



Deep subsurface structure of the Gora Karabetova mud volcano (Taman peninsula)

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Results of complementary geological and geophysical studies of a deep subsurface structure of the Gora Karabetova mud volcano (Taman peninsula) carried out in frames of field works 2007 are presented. The Gora Karabetova mud volcano is one of the most active mud volcanoes in the Taman peninsula. Primarily explosive behaviour of mentioned mud volcano demonstrates consequences of development of modern geological processes and internal configuration of tectonic structures responsible for the observed natural phenomena of mud volcanism. Thus, one may consider the Gora Karabetova mud volcano as a “test site” or an “in-field laboratory” providing extensive possibilities to obtain new fundamental knowledge about the uncommon natural phenomena. Understanding the internal structure and dynamics of modern geological processes deep inside mud volcanoes can be achieved by means of usage of balanced package of geological and geophysical methods. New technology for passive subsurface sounding of the Earth’s crust has been originally developed at the Schmidt Institute of Physics of the Earth, Russian Academy of Sciences. Patented since 2005, this technology represents the new kind of seismic survey based on specific features of propagation of the Rayleigh waves. It uses natural background microseismic noise as a sounding signal. By using this type of seismic profiling technique there has been obtained the vertical cross-section of the Gora Karabetova mud volcano. The deep (up to depth of 25 km) subsurface structure of the Gora Karabetova mud volcano has been revealed for the first time. Simultaneously there were carried out traditional magnetotelluric studies along the same profile. Comparative analysis of obtained results has demonstrated appropriate coincidence of main structural elements in the range of

depths from 0 to 5 km.