THE UPPER CRETACEOUS PHOSHORITES OF THE MID-RUSSIA BASIN

MALEONKINA, S. Institute of the Lithosphere of Marginal Seas RAS, Moscow, Russia

During the Late Cretaceous the big part of European continent was flooded by epicontinental sea, which extended from western Atlantic to eastern Tethys. The sea was differentiated into a series of basins of which the Mid-Russia basin (MRB) was located in the east central part (Voronezh Anteclise). The two phosphogenic episodes here lie within periods of falling eustatic sea level: the Cenomanian and the Early Campanian. Only the shallow-water terrigenous sediments were deposited here.Cenomanian phosphorites are widespread and found nearly everywhere. Phosphatization occurs both as the early diagenetic process within sediments with formation whole phosphatic nodules and by means of synsedimentary cementation sea-floor process. Broad synsedimentary highs widespread in the MRB were sites of formation of highly condensed sequences topped by phosphorite pavements. Eustatic sea-level rise was compensated by epeirogenic uplifting of the highs that maintained a shallow water environment over extensive areas of highs during a long time. This one favored conditions synsedimentary phosphatization and early diagenetic redistribution. In neighbouring lows phosporite nodules are scattered or formed isolated horizons.Early Campanian phosphorites represent phosphate-rich sands which consist of heavy mineral, quarts, glauconite and phosphate concentrically coated by phosphatic films or structureless, compound, intraclast, bioclast phosphatic grains. They were formed in high-energy environment as heavy mineral beach placers. This environments not conduce to diagenetic differentiation of primary phosphate or synsedimentary cementation but favor for the hydraulic reworking processes by which phosphatic grains are concentrated.