Multi-data study to reconstitute climate changes since 20,000 yr in a coastal environment : the Loch Sunart (NW Scotland)

@ **Z. Mokeddem** (1), A. Baltzer (1), M. Clet-Pellerin (1), E. Goubert (2) and A.V. Walter-Simonnet (3)

(1) UMR CNRS 6143 M2C, Caen, France, (2) Université de Bretagne Sud, Vannes, France, (3) Université de Franche-Comté, EA 2642 Géosciences, Besançon, France (zohra.mokeddem@unicaen.fr / Phone : +33 2 31565716 / Fax : +33 2 31565757)

Over the last 20,000 yr, the Loch Sunart, a typical sea loch on the western coast of Scotland, has accumulated an important record of Late Pleistocene and Holocene sedimentation.

A seismic survey, conducted in August 2002 using a Seistec Boomer system, has demonstrated five distinct sediment-acoustic facies in this loch. These facies have been correlated with sediment sequences identified in a long Calypso core (12 m) acquired from the *RV Marion Dufresne*. Grain-size and pollen analyses, accompanied with ^{14}C dates, have yielded information on the patterns of sedimentation since the Late Glacial Maximum. These data permit to identify significant cooling events affecting the vegetation since the Younger Dryas : 10,000-9000, 8500-7500 cal year BP. A new approach was adopted to complete these results by studying marine benthic foraminifera. The patterns of distribution of foraminifera are controlled by environmental factors such as oxygen, temperature, salinity, etc. Thus, the abundance of species or an assemblage should show a strong correlation with marine environmental variations.

Thanks to foraminiferal assemblages, pollen assemblages, seismic facies and ^{14}C dates, this work presents a reconstruction of the climate evolution since 20,000 yr BP in the Loch Sunart. This multi-data approach allows us to evaluate the delay between climate change impacts on continental environments (pollen data) and marine

systems (foraminiferal data).