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## **High-Resolution Sedimentologic Variations in a Holocene Sedimentary Wedge (Leeward Margin, Great Bahama Bank)**

We investigated a 38m long sediment core taken from the Holocene sedimentary wedge on the leeward margin of Great Bahama Bank. A high - resolution record of carbonate cycles could be established. Sedimentation rates range from 325 to 1380cm/kyr. These variations show that the concept of a more or less uniform Holocene with respect to carbonate production, sedimentation and preservation pattern needs re-evaluation. The following parameters were measured: fine fraction 34-98wt% of the bulk sediment; carbonate content, 96-100wt%; most of which is aragonite (83-92wt%); HMC, 2-9wt%; LMC, 0.5-4wt%.

Singular Spectrum Analysis of the aragonite carbonate phase showed two different trends and four oscillatory signals with distinct frequencies confirmed by Wavelet Power Spectrum. The two long-term trends extend over a time period of the last 7200 years, and 800-1300 years. In addition, a series of other statistically relevant quasi-periodic signals were found. The precise paleoclimatic processes causing these cyclic variations form the topic of ongoing research.

SEM analysis showed that sediments in the upper part of the wedge contain abundant aragonite-needle clusters (spherulites, 30-50µm in size). Deeper in core these clusters disappear and only single 3 to 5µm sized aragonite needles were observed. The elongated, bladed and pointed shape of the individual crystals with poorly developed crystal faces did not change with depth. SEM also shows the fabric of the sediments, which are exported from the shallow-water realm to the slope. In addition, variations in spherulitic input, a combination of mineralogy and organic matter, might predestine the future diagenetic path.