

Modelling Abrupt Climate Change during the Last Deglaciation

PAUL J VALDES¹

¹School of Geographical Sciences, University of Bristol

Abrupt climate change events are a common feature of glacial periods and during the last deglaciation (21 – 10 kaBP) yet we still lack a full understanding for the causes and consequences of these events, and have limited ability to successfully simulate them. Rapid cooling events (such as Heinrich events) have been the focus of many studies. However, ice-core records indicate that abrupt warming events (such as Dansgaard-Oeschger events), which may take place in a few decades or less, are more representative of the palaeo record. Furthermore, although a clear understanding is still lacking, recent modelling efforts suggest that atmospheric dynamics could be more important in shaping these abrupt events than previously thought. The talk will review the various oceanic and atmospheric mechanisms which have invoked to explain abrupt events. We will show that the atmosphere can play an important role in events but that the ocean (and sea ice) remain fundamentally important. Rapid cooling events are better simulated than warming event, with a particular challenge being to successfully simulate the rapidity of the warming.