

**AAPG Annual Convention
Salt Lake City, Utah
May 11-14, 2003**

Pau Arbués, Josep Anton Muñoz, Oscar Fernandez, Mariano Marzo, and Marta Puig, University of Barcelona, Barcelona, Spain

3-D Reconstruction of the Geometry and Architecture of the Ainsa Turbidite System from Outcrop Data

The Eocene Ainsa Slope Complex, in the South-Central Pyrenean Foreland Basin, has been studied for several years and a consistent 2-D database exists which covers from seismic to reservoir scale. This 2-D database consists mostly of detailed outcrop characterizations, geological maps and geological cross-sections. Building from these 2-D data, a new approach was followed aiming the 3-D reconstruction of one of the turbidite systems which occurs in the Ainsa Slope Complex, namely the Ainsa turbidite system.

The Ainsa turbidite system is 320 m thick, 8 km wide and more than 9 km long. It is mostly made of channel fill deposits and contains other associated turbidite elements. The system developed synchronous to the growth of different types of thrust-related folds which occur in different areas of the basin.

The steps of the reconstruction process summarize as follows: I) georeferencing, II) 3-D reconstruction and restoration of the folded structure of the area, and III) 3-D deterministic reconstruction of the external geometry and internal architecture of the Ainsa turbidite system. The 3-D reconstruction process utilized up to date commercial software packages which are specific for structural restoration and reservoir modelling as well as in-house produced software.

The results allow the 3-D visualization of the anatomy of the system and reveal various aspects of the relationships between the styles of anticline growth, anticline-related topography and the sedimentary evolution of the Ainsa turbidite system.