EXTENDED ABSTRACTS

1st PLENARY MEETING AND FIELD TRIP OF PROJECT IGCP – 521
BLACK SEA-MEDITERRANEAN CORRIDOR DURING THE LAST 30 KY:
SEA LEVEL CHANGE AND HUMAN ADAPTATION (2005 – 2009)

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The newest geological history of the Black Sea and problem about the flood

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Shorelines in the Black Sea basin have shifted frequently during the Quaternary. Over the last two million years, the Mediterranean Sea has been in constant exchange with the Atlantic Ocean, but its connection with the Black Sea through the Bosphorus has been disrupted and then re-established many times. During the period of continental glaciations, the level of the Black Sea would fall below the Bosphorus sill, whereupon the waters would freshen and the Sea would turn into a large inland lake. During the interglacial periods, rising water in the Mediterranean Sea and Sea of Marmara would restore the connection, resulting in the creation of sapropels, sediments that result from the catastrophic event in the Black Sea environment which happened 8 thousand years ago. Ancient coastlines have left permanent traces along the continental shelf and slope, and they exist today as relict seafloor features and offshore deposits that together create a well defined sea complex in the littoral relief. The oldest basin coastline is located along the upper continental slope at depths between 155-170 m. It is represented by coastal gravel deposits that were intensely lithified with fragments of Upper Pliocene mollusks during the Günz glacial period. The saline (marine) Chaudinian basin occupied the areas of the Black Sea, the Sea of Marmara, and the northern part of the Aegean Sea. Its sediments formed at the time of the Günz-Mindel interglacial period.

The Old Euxinian and Usunlarian (Paleothyren) coastlines are representative of the contrasting character of climatic and geological events during the Riss-Würm interglacial and Würm glacial periods. The Karangatian transgression left clear evidence along the modern Black Sea and Mediterranean Sea coast. There are two terraces preserved along the Bulgarian coast –at depths of 10-12 m and 20-25 m, respectively. Karangatian deposits from the Lake of Varna are dated between 90,000-120,000 years BP. Post-Karangatian or Neoeuxinian regressions occurred during the Würm glaciation. The freshwater of the Black Sea basin flowed out into the Mediterranean Sea between 14,000-12,000 years BP. Subsequently, the lake level decreased rapidly to 90-120 m below the contemporary level. As global sea level continued to rise, the Mediterranean Sea level rose above the Black Sea level, ultimately resulting in a catastrophic inflow of seawater about 7,500 years BP. The Neoeuxinian coastline was submerged, and the Black Sea level equilibrated with the Mediterranean Sea level.

There is both geological and archaeological evidence for the Black Sea flood. This gives us a reason to suggest that the flood described in the Bible and in the Sumerian epics may have occurred in the Black Sea. The ancient Black Sea coastlines are products of transgressive and regressive cycles during the Pleistocene, and they were formed by wave erosion, sediment transport, and depositional processes occurring on the shelf.

References
Dimitrov P. S. 1978. Novi danni za stroezha i vzrasta na niakoi morski akumulativni formi na bulgarska chernomorski shelf [New data about structure and age of some accumulative forms on Bulgarian Black Sea shelf]. Problemi na geografiata, 2: 45-50. (in Bulgarian)


Dimitrov P. 1982. Radiovuglerodni datirovki na dunni utaiki ot bulgarska chernomorski shelf [Radiocarbon datings on bottom sediments from the Bulgarian Black Sea shelf]. Okeanologiya, 9: 45-53. (in Bulgarian)


