

Dinoflagellates and their cysts: exploring new avenues in paleoclimate research and (past) harmful algal blooms

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In 1837, Ehrenberg made a drawing of a spiny fossil he found in flint flakes, but he was not aware it being the fossil cyst of a dinoflagellate, later named *Hystriosphera* by Wetzel (1932). The first papers, which described the cyst formation of living dinoflagellates were published in the 1940s and 1950s. In 1961, Evitt provided the key to the determination of the systematic position of “hystriosphere”, undoubted fossil dinoflagellates. The study of dinoflagellate cysts in marine sediments (and marine palynology in general) is hence a young research discipline, which developed quickly to become valuable, sometimes indispensable, for stratigraphic and environmental studies.

During this talk, I will briefly mention some of the most important scientific achievements in the field in recent years: quantitative reconstructions of environmental change, biostratigraphy and past climate (in polar areas), land-sea correlation, development of databases and proxies. I will then discuss some of the newest avenues in climate and environmental research where dinoflagellates and their cysts may provide a considerable contribution.