Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09743, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09743
EGU General Assembly 2008

Oceanic and solar imprints in Alps glacier during the Holocene?

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Wavelets analyses performed on L*, as a proxy of glacier activity in the north-western Alps (Lake Le Bourget), reveal features already observed in North-Atlantic area. Indeed, one of most interesting property of this Mathematical tool is the possibility to highlight instationarity in a signal. In lake Le Bourget study, frequencies content show a mid-holocene transition where frequencies around 920 years change toward lower frequencies (1750 year).

The Early Holocene frequency, around 920 year, is very close to solar frequency (1000 years) present in ^{14}C flux and ^{10}Be signal. The late Holocene show a major frequency around 1750 years, close to frequencies seen in proxies of oceanic activity in North-Atlantic Area. The study of atmospheric (O'Brian et al, 1995; Jackson et al, 2005), oceanic records (Chapman and Schakleton, , Giraudeau et al, , Bianchi and McCave, 1999; Bond et al, 2001) and records witness of solar activity (10Be Vonmoos et al, 2006, 14C flux, Bond et al, 200) allowed Debret et al, 2007 to draw a pattern of inter-

action between Ice-Ocean-Atmosphere. Indeed North Atlantic ocean highlights oscillation around 1600 years, that are present in record of atmospheric proxies (Loesses Jackson et al, 2005 and sea spray O'Brian et al, 1995) toward variation of sea ice geometry. It's the first time that this pattern is observed in continental record.

This pattern of frequencies indicates a major transition linked to global processes. It is possible to create a link between detritism recorded in lake Le Bourget, Mont-Blanc glacier Fluctuation, solar activity and North-Atlantic fluctuation.