

**FEATURES OF SPECTRAL ANALYSIS OF SELECTED CHEMICAL COMPOUNDS BEFORE AND AFTER MARINE ISOTOPE STAGE 11 (MIS 11- 430 KYR BP) FROM EPICA-DOME C ICE CORE.**

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A spectral analysis was carried out on the high-resolution profiles of selected chemical compound determined along the entire EPICA-DC ice cores (EDC96 and EDC99), drilled at Dome C (East Antarctica - 75° 06' S; 123° 23' E; 3233 m a.s.l.) down to the bedrock (about 3270 m depth - 2004/05 Antarctic campaign). The cumulative ice-core record covers the last 9 glacial cycles (about 900 kyr) and is the first able to give a significant number of glacial cycles before and after the MIS 11, occurred around 430 kyr ago. This stage is considered as a boundary beyond which the glacial period dominates the 100-kyr glacial-Interglacial oscillation. From Mid-Pleistocene Revolution (MPR - around 1 million year BP) to mid-Brunhes Event (roughly corresponding to the MIS12-MIS 11 transition), a gradual broadening of the glacial periods, with respect to the warm interglacial age, occurred up to cover approximately 90% of the time in the last 4 climate cycles. In order to confirm, with higher temporal resolution, the trend previously obtained by marine sediment cores, we performed a spectral analysis on some chemical compounds, used as markers of climate and environmental changes, by using a 100-yr time window. That temporal range comes from a smoothing of more resolved datasets and not from a mathematical re-sampling procedure. Here, we focused on the spectral analysis of chloride, nitrate and sulphate stratigraphies, discussing their significant frequencies as a function of the orbital forcings. Surprisingly, the 41-kyr periodicity of all these aerosol components was revealed to be still less significant with respect to the 100-kyr period, unlike the benthonic d18O periodicity in the sediment cores. The main difference between spectral analysis applied to data sets before or after MIS11 is a significant value of the spectral density for a 50-kyr period, appearing for the glacial cycles older than 430 kyr. This period, though statistically significant, is weaker than the 41-kyr and, especially, the 100-kyr periodicity and could be due to the similar times spent by the Earth climate system on glacial and interglacial conditions. A combination of orbital forcings able to explain the 50-kyr period has to be investigated.