Abstract: The eastern slope zone of Mahu sag in Junggar basin developed braided river-delta plain (McPherson, 1987; Yu et al., 1995) in the first member of Badaowan formation of Jurassic (Hou et al., 2017). It is very difficult that identification of sand body types and prediction of sand body distribution use conventional logging and seismic interpretation methods, because of high sand thickness, coarse granularity, feature similarity of logging curves and low seismic resolution. Through relevant techniques of seismic sedimentology (Zeng et al., 2012; Zhu et al., 2009) such as 90° phase shift and stratal slice, it found that the target interval of the study area mainly developed alluvial plain sand bodies and channel sand bodies. Alluvial plain sand bodies mainly developed in the middle of the first member of Badaowan formation, the distribution of which was sheetlike. Channel sand bodies mainly developed in the lower and the upper of the first member of Badaowan formation, which could be clearly identified four types of morphology, including branched morphology, braided morphology, digonal morphology and anastomosed morphology. The branched channel sand bodies were mostly developed in the lower of the target interval in the northwest of the study area, the braided channel sand bodies were mostly developed in the lower of the target interval in the northeast of the study area and in the upper of the target interval in the middle of the study area, digonal channel sand bodies were mostly developed in lower of the target interval in the east of the study area, anastomosed channel sand bodies were mostly developed in lower of the target interval in the middle of the study area.

Keywords: braided river delta, sand body morphology, seismic sedimentology, Badaowan formation, Junggar basin

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References

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