OMICS International
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Baishui Gao, J Pet Environ Biotechnol 2015, 6:5
http://dx.doi.org/10.4172/2157-7463.C1.011

3rd World Congress on
Petrochemistry and Chemical Engineering
November 30-December 02, 2015 Atlanta, USA

Sedimentary model and evolutionary process of crevasse splays: A case of crevasse splays around Fuqiancun village along Xinjiang River

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Four typical Crevasse Splays (CS) have developed around Fuqiancun village along Xinjiang River. CS present sedimentary thickness of 0.3-2 m and reverse graded profiles. A CS includes inner fans and outer fans. An inner fan can be divided into crevasse channels and interchannel beaches. A CS evolves in three stages: the formation stage, the extension stage and the channelized stage. In the formation stage, a single fan is formed due to burst of levee; channels on CS surface are short and shallow with instable locations; the sedimentary profile shows multiple morphologies. In the extension stage, CS progradation is formed in arborization pattern; channels are deep and long, and become the framework of a CS; the sedimentary profile shows the reverse grading structure formed by the superposition of multiple single fans. In the channelized stage, most single fans are abandoned to be flood plains, and a small number of channels continue to incise and extend headward. Natural levees are formed on both sides, and sedimentary units such as point bar appears. In the stage, crevasse deltas can be formed when the channels enter alluvial lakes. Satellite images indicate that a CS grows fast during formation stage while slowly during extension and channelized stage. Paleo-CS can be identified by sedimentary scale, sediments characteristics, amplitude change of logging curve, cycle change, sand plane form, profile morphology, the coexistence with river channels and other characteristics.

Biography

Baishui Gao is a PhD student at China University of Petroleum-Beijing. He has participated in many studies on Poyang Lake and Daihai Lake.

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