Anne Bialkowski[1], Isabelle Cojan[1], Maurice Renard[2] (1) Ecole des Mines de Paris, Fontainebleau, France (2) Universite Pierre et Marie Curie, Paris, France

Chemostratigraphy of Paleosols for Correlating Continental Sections and Sequential Stratigraphy

In continental environments, the lack of biostratigraphic data makes the stratigraphic attribution of the sedimentary series quite difficult to assert. We propose to use the δ^{13}C chemostratigraphy for correlating continental sections distant of tens of kilometres.

The studied continental series (Tertiary Molasse) are located in South-Eastern France in the Digne Basin. The age of the series spreads from upper Oligocene to middle Miocene, -24 to -11 Ma. Previous study has shown a good agreement between the marine and the continental signal on one section (Lopez *et al.*, 2000).

However, new data on other sections show a clear influence of the paleoenvironmental conditions on the isotopic ratio. δ^{13}C signal is shifted of 2 ‰ towards positive values in sections distant from the coastal environment towards inland, while δ^{18}O signal is very similar. The most relevant parameter for modulating the δ^{13}C signal appears to be the moisture gradient.

In the Molasse of Digne, the first δ^{13}C shift zone records the Aquitanian marine transgressions and the second one the Burdigalian ones. The chemostratigraphy appears to be a useful tool for dating ancient continental series when taking into account paleoenvironmental parameters. Expected stratigraphic resolution can range from 500 Ka to 100 Ka depending on the fluctuations of the marine signal.