium diktyoplokus (Klumpp) Eaton, 1971, II Plank-
tonic Conference, Rome 1970, Proc., p. 358, pl. 1, figs. 3-8; pl.
2, figs. 1-6.

(see last reference for complete synonymy)

Remarks: The approximately spherical main body, the number
and distribution of the long and fibrous-appearing processes
surmounted by elaborately perforate expansions, and the apical
archoepyle are completely typical for the species as discussed most
recently and thoroughly by Eaton.

REFERENCES

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