# Using Marine Sediment Cores from the North Atlantic Ocean to Better Understand Past Climate

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The Northern hemisphere has seen temperatures rising and falling rapidly over the span of thousands of years as a result of abrupt climate changes during the last ice age. Recently, evidence has been found to suggest that these abrupt climate changes were due to a reduction in the overturning circulation. As temperatures within the Earth begin to rise again due to anthropogenic factors, the potentiality of the reduction recurrence in thermohaline circulation is apparent as glacial melt enters the North Atlantic Ocean, changing the temperature and density of the water. To better understand these warming and cooling patterns and how they changed over time, we studied core VM30-100, from a central North Atlantic Ocean site. Through counts of ice-rafted debris which are indicative of icebergs at the site and the cold water-dwelling species of foraminifera *N. pachyderma*, they served as cold climate proxies. These methods aided in contextualizing the data from site VM30-100 into the larger picture of global warming and cooling patterns in the last glacial maximum. Through analyzing past isotopic data and creating a broad mean sedimentation rate from Heinrich Events 1, 2, 4, and 5, we were able to create an age model for VM30-100. As a result, we were then able to broadly date this core as being from 137,000-150,000 years ago. By virtue of the *N. pachyderma* and ice-rafted debris counting data, we were able to detect a roughly positive correlation between the abundance of IRD and the abundance of N. pachyderma, and a general pattern of seemingly frigid climate at the site as. We offer an opportunity for further investigation as to a huge spike in the number of IRD at a specific depth, which we find is anomalously high but not spanning across enough time to represent a Heinrich event, and for isotope testing as another climate proxy.