

**Evidences of Episodic Fluid Flow along Shengbei Fault and its Influences on Oil and Gas Entrapment, Dongying Depression, Bohai Bay Basin, China.**

Cuiling, Yu

University of Petroleum, Petroleum Geology

Beijing, China

[yucuilngupc@sina.com](mailto:yucuilngupc@sina.com)

Now many researches indicate that the fluid flow along fault is episodic and has important influences on oil/gas entrapment. But the evidences of episodic flow are still not clear and its influences on oil/gas entrapment are also not well understood in China. To solve the problem, we will select a typical fault, Shengbei fault, which lies in Dongying Depression (one of the depressions whose petroleum reserves is largest in China) of Bohai Bay Basin. This study will focus on three aspects:

First, collect data in this region to make a general comprehension including distribution of the oil/gas entrapment, some basic properties of the fault (such as geometrical properties, mechanical property, time and manner of its activity etc.), and especially the relations between the oil/gas entrapment and the fault.

Second, consider the fault and its lateral sand beds as a unitive system, and carry out the following analyses: salinity of the formation water, petroleum geochemistry, homogenizing temperature and chemical components of the fluid inclusion, palaeogeothermal and palaeopressure, mineral and chemical composition of the rocks in the fault, maturity of the organic matter and so on. From these analyses, we will verify that episodic fluid flow had occurred in Shengbei fault, and we can find out the periods, times and characteristic of its active state.

Finally, using the 2-D experimental model device invented by ourselves, build a geological model of the episodic fluid flow in Shengbei fault, and recur the progress of the episodic fluid flow. In this experiment, we will inject water and oil episodically under different pressures considering different permeability and porosity and spatial array between the fault and its lateral sand beds, and observe the injecting beds and the injection rate. At last, we can summarize the mechanisms of oil migration and accumulation in the fault.