

## **ORIGIN AND BEHAVIOUR OF DISSOLVED INORGANIC CARBON IN LAKE KIVU AS TRACED BY STABLE CARBON ISOSTOPES**

Rwabuhungu Digne<sup>1</sup>, Lei Chou<sup>1</sup>, Roland Wollast<sup>1</sup>, Frank Dehairs<sup>2</sup> and Nathalie Roevros<sup>1</sup>

<sup>1</sup> Laboratoire d'Océanographie Chimique et Géochimie des Eaux, Université Libre de Bruxelles  
Campus de la Plaine CP208, Boulevard du Triomphe, B-1050 Brussels, Belgium  
E-mail: drwabuhu@ulb.ac.be

<sup>2</sup> Laboratorium Analytische Chemie, Vrije Universiteit Brussel  
Pleinlaan 2, B-1050 Brussels, Belgium

Lake Kivu, situated in the western branch of the East African Rift Valley is one of the great lakes in Africa. The 485m-deep lake is strongly stratified into 7 layers and contains methane gas deposit associated with carbon dioxide (Tietze *et al.*, 1980). The main objective of this study is to identify the biogeochemical processes affecting the carbon cycle in this lake. Stable carbon isotopes were used to trace the origin and behaviour of dissolved inorganic carbon (DIC) in the system. In addition, various chemical analyses were performed in order to elucidate processes affecting the production of DIC in the lake. Samples were collected in water columns of the Rwandan part of the lake Kivu, offshore Gisenyi and Kibuye, in May 2001, February 2002 and December 2002. The choice of sampling locations was made, based on the main point of exploitation of gas deposit planning (Tietze, 2000). Our results indicate a close relationship between the stratified layers and the variation in  $\delta^{13}\text{C}$ , particularly in the main layer situated at 250m. The surface water has been subjected to intensive evaporation whereas the saline hydrothermal water released at the bottom is isotopically identical to the local meteoric water (Degens *et al.*, 1973). The biogeochemical behaviour of carbon can be explained by oxidation and photosynthesis, in addition to convection between different stratified layers of the lake.

### References

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