**North African response to climate shifts over the past 20ka: Comparing methods of grain-size analysis at continental margins**

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Cyclic periods of humidity and vegetation in the Sahara desert of North Africa have recently been discovered. There are still questions as to how coherently the vast Saharan region responded to this changing climate over the last 20ka. One of the objectives of my research is to constrain this question by examining three sea floor cores from a north-south transect along the Northwest African coast. Inorganic siliciclastic dust blown off the Sahara desert or carried by rivers, referred to as eolian and fluvial sediments respectively, and deposited on the ocean floor provides excellent climate records. Differences in the sizes of these two components allow palaeoclimatologists to analyze the respective proportions of each in any given sample. This data allows us to infer the climatic conditions at the time of its deposition on the marine floor. The problem with such analysis is the separation of the fluvial from the eolian component, especially on continental margins like the African coast, where there are large inputs of fluvial sediments from river outlets. In this paper I attempt an approach at modeling the raw grain-size data using a Weibull distribution and compare the results with the model provided by G. Weltje's (1997) end-member modeling algorithm (EMMA). I will use the method which provides the best results to analyze how coherently the Sahara responded to shifting climate based on changes in the three cores of my study.