

**FIRST INVESTIGATION OF DEEP LAKE SEDIMENTS ON SUBANTARCTIC
KERGUELEN ISLANDS (LAC D'ARMOR): RECONSTRUCTING PAST FLOODS AND
VOLCANIC ERUPTIONS**

Fabien ARNAUD*, Dries BOONE**, Roland PAGNI***, Katrien HEIRMAN**, Marc DE BATIST**,
Jacques-Louis DE BEAULIEU****

*EDYTEM, Université de Savoie, 73376, Le Bourget du lac, France

**RCMG, Rcmg, University of Ghent, Belgium, Ghent, Ghent, Belgique

***CEREGE, Europole Méditerranéen de L'Arbois, 13545, Aix-En-Provence, France

****IMEP, Europole Méditerranéen de L'Arbois, 13545, Aix-En-Provence, France

A set of 10 short cores has been taken from the deep fjord-type Lake Armor on Kerguelen Islands in December 2006. Cores were located thanks to a dense seismic grid which revealed the general morphology of the lake which is made of two deep sub-basins – 50 and 98 m deep - separated by a glacial threshold. We present in this paper the first sedimentological results aiming at defining the different deposit environments and testing the ability of Lake Armor sediment to have recorded past flooding activity. The ultimate goal will be here to track changes in precipitations associated to Holocene climate dynamics. In particular we will try to evidence if the nowadays dry period recorded on Kerguelen Island had an equivalent over the last centuries. In parallel to this paleoclimate-oriented research, the geodynamic setting of Kerguelen Archipelago was taken into account. In particular, a thick fine sand layer has been discovered in most of the lake sediment cores as well as in short peat bog core taken in the vicinity of Lake Armor. The spatial continuity of this layer makes us interpret it as a tephra deposit. Its stratigraphic position, in the uppermost decimetres of sediments suggests it is the more recent eruption ever recorded on Kerguelen Islands.