

Modern and past morphology of *Emiliana huxleyi* and its co-occurrence with other Noelaerhabdaceae in the Atlantic Ocean

Nele M. Vollmar

University of Bremen, Department of Geosciences, 28334 Bremen, Germany; nvollmar@uni-bremen.de

Anne Strack

University of Bremen, Department of Geosciences, 28334 Bremen, Germany; annestrack@uni-bremen.de

Karl-Heinz Baumann

University of Bremen, Department of Geosciences, 28334 Bremen, Germany; baumann@uni-bremen.de

Emiliana huxleyi is the most abundant and widespread coccolithophore species in modern oceans. Several studies have shown morphological variations within the coccoliths and coccospheres of this important species that are related to various environmental parameters. However, definitions of morphotypes were often based on restricted regions and might not always be consistent among authors and study sites. Furthermore, even though some of the morphotypes have already been used for paleoceanographic reconstructions, only little is known about the development of these morphotypes through time.

Here, we present new, detailed, and unified morphometric data on *E. huxleyi* morphotypes from plankton and sediment traps in the Atlantic Ocean. Moreover, the evolution of *E. huxleyi* morphotypes, since the first appearance of this species approximately 270ka, was investigated in sediment cores. The findings of our study provided knowledge about the evolution of *E. huxleyi* morphotypes, the modern distribution of its morphotypes in relation to its sister taxa, and a unified and applicable classification scheme for distinguishing the morphotypes of this species.