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Late Albian Silicification Event(s) in Istria, Croatia

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In the NW part of the Adriatic Carbonate Platform (AdCP), in Istria region, during Late Albian diagenetic silicification occured. Silicification took place within the peritidal carbonate sequences comprising intertidal carbonate breccias and laminated cyanobacterial limestones, as well as subtidal mudstones peloidal wackstones/packstones. Three silicified layers can be traced, more or less continuously, along the 30km traverse. According to their position in the sedimentary column and to their geometry, they are interpreted as three possible events of aeolian input of silica (volcanic ash) to carbonate platform environment. Sedimentological, mineralogical and geochemical analysis were performed on the samples from the silicified layers (ranging from 15cm to 2m in thickness), as well as from the related limestones and marls/clayey limestones. Silicification changed primary carbonate sediments in places almost completely and formed so-called "quartz diagenetic sediments" (up to 98% of SiO_2), which contain several types of quartz (idiomorphic authigenic quartz, microcrystaline quartz aggregates, chert-like clusters). Distributions of microelements and REE indicate differences of the silicified layers from surrounding limestones. Insoluble residues of clayey limestones predominantly contain illite-smectite minerals, together with quartz, some feldspars and amorphous material.

These results support assumption about the input of the source material for silicification to carbonate platform. Current investigations (SEM) should give additional informations about the source and mechanisms of silicification.

Record of the Faraoni Anoxic Event (Late Hauterivian) in the Ultrahelvetic domain

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An equivalent of the Faraoni Level, originally described in the Umbria-Marche Basin (central Italy) as an upper Hauterivian regional marker-bed, and then identified in southern Alps (Italy), Vocontian Basin (SE France) and Subbetic Basin (Spain), was recently recognised in the Ultrahelvetic domain along the Veveyse de Châtel-Saint-Denis section (external Prealps, Switzerland) by Busnardo *et al.* (2003).

The trend in the evolution of oxygen and carbon isotopic ratios and trace elements (Sr, Mn, Fe) from the carbonates show that a 4-meter thick critical interval of the upper Hauterivian (*Pseudothurmania angulicostata* ammonite Zone) succession of the Veveyse de Châtel-Saint-Denis section experienced strong environmental changes. This interval coincides with an increase in marine organic matter (1.5 % TOC and hydrogen index values up to 460 mg HC/g TOC).

This organic matter enrichment associated with changes in the ocean chemistry is probably the record of the Faraoni 'Anoxic Event', although its sedimentary expression in the Ultrahelvetic domain is less obvious compared to other Tethyan basins (Baudin *et al.*, submitted). It should be noted, however, that the sequential position of this level is exactly the same in the different basins, *e.g.* the basal part of a transgressive phase.

This new site allows to extend the distribution of this late Hauterivian anoxic event in an intermediate paleogeographic domain between the Umbria-Marche and the Vocontian Basins.

References

Baudin F., Busnardo R., Beltran C., de Rafelis M., Renard M., Charollais J. & Clavel B. (submitted) - Enregistrement de l'événement anoxique Faraoni (Hauterivien supérieur) dans le domaine

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