

## **BEHAVIOR OF BRITTLE SEDIMENTARY ROCKS DURING SALT DIAPIRISM: RESULTS OF 2D-QUANTITATIVE MODELLING.**

1VENGROVITCH, D.B., 2PODLADCHIKOV, YU.YU., 3STOVBA, S. 1Institute of Geophysics, Kyiv, Ukraine; 2Geologisches Institut, ETH, Zurich, Switzerland; 3Technology Center of Ukrgeofisika, Kyiv, Ukraine.

Rheology of natural materials has been applied to model quantitatively the mechanism of salt diapir formation. The fully dynamic model of medium that is characterised by the presence of internal block structure has been applied. In the case the blocked overburden can be separated or crushed by external load. Thus, the salt overburden is a brittle-elastic medium that some authors frequently use on physical simulation of salt tectonics. The results of our modelling show that the density contrast between salt and brittle overburden leads to the salt diapir growth, so buoyancy is the best triggering mechanism for salt diapirs to pierce even the brittle overburden. Several factors can increase the diapir growth: an extension of the overburden, an erosion of the overburden, a local basement subsidence along faults. The most important factor is erosion. Results of computer 2D-simulation are in accordance with peculiarities of salt diapir formation in the Dniepr-Donets Basin (Ukraine). Using the model approach gives a possible to predict oil/gas traps in overburden over and near salt structures. Some modern ideas about salt diapir formation, which are based on brittle behaviour of salt overburden, have to be revised.