



Spatial and seasonal variation in Saharan dust grain size distribution

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In order to interpret the grain size distribution of aeolian deposits in sediment core records with respect to paleoenvironmental conditions it is necessary to understand the transport and deposition of “modern” dust. The particle size of aeolian deposits is influenced by many parameters such as the source-to-sink distance, altitude at which the particles have been transported, wind strength and other environmental conditions in the sources of the dust. Here we present grain-size distributions of Saharan dust that was collected in two marine sediment traps, which are situated off Cape Blanc, ~100 km and ~400 km offshore the Mauritanian coast. In the traps, dust is collected that is sinking through the water column to the ocean floor in 3600 m and 1300 m water depth. The temporal resolution of the traps is 2-3 weeks and we focus on a time period of 3 years (2003-2006). The grain size data shows a seasonal trend with generally coarser modal grain sizes during the summer months. Coarse modal grain sizes can be attributed to rain or dust events. During the winter months the modal grain sizes exhibit a very good correlation ($R=0,8$ to $0,9$) with the strength of the trade winds at 1000 mb and 900 mb. The modal grain sizes are generally coarser at the mooring site closer to the coast due to a shorter source-to-sink distance.