



The Miocene lacustrine-alluvial sediments of the central Ebro Basin (NE Spain): Magnetostratigraphy and short and long period climate controls on basin stratigraphy.

F.J. Pérez-Rivarés (1), M. Garcés (2), C. Arenas (1), G. Pardo (1),

(1) Área de Estratigrafía, Dpto. Ciencias de la Tierra, Facultad de Ciencias, Universidad de Zaragoza, (2) Dpt. Estratigrafia i Paleontologia, Universitat de Barcelona, (perezriv@unizar.es)

The Ebro Basin is the youngest south-pyrenean foreland basin that developed since the Early Eocene as a result of northwards subduction of the Iberian plate. Tectonics determined first-order basin stratigraphy by controlling depocenters localisation and terrigenous sediment supply from its active northern margin. The basin evolved into an endorheic system by the latest Eocene when continued compression led to closing of its NW communication with the open ocean. The youngest sediments pre-dating the Ebro river incision and opening of the basin towards the Mediterranean are as old as late middle Miocene. The continental record of the basin consists of coarse to fine detrital sediments deposited in alluvial and fluvial systems originated from the basin margins, and carbonate and evaporite sediments formed in lacustrine systems in the centre. The lacustrine systems shifted southward through time due to the continued Pyrenean uplift, progradation of alluvial wedges of northern origin and, second, the passive character of the Iberian margin at the end of the Ebro basin infill. Long and continuous magnetostratigraphic records have provided an accurate chronology for the continental Ebro basin infill. High-resolution sampling has allowed recognition of missing sub-chrons in the Geomagnetic Polarity Time Scale, recently discovered in deep sea cores from Southern Atlantic. Cyclostratigraphic analysis of some of the well dated Oligocene to Miocene lacustrine sequences showed that high-order cyclicity meter-scale cyclicity was dominated by Milankovitch frequencies. Small scale lake level oscillations, represented by limestone-marl duplets, matched astronomical precession. Possibility for long period climatic signature in the Ebro Basin is more prob-

lematic due to overlap with tectonics. We address this issue by combining records with other basins in the Iberian Plate and with global records of climate change.