

## Holocene palaeoenvironmental changes in the Romanian Black Sea shelf

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During Late Holocene times, the Black Sea experienced a shift from a brackish to a marine environment. The purpose of our investigations was to point out these changes, based on lithological and sedimentological modifications, as well as palaeobiological fluctuations, in a very shallow marine setting such as the Romanian Black Sea inner shelf. The study of several cores indicates that the youngest Holocene deposits formed a 'Shallow Unit', made by alternating sequences of mud, silt, clay and coquina layers, containing marine mollusc faunas. The Shallow Unit overlies a 'shell hash layer', mainly made by coquinas with mixing marine and brackish mollusc faunas. The oldest Holocene unit Lacustrine Lutite intercepted by the studied cores is characterized by the deposition of green-yellowish clay, containing freshwater molluscs.

The semiquantitative calcareous nannoplankton analysis of the Holocene deposits led to the identification of several ecozones (youngest first): (i) Ecozone 1, which is dominated by *Emiliana huxleyi* that yielded blooms of over 1400 specimens/mm<sup>2</sup>, and covers the upper part of the Shallow Unit; *Braarudosphaera bigelowii* is present with a very low frequency or even absent; (ii) Ecozone 2, which is also dominated by *E. huxleyi*, that continuously decreases with the depth, from around 1,000 specimens/mm<sup>2</sup> down to less than 100 specimens/mm<sup>2</sup>; *B. bigelowii* continuously increased from younger to older intervals of this ecozone, always yielding a negative correlation with *E. huxleyi*; this ecozone extends within the lower part of the Shallow Unit; (iii) Ecozone 3, which is characterized by *B. bigelowii* monospecific assemblages; *E. huxleyi* is absent; this ecozone covers the base of the Shallow Unit and the upper part of the 'shell hash layer'; (iv) Ecozone 4 that does not contain any nannofloras *in situ* or reworked; it was observed in the lower part of the 'shell hash layer' and in the Lacustrine Lutite. These fluctuations could be indicative of a progressive increase in salinity during the deposition of the Shallow Unit, from a brackish setting to a marine one. The upper part of the Shallow Unit was deposited under more stable marine conditions, with salinity close to the modern times. The ostracod and foraminiferal communities follow the fluctuation pattern of the calcareous nannoplankton assemblages, indicating that a marine environment settled, in the Romanian Black Sea inner shelf, only in the latest Holocene. Notably, close to the coastline, in front of the Danube Mouth and Razelm-Sinoe lagoon system, no nannofloras *in situ* were observed in the cored sediments. This fact indicates that the salinity was, probably, extremely low in these areas during Holocene times, as consequence of the regional palaeogeographical setting.

## High acidic sulphate salt production on the Cave Wall in the Yoshimi Hyaku-Ana Historic Site, Central Japan

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Acidic sulfates such as aluminum sulfates and ferric sulfates are often observed on the wall of tuff or volcanic rocks in Japan. We investigated wall surfaces of an artificial cave dug from 1941 to 1945 in the Miocene tuff. The cave locates in the historic site of Yoshimi