Danube Delta - Genesis and Evolution

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The Danube Delta can be divided into three major depositional systems: (1) ***the delta plain***, with a total area of about 5,800 sq Km, from which the **marine delta plain** area is of 1,800 sq Km; (2) ***the delta front*** with an area of cca. 1,3000 sq Km, devided into delta front platform (800 sq Km) and **delta front slope** (ca.500 sq Km), extending off-shore to a water depth of 30-40 m; (3) ***the prodelta*** lies off-shore, covering an area of more than 5,500 sq Km. The delta front and especially the prodelta display a pattern of submarine channels, 4-10 m deep, bordered by lateral levees; these channels seem to constitute discharge ways of turbide flow yield by the river distributaries at high flood.

The delta development is controled by the river sediment input (the average sediment discharge is ca. 50 milions t/y, out of which 5-8 milions t/y sandy material); the prevailance of winds from the northern sector (40-50 % of instances); the predominance of southward trending of marine currents; the longshore sediment drift directed also towards the south; the relatively important values of wave power etc. The interaction of these factors is controlling the delta morphological type, the geometry of the volumes of deltaic deposits, the assimetry of the deltas of Danube's distributaries and their development and evolution.

The Danube Delta overlaps the Predobrogean Depression which, in its turn, lies mainly on the Scythian Platform.The sequence of the Scythian Platform cover deposits which constitute the filling material of the Predobrogean Depression display six sedimentation cycles (Paleozoic, Lower Triassic, Middle-Upper Triassic, Jurassic, Lower Cretaceous ans Sarmatian-Pliocene) (PATRUT *et al.*, 1983). The Danube Delta is situated in a aera of high mobility of the Earth crust, repeatedly affected by strong susidences and important sediment accumulations. The deltaic conditions were settled here during the Quaternary, when the Danube started flowing into the Black Sea basin.

The Danube Delta edifice is build up of a sequence of detrital deposits of tens to 300-400 m thick, formed mainly during the upper Pleistocene (Karangatian, Surojskian, Neoeuxinian) and the Holocene. The Holocene evolution of the Danube Delta includes the following main phases : (1) the formation of the Letea-Caraorman Initial Spit, 11, 700-7,500 y.BP; (2) the Sf. Gheorghe I Delta, 9,000-7,200 y.BP; (3) the Sulina Delta, 7,200-2,000 y.BP; (4) the Sf. Gheorghe II Delta and the Chilia Delta, 2,000 y.BP - present; (5) the Cosna-Sinoie Delta, 3,500-1,500 y.BP.

The Danube Delta Plain displays a few facies types of sediments, as follows : (I) marine littoral deposits of two types - type "a", formed by the longshore drift from the North (from the mouths zones of Rivers Dniester, Southern Bug and Dnieper), and type "b", of Danube origin; (II) lacustrian littoral deposits, forming the Stipoc and Rosca-Suez lacustrian spits; (III) fluvial deposits, genetically related to the Danube distributaries, include several types as : bed-load and mouth-bar deposits, subaqueous and subaerial natural levees deposits, crevasse and crevasse-splay deposits, point bar and meander belts deposits, decantation deposits into intradeltaic depressions and interdistributary area etc.; (IV) marsh deposits; (V) loess-like deposits.

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