

Deep hydrocarbon cycle

V.KUTCHEROV¹, A.KOLESNIKOV², D. KUDRYAVTSEV³,
E.MUKHINA⁴, A.SEROVAISKII⁵

¹ vladimir.kutcherov@energy.kth.se

² anton.yu.kolesnikov@gmail.com

³ littleboot@bk.ru

⁴ mukhina@kth.se

⁵ alexandrserov@gmail.com

The concept of deep hydrocarbon cycle is based on the following considerations and experimental data. Organic matter including hydrocarbon deposits accumulated in the Earth's crust could eventually be transported with the slab below the crust of the Earth during subduction. At certain depths organic substances can react with ferrous iron-bearing minerals and form carbides, which in turn can form hydrocarbon-aqueous fluids by reaction with available in asthenosphere water. According to the ideas of the great Russian chemist Dmitri Mendeleev carbides could be precursors for the synthesis of hydrocarbons in the depths of the Earth. In addition, donors of carbon (carbon in various modifications, carbonates) and hydrogen donors (water, minerals hydroxyl groups) exist in asthenosphere. They also could form hydrocarbons as a result of abiogenic synthesis. Hydrocarbons from asthenosphere can migrate to the crust through deep faults and form accumulations of oil and gas. Deep hydrocarbon cycle is completed.