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What is the contribution of fog to sulphur deposition? Estimation based on high-resolution model for the territory of the CR.

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The precipitation chemistry is monitored over the Czech territory in the long run and maps of atmospheric deposition are regularly published. The contribution of the fog deposition has so far been neglected, however. The chemistry of fog is measured only on a very limited number of sites and so the data which are at the disposal cannot be used for estimation of the fog contribution to deposition of ambient air pollutants. Nevertheless it is widely accepted that the fog contribution is likely to account for substantial portion of the total atmospheric deposition both regarding its quantity and quality, particularly in elevated sites.

We present the estimation of contribution of fog to total atmospheric sulphur deposition over the territory of the CR, based on differences in two deposition models for forested area: 1. the throughfall sulphur deposition and 2. the sulphur deposition calculated from dry S deposition plus wet-only S deposition. The S deposition maps in 1x1km resolution and trends of S deposited in fog over the last 10 years are presented and the dependence of the fog contribution to sulphur deposition on altitude is calculated.

The preliminary results indicate that the contribution of fog to sulphur deposition varies in a wide range. For 2008 the fog contribution to sulphur deposition over the Czech forested area was up to 70 % depending on the altitude.