

### **Description of Additional Supplementary Files**

**Supplementary Data 1:** Micropaleontological data, including absolute and relative abundances of each group. Average values and standard deviations of morphometric parameters, size, mass, and thickness. Average values and standard deviations of calcification indexes SN Thickness, kse and morphometric PIC/POC. Calculations of group-specific contributions to absolute and relative coccolithophore calcite. Parameterizations of growth rate based on morphometric parameters and environmental data