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HEAVY MINERALS DISTRIBUTION IN THE LOWER PART OF THE SHATT AL-ARAB RIVER, S. IRAQ

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Abstract

Thirty samples from seven cores were taken along the Shatt Al-Arab river, from its junction with the Karun river downstream to the mouth. A gravity corer with a penetration power of about 60cm is used. Heavy minerals were studied to identify the source of sediments in the southern part of the Shatt Al-Arab river. This part stretches from the mouth of Shatt Al-Arab river to its junction with Karun river. The main constituents of the coarse fraction of the recent sediments in this area is the light minerals with few percentages of heavy minerals. The light minerals composed of calcite and quartz. The heavy minerals fall into four groups, arranged in descending order of frequency: opaque, metastable, mica and ultrastable groups. The high percentage of opaque could be related to the Karun river sediments, whereas epidotes could be related to the Tigris and Euphrates rivers. Dolomite is present in the silt fraction only, and is in proportions less than the calcite and quartz percentages. Its origin is attributed to the transported sediments of the Tigris and the Euphrates rivers. The aerial distribution of the heavy minerals is related to the tidal current patterns. The sediments are finer towards the gulf, due to the effect of the ebb-tide. In the beige clayey silt, beige to light grey clayey silt and dark grey sandy silty clay layers, the heavy mineral percentages decrease downstream. The decrease starts from the junction of the Shatt Al-Arab and the Karun rivers. It is considered that the latter river could be the main source of these layers. Random distribution of heavy mineral percentages in the grey to dark grey soft silty clay layer. This could be related to the effect of the tidal currents on this layer.