



Monitoring Saharan dust from source to sink: from Iwik [Mauritania] to Statia [Caribbean]

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The particle-size distribution and composition of mineral dust is often used as a tool to reconstruct palaeo-environmental conditions in the source(s) of the dust. In on-land (loess), lacustrine, and marine archives, the size of dust deposits is considered a proxy for paleo-wind intensity. However, next to wind strength, the particle size of aeolian deposits is also influenced by various other parameters such as source-to-sink distance, altitude at which the particles have been transported, and various environmental conditions in the sources of the dust. To verify if we can quantify a relationship between the size and composition of mineral dust particles and prevailing environmental conditions, we study "modern" dust. Within three ongoing projects, funded by the Dutch NWO, German DFG, and the ERC, we are studying dust collected on land in Mauritania (Iwik, in the Parc National de Banc d'Arguin, sampling on a monthly resolution) with an array of marine sediment-traps (five moorings at 12°N across the Atlantic Ocean with two sediment traps each between 23° and 57°W, sampling on a 2-weekly resolution) as well as automated mineral-dust collection at sea (on dust-collecting buoys at 12°N/38°W and 12°N/49°W, sampling on a 2-weekly resolution), and finally with a high-volume dust collector on St Eustatius (17°N/63°W, sampling on a 2-weekly resolution). Here we compare initial results of the particle-size distributions of the "minimally-disturbed" fraction of the on-land dust collectors with the terrigenous sediment fraction from the sediment traps, and discuss temporal and spatial trends.