

## **Composition of Hydrocarbon Fluids from Mud Volcanoes of the Moroccan Margin (Gulf of Cadiz)**

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During the TTR-cruises (1999-2006) on board R/V "Professor Logachev" 14 mud volcanoes, located at the Moroccan margin on water depth from 200m up to 1200m, were studied in details. Large set of geophysical and geochemical methods was applied for these investigations. To base on these data, relatively active and passive mud volcanoes were distinguished. At the active volcanoes methane concentration reaches 9000mkM/l. Hydrocarbon gases from most of volcanoes have similar composition. These gases are characterized by relatively high concentration of methane homologues (up to pentane), and heavy stable carbon isotopic signature of methane (about -39‰PDB). It clear points out the thermogenic origin of these fluids and possible unified source. Moreover composition of main cations and anions from pore water of mud breccias proves active migration processes of deep volcanic fluids. Principal compound of free gas from pulsate bubbling site at the crater of the Mercator mud volcano is methane with heavy  $\delta^{13}\text{C}$  signature (-39,12‰PDB).  $\delta^{13}\text{C}$  of  $\text{CO}_2$  is light (-29,02‰PDB) and shows to the intensive microbial processes of AOM at the uppermost sediments. Gas hydrates at the Moroccan margin were recovered only from Ginsburg mud volcano and characterized by high concentration of ethane and propane, which suggests gas hydrate precipitation at the structure II. Detail study of hydrocarbon gas composition from mud volcanoes shows immature organic matter (terrestrial) at the beginning of oil window, which is in good accordance with geochemical data of mud clasts. However molecular and isotopic proportion (C1, C2 and C3) from the Ginsburg, Gemini and Al Idrissi mud volcanoes suggests that this gas can be produced due to cracking of oil.

Key words: hydrocarbon gas, mud volcano, thermogenic source