

## Abstract

A new lower Priabonian sedimentary succession following a genetically-related approach allowed definition of a transgressive, highstand and falling stage systems tracts defined in the Belsué-Atarés fm of the Santa Orosia syncline. These units record the final continentalization of the eastern Jaca Basin. After recognition of basic facies types and facies tract a hierarchical succession of unconformity-bounded units has been developed from elementary depositional sequences (EDS) upgrading until third-order depositional sequences. Sedimentary processes recognized to form the basic facies tract have been associated to hyperpycal flows from river flooding events generating mouthbars and jet-flow lobes forming the delta front. Such deposits are developed in the lower part of the EDS succeeded by a condensed section vertically passing into overlaying prodelta mudstones. Such deposits are forming the lowstand, transgressive and highstand and possible falling stage high-frequency systems tracts of 5<sup>th</sup> order with the corresponding architectural staking pattern, i.e, first retrogradational for the 3<sup>rd</sup> order transgressive systems tract, progradational for the 3<sup>rd</sup> order highstand systems tract and after a forced regression with development of fluvial erosion truncation, an agradational staking pattern for the 3<sup>rd</sup> order falling stage systems tract. The upper major sequence boundary is defined within alluvial sediments in the place in which recent works have defined a compositional change. The different models of sequence-stratigraphy based on depositional sequences (unconformities) or genetic and T-R sequences (maximum flooding surfaces) have been contrasted for operational purposes, with the result of depositional being much more operative than the other models.

The association of depositional systems formed by mouthbars and sandy jet-flow lobes are bearing the best reservoir properties for hydrocarbon recovery. The best development should be through directional wells oriented respect the progradation direction of the jet-flow depositional clinoforms.