Deciphering Ice Sheet Contributions to Heinrich Event 2 using Nd-Pb-Sr Isotopes

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Abstract.
We seek Climate Center funds for a proof of concept study to document the history of contributions from the West European Ice Sheet versus the Laurentide Ice Sheet ***(WEIS and LIS)*** to the northeast Atlantic before, during, and following Heinrich Event 2 ***(H2)***, through Nd-Sr-Pb isotope analyses in the fine detritus fraction of a well-studied core. The results will be compared to the existing data from the core, and will demonstrate the value combining sediment provenance information on both the coarse and fine sediment fractions of ice rafted detritus ***(IRD)***. The larger scale purpose is to characterize the sequence of *WEIS* and *LIS* ice sheet instability over the course of *H2*, and to relate the changing iceberg sources to concurrent changes in ocean circulation and climate. In this context the project addresses open questions regarding what are the causes of Heinrich Events ***(H-events)***, as well as the role of the *WEIS*. This CC grant will facilitate a visit to LDEO by Rachel North, a Ph.D. student at Cardiff University, by covering the costs of her analyses. We expect two major benefits. We expect to produce a publishable record. Also, the results will serve as a basis to apply for external funding, to extend the approach to other strategically located North Atlantic cores, and to study other H-events, possibly by Rachel as a postdoctoral scientist.