

The Holocene movements data in the non-seismic exploration methods combination in the area of two Black Sea fields

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For Northern-West shelf structures and fields geodynamical activity determined from Holocene movements` amplitude A_{hol} and their horizontal gradient $G_{A_{hol}}$. Local objects situated in area of crossing regional sublatitudinal Holitsynsko-Azovskiy and Sulinsko-Tarkhankutskiy faults with meridional Odeskiy. For Bezimenne and Odeske fields with nearby structures petroleum potential PP estimated by methods set.

Data & methods. Medium scale Holocene Movements Rate Map (V. Shmuratko, 1982) and authors` Holocene Movements Horizontal Gradient Map (A. Polivtsev &K, 2007). Data from satellite altimetry, gravity survey, magnetometry 1 : 500 000 – 1 : 100 000 processed with the pattern recognition method PRM by V. Belanov, B. Nikolaenko &K, 1999. Generalized scheme of gasgeochemical surveys` results in Novoevixine and more recent sediments (A. Polivtsev &K, 2007). Structural and paleogeomorphological schemes from seismic survey data (A. Komorniy, 2005, R. Radul, 2007).

Holocene movements and PP . Dominantly inherited subsidence with maximal rate R_s up to 1.8 mm/year in Mykhailivska depression and Krylovskiy foredeep contrast to elevations in the area of Zmiyiniy Island. Intermediate tectonic movements rates occur between Kylyisko- Zmiyine Seamount and Kalamytskiy Swell, medium subsidence temp – Gubkina Swell. Izotachoes “put” into geoblocks margins emphasizing their differentiated recent activity.

From 9 fields 5 located in areas with high and moderate R_s . Bezimenne, Shtormove, Archangelskogo and Crimske fields have moderate R_s and insignificant $G_{A_{hol}}$. Trend to right relationship between reserves of A+B+C₁ category and A_{hol} range revealed, for 4 fields with reserves beyond 5 units – $G_{A_{hol}}$ range, these trends need verification. Regimes of local structures` movements shown.

Zonal prognosis with PRM . From structures preferable is Pryberezhna (62 balls), analogous to Holitsynske field by geophysical parameters. For Skhidno- and Pivnichnoosetrovi (41) as well as Osetroviy (31) objects detailed geophysical and geochemical surveys recommended.

Structures in potential fields. From residual gravity Bouguer field anomalies caused by the basement heterogeneity with insignificant effect from local structures. Thereat izotachoes and strips with significant $G_{A_{hol}}$ mainly are parallel to large gravity anomalies` axes.

Structures` PP by geochemical data. Contrast methane and heavy hydrocarbons HH anomalies over Odeske field, less contrast above Bezimenne with high $G_{A_{hol}}$ (> 0.0003 m/km) accentuated. Considerable is HH anomalies group to the South West from Odeske field. Probable is these anomalies connection with non-anticline traps. PP of areas to the East from Osetroviy object, including Pivnichno- and Skhidnoosetrovi with HH gas anomalies considered.