

THE DIGITAL CARTOGRAPHIC BLOCK OF THE SOIL GEOGRAPHIC DATABASE OF RUSSIA

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At present, one of the challenges for Russian soil scientists is the creation of the national Soil Geographic Database (SGDB). A computer-based inventory of extensive soil information linked with digitized soil maps and the use of modern GIS technologies will make it possible to create this database and to apply it for soil monitoring purposes and for the development of a unified system of soil management, certification, and conservation. (Shoba et al., 2008).

The main blocks of the SGDB are the Geographic Database and the Specialized Attribute Database.

The cartographic base of the SGDB—the Geographic Information Soil Database—consists of two main digitized coverages in the MapInfo format (MapInfo Professional, version 9.5 and earlier versions). The base map scale is 1:2.5 M. This scale is selected, because this is the largest scale of digitized soil map for the entire country developed on the basis of a unified legend and common methodological principles.

COVERAGE 1 is a digital map uniting the Soil Map of the Russian Federation on a scale of 1: 2.5 M edited by V.M. Fridland (1988) (corrected digital version, 2007) and the Map of Soil-Ecological Zoning of Russia on the same scale edited by G.V. Dobrovol'skii and I.S. Urusevskaya (2007).

The legend to the digitized map includes 200 names of individual soil units, 70 names of different soil complexes, 5 names for nonsoil formations, and 30 legend units for textural classes and petrographic composition (for hard rocks) of soil parent materials. The digital version of the Map of Soil-Ecological Zoning contains information about the soil cover and the factors of its differentiation at different levels. Thus, at the level of soil districts, information about soils and their texture is given; at the level of soil regions, information about the genetic types of relief, parent materials, land use pattern, and soil quality classes is provided. For larger typological units—soil provinces—parameters of atmospheric and soil regimes are given for plain territories and the patterns of the vertical soil zonality are indicated for mountainous territories.

The number of polygons on the integral map reaches 32 605. Each polygon contains information from both maps.

COVERAGE 2 is the digital map of the administrative division of Russia on a scale of 1 : 1 M. It includes 2394 polygons. It contains data of the Federal Statistical Survey of land resources for January 1, 2006, and various data of the Federal State Statistics Service.

In addition to two main digitized coverages the Geographic Information Soil Database includes supplementary different-scaled digital thematic maps and schematic maps for the entire territory and for separate regions of Russia. Currently, the work on inclusion of characteristics of the relief and on creation of digital models of soil temperature regimes (with long-term soil temperature data recorded at 680 weather stations) is being performed.

Information on the SGDB is available from the website <http://db.soil.msu.ru>.

REFERENCES

Shoba, S.A., Stolbovoi, V.S., Alyabina, I.O., and Molchanov, E.N. 2008. Soil-Geographic Database of Russia. *Eur. Soil Sci.* 41(9): 1029-1036.