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PALEOMAGNETIC CHRONOLOGY OF ARCTIC OCEAN SEDIMENT CORES; REVERSALS AND EXCURSIONS – THE CONUNDRUM

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Chronologies of Arctic Ocean sediment cores are mainly based on interpretation of paleomagnetic inclination records. The first paleomagnetic chronology assigned zones with negative inclinations to polarity reversals (Steuerwald et al, 1968) because geomagnetic excursions at that time were a novel observation and had only been reported from lavas. Arctic Ocean sedimentation rates were thus established to be in the mm/ka-range. A general recognition of excursions as real features of the geomagnetic field emerged more than three decades later, and presently there is still no consensus regarding the number (or name), duration and age of global synchronous excursions within the Brunhes Chron. Assigning inclination records to polarity reversals or excursions is an ambiguous exercise without independent age information. Based on independently derived time frames, 11 negative inclination intervals in core 96/12-1pc from the Lomonosov Ridge were assigned to reported excursions resulting in cm/ka deposition rates (Jakobsson et al, 2000). However, the detail of the "excursion stratigraphy" in this core is problematic. The absence of two (three?) excursions in the upper 2 m of core (base MIS5) was tentatively suggested to reflect pDRM-erasing in this sandy part of the core, while the short extent of the inferred pre-Brunhes Matuyama Chron remains unaccounted for. We have recently retrieved a relative paleointensity record from a parallel core (96/B6-1pc) for alternative dating control and assessment of stratigraphic completeness and uniformity of deposition. This study indicated the presence of a hiatus of the order of 200 ka (Løvlie et al 2002). We present a paleointensity record from core 96/12-1pc and will address identification of depositional hiatuses and their significance in understanding the paleomagnetic

record in Arctic Ocean cores.

Steuerwald B.A., Clark D.L. and Andrew J.A., 1968. Magnetic stratigraphy and faunal patterns in Arctic Ocean sediments. *Earth and Planetary Science Letters*, 5, 79–85.

Jakobsson M., Løvlie R., Al-Hanbali H., Arnold E., Backamn J. and Mörth M., 2000. Manganese and color cycles in Arctic Ocean sediments constrain Pleistocene chronology. *Geology* 28, 23–26.

Løvlie R., Jakobsson M. And Backman J., 2002. Paleointensity confirms cm-scale sedimentation rates and suggests intervals with non-uniform deposition on the Lomonosov Ridge, central Arctic Ocean. AGU Fall meeting 2002.