

DESCRIPTION FOR THE GENERAL PUBLIC (IN ENGLISH)

The Earth's history is full of ecosystem perturbations, such as the so-called *mass extinctions* usually associated with abrupt environmental changes. Understanding their causes is fundamental for Earth and biological sciences, because it provides the key to the understanding of recent climate changes. This project focuses on a global biocrisis which occurred at the end of Cretaceous, during the middle part of the Maastrichtian, and is called the mid-Maastrichtian Event (MME). This event was associated with relatively abrupt, short-lived and significant sea-level rise, climatic changes, as well as significant biota migrations (both benthic and planktonic) and mass extinctions among important groups of marine organisms, such as inoceramids and rudists. Rudists, similar to corals today, were the main group of reef builders during the Late Cretaceous and they spread over vast areas of warm seas. These buildups suddenly disappeared during the mid-Maastrichtian crisis. Recognition of processes which contributed to this extinction will allow a better understanding of the mechanisms and potential influence of recent climate changes on marine ecosystems and how they are related to the crisis of coral reefs.

An interdisciplinary research (biostratigraphical, paleoecological, sedimentological and geochemical) will be carried out based on multiple methods which are currently used for reconstruction of past environments. Modern and advanced isotopic analyses, e.g. Nd, Sr and Os in rocks and fossils, S and O in carbonate-associated sulfate or N in primary organic matter extracted from foraminiferal tests, will be applied. Our research is based on investigation of several sections from Poland, Baltic Sea and the North Sea. Such an integrated research will give a clear perspective on paleoceanographic conditions during this distinctive period of the Late Cretaceous.