A Big Earth Data Platform for Three Poles

**Composition analysis of Upper Triassic source rocks in Qiangtang Basin**

1、Description

Qiangtang Basin is located between the Hoh Xil-Jinsha River tectonic belt and the Bangong-Nu River tectonic belt, is an important petroleum-bearing basin in the Qinghai-Tibet region of China. The basin has multiple sets of source rocks developed in the Mesozoic. The Triassic strata are widely distributed in the basin. Among them, the Upper Triassic has a large thickness and is considered as an important source rock, however, there is still a lack of understanding of its distribution, hydrocarbon generation potential, and major controlling factors. In this paper, the Upper Triassic source rocks in the Qiangtang Basin were studied, and the key samples were taken in the Quemo Co area of the Northern Qiangtang Basin, which was less studied previously. The source rocks were evaluated based on the geochemical characteristics of the samples, and the provenance input and depositional environment of the source rocks were analyzed according to the characteristics of their biomarkers. Combining the results of previous studies on the source rocks of the Upper Triassic Xiaochaka Formation in the Qiangtang Basin, the distribution characteristics, hydrocarbon generation potential, and the controlling factors of the source rocks of the Upper Triassic in the Qiangtang Basin were studied. The analysis results of the samples of the Upper Triassic Bolila Formation and the Bagong Formation source rocks collected in the Quemo Co area of the Northern Qiangtang Basin indicate that the TOC range of the Bolila Formation limestone is 0.03%~0.53% with an average of 0.20%, and the TOC range of the Bagong Formation mudstone is 0.57%~1.78% with an average of 1.04%. Both have reached the effective source rock grade, The source rocks of the Bolila formation reaches the level of medium source rock grade, and the organic matter abundance of the source rocks of the Bagong Formation is higher than that of the Bolila Formation and reach the medium-good source rock grade. The organic matter types of the source rocks are type II 1 , and the Tmax of the organic matter are all higher than 455°C, R O of all samples are 1.3% to 2.0%, the organic matter maturity achieve high mature stage. The organic matter of the source rocks is both the marine aquatic organism and the terrestrial plant, which is a mixed source. The source rocks sedimentary environment should be a reducing environment. The salinity of water body may be the salt water environment. Combining with previous research results, the authors evaluated the source rocks of the Upper Triassic Xiaochaka Formation in the Qiangtang Basin. The organic matter abundance of the argillaceous source rocks can basically reach the medium-good source rock level, carbonate source rocks organic matter abundance basically reach the poor source rock level. The types of the organic matter in carbonate source rocks are mainly Type II 1 and individually Type I. The organic matter types of the argillaceous source rocks are Type II 2 and Type III, and a small amount of the Type II 1 source rocks. The maturity of the source rocks is generally high-mature and over-mature stage, with only a few areas showing mature stage. The argillaceous source rocks are distributed in the Tumen-Sewa area, Zaxiahe-Ganggairi and Woruo Moutain-Geladandong area in the North and South Qiangtang Depression. Carbonate source rocks are mainly distributed in the South Qiangtang Depression. Affected by the regional tectonic movements, the main source rock beds in the Qiangtang Basin have undergone two oil and gas generation processes during the burial process. The Upper Triassic Xiaochaka Formation entered the hydrocarbon generation threshold in in the late Lower Jurassic to early Middle Jurassic and entered the first oil generation period. The basin experienced the last period of intense deformation and shrinkage in the Late Oligocene-Early Miocene and entered the second hydrocarbon generation period.

2、Keywords

Theme：Formation,sedimentary rock,Geochemistry,Tectonics
Discipline：Solid earth
Places：Qiangtang Basin
Time：Early Triassic

3、Data details

1.Scale：None

2.Projection：

3.Filesize：0.25MB

4.Data format：None

4、Space scope

|  |  |  |
| --- | --- | --- |
| - | north：34.0 | - |
| west：91.0 | - | east：91.5 |
| - | south：33.5 | - |

5、Time frame:None--None

6、Reference method

References to data:

HAN Zhongpeng. Composition analysis of Upper Triassic source rocks in Qiangtang Basin. A Big Earth Data Platform for Three Poles, doi:10.11888/SolidEar.tpdc.2718292021

References to articles:

7、Supporting project information

8、Data resource provider

name: HAN Zhongpeng
unit:
email: hanzp@cugb.edu.cn