



## **Organic carbon in Russian soils: A specified spatially explicit assessment**

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There are several estimations of soil organic carbon of Russia (Orlov et al., 1996; Rozhkov et al., 1996; Alexeyev, Birdsey, 1998; Nilsson et al., 2000; Stolbovoi, 2002; Chestnyh et al., 2004; etc.) which presented a large range of reported stock of carbon, particularly for individual land classes (forest, wetland etc.). In order to provide the most reliable estimate, we developed an aggregated model which attempts to apply advantages of methods used in the above publications. The approach is based on overlay of soil information: Russian Soil map 1:2.5M (Fridland, 1988), database of typical soil profiles and detailed hybrid land use / land cover dataset (Schepaschenko et al., 2010). The land cover dataset contains the most recent and special explicit land use information with the resolution of 1 km. Updated and corrected database on soil profiles and number of modeling clarifications have been introduced (corrections for the method used for empirical assessment of soil carbon, land use type, regional and vegetation specifics). The method is realized in a form of a dynamic system, which is able to assimilate any new information on soil and land use.

The results are represented by soil organic carbon map, which is parameterized by each 1 km pixel. It contains two layers: onground organic layer (OL) and 1 meter of soil. Total amount of organic carbon accumulated in Russian soil assessed as 323 Pg C. The most dynamic part – onground organic layer comprises 16 Pg C. The average carbon content is 19.5 kg C m<sup>-2</sup> (0.94 in the OL). Forest soils has less average carbon content (18.2 kg C m<sup>-2</sup>), but higher OL (1.13 kg C m<sup>-2</sup>). More information is available here: <http://www.iiasa.ac.at/Research/FOR/hlc/>