



A new digital soil map of the world

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Knowledge of the world's soil resources is fragmented and dated. The modelling community, farmers, land users, and policy and decision makers need accurate, up-to-date and spatially referenced soil information. This need coincides with major advances in technologies for the prediction of soil properties.

GlobalSoilMap.net is a new global project that aims to make a new digital soil map. Alex McBratney from the University of Sydney in Australia enthuses about the new map, "The global digital soil map will use advances in technologies including remote sensing, data mining and spatial databases, and our improved scientific understanding of soil, for accurate prediction and sampling of soil properties. The new maps will replace the beautiful coloured paper soil maps developed in the last century which depicted soil types and which were largely qualitative and somewhat fixed depictions of soil distribution. Digital soil maps, with their infinity of shades and colours and ways of presentation are essentially spatial information systems of soil properties key to the soil's sustainable productivity and ecosystem function. Digital soil maps are quantitative and dynamic and are in tune with the needs of scientists, policy makers and government officials. In a sense their use is only limited by the imagination of potential users. It is truly thrilling to be part of such a global enterprise."

Work has started in sub-Saharan Africa, through an \$18 million grant awarded to the International Centre for Tropical Agriculture (CIAT) from the Bill & Melinda Gates Foundation and the Alliance for a Green Revolution in Africa (AGRA) to create the Africa Soil Information Service (AfSIS). "The best science and technology available must be deployed immediately if Africa's soils are to be managed in a sustainable manner. Let there be no mistake about the significance of this wonderful project," said Kofi Annan, chairman of AGRA and former UN Secretary-General, in a recent statement. "This initiative will provide farmers, policy makers, and

scientists crucial information on how to address declining soil fertility in regions such as sub-Saharan Africa,” explains Pedro Sanchez, director of AfSIS. “Soil mapping can help with that because it is one of the pillars to the challenge of sustainable development,” according to Jeffrey Sachs, director of the Earth Institute at Columbia University (USA) and special advisor to the UN Secretary-General.

The map will have many uses in different parts of the world. Neil McKenzie, the Chief Land and Water of CSIRO in Australia states that: “In Oceania, reliable soil information is needed to assess and improve the efficiency of rain-fed and irrigated agriculture. The challenge of food security and human nutrition is a major issue and there is an urgent need to minimise exploitative land uses and soil degradation (especially through erosion and acidification). The region is very vulnerable to climate change and soil information is essential for planning major shifts in land-use, for example, in southern Australia where water scarcity is already a problem. As with other parts of the world, the best soils for biosequestration of carbon have to be located.”

The *GlobalSoilMap.net* project will foster collaboration between institutions in Canada, Mexico and the USA to produce soil property data that is trans-national in nature, according to Jon Hempel, Co-Director-National Geospatial Development Center of the National Resource Conservation Service in the USA. Jon Hempel: “Legacy and heritage soil survey data holdings across North America that have been produced at different scales and under different taxonomic systems will be harmonized into a common, consistent and geographically contiguous dataset of soil properties. It will allow scientists and officials to more easily make application of the data for many interpretive uses across the North American continent.”


The *GlobalSoilMap.net* consortium, which is led by ISRIC - World Soil Information (Wageningen, Netherlands), includes the Joint Research Centre of the European Commission (Ispra, Italy), CSIRO (Canberra, Australia), the University of Sydney (Sydney, Australia), Institute of Soil Science of the Chinese Academy of Sciences (Nanjing, China), the Earth Institute at Columbia University (New York, USA), the US Department of Agriculture - Natural Resources Conservation Service (Morgantown, USA), IRD (Montpellier, France), the Brazilian Agricultural Research Corporation (Embrapa, Rio de Janeiro) and CIAT-TSBF (Nairobi, Kenya).

www.globalsoilmap.net

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