

## **Analysis of hydrocarbon migration direction in Lunnan area, Tarim basin**

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The accumulation periods in Lunnan area are multi-periods and the hydrocarbon accumulation had gone through transformation and adjustment, therefore biomarker migration parameters are hard to be applied to indicate the direction of hydrocarbon migration. According to geological research, Caohu sag in the east and Manjiaer sag in the south are all may be the oil source area. But judging from the present oil and gas discovery, the hydrocarbon accumulation is limited in eastern slope closing to Caohu sag, however, abundant in inside buried hill slope closing to Manjiaer sag. According to analyzing the hydrocarbon physicochemical properties and accumulation periods, we can draw a conclusion that there has experienced low density and high maturity oil migration phase in Lunnan area. And there are the faults which can communicate Ordovician with Triassic in inside buried hill slope in the south, so the low density oil from sag can accumulate in Triassic of this region during later migration, which indicates that oil and gas in Lunnan area should be mainly come from the southern Manjiaer sag. According to the principle of fluid potential, subsurface fluid will flow from the low potential area to high potential area, buried hill zone is the regional tectonic high spot of the area, and the fluid potential is the lowest, so the general direction of the oil and gas migration in Lunnan area is from south to north.