

Reservoir's Geology & Geophysics Master

Master Research Final Project

Contributions of the analogue modelling to the characterization of the structure beneath the Cenozoic salts in the Kuqa thrust and fold belt (NW China).

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Abstract

The study of deformation and 3D reconstruction by the use of analogue modelling, has been used for many studies in different geologic processes and with help of a previous strong background of parametrized controls that affect on the studied area it is possible to establish a forward workflow for understand the structure. This work use a methodology path to understand and describe the processes that have affected the Kuqa fold and thrust belt and its compressional salt tectonism.

The model is one of a series of models made in the department of Geomodels, laboratory of the University of Barcelona, and are distinguished by having different sedimentation rate. In this work has been worked with the model that has a sedimentation rate of 0.66mm/hour. This analogue model represents the western part of the Kuqa foreland basin and its 3-D reconstruction will allow to understand much better the deformation evolution of this zone and to explain the different structures that could appear in a foreland basin that is influenced by two different detachment levels. the lower one, with different lateral behavior due to rheological changes. The analysis of deformation between surface reconstruction and the cinematic evolution of the analogue modelling processes could be argued and described by different ways of recording in the analogue model procedure, study of deformation and dynamic evolution.

The model, otherwise, can provide us also more information about the affected processes, salt migration and the roll of both detachment levels in the deformation knowing that the model behave really similar to the geological processes. This could be also helpful for the post-analysis of gas and oil accumulations in stratigraphic and structural traps, but, the main aim is the study and comprehension of structures between the upper and lower dettachments.

