



Figure S1: Core parameters for Nielsen Basin cores PS128-44-1, PS128_42-1, PS128_41-1, and PS128_38-2 (Lithology, Water content wt. %, Shear strength kPa (dotted line), Grain size distribution wt. % G (Gravel), S (Sand), M (Mud), magnetic susceptibility SI^{-6} , TOC %, C:N (dotted line). Red numbers are calibrated foraminifera-derived radiocarbon ages (Stuiver and Reimer, 1998; Heaton et al., 2023). The dashed lines mark the facies boundaries.