

Report - IAS Postgraduate Grant Scheme – 1<sup>st</sup> session 2009

## **C-isotope stratigraphy from the Lower Aptian Madotz succession (Aralar, N Spain)**

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The goal of my PhD thesis is to reconstruct the Early Aptian in the Aralar Mountains, in the southeast area of the Basque Cantabrian Basin (N Spain). The Early Aptian was a time of major global environmental changes. A major perturbation of the carbon cycle triggered changes in oceanography and climate. The Oceanic Anoxic Event (OAE) 1a, a widespread nannoconids crisis and a drowning of carbonate platforms were all expressions of an episode of extreme environmental change (e.g. Skelton, 2003). Major fluctuations in  $\delta^{13}\text{C}$  values during the Early Aptian serve as evidence for carbon cycle perturbations (Menegatti et al., 1998; Herrle et al., 2004; among others).

The IAS grant has covered partially the expenses of 40 days stay at the Swiss Federal Institute of Technology Zurich (ETH). During the stay, 124  $\delta^{13}\text{C}_{\text{carb}}$  and 58  $\delta^{13}\text{C}_{\text{org}}$  analysis of the Madotz section samples have been performed. Madotz is located in the southeast of Aralar Mountains and its section was dated as Early Aptian with orbitolinids: *Palorbitolina lenticularis* (Blumenbach), *Praeorbitolina cormyi* (Schroeder), and *Iraqia simplex* (Henson) (Cherchi and Schroeder, 1998).

In general terms, the Madotz succession corresponds to an Urgonian carbonate platform. The mapping of the area has shown a very good lithostratigraphic correlation with the previously studied Igaratza section (García-Mondéjar et al., 2009; Millán et al., submitted), which is situated 14.5 km to NW and has good biostratigraphic control with ammonite fauna. The sedimentary succession of the Madotz village records the facies evolution of the Urgonian platform during the Early Aptian carbon cycle perturbations. The  $\delta^{13}\text{C}$  record reaches a minimum above an unconformity surface, which marks an abrupt facies change. Organisms in a K-mode were replaced by organisms with an r-mode strategy (opportunistic) of the biotic associations. This contribution proposes that the vertical ecological succession was controlled largely by paleoceanographic changes, such as sea level rise, trophic level and ocean acidification.

The results of this work will be presented on the 27<sup>th</sup>IAS Meeting of Sedimentology (Alghero, Italy, 20-23 September 2009).

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<b>Expenses</b>	
<b>Economy Flight BIO-ZRH</b>	288.85 €= 186.53 €+ (156 CHF) approx. 102.32€
<b>Public transport</b>	Approx. 248.53 € (378.9 CHF)
<b>Accommodation</b>	Approx. 491.45 € (750 CHF)
<b>Total</b>	<b>1028.83€</b>