HYDROCARBON GAS AND ASSOCIATED GAS HYDRATES IN MUD VOLCANIC AREAS (EASTERN MEDITERRANEAN AND BLACK SEA)

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Three areas of mud volcanism and gas venting were discovered in 1995-1996 on 5th and 6th UNESCO-IOC Training-Through-Research Cruises. Two of them are situated in the Eastern Mediterranean (United Nations (UN) Rise, Eastern Mediterranean Ridge, and Anaximader Seamountains, northern part of the Levantine Basin) and one – within Sorokin Trough on the NE continental margin of the Black Sea. The comprehensive geochemical data set obtained reveals typical images for hydrocarbon gas, characterising inflow of fluids from deeper part of sedimentary pie. Sedimentary cores taken from faults and mud volcanoes are characterised by hydrocarbon gas of thermogenic origin mixed with some autochthonous gas. Basing on hydrocarbon compositions, all investigated cores were divided into two groups: (1) cores containing mainly methane, ethane and traces of heavier homologues (ethylene, propane and propylene); and (2) cores with high concentrations of methane homologues from C2 to C6, including saturated, unsaturated, iso- and normal hydrocarbons. Cores of the first group were taken from active mud volcanoes. They frequently recovered gas hydrates. Cores of the second group were taken both from mud volcanoes and from active faults. Absence of gas hydrates at these sites could be explained by lack of methane relatively to its homologues.