Characteristics of Silurian sequence stratigraphy around the Jiangnan fault zone and analysis of shale gas potential

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Abstract: Based on the principle and method of outcrop sequence stratigraphy, paleontology, red beds and detrital zircon U-Pb ages, the Silurian sequence stratigraphic characteristics, organic-rich shale occurrence and shale gas exploration prospects around the Jiangnan fault zone are studied. The study shows that the Gaojiabian Formation in the north of the Jiangnan fault zone has superior conditions for the formation of shale gas reservoirs, which can be listed as a target area for shale gas exploration. The Gaojiabian and Fentou formations around the Jiangnan fault zone, which are called Xiaxiang, Helixi and Kangshan formations in the south of the Jiangnan fault zone, should be classified into the Lower Silurian, while the Maoshan Formation (Tangjiawu Formation in the south of the Jiangnan fault zone) should be classified into the Upper Silurian, with Middle Silurian sediments missing. The organic-rich shale mainly occurs in the SSQ1 third-order sequence in the lowstand systems tract (LST) and the transfressive systems tract (TST) and the SSQ4 third-order sequence in the condensed section (CS). From the perspective of thickness and TOC value, the Gaojiabian Formation in the Lower Yangtze transitional rock combination shoudl be a favorable target layer for shale gas exploration.

Key words: sequence stratigraphy; shale gas; organic-rich shale; Silurian; Jiangnan fault zone

地质调查创新:古地磁采样工具

近日,由中国地质调查局南京地质调查中心科技人员研制的古地磁采样工具(国家发明专利号:ZL201710598636.4)推出第一代产品,并在野外地质工作中使用。该套工具主体分为手扶横杆、立杆、采样仓三部分,配合采样仓设置辅助采样的下压杆。横杆设水平仪调节工具的竖直;立杆可根据个人需要选择组装高度,适应站立或坐式取样操作;采样仓为铜质材料,可避免采样时受磁性干扰;横杆、采样仓等标识采样方向及对准点,保证采样准确无误。该套工具操作简单,一步式完成采样,样品一次性成型入盒,可提高采样效率3~5倍以上。采样全程基本实现无磁性干扰、无接触式取样,降低了样品被污染的可能性,确保了古地磁样品质量,为获取高质量的地球磁学数据提供了保障。

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