



Reambulation of Kreybig soil survey and 1:25,000 scale map series, exploiting their information content

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Soil surveys, soil maps, spatial soil information systems, soil geographic databases, are all designed for fulfilling the requirements and demands of society, which increased dramatically in the last decades. Traditional soil survey is time consuming and expensive, new conventional surveys in the near future are very unlike, consequently methods exploiting existing information are becoming increasingly important. In the recent digital era spatial soil information systems are playing a more and more important role in this context.

A great amount of soil information is available in Hungary due to former agrogeological surveys. The collected data are available in different scales and generally related to maps. However, similarly to the great majority of the world, large scale, comprehensive new surveys cannot be expected in the immediate future. As primary importance, GIS adaptation and digital reambulation of the results originating from the practical 1:25,000 scale soil-mapping programme hallmarked by Kreybig is under construction. There is much more utilizable information originating from this survey, than it was processed traditionally and published on the map series and in reports, and what is provided by simply archiving them digitally. The surplus information should be exploited by the new technologies provided by GIS and DSM. Furthermore a true SSIS can and should reach higher levels of digital processing.

Integration of Digital Kreybig Soil Information System (DKSIS) within appropriate spatial data infrastructure (SDI) and its updating with efficient field correlation make an inherent refinement and upgrading of the system possible as well as the estimation of its reliability. As a result, the raw information processed using appropriate methods together with complementary spatial, digital, environmental data, a higher level, more accurate and consequently more reliable system could be developed.

DKSIS provides various opportunities for increasing its spatial and thematic accuracy on soil properties. Spatial refinement of mapping units is mainly based on DSM tools. Contours of soil patches can be reshaped using more detailed/recent/accurate/reliable indicator environmental covariables (DEM derived terrain features, remotely sensed spatial information, ancillary data collected with non-invasive soil sensors etc.). New soil patches can be delineated integrating Kreybig profile methodology and SDI. Soil attribute information could be also updated with recent fieldwork and sampling which is supported by field GIS tools. This latter however can also be used for spatial refinement taking into consideration field experiences. In our poster we are going to present GIS based methods developed for the spatial and thematic refinement, improvement of Digital Kreybig Soil Information System.

Implication of new sampling data collected at revisited sites makes the comparison of archived (and so far stored) and newly surveyed data possible. Thus changes in soil properties can be identified. This in one hand should be recorded in the database thus updating it. On the other hand, trends can be identified in soil characteristics and functions, (degradation) processes can be realized and/or (even) forecasted. It can serve reference to the study of anthropogenic effects occurring as landuse changes and/or land degradation. Joint management and application of multi-temporal spatial soil information within an appropriate relational database management system (RDBMS) and GIS environment makes DKSIS a spatio-temporal soil information system.