



Contribution ID: 505

Type: **Poster Presentation**

## **Evolution characteristics and quantitative model of shale porosity for Wufeng-Longmaxi Formation in southern Sichuan Basin, China**

*Wednesday, 15 May 2024 16:10 (1h 30m)*

Shale is not only a source rock, but also a reservoir rock, and its porosity evolution characteristics have an important influence on the generation, migration and accumulation of oil and gas in the shale formation. By means of integrated experiments of hydrocarbon generation simulation, conventional-overburden porosity analyses, and field emission-scanning electron microscopy (FE-SEM) imaging, the porosity characteristics of Wufeng-Longmaxi Formation at different well locations in southern Sichuan Basin of China were studied. The evolution patterns and influencing factors of inorganic porosity, organic porosity and total porosity were discussed, and a quantitative model of porosity evolution in this area was established. The results show that with the increase of effective pressure, the total porosity gradually decreases, but the rate of decrease gradually slows down, and its variation characteristics are affected by the contents of total organic carbon (TOC) and clay minerals. Inorganic porosity is mainly controlled by burial depth; with the increase of depth, inorganic porosity continuously decreases. In addition, the main factors affecting the extent of organic porosity include TOC contents, organic matter maturity and burial depth. The evolution patterns show that the porosity in this area generally shows a trend of initial rapid decrease, then slow decrease and finally gradual increase. Among them, in the early stage of formation burial, the inorganic porosity decreases rapidly and then slowly, while the organic porosity increases rapidly & slowly and decreases gradually. Furthermore, the overall total porosity decreases continuously, but shows a slow increase trend in the later uplift stage.

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### **References**

## **Conference Proceedings**

I am interested in having my paper published in the proceedings.

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**Session Classification:** Poster

**Track Classification:** (MS01) Porous Media for a Green World: Energy & Climate