

THE BLACK SEA: CLIMATIC AND SEA LEVEL CHANGES IN THE UPPER QUATERNARY

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New seismology and sedimentology data are discussed from the Upper Quaternary history of the Black Sea.

1. GENERAL SETTING

The Black Sea is one of the largest enclosed seas in the world: its area is about 4.2×10^5 km², the maximum water depth – 2,212 m, the total water volume of 534,000 km³ and the volume of anoxic deep water contaminated with H₂S (below the depth of 150–200 m) 423,000 km³. The connection of the Black and Mediterranean seas is limited to the Bosphorous-Dardanelles system of straits. The Bosphorous is a rather narrow (0.76–3.6 km large) and shallow strait (presently 32–34 m at the sill) restricting the two-way water exchange between the brackish Black Sea (the salinity of the Black Sea water is about 17‰ at the surface and 22‰ at the bottom) and the very saline Mediterranean Sea (38–39 ‰). The surface outflow of the less saline Black Sea water is estimated at about 600 km³/yr. (~ 20,000 m³/s), while the under current of saline Mediterranean water flows towards the Black Sea and supplies it with almost 300 km³/yr. (~10,000 m³/s).

Additionally the Black Sea has an enormous drainage basin of more than 2 million km², collecting the water from almost all the European countries, except the westernmost ones. A population of about 162 million people is living in the Black Sea drainage basin, which is about twice the population in the Baltic Sea basin.

The north-western Black Sea is characterised by a very large shallow (less than 200 m deep) continental shelf, representing about 30% of the total area of the sea. This part of the sea receives the discharge of two of largest rivers in Europe – the River Danube with a water discharge of about 200 km³/yr. and the Dniepr contributing with 54 km³/yr. To this amount the discharges of smaller rivers as Dniestr and Southern Bug are added summing up about 12 km³/yr.

This north-western part of the sea with its large fresh water inflow and specific wind system is responsible for the structure of the Black Sea water masses and dynamics.

The Black Sea is almost surrounded by high mountain ranges: Pontic mountains to the south, Caucasus to the east, Crimean chains to the north and Balkans and