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The off-site effects of dust from agricultural origin

Katalin Csányi and Andrea Farsang

University of Szeged, Faculty of Science and Informatics, Department of Physical Geography and Geoinformatics, Hungary (katus.csanyi@gmail.com)

It is also important to examine the spatial and temporal changes of the harmful and pollutant content of the topsoils. Not only for infiltration into surface waters, but also for people who live in settlements where intensive farming takes place. The delicate soil particles transported by the wind can contribute to the dust loads of settlements in towns and villages. The aim of the research was to evaluate the potential risks of agricultural dusts with using portable wind tunnel.

The wind tunnel experiments were conducted on a Chernozem soil in summer of 2017 near Szeged. Before the experiment, a portion of the sample area was treated with chlorpyrifos. A control area was also selected. We examined the topsoils (pH (H_2O), $CaCO_3$, soil texture, OM %, total salt content, heavy metal content (Cu, Zn, Mn, Co, Pb, Cr, Ni) and the collected dust samples (chlorpyrifos, heavy metals). In the case of chlorpyrifos, measurements are made using GC-MS. The tests were carried out in accordance with the current Hungarian Standards. We quantified the amount of soil material transported (916 g/m2)

The enrichment ratios (ER) as a quotient of the concentration measured in the topsoil with that in the sediment were calculated: ER(element)=Element concentration(sedim.) / Element concentration(soil). Our poster shows the enrichment ratios of heavy metals and clorpyrifos in the transported sediment.Knowing the transported soil material we can calculate the load, how much pollutant moves, comes out of the arable land per wind events.