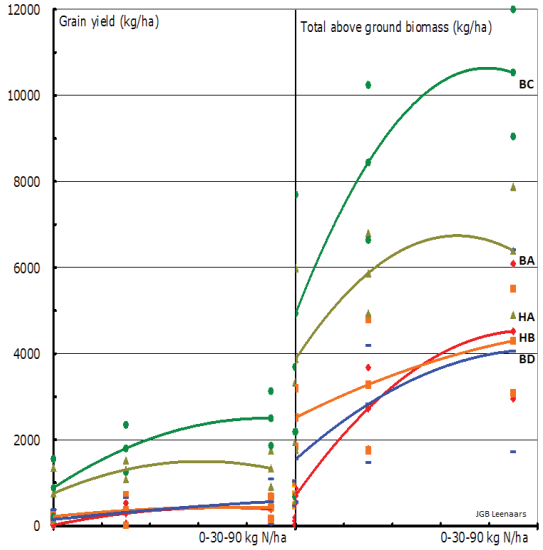
Africa Soil Profiles Database

ISRIC World Soil Information

Soil data are at the basis of soil research needed to inform the debate about enriching soils, as key for improving food security in Africa. ISRIC – World Soil Information has released the first version of the Africa Soil Profiles Database as a contribution to the production of high-resolution soil property maps for Sub Saharan Africa. Such maps convey spatially explicit information to policy makers and land users and support management decisions to enrich the soil and improve crop production. This research is being carried out in the framework of the Africa Soil Information Service (AfSIS) project, funded by the Bill and Melinda Gates Foundation (BMGF) and the Africa Green Revolution Alliance (AGRA).

Africa soil data to support the Africa Green Revolution

Crop response to management is explained and modelled with soil data. Soil data and derived soil maps permit to derive and map the likeliness of crop response to management options.

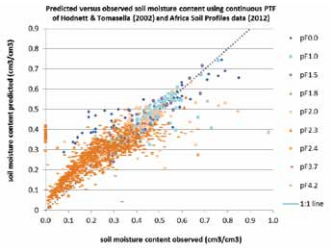


Crop response in five soils

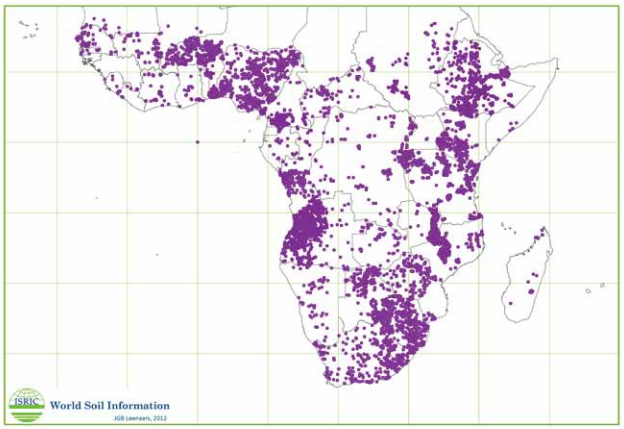
Africa soil data

The compilation, screening and distribution of soil data is at the heart of the mandate of ISRIC. Decades of soil survey campaigns and soil studies in Africa have created a vast legacy of soil profile data and maps in various national and international holdings. Only part thereof is in digital format. Despite the inherent shortcomings of collating legacy soil data from a wide variety of sources, the procedure is more cost efficient than sampling new profiles in the field and analysing the samples in the laboratory. There is important added value in combining legacy soil data with new soil data for mapping Sub Sahara Africa at increasing resolution.

Africa Soil Profiles database



Version 1.1 of this georeferenced and standardized legacy soil profile database for Sub Saharan Africa contains over 12,000 records for 37 countries, compiled from over 300 data sources. Data were converted to a common standard and parsed through basic quality rules and cleaning. The data have been used, for example, to validate pedotransfer functions for the prediction of soil water holding capacity in support of studies of crop response to management and production. The database is continuously updated and currently contains 15,000 records.



