Geophysical Research Abstracts, Vol. 8, 09764, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09764

Effect of forest fire on soil properties and vegetation of dune sands (SW Slovakia)

P. Dlapa (1), I. Simkovic (1) and V. Simonovic (2)

(1) Department of Soil Science, Comenius University, Mlynska dolina, 842 15 Bratislava, Slovakia, (2) Institute of Landscape Ecology, Slovak Academy of Sciences, Stefanikova 3, 814 99 Bratislava, Slovakia (dlapa@fns.uniba.sk)

The work is aimed to the effects of forest fires on dune sandy soils and vegetation of SW Slovakia. Wildfires are of less importance in Central Europe in comparison with the most affected regions world-wide. But number of registered forest fires in Slovakia is surprisingly high and according to existing records during 1998-2004 there were from 155 to 1056 forest fires per year. Field study of the effect of forest wildfire as well as laboratory simulations under controlled conditions were performed. One year after fire a distinct changes in soil chemical and physical properties were observed as well as in vegetation cover. The forest fire caused increase in soil pH, content of available nutrients and decrease in WDPT, which was observed in the surface soil horizon as direct effect of thermal decomposition of soil organic matter. Moreover infiltration experiments indicated locally a marked decrease in the rates of infiltration. Laboratory experiments with heating at 50 - 300°C were used to simulate the heating effect that accompanies the forest fire on soil water repellency and soil chemical properties. Threshold temperature values were determined at which soil properties change as a consequence of thermal attack.