

CORRELATION BETWEEN THE SEDIMENTARY AND CLIMATIC CYCLES (HUNGARY, LATE MIOCENE)

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Based on statistically supported sedimentological, well-log, palaeontological and pedological analyses of four Upper Miocene borehole profiles from Hungary we present: the fourth order, about 400,000 years cycles and correlation of the mean temperature and of the sediment; the change in precipitation that is interpreted as a period of about 400,000 years; the fifth order cyclicity of the sediment of about 100,000 years and the correlating four climate phases characterized by the joint effect of temperature and precipitation. As a summary of our research we depicted the relationship of the fourth order sedimentary and climate cycles in a lacustrine delta and fluvial environment. The cycle boundary is marked by major channel starting with progradation in addition to decreasing precipitation under warm-temperate climate. Above this the sediment did not coarsen under semiarid climate of decreasing temperature. In flood plain environment the thickness of the sand layer was reduced, in delta plain environment the destructive phase of delta developed. Subsequently, the cold-temperate precipitation-rich climate resulted in the shoreline progradation. With high temperature and with the precipitation decrease, the sediment became coarser and the river prograded. The fourth and fifth order sedimentary cycles are interpreted as defined by the regular variation of the climate cycle of Milankovitch eccentricity type.