

## **Hydrocarbon markers of hydrothermal processes in ocean**

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Origin of the hydrocarbons (HC) in the tectonic active areas, where are the hydrothermal processes, is unclear up to present. Study of content and molecular structure of HC in hydrothermal areas is providing an important information on evolution of the organic matter and oil HC, in particular. In all areas it is revealed that maximum concentration the hydrocarbons, especially aromatic hydrocarbons, are in bottom sediments near to the hydrothermal source. The distribution of the hydrocarbons coincides with the disposition of ore minerals and of spreading rate that indicates the similarity of their sources. The molecular structure of n-alkanes extracted from the sediments is characterized by high content of low molecular fraction (C<sub>15</sub>-C<sub>24</sub> up to 75 %), CPI is within of 0,85 and high content of low molecular isoprenoids. The associations of polycyclic aromatic hydrocarbons (PAH) are close to associations of hydrothermal ore deposits and present-day hydrothermal formations. Substituted PAH:homologs of naphthalene, phenanthrene, byphenyl, fluorene, benzfluorene, chrysene, 3,4-benzpyrene, pyrene, perylene as well as unsubstituted PAH: pyrene, tetraphene, 3,4-benzpyrene, 1,12-benzpyrene, anthanthrene and coronene have been identified in the samples of hydrothermal areas. Their character of distribution is close to distribution of some ore elements (Zn, Ni, Cu), that assumes the availability of paragenetic connections between them. The quantitative ratio and qualitative content of hydrocarbon components from hydrothermal samples with background ones are such, that biogenic organic matter does not play the considerable role in these processes. The formation of significant part the carbon matters in the hydrothermal sediments is preferable to connect with bringing of matter by hydrothermal solutions.