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Sea-level related resedimentation processes on the northern slope of Little Bahama Bank

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Sediment variations observed in a 26 m long core MD992202 will be presented, which was retrieved from a sediment wedge on the northern slope of Little Bahama Bank in July 1999.

The sediment composition was determined by grain-size analysis, X-ray diffraction, LECO analysis, oxygen isotope measurements and radiocarbon age determinations. The age model of core MD992202 is based on 323 stable oxygen isotope values and 6 AMS ^{14}C-measurements.

An excellent correlation between the oxygen isotope curves of core MD992202 and the GRIP-ice core from Greenland enabled a precise subdivision into the marine isotope stages MIS 1 to 6 allowing the detailed reconstruction of the depositional history. Following the GRIP time scale, the sediments of core MD992202 comprise ages between 880 yr BP at the top and approximately 160,000 yr BP at the base.

The sediments have a nearly homogeneous appearance and consist of (A) periplatform ooze (fine-grained particles of shallow-water and pelagic origin) with moderate variations in carbonate content, carbonate mineralogy and grain-sizes, and (B) coarser intervals with cemented debris, which consists of massive, poorly sorted, mud- or clast-supported sediments with an increased high-magnesium calcite content. Latter deposits occur mainly at the transitions from glacial to interglacial and interglacial to glacial periods, respectively, and were interpreted as redeposition events. Hence, a direct link between sediment properties (changes in mineralogy, grain-size distribution, variations in organic contents) and sea-level fluctuations could be established.

The sedimentation patterns observed in core MD992202 are strongly controlled by eustatic, Late Quaternary sea-level fluctuations that caused large-scale redeposition of sediments through changes in hydrostatic pressure during transgressional phases and lowering of the wave base during regressional phases.