

INTEGRATED STRATIGRAPHY OF  
UPPER KIMMERIDGIAN – UPPER BERRIASIAN TIME INTERVAL -  
CLUE DE TAULANNE SECTION (SE FRANCE)

C.E.Casellato<sup>1</sup>, N.Rameil<sup>2</sup>, J.Schnyder<sup>3</sup>

1 - Dep. of Earth Sciences, Univ. of Milan, Milan, Italy – cristina.casellato@unimi.it,

2 - Institut für Geologie, Mineralogie and Geophysik, Ruhr-Universität, Bochum, Germany - niels.rameil@gmx.net

3 - Université Pierre et Marie Curie - Paris 6, CNRS, Laboratoire de Tectonique-Equipe “Evolution et dynamique des bassins sédimentaires”, Paris, France - schnyder@ccr.jussieu.fr

A multidisciplinary approach to Clue de Taulanne section (SE France), North-Western margin of Alpine Tethys, is presented. It aims to collect different stratigraphic data on Jurassic/Cretaceous (J/K) boundary time interval to give a contribution to Southern Europe and hemipelagic Tethys paleoscenario. Lithostratigraphy, carbonate sedimentology, sequence stratigraphy, biostratigraphy, clay minerals, magnetic susceptibility, chemostratigraphy have been independently investigated, covering a time interval from Late Kimmerigian to Late Berriasian.

Lithostratigraphy, carbonate sedimentology, sequence stratigraphy and clay minerals have been used to establish a correlation between North-Western Alpine Tethys margin and Jura platforms (Rameil, 2005): it allows to relate changes observed in the basin to the ones recorded on carbonate platforms.

Ammonite, calpionellid, nannofossil and pelagic microfossils biostratigraphies have been performed to date the section and correlate planktonic events to interpreted environmental changes documented on carbonate platforms (Rameil, 2005). Jura Mountains are a key area for the correlation between tethyan and boreal realms (Colombiè & Rameil, 2007). Exceptional ammonite discoveries allow in recognize ammonite zones spanning from *Exodus* to *Occitanica* Zones (tethyan province). The J/K boundary interval is characterized by a calcareous nannofossil speciation event and by the first occurrence of calpionellids: both groups first appear and rapidly evolve showing a progressive increase in degree of calcification (Remane, 1986; Bralower et al., 1989; Bornemann et al., 2003; Casellato & Erba, 2007). Calpionellids zones from *Chitinoidea* to C (Remane, 1986) and calcareous nannofossil zones from NJ-20 until NK-1 (Bralower et al., 1989) have been recognized.

Magnetic susceptibility first results show two-step increase at the top of the section (between beds 393-394 and/or above beds 430-431), probably indicating increasing clay content vs carbonate.

The clay mineral assemblage is composed of kaolinite, illite-smectite mixed layers and illite in

various proportions. An increase of kaolinite proportion is recorded in the uppermost part of the section (from beds 394-395). Clay mineralogy pattern could be interpreted as a climate change from a more humid climate, as has been also recorded at the Southern Tethys margin in Tunisia (Schnyder et al., 2005).

Stable isotope analysis results show essentially the general stable well known trend for J/K boundary interval: erratic oxygen isotope trend is probably due to diagenesis; carbon isotope shows a negative overall trend and a negative excursion ( $\approx 2\text{‰}$  across 10-20 meter, 206-219 bed intervals) which seems to correlate with a negative excursion documented in the Ammonitico Rosso (e.g., Padden et al. 2002).