



Paleoclimate records at high latitude in Arctic during the Paleogene

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The Paleogene is a period of important variations of the Earth climate system either in warming or cooling. The climatic optima of the Paleogene have been recognized both in continental and marine environment. This study focus on high latitudes of the northern hemisphere, in the Arctic Basin. The basin has had an influence on the Cenozoic global climate change according to its polar position. Is there a specific behaviour of the Arctic Basin with respect to global climatic stimuli? Are there possible mechanisms of coupling/decoupling of its dynamics with respect to the global ocean?

To answer these questions a unique collection of sedimentary series of Paleogene age interval has been assembled from the Laurentian margin in Northern Yukon (Canada) and from the Siberian margin (New Siberian Islands). Selected continental successions of Paleocene-Eocene age were used to study the response of the Arctic system to known global events, e.g. the climatic optima of the Paleogene (the so-called PETM, ETM2 or the Azolla events). Two sections of Paleocene-Eocene age were sampled near the Mackenzie delta, the so-called Coal Mine (CoMi) and Caribou Hills (CaH) sections. The aim of the study is to precise the climatic fluctuations and to characterise the source rock potential of the basin, eventually linked to the warming events. This study is based on data of multi-proxy analyses: mineralogy on bulk and clay fraction, Rock-Eval pyrolysis, palynology, palynofacies, carbon isotopes. The organic matter of the two sections is dominated by Type III kerogens. First results from palynology and clay minerals proportions suggest episodes of warming that could be compared to similar warming intervals recorded on the Siberian margin. In addition, in the northern Yukon the mineralogical results suggests fluctuations of the local detrital sources, either driven by tectonic or eustatism, that could be surimposed on the climatic patterns.