

Eruptions of mud volcanoes in the Caspian (Azerbaijan sector): peculiarities, dynamics, connection with seismicity

Ad.A.Aliyev and I.S.Quliyev

Department of Mud Volcanism Azerbaijan National Academy of Sciences, Geology Institute

All in all, about 2-5, sometimes even more mud volcano eruptions occurred in Azerbaijan almost every year. So, only in year 2001 there occurred 16 eruptions of mud volcanoes, two of them offshore (Pilpila, Buzovna, Chigil-daniz).

Analysis of mud volcano eruptions which have been occurring onshore and offshore over last two centuries allows comprehend some typical features of mud volcano occurrence, in general, and in some regions of mud volcanoes development within Azerbaijan area in particular. So, 387 eruptions of 93 mud volcano have been recorded during this time frame that makes 27 % of 344 volcanoes known in Azerbaijan. 85 eruptions of marine mud volcanoes have been registered for this period of time.

Baku Archipelago. Most early recorded mud volcano eruption in Azerbaijan Caspian sector west margin was on Gil Island in the early XIX century in 1810. Records of mud volcano eruptions started just from this one. 57 mud volcano eruptions of 12 volcanoes have been recorded within Baku Archipelago for two centuries. Of total number of 35 eruptions once and twice a year were recorded in 1810, 1859, 1868, 1876, 1913, 1923, 1927, 1959, 1960, 1962 and 1993. Most of these eruptions occurred on the following mud volcanoes like Khara-Zira Island-13, Gil Island – 10 and Chigil-daniz shoal -8. Most extensive eruption period falls on 1857-1876, 1913-1927, 1959-1962 and 1993-2002.

Absheron Archipelago. First eruption here was recorded in 1876 over Bahar-daniz feature. 28 mud volcano eruptions of 10 volcanoes were recorded for the past 125 years: 24 of them once a year and by 2 eruptions in 1950 and 1953. Bahar-daniz (9) and Buzovna (7) have undergone most of all eruptions.

Obviously, simultaneous or on time mud volcano eruptions are associated with seismic events - earthquakes which probably occurred some time before in adjacent seismically active region in Azerbaijan.

There are detailed information of eruptions dynamics and their connections with past seismic events occurred in the Caspian in paper.