



Deep immiscible abiotic hydrocarbons: let it sparkle

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The geological cycle of deep, abiotic hydrocarbons on Earth is still barely known. Direct observation of natural abiotic gases is possible at low-pressure conditions at hydrothermal vents, whereas the genesis and evolution of abiotic hydrocarbons at high-pressure conditions relevant to subduction zones is mainly derived from experiments. Last year has witnessed significant improvements. Experimental results indicate that hydrocarbons can be immiscible in subduction zone aqueous fluids (Li, 2017; Huang et al; 2017). The formation and immiscibility of abiotic hydrocarbon in deep aqueous fluids was also recently discovered in natural high-pressure systems controlled by serpentinization reactions and deep H₂ production in the Italian Alps (Vitale Brovarone et al. 2017). This contribution aims at providing new data from natural samples and modeling in order to improve our understanding of the formation mechanisms, circulation and transformation of high-pressure hydrocarbons and their immiscibility in subduction zone aqueous fluids.