

Abstract Preview - Step 3/4

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Title: New results from the mineral dust record of the TALDICE ice core

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Text: Thanks to ice cores the history of the dust cycle and its tight connections with the climatic system were reconstructed. Here we present an update of the current research on the atmospheric dust content of the TALDICE ice core (Ross Sea sector, East Antarctica). Thanks to the application of different techniques it was possible to characterize the mineral particles deposited in the last 150 kyr. New constraints on provenance during the last climatic cycle will be given, showing that peripheral and inner sites, well coupled during glacial stages, present differences in relation to the different atmospheric evolution occurred during the last climatic transition. In addition the analysis of the elemental composition of dust allowed preparing a first and preliminary inventory of the elemental depositional fluxes in Antarctica. This is the first step to define a robust reference to assess the current impact of human activities on Antarctic glaciochemistry. But important results were also achieved looking at the deep disturbed part of TALDICE. For the first time significant weathering affecting particles entrapped in deep ice was appreciated and quantified. Chemical and physical processes alter the composition and aggregation state of dust below a critical depth. Future projects focused on the retrieval of very ancient ice, will need to take into account such phenomena.

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