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Large-size erosional valley in Cambrian-Sinian in Sichuan basin

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Oil and gas in carbonate rock plays an important role in the global oil industry, but it is very complicated and difficult for exploration in China, because of the many special features for marine carbonate, such as older strata and deeper buried depth. Recently large scale gas field was found in Cambrian-Sinian in central Sichuan basin, it was new breakthrough in carbonate in China. According to traditional recognition source rock of Qiong zhushi group of lower Cambrian was main hydrocarbon source, with depth of 100-240m and widespread. But paleo-uplift in central Sichuan basin was formed early and long-term interestedly developed. Source rock flanked first, matured, and oil and gas gathered by the way of lateral migration for a long time. Because top of paleo-uplift was far away from source rock, it was not a favorable accumulation area. In the research, large-size erosional valley which crossed the entire basin from east to west was found, with the narrowest width of 50Km and the widest with of 200 Km. Thick source rock of Qiong zhushi formation was filled in valley, with the width of 300-400m and Toc of 1.1-4.8%. It was of high quality sapropel-type source rock and traditionally recognized distribution of source rock was changed. Furthermore, because valley was deep and source rock matured in early stage, hydrocarbon near source was favorable condition for large-size gas field in central Sichuan basin.

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