



## **Soil water content as the dominant parameter for the uptake of carbonyl sulphide by soils**

**H. Van Diest**, J. Kesselmeier

Max Planck Institute for Chemistry, Mainz, Germany (vandiess@mpch-mainz.mpg.de / Fax: ++49 (0)6131-305487)

Carbonyl sulphide (COS) is an important atmospheric trace gas involved in stratospheric aerosol production and the ozone cycle. Sinks and sources seem to be well balanced but obviously poorly understood. In addition to the vegetation, soils are now regarded as an important sink. However, our knowledge is based on only few results, in case of parameterization only on one soil type. Soil samples were investigated for their exchange of COS with the atmosphere under controlled ambient conditions. The measurements were performed with two dynamic enclosures (cuvettes), one enclosing the soil sample and the other serving as an empty reference. The results were obtained in high time resolution with a fully automatic Sulphur Gas Analyzer (SUGAR) performing an analysis every 15 minutes. The exchange was investigated for different agriculture soils of Asia and Europe to be parameterized in relation to the ambient COS concentration, temperature and soil water content. Based on our data exhibiting a clear and sharp optimum for COS-uptake, we discuss the soil water content as the most dominant biological parameter to characterize the exchange of COS between soil and the atmosphere.