

## **Evaluation of biases affecting GDGT proxies and their consequences for lacustrine paleoenvironmental reconstruction in lake Saint Front (France)**

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Branched Glycerol Dialkyl Glycerol Tetraethers (GDGTs) are ubiquitous organic compounds occurring in membranes of bacteria and have received increasing attention recently due to their potential as biomarkers and proxies. In the last years, various complications appeared in the application of this proxy, in particular it has been suggested that substantial amounts of brGDGTs can be produced in situ, in the water column or in the sediments, altering the terrigenous signal in the lacustrine sedimentary archives. Seasonality of brGDGTs production and transport could also affect the signal. These problems need to be evaluated prior to use the GDGT proxies in paleoclimate studies.

We analyzed surface sediments and soils in the watershed in the lake Saint Front (Massif Central, France) where a 65 m thick sedimentary sequence was recovered covering the full glacial/interglacial cycle, i.e. since Marine Isotope Stage 6. We separated GDGTs using LC-MS techniques enabling the separation of the 5-, 6- and 7-methyl brGDGTs. As a first step, we will describe the modern tetraether distribution in lake surface sediments as well as its watershed in order to determine the source of the brGDGTs and to identify possible biases. The results will be discussed in comparison with data from other aquatic environments and global soils to evaluate the consequences for the application of GDGT proxies in the paleoclimate record of lake Saint Front.