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Relationships between Aeolian Dust Input, Upwelling, Primary Productivity and Oxygen Conditions off NW Africa during the Last Deglaciation: Inferences from Benthic Foraminifera, Diatoms and Terrigenous Sediments

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The Cape Blanc region off Mauritania, NW Africa, forms an important site for investigating paleoproductivity responses to past oceanographic changes, due to its location under the intersection of several characteristic water masses. Today it sits at the boundary between cool, temperate, subpolar water masses in the north and warm, tropical water masses to the south and west. In addition, the region is characterised by extensive, year-round upwelling and high terrigenous input, leading to high primary productivity. Slight changes in the direction of the trade winds and in the location of the boundary between the water masses can potentially have a large impact on the productivity of the region. In order to study productivity changes during deglaciation events, we have investigated the relationship of a range of variables such as aeolian input, species composition of diatoms and benthic foraminifera, stable oxygen and carbon isotopes of planktonic and benthic foraminifera. Here we present the first results of the benthic foraminiferal assemblage studies, foremost from the Younger Dryas and the Bølling/Allerød, and compare with other variables. The grain-size record suggests that during the Younger Dryas the terrestrial conditions were drier and windier, resulting in a higher transport of aeolian dust to the Cape Blanc offshore area. The amplified fertilization and/or more intense upwelling resulted in elevated primary productivity as indicated by the very high concentration of diatoms during these times. The increased primary production resulted in low-oxygen conditions at the sea-floor, and the benthic foraminiferal community could not benefit from the increased food supply.

This is illustrated by the low concentration of benthic foraminifera and the complete dominance of the benthic foraminifera *Bulimina exilis*. This stands in sharp contrast to the conditions during the Bølling/Allerød and the rest of the Holocene.