# Die Expeditionen ANTARKTIS XVI/1-2 des Forschungsschiffes POLARSTERN 1998/1999

# The Expeditions ANTARKTIS XVI/1-2 of the Research Vessel POLARSTERN in 1998/1999

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## 1.3 ATMOSPHERIC CHEMISTRY

### 1.3.1 Sampling in the air and surface water of the North- and South Atlantic Ocean for the determination of organohalogen compounds and alkyl nitrates

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Within the scope of the work of the Department of Analytical and Environmental Chemistry of the University of Ulm (Germany) on global environmental chemistry including the atmospheric chemistry of organic compounds, we took samples in the lower troposphere and in the surface water of the Atlantic Ocean.

Persistent substances of environmental concern occur not only in the areas of production and application, but are widespread over the entire globe. The understanding of the processes of transport, distribution and reactions, of these compounds in the environment which influence their global distribution is of special importance. The determination of the contents of man-made chemicals (xenobiotics) and further indicator molecules in representative areas of the environment as a function of place and time and the interpretation of the results with consideration of the geophysical processes such as air and water currents, allow general conclusions or the global distribution behaviour of xenobiotics.

The north-south-north transfers of POLARSTERN offer unique sampling possibilities for the characterization of the differences between both hemispheres. The results are indispensable to explain sources and sinks of organic trace compounds. The exchange of substances between atmosphere and water surface is of special interest.

During ANT XVI/1 large volume air samples (250-750 $m^3$), small volume air samples (up to 100 l) and small volume water samples (20 ml) were taken. These will be examined at the University of Ulm for organohalogen compounds (halogenated benzenes, anisoles, benzonitriles and benzaldehydes, halogenated $C_1$ and $C_2$ compounds) as well as short- and long-chain mono alkyl nitrates and multi-functional alkyl nitrates.