the GRAPE records from each hole were "stacked" to provide a statistically robust, less noisy estimate of sediment bulk density, whose continuity can be documented in detail. The composite records were used to develop both an initial stratigraphic framework as well as a high resolution chronostratigraphic framework post-cruise (Shackleton et al.). The resulting stacked GRAPE time series have extremely high temporal resolution for most of the late Neogene. The resulting continuous framework provides a common depth scale for all holes at each site, facilitating comparison of high resolution proxy data between holes.

UPPER HOLOCENE MARINE SKAGERRAK (NE - NORTH SEA) DEPOSITS: SEDIMENTOLOGIC INVESTIGATIONS REGARDING THE PALEOCLIMATE OF THE PAST 1,000 YEARS

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3 kastencores, 1 piston core and 4 box cores taken with RVs "Planet" (1991) and "Poseidon" (1980) from the southern flank of the Skagerrak have been analyzed for high-resolution granulometry, coarse terrigenous and biogenic components, TC, TOC and $CaCO_3$ contents. Stable isotope ($\delta^{13}C$, $\delta^{18}O$) measurements and age determinations by means of ^{210}Pb and ^{226}Ra were carried out (in cooperation with Erlenkeuser, ^{226}Ra-Laboratory, Kiel). Until now at least one of the cores (15535-1) can be subdivided into 3 facial units:

Facies IIb (<1680 - 1725 AD): This unit is characterized by the conditions of the Little Ice Age climate deterioration. High sedimentation rates of more than 45 mm/a at the coring site are caused by increased deposition of material rich in organic content between 8 and 45 µm. The $\delta^{18}O$ curves indicate cooler temperatures than today up to ca. 1706 AD, followed by an interval of rapid warming until ca. 1725 AD.

Facies IIa (ca. 1725 - 1830 AD): This section is interpreted as the transitional stage between the Little Ice Age and the Modern Optimum. Several parameters point to a major environmental change: TOC values and suspension deposits decrease while bedload deposits increase accordingly, indicating higher current velocities and/or generally lower sediment load. $\delta^{18}O$ values point at a very slight but constant cooling trend until ca. 1830 to 1860 AD. Facies IIa seems to end with a short term influx of an oxygen-rich bottom water mass carrying less sediment at about 1840 AD.

Facies I (ca. 1840 - ca. 1955 AD): After the 1840 AD event, today´s conditions (Modern Optimum) were established at the location. The $\delta^{18}O$ values indicate a slight warming trend during the 1840 to 1955 AD interval. According to distinct grain-size ratios and the shape of the TOC curve it can be concluded that bottom current velocities again slightly decreased. Although relevant parameters are subject to fluctuations, balanced conditions can be supposed. In the course of the upper 70 cm (ca. 1900 AD - present) it seems that man-made effects, such as pollution of water and atmosphere strongly affect the benthic foraminifera fauna. The $\delta^{18}O$ curves show a clear trend to lower values, and the benthic foraminifer *Bolivina* cf. *B. robusta* increases markedly while most of the other species decrease in number.