Possibilities of the spatial extension of soil data collected within the Hungarian Soil Information and Monitoring System

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The Hungarian Soil Information and Monitoring System (SIMS) is a national monitoring system, with about 1,200 observation sites: 2/3 of points on agricultural land, 1/6 of points in forests and 1/6 of points in environmentally threatened 'hot spot' regions. The 'representative' sampling sites were selected by regional soil experts on the basis of all available soil information (profile descriptions, results of laboratory analysis, long-term field observations, maps, etc.) and on their local experiences. The forest and the 'hot spot' sampling sites were selected in cooperation with regional forest land-site experts, environmentalists and experts of the given environmental hazards. The sampling period is 15 September-15 October each year. The first sampling was carried out in 1992. In the monitoring system, some soil parameters are measured every year, some others every 3 years or every 6 years, depending on their stability. Samples are collected; data are generated (measured, described) stored and managed by the Plant and Soil Conservation Services. Thematically very wide range of soil characteristics are covered by SIMS thus providing a unique opportunity for detailed monitoring of the state of Hungarian soils and follow up of major trends in their conditions.

Nevertheless SIMS locations were definitely not selected to be spatial representative. As a consequence sampling was not designed for spatial extension of spatial information collected at SIMS points. Sampling conception was rather based on thematic and organizational issues. Sets of potential SIMS locations were first distributed among soil survey stations on regional level. That is a station received a quantity of sampling points (about 50 per county) which were then attributed to (more or less) well known locations over their territory of authenticity keeping in mind that the characteristic soil types should be represented according to their occurrence within this area. It means if a specific soil type occurs on about 3-5% of the territory, one profile of this type should be assigned. But the location of this profile was determined to be one of the probable sites with the same type with good monitoring conditions (easy to access, proximity to roads and to the station etc) rather than to be spatially representative

As a consequence SIMS provides vast, suitable information on temporal changes in soil conditions while spatial features of this information are rather unsatisfactory. It should be regionalized by adequate spatial extension of the collected soil data thus providing primary, secondary or functional soil maps as well as spatial inventories on the state of national soil resources. In our paper we outline some possibilities, which can solve this burning question.