ABSTRACT

Research on the dynamics and processes affecting earth's surface includes the study of Quaternary geological formations linked to erosion or sedimentation processes, therefore directly or indirectly dependent on climatic phases. The study of lacustrine deposits in an approach that is also part of methodes for athe nalysis of bioclimatic cycles. In a climatic change context and uncertainties regarding future environmental issues, the analysis of the evolution of deposit forms is crucial for understanding the environmental changes within these ecosystems, which represent important remains for the study of the Late Glacial and the Holocene.

Using sediments from Lac du Val, in the French Jura Mountains, this work characterizes paleoenvironmental and paleoclimatic evolution between Allerød and the beginning of Holocene. Mineralogical (XRD) and geochemical ($\partial^{13}C$, $\partial^{18}O$, TOC, C/N, HI, OI, and P) analyzes indicate that Younger Dryas period is distinguished by an intensification of lake primary productivity linked to phosphorus inputs. The nutrient intake is a consequence of the increased detrital sediment supply, which seems to be the related to a colder and more humid climate.

The study of tephras is frequently approached in Quaternary stratigraphic research, and in particular as a chrono-stratigraphic tool in paleoreconstruction. In order to identify recent volcanic episodes, the analysis of mercury concentrations in sediments was used, but the recorded results are unsatisfactory. The measured mercury contents are too low, and after normalization by TOC, the trends shown with other methods such as magnetic susceptibility could not be observed.

Keywords : Limnology, Paleoecology, Geochemistry and Mineralogy, Climate Change, Tephras.