Africa Soil Profiles Database version 1.1

Africa Soil Maps database

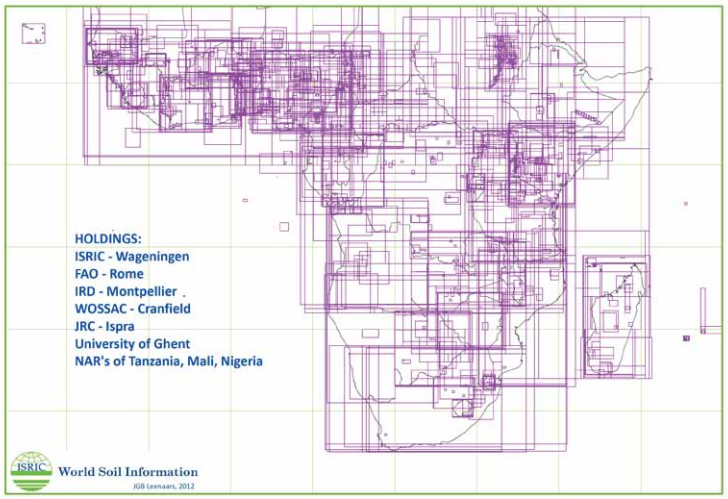
This inventory of legacy soil maps of Sub Saharan Africa draws from international holdings at ISRIC (Wageningen), FAO (Rome), IRD (Montpellier), WOSSAC (Cranfield), JRC (Ispra), Ghent University, and national holdings at Mlingano (Tanzania), Sotuba (Mali) and Zaria (Nigeria). Currently, some 5000 maps are included in the database and these cover the continent at different scales, using different legends. Scanning of the maps is on-going.

Towards quantitative soil property maps for Africa

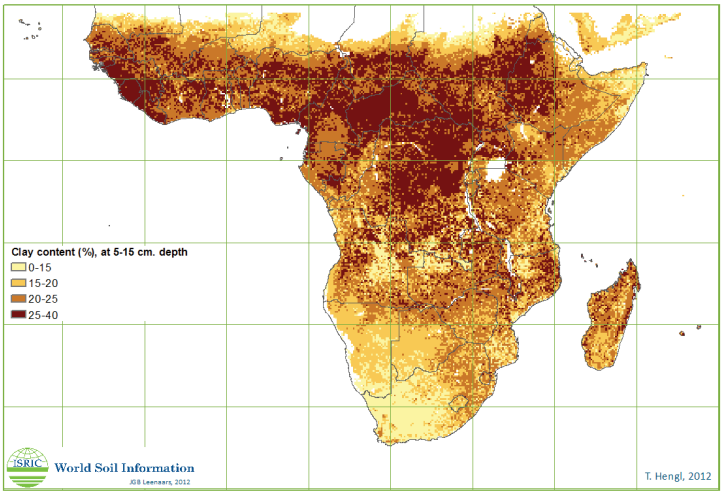
The Africa Soil Profiles database is part of a coordinated effort of a team of scientists at ISRIC - World Soil Information working together with scientists from partner countries. The team is developing web-based World Soil Information Services to serve as the international platform for soil data exchange to support the implementation of digital soil mapping procedures, integrated in the ISRIC Global Soil Information Facility. High resolution soil property maps have been generated for Malawi and Nigeria, while low resolution maps were created for Sub Saharan Africa; these initial products are now being evaluated.

Africa Soil Information Service
www.AfricaSoils.net

ISRIC - World Soil Information is an independent foundation and the ICSU accredited World Data Centre for Soils. It was founded in 1964 through the International Soil Science Society (ISSS) and United Nations Educational, Scientific and Cultural Organization (UNESCO). It has a mandate to serve the international community as custodian of world soil data and information and to increase awareness and understanding of soils in major global issues. ISRIC collects, stores, processes and disseminates global soil and terrain information for research and development of sustainable land use. It operates on three priority areas: 1) soil data and soil mapping, 2) application of soil data in global development issues, and 3) training and education.



Africa Soil Maps Database