

Sediment disturbance caused by a suspension-feeding tubular agglutinated foraminifer

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ABSTRACT

We report the occurrence of in-situ sediment disturbance caused by a specimen of *Rhabdammina* observed in life position on the 1991 Mt. Pinatubo ash layer in the abyssal South China Sea. The specimen extracts sediment grains from the ash layer to build its agglutinated test, causing a depression, or "moat" to form around the base of the specimen. We suspect that such fine-scale disturbance caused by large, erect tubular foraminifera is a common feature of the fossil record in deep-sea settings.

INTRODUCTION

Large tubular agglutinated foraminifera such as *Rhabdammina* are common elements of deep-sea faunas, and are generally regarded to live as erect, epifaunal suspension feeders. During Cruise 132 of the R/V Sonne in June, 1998, an outstanding example of such a specimen was recovered at Station nr. 4, (12°48.044'N, 113°33.435'E; 4326 m water depth) situated in the central South China Sea on the distal part of the 1991 Mt. Pinatubo volcanic ash lobe. The core was collected as part of a long-term investigation to study the particle flux and benthic ecology of the South China Sea (Wiesner *et al.*, 1998; Hess *et al.*, 2001). At this station the ash is only a 1–2 millimetres thick and is already covered by a fine fluffy layer. The specimen was recovered in life position in one of the multicore tubes.

The specimen is about 2.5 cm in length, and constructed its test from ash grains derived from the Mt. Pinatubo volcanic ash. As seen in Figure 1, the specimen extracted grains from the substrate, and in the process caused visible deformation of the ash layer. The layer is depressed downward beneath the specimen, and the specimen is surrounded by a conical "moat", the diameter of which is approximately three times the diameter of the specimen. As *Rhabdammina* are common constituents of the foraminiferal fauna in many deep-sea settings, this type of fine-scale sedimentary disturbance must be a commonplace occurrence. We speculate that the small "moats" ought to be preservable as trace fossils.

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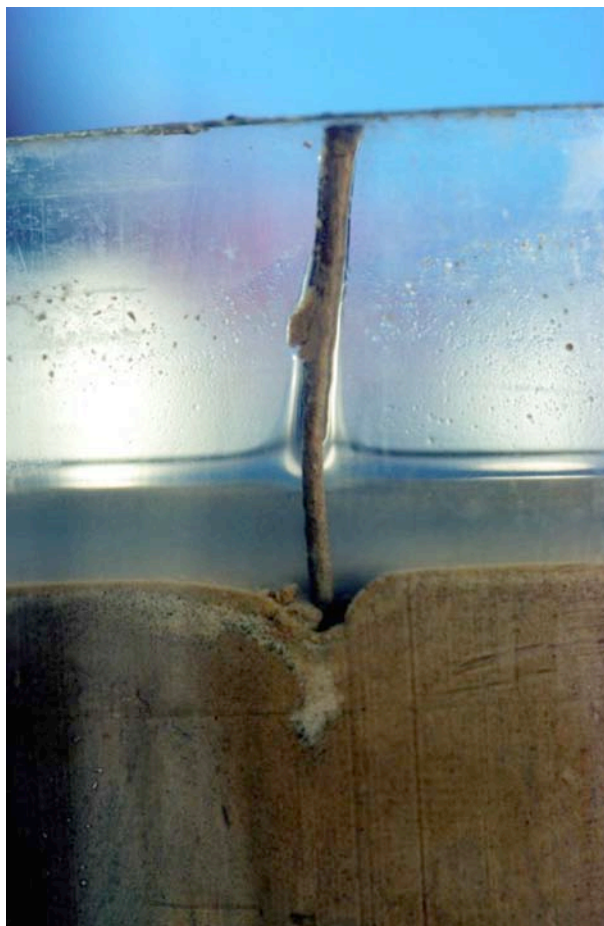


Figure 1. A specimen of *Rhabdammina* recovered in situ in a multicore tube collected at SO-123, Station 4. The light grey layer with black grains near the sediment surface is the 1991 Mt. Pinatubo Ash Layer. Image is approximately twice natural size. Photo taken by MAK at 1:1 magnification using a 60 mm Nikon macro lens.