

Biomarkers in “extreme” oils

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Biomarkers was studied in same extreme oil set as earlier studied metals [1] – oils from reservoirs in crystalline basement (White Tiger, Romashkino and etc.) , from Baikal (active rift system) lake water surface seeps and Black sea bottom seeps, oils from oldest Proterozoic sedimentary rocks and oils from seeps in young sediments in Uzon active volcano. Oils from basement reservoirs was compared with OM and oils from surrounding sedimentary rocks. All oils have outstanding peculiarity in biomarkers distribution.

1. Oils from basement have different maturity and OM type depending biomarker distribution , which have strong correlation with concrete surrounding sedimentary units – it’s not oils from “super deep sources” .
2. Uzon volcano oils (sampled in one place every 3 years) – have significant different distribution of biomarkers but all with absolutely non matured “face” – never seen oils with same maturity - it’s “just generated” oils from separate terrestrial or bacterium sources.
3. Oldest oils shows wide range of maturity but strong two source OM types – traditional marine sources and “non traditional” for PR age “high plant” biomarkers type – based on 29/27 steranes and aromatic steroids ratio – it can be correspond with PR specific bacterium sources. We see same biomarkers (including so called 12-13 methyl isoprenoids) distribution in half of Uzon volcano “youngest” oils – this bacterium are living in very extreme environments with high temperature and very high water acidity around
4. In Black sea oils we see biomarkers distribution (including “rare” as T24 full range) which have good correlation with different “age” oils from nearest onshore petroleum systems
5. In oils from Baikal lake water surface seeps biomarker distribution show strong terrestrial sources with mutable maturity - as it migrated from different sources – and part of them - “just generated” oils.

[1] Abla & Labutova, (2009) *Goldschmidt Conf. Abs.*, A4