

## Tectonic controlled oil generation of source rock and exploration in west margin of Ordos Basin, China

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Ordos Basin, lies in the western margin of the north Chinese Block, is a wide asymmetry Mesozoic depression basin. From later Triassic to later Cretaceous, west margin of the basin alternatively experienced tectonic subsidences to form thousands meters of fluvial-delta-lake sediments and tectonic uplifts to form thrusts and folds which were intensified by Himalayan tectonic movements. Upper Triassic oil shale and black mudstone of Chang 7 section of Yanchang Formation were confirmed to the best qualified oil source rock of Ordos basin [1].

On the basis of analysis to geological evolution, history of hydrocarbon generation of Chang 7 source rocks in west margin of Ordos Basin were studied. The buried depth of Chang 7 source rocks at present was variable in the area because of different degree of uplifting after Tertiary. However, recovery studies to thermal and hydrocarbon generation history indicate that Chang 7 source rocks experienced two times of hydrocarbon generation. The first time of hydrocarbon generation took place at later Jurassic when thermal degree of Chang 7 source rocks reached to VRo of 0.71% due to sudden subsidence of the area. But oil produced during this period was escaped completely because of tectonic uplift and erosion at later Jurassic. The second time of hydrocarbon generation took place at early Cretaceous when thermal degree of Chang 7 source rocks got to VRo of 0.89% because of extensive subsidence again. Oil generated at this time was the most important oil resources which were very essential to reservoir formation.

There was best reservoir formation condition for oil generated at the second time. Oil reservoirs related with thrust and folds structure at later Cretaceous would be the valuable targets for exploration in the area.

[1] Li Rongxi *et al.* (2008) *Russian Geology & Geophysics* **49**, 23–27.

## Proterozoic crustal evolution of Yangtze Craton revealed by detrital zircons from Shenlongjia area, South China

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Integrated U-Pb dating, Hf-isotope and O-isotope analysis of detrital zircons from Shenlongjia sandstone in the northern part of the Yangtze Craton has been used to identify the province of the clastic sediments and to provide some clues on Proterozoic crustal evolution of Yangtze Craton.

The zircons from interbedded andesite of Zhengjiaya group, the bottom of Shenglongjia formation, were dated to  $1153 \pm 24$  Ma, which indicates that the Shenglongjia formation was deposited in the late of Meso-proterozoic. The detrital zircons from the sandstone of Zhengjiaya group show three concordia U-Pb age populations, 1.5-1.7Ga, 1.9-2.1Ga and 2.85-2.95Ga. The detrital zircons from sandstone of Liangfengya group which overlain Kuangshishan group (the top group of Shenglongjia formation) show three concordia U-Pb age populations, 1.5-1.7Ga, 1.8-1.9Ga and 1.9-2.1Ga. The age population difference between Zhengjiaya and Liangfengya groups indicates the changes of source area. The Hf-isotope data suggest that the recycling of ca. 3.2 Ga crust materials of Yangtze Craton took place in the time intervals 1.8-1.9Ga and 1.9-2.1Ga, and the important juvenile crust growth occurred at 1.5-1.7Ga, which also suggested by some 1.5-1.7Ga zircons with  $\delta^{18}\text{O}$  values in the range of 5.41-5.67‰.

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