Regeneration Model of Salt Accumulation

BELENITSKAYA, G.A. Russian Geological Research Institute (VSEGEI), St.Petersburg, Russia.

The author is elaborating the regeneration (recyclical) geological genetic model of salt accumulation. Without negating the significance of the evaporite mechanism, this model places major emphasis on the salt geological rotation with the participation of buried brine-salt masses in repeated salt accumulation: their remobilization at depth, ascending discharge into the sedimentary basins, a near bottom interaction and involment (including a direct - without hypergene dissolution and dispersion) into the new accumulative cycles. Therefore the salt formations are heterogeneous ones.

Under the modern environments, such processes are recorded in almost all the places that are currently noted for halogenesis, being most extensive in areas with active diapir growth and tectonic removal of salts from the subsurface. Here, they show up in all the facies environments that are typical of halogenesis - both in marine, including deep-sea, and lacustrine. Similar paleoprocesses are restored in the sections of many paleobasins (Central European, Dnieper-Pripyat, Mesopotamian, etc.).

Analysis and providing grounds for the model are given from different standpoints: I, the presence of prerequisites - petrological, geodynamic, landscape; II, physicochemical grounds - theoretical and experimental; III, the ability to explain the features of the formerly occurring regeneration processes; IV, the presense of the features of the former regeneration processes.

The regeneration model draws the attention to the diverse features of the former presence of salts in the deformed complexes and to the possible participation of those "former" salts in different geological paleoprocesses, including endogenic ones.