
This method includes the solution of the following tasks: determination of harmonic density of anomalous disturbing masses by the geoid spherical functions; determination of the relationship between degrees of harmonic series expansion of the geoid topography and depths of disturbing layers of the Earth; creation and displaying of the structured model of dense inhomogeneities for the studied region.

Vertical cross-sections and maps of the lateral distribution of dense anomalies have been created for the area of the Crimean earthquakes, the hypocenter of which is in the Black Sea (Figure 1).
Blue color shows the less dense anomalies. Within this area are marked in red the still less dense masses that are distributed with breaks at depths of 8 km and 13-15km. Such gaps are linked, obviously, with the delamination process due to compression by the denser masses of the East European platform and Anatolia. That is, the less dense body surrounded by more dense masses may tend to emerge to the surface. It may be accompanied, in turn, by an earthquake.

A similar situation was observed in the region of the Vrancea seismogenetic body at the depth of 170-180 km.

Analysis of the earth surface displacement under the influence of the Crimean earthquakes was carried out using the ERS1/2 Tandem images and the DInSAR technology. Displacement of the earth surface during the period 04.05.1995-01.10.2010 on the Crimean Peninsula is observed within two areas (Figure 2). They are oriented parallel to the length of the Crimean mountains southwest - northeast. The shift up to the 5 cm in direction to the northwest is observed in the southern part of the Crimea near the epicenter of the earthquake. It is direction of the radio emission on the right side of the satellite. To the north of the Crimean Mountains the displacement is reduced up to 0 cm. The area of displacement further to the west in the steppe part of Crimea is re-formed up to 5-6 cm.

Figure 2 – Result of DInSAR processing of the ERS1/2 images. Yellow arrow indicates shifting of 5 cm. White line is 400 m isohypse. Red oval is the hypocenter area.