[EJ] Evening Poster | S (Solid Earth Sciences) | S-RD Resources, Mineral Deposit & Resource Exploration

[S-RD33]Resource Geology

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Ore deposits consisting of supracrustal concentrated valuable elements and minerals result from the Earth's dynamics including magmatism, hydrothermal activity, metamorphism, and weathering. The formation of ore deposits is also closely associated with global environmental changes and biological evolution in the Earth's history. Involvement of different academic fields in Earth Science including Geology, Petrology, Mineralogy, and Microbiology is required to understand the genesis of ore deposits. The filed of Resource Geology is essential not only for efficient exploration and development of ore deposits but also for better understanding and assessment of hazardous elements that may be caused by resources development. This session widely covers various topics of field investigation and observation, laboratory experiments, theoretical calculation, development of analytical methods and others related to the supracrustal migration and concentration of elements.

[SRD33-P13]Petroleum source rock evaluation of Mongolian Mesozoic oil shales

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Petroleum exploration in Mongolia has been focused on Lower Cretaceous sedimentary rocks because it is accounted as the Independent Petroleum System. In order to improve understanding of the source rock potential of Cretaceous and Jurassic oil shale, the total of 57 Jurassic and Cretaceous oil shale samples are collected from 11 different locations of northern and central Mongolian basins. The contents of total organic carbon (TOC) and source rock screening data were obtained by Leco SC-632 carbon and sulfur determinator and Rock-Eval 6 instrument.
Both Jurassic and Cretaceous oil shales are excellent source rock potential, containing 2.67-19.38 wt.% TOC. The carbonate layers intercalated with oil shale seams also have fair to good petroleum potential, characterized by average 1.2 wt.% TOC. Observed S1 and S2 values of the samples support above mentioned conclusion, as well. Cretaceous oil shales have highly oil prone type I kerogen, derived mainly from lacustrine organic matter, indicated by high HI value ranging from 638 to 957 mgHC/gTOC with an average of 769 mgHC/gTOC. Jurassic oil shales have mixed type II/III kerogen characterized by HI of 270-313 mgHC/gTOC. Average Tmax values of Cretaceous and Jurassic samples are 437$^{\°}$C and 423$^{\°}$C, respectively. The PI values of the samples are quite low, ranging from 0.01 to 0.09. According to measured Tmax and PI values, both Jurassic and Cretaceous oil shales are immature. However, Tmax values of core samples, taken from 400 m to 640 m depth interval of a borehole drilled in Uvurjargalant basin, are slightly elevated (average is 441$^{\°}$C) compared to outcrop samples. Overall, the result of this study contributes organic geochemistry database of Mongolian oil shale and encourages source rock potential of both Jurassic and Cretaceous oil shale.