

Geochemistry of the Argillaceous Sediments Intercalated with the Phosphate Deposits in the Nile Valley, Egypt

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The geochemistry of the shales and marls intercalated with the phosphate deposits in the Nile Valley area is used to throw some light on the source rock, environment regime of deposition, diagenesis and weathering modifications. About 60 samples were analyzed for the major elements SiO_2 , Al_2O_3 , Fe_2O_3 , MnO , P_2O_5 , TiO_2 , CaO , MgO , Na_2O , K_2O , SO_3 and Cl , as well as the trace elements Sr, Ba, V, Ni, Co, Cr, Zn, Cu, Y, Zr, Mo, and Cd. The results obtained reveal that the shales have a provenance materials varying from basaltic and granitic to basaltic rocks while marls have a provenance materials varying from mixed granitic and basaltic to basaltic and granitic to basaltic rocks. The trace elements in general may be of organic origin where the elements occur as metalo-organic compounds or of inorganic origin where the elements occur as accessory minerals or adsorbed cations. The data obtained reveal the shales and marls are of detrital origin and that the environmental conditions of deposition were mainly alkaline. The data also reveal that the phosphorites and intercalated shales were mainly deposited under two different environmental conditions.