

Tectonic and Climatic Controls on Eocene Deltaic Architecture, Spanish Pyrenees

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During Eocene times, thrust-top basins were forming in the Spanish Pyrenees in response to the northwards directed underthrusting of the Iberian plate beneath Eurasia. In two of these basins, the Ainsa and the Jaca, deltas were known to be prograding whilst the basins themselves were actively deforming. This deformation must have exerted a strong control on the architecture of the deltaic deposits. It is probable that the tectonics controlled the nature of clastic sediment flux, and the location of its entry points into the basins, and also that emerging folds and thrusts acted as barriers to sediment progradation.

The exact effects of active synsedimentary deformation on shallow marine sedimentation are poorly understood and inadequately covered within the literature. This project aims to address this with a detailed study of the Eocene deltaic sediments of the Ainsa and Jaca Basins.

The deltaic sediments of interest have been comprehensively studied for the first time. Techniques used included detailed logging of the deltaic successions, sampling of palaeosols and carbonates for geochemical analysis, and careful mapping of geological structures and palaeoflow-pathways.

The outcome of this research will be an understanding of how tectonics affects sedimentation in a shallow marine setting. Specifically, issues regarding the effects of ongoing tectonics on the internal architecture and facies development of the deltaic deposits will be addressed. Questions such as 'Can a rapidly growing structure act as an effective barrier to prograding deltaic sediments?' will be answered.