

CORE SEDIMENTS FROM FOUR EGYPTIAN DELTA LAKES

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Résumé : Des échantillons prélevés par carottage au centre de quatre lacs du delta du Nil ont été analysés. La matière organique, les substances calcaires, les matériels allochtones et la silice provenant des diatomées sont répartis en quantités variables à différentes profondeurs. Leur distribution quantitative dans les sédiments dépend principalement de certains facteurs qui sont discutés.

Summary : One short core was taken from the centre of each of four Nile Delta lakes, and the core samples were subjected to some investigations. The organic matter, the calcareous substances, the allochthonous materials and the diatom-silica were generally deposited in various amounts at different depths of the cores. The quantitative distribution of these components in the core sediments was found to depend mainly upon certain factors which were discussed.

A study on the core sediments of four Egyptian Delta lakes, found under different local conditions, was carried out in order to illustrate the vertical variations in the quantitative composition of the deposits after they have been buried, and to compare the data from each core with those of the others. One short core was obtained from the centre of each lake, and the core sediments were subjected to some investigations.

The minimum values of the dry density were recorded from different levels of the cores. The amount of water generally gave irregular values on passing downwards of the cores. The density of wet mud had irregular values at various levels of all cores. The wet density gave an inverse correlation with water content in the core samples of all lakes, except lake Brollus.

The amounts of organic matter and calcareous substances deposited at various levels of Lake Brollus core showed marked variations than those of the other cores. A difference of 0.7 kg/m^2 organic matter was found between the maximum and minimum amounts of this core. The difference between the highest and lowest amounts of calcareous substances of this core reached 4.3 kg/m^2 . The amounts of allochthonous materials precipitated at different depths of Lake Brollus and Lake Edku cores showed pronounced variations than those of the other cores. These amounts ranged from 3.45 to 0.96 kg/m^2 in Lake Brollus core and from 3.46 to 1.08 kg/m^2 in Lake Edku core. The amounts of silica deposited at various depths of the Hydrodrome core gave remarkable variations than those of the other cores. A difference of 40 g Si/m^2 was found between the highest and lowest amounts of this core.

The external events have a remarkable effect on the nature, composition and distribution of the deposits. The sea water entering into Lake Brollus

and Lake Edku transports considerable amounts of sand to them. The drainage waters transport huge quantities of silt and clay to these lakes and also to Lake Mariut. The Nile water feeding the Hydrodrome is enriched with silt and clay. These allochthonous sediments are distributed by water movements and currents to reach most of the lake bottom. The sediments enriched with minerogenic materials had low amounts of water, whereas those poor in these materials gave high amounts of water.

The amounts of different components of the sediments deposited at various depths of the cores depend upon several factors. The higher amounts of organic matter found in some sediment samples are mainly due to the increase in the amounts of the autochthonous and allochthonous organic matter reached these samples. The color of the lower part of Lake Brollus core was black, and this type of black organic sediments was not found in the other cores. Generally, the bottom of the Egyptian lakes is characterized by the great accumulation of calcareous shells and shell fragments of dead bivalves. The higher amounts of calcareous substances obtained from some sediment samples are principally attributed to the abundance of calcareous shells in these samples (El-Wakeel 1964, Saad 1974, 1976). Generally, the diatomaceous silica gave variable quantities at different depths of the cores. The higher amounts of diatom-silica found in certain sediment samples reflect the richness of these samples with diatom shells (Saad 1971, 1972).

References :

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