



1 High latitude “icy Heinrich events” vs. tropical “dusty Heinrich-like events” : are they teleconnected?

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Previous studies have allowed to clearly identify Heinrich events and to portray their distribution in the Northern Atlantic (Hemming, 2004, and ref. therein). Over the last few years, we have focused our attention onto the understanding of the temporal building of these layers. In the well-known West-to-East area of high IRD deposition – 40N-55N (Ruddiman, 1977) –, the same sequence of events occurs. This is true from West (core SU90-11 - this work, unpublished), to East (Grousset et al., 2000-2001). Leaving aside two atypical layers (H3 & H6), we observe that typical Heinrich layers (H1, H2, H4, H5) are made of sub-layers. H1 and H2 started with a so-called “precursor” event (their European? or Canadian? origin is still under question), whereas H4 and H5 do not display any precursor event. Moreover, within these layers, we observe inputs coming first from Iceland (volcanic grains), then followed by quartz-rich IRD reflecting external Laurentide/Greenland origin, finally followed by dolomite-rich IRD revealing an internal Laurentide origin (Hudson/Baffin?). While precursor events would imply an early collapse of European/Icelandic ice-sheets, the following “Laurentide-derived” layers could be explained by an internal forcing on the Laurentide – the so-called “binge-purge” mechanism proposed by McAyeal (1993). However, synchronous Heinrich-like dusty events observed in Greenlandic ice-cores could suggest an external climatic forcing? The same way, wet events observed along the Brazil margin (Arz et al., 1998) at the Heinrich events dates, would suggest that climatic perturbations occurred simultaneously at low latitude. It is clear that tropical zones

play an important role in the climatic variability (Broecker and Hemming, 2001) and that interconnections exist between low and high latitudes (Peterson et al., 2000). Are they a consequence of the major Laurentide surges? Would the tropical events lead (and eventually trigger?) the Northern Atlantic glacial abrupt events? In order to identify such latitudinal links, we also studied the IMAGES Calypso-core MD03-2705 (off the Senegal margin) on a high-resolution mode. Results already obtained will be displayed: AMS-14C, X-Rays, Cortex-geochemistry, magnetic susceptibility, 180 isotopes, carbonate content, grain-size analyses. Other analyses are still in progress (biomarkers, coccoliths, diatoms, foram counts and SST). Based on well constrained age-models, we aim to demonstrate if the tropical “dusty Heinrich like events” are synchronous (or not?) with the northern “icy events”.