

# Long Term Study of Wet and Dry Deposition of Sulphur over Grassland in Eastern Germany

A guest poster to subproject

BIOSPHERE-ATMOSPHERE EXCHANGE AND ANTHROPOGENIC EMISSIONS

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In 1992 the research station Melpitz (meadow, 86 m a.s.l.) about 40 km northeast of Leipzig has been established to observe the rehabilitation of the atmosphere above East Germany after the reunion in 1990. Sulphur concentrations in air as sulphur dioxide and in precipitation as sulphate were determined from May 1992 (October 1991), respectively, to December 1996. The dry deposition of SO<sub>2</sub> was estimated by using the micrometeorological gradient method (flux and deposition velocity of SO<sub>2</sub>). The wet deposition of sulphate was determined using the concentration of sulphate in rain water and precipitation volume (wet only sampler). The total sulphur deposition was calculated from the sum of wet and dry deposition (Brüggemann and Spindler, 1997).

In this five year period the concentration of sulphur in precipitation decreased about 55 % and in air about 70 %, caused by the large decrease of SO<sub>2</sub> emissions through economic changes in East Germany. The wet deposition decreased over the period by about 50 %, while the dry deposition is varying. No significant trend in the total sulphur deposition was observed. Possible reasons for this appearance could be the varying deposition velocity from 0.1 cm s<sup>-1</sup> to 0.4 cm s<sup>-1</sup> (monthly means), caused through the change of the soil ('chemical background') and plant surfaces (canopy resistance), and synergistically effects of co-deposition (e.g. increased mean ammonia concentration).

## References

Brüggemann, E. and Spindler, G.; Wet and dry deposition of sulphur at the site Melpitz in East Germany.  
*Water, Air, and Soil Pollut.* (accepted 1997).

