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Sea Salt and Mineral Dust in Ion Records from the new EDML Ice Core: Sources vs. Transport

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Within the EPICA program two deep ice cores have been drilled. The core at Dome C in the Indian Ocean sector of Antarctica has been completed in the austral season 2004/05 and promises undisturbed ice core records over the last 900,000 years. The second ice core is drilled at Kohnen station in Dronning Maud Land (EDML) and represents the first deep ice core drilled on the Antarctic plateau in the Atlantic sector of the Southern Ocean. With a snow accumulation rate about three times higher than at Dome C it provides higher resolution records down to Marine Isotope Stage (MIS) 4 and should be especially suited to study the coupling of the northern and southern hemisphere via the bipolar seesaw. So far this core has been drilled and analyzed continuously for aerosol chemistry to a depth of 2564 m covering approximately the last 200,000 years.

First results on climate variability in the Atlantic sector of the Southern Ocean as archived in the new EDML sodium and calcium records will be presented. They will be discussed in terms of the bipolar seesaw in temperature records as well as potential changes in atmospheric circulation and aerosol production. The results will be contrasted to data from the Dome C record to study their representativeness in terms of Southern Ocean climate and to identify regional differences in climate variability.