



## **Sourcing and quantifying aeolian dust in the Quaternary sedimentary record, Southern Ocean**

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The Southern Ocean is a high nutrient, low chlorophyll (HNLC) region of the world oceans; productivity and subsequent drawdown of carbon dioxide from the atmosphere can be enhanced with increases in bioavailable iron supply. The past record of terrestrial dust flux to the Southern Ocean thus carries potential significance with regard to whether this region was a significant glacial CO<sub>2</sub> sink due to enhanced biological productivity (through iron fertilisation by increased glacial dust fluxes). Debate exists regarding identification of an aeolian dust component in Southern Ocean sediments. Supply of detrital minerals to the Southern Ocean has dominantly been attributed to glacial and/or bottom water processes and transport. Here, prompted by the close resemblance between the down-core magnetic susceptibility of Scotia Sea sediments and the dust flux record in Antarctic ice cores, we examine if there is a glacial/interglacial signal of changes in terrestrial dust flux in sediment cores from the Southern Ocean, based on analyses of sediment magnetic mineralogy and magnetic grain size compared explicitly with potential source materials from S. America.