COCCOLITH IN A K-FELDSPAR: A NOTE

Katharina von Salis & Daniel Bernoulli
Geological Institute ETH-Z, CH-8092 Zürich, Switzerland

We usually study calcareous nannofossils in smear-slides with the LM, or in strew preparations with the SEM. In such preparations, we can observe dissolution in partially dissolved coccoliths and overgrowth in other forms, but we cannot investigate the fate of coccoliths during other diagenetic processes. However, when studying rock surfaces with the SEM, we can observe relationships between coccoliths and newly-forming minerals. The illustrated proximal view of a coccolith (Figure 1) has been partly overgrown by a diagenetic K-feldspar (adularia) which shows a typical low-temperature habit. K-feldspar was identified in the sediment by x-ray diffraction, and the major elements (Si, Al, K) of the illustrated crystal were determined by an energy-dispersive microanalyser (EDAX) attached to the SEM. The K-feldspar in the photograph can also be distinguished from calcite by the angles between the crystal faces.

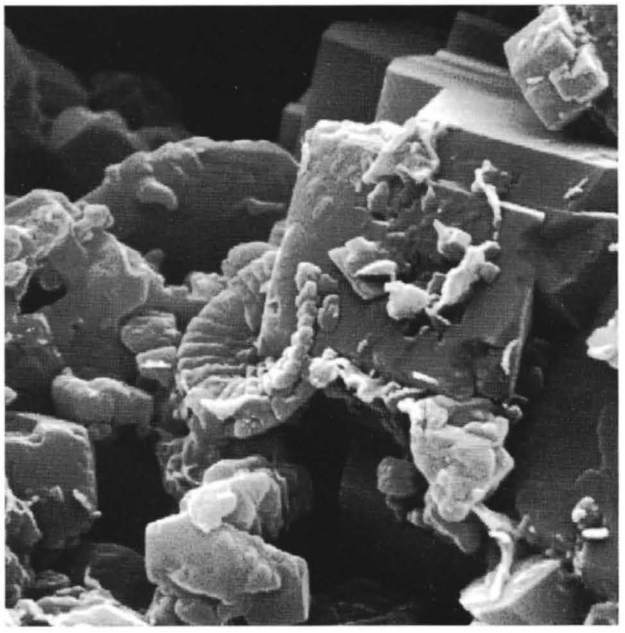

Figure 1: Proximal view of small coccolith (*c.*4µm) enveloped by K-feldspar, sample 55-433A-17-CC. Photograph by DB.

The sediment in which the K-feldspar occurs is of Middle to Late Paleocene age, according to Takayama (1980) and was found approximately 20m above the volcanic basement of the Suiko Seamount (Emperor Seamount Chain, NW Pacific Ocean), about 140m below the sea-floor. The sediment is described by McKenzie *et al.* (1980, p.417) as a „white and gray bryozoan - red algal carbonate sand with algal nodules", thus it is a shallow-water carbonate sediment. It is therefore surprising that, in a simple smear-slide of the sample, the following other (albeit very rare) calcareous nannofossils were found: *Coccolithus pelagicus*, *Ericsonia subpertusa*, *Lanternithus*? sp., *Neochiastozygus modestus*, *N. perfectus* (*c.*5µm), *Prinsius martinii*, *P. dimorphosus*, *P. bisulcus*, *Sphenolithus* sp., *Sullivania* cf. *S. consueta* and *Toweius craticulus*. While *Coccolithus*, *Sullivania* and *Sphenolithus* are very poorly preserved, the *Prinsius* and *Neochiastozygus* species are quite well preserved.

We may infer that the illustrated coccolith simply became a victim of the growth of the K-feldspar, which could have grown out of the porewater fluid in this location either by chance, or as a result of the coccolith constituting a nucleation site.

Acknowledgements

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References

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