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## **GEODYNAMICS OF THE DEEP SEDIMENTARY BASIN OF THE CASPIAN SEA REGION: PARAGENETIC CORRELATION OF SEISMICITY AND MUD VOLCANISM**

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**Abstract.** The character of time-space distribution of seismicity, long-term parameters of seismic regime, earthquakes' sources depths distribution and by the depth and correlation of seismicity with activity of mud volcanoes in Azerbaijan and the Caspian Sea region had been analyzed in the present study.

Earthquakes sources depth distribution showing their coincidence mainly with depth intervals 0-10 and 15-20 km, allow us to assert their connection with sedimentary thick. In differ of traditional points of views, this fact gives a reason to suppose it as main structural element within considered area responsible for seismogenesis. Basic deformations acted during the final stage of evolution of depression that gives evidence on the main role of modern tectonic activation.

Seismicity quantitative analysis by  $A_{10}$  that showed spatial coincidence of active areas with zones of high thickness of sedimentary deposits allow us to assert that the deformations and active tectonic processes within considered region have mainly a local character and belong to sedimentary thick.

Sedimentary thick can be considered as general source of acting stresses from the point of view of mud volcanism and seismicity paragenesis. Comparative description of seismicity temporal distribution within different structural zones of the Caspian Sea region showed the important role of mud volcanism in seismogenesis that controls the maximum level of seismicity. Space and time correlation of seismicity and mud volcanism testify that relationship mechanism is of specific character and may be stipulated by re-organization of acting stress fields in result of internal processes in the sedimentary thick. Thus the problem of seismic and other geological hazards reduction, stipulated by re-organization of stress fields can be solved through the stress field vector change in the structures.

The peculiarities of earthquakes caused in result of mud volcanoes' eruptions are evidence of reduction reality of seismic hazard through stimulation of different groups mud volcanoes activity.