

Chalk was formed in shallow sea, which during Late Cretaceous covered most of Central Europe territory. The main constituents of chalk are calcium carbonate, which form low-Mg calcite. At first glance Upper Cretaceous deposits seems to be monotonous, but closer look by optical and scanning microscopy reveals its more complicated nature. The chalk consists of beautiful skeletons of unicellular algae-coccolithophores. The blossom events of coccolithophores, caused that sea bottom were covered by microscopic size calcite skeletons, which formed massive deposits of chalk. High porosity and reservoir potential make that chalk is a subject of interest for industry.

In extra Carpathian Poland Upper Cretaceous rocks, which formed in shallow sea are usually named as opoka, marls, limestone and gaizes. Microscopic studies revealed that they are also composed of skeleton of unicellular algae, but lower porous and different texture (spatial arrangement of components in the rock) distinguishes them from the typical chalk. The differences were interpreted in literature as an effect of various depth of deposition. It was forgotten that before the loose deposits will transform into solid rock diagenetic process occurs. These process include the changes caused by increased pressure and increasing temperature.

The main goal of the project will be reconstruction of the Cretaceous carbonate rock genesis and determination the influence of the condition during deposition and later diagenesis on microtextural features of rocks. The research will be conducted with using the most modern techniques and equipment which allows for observation even the nano-size rock particles. The rocks which are stored a millions years are the best source of Earth history. The reconstruction of genesis even the smallest particles of rocks brings significance evidence for palaeoecological interpretations of conditions in a Late Cretaceous Central European Basin.