



Sensitivity analyses of ozone deposition over different surfaces

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The actual destructive effect of ozone can be described by flux-based indices, which are controlled by ozone concentration and deposition velocity via parameterization of different conductances.

The main aim of this study is the estimation of the ozone load and investigation of sensitivity of deposition model on input parameters. Calculations were performed with a sophisticated deposition module of TREX Transport–Exchange model. The deposition velocity was estimated for three summer periods (1998, 1999 and 2007) on a regular grid over Hungary. The temporal and spatial differences were analysed. The effects of various meteorological data and vegetation parameters (for example: temperature, relative humidity, leaf area index, soil moisture etc.) on the ozone deposition velocity were investigated with the local sensitivity analysis over nine different surface types.

Besides that, the effect of various stress functions was also analysed. The soil moisture is one of the main influential parameter in deposition models. However, the estimation of this parameter is uncertain in many cases. Therefore, instead of soil moisture stress function a leaf-water-potential stress function was used to describe this effect on the vegetation. In this study the comparison of these stress functions is also presented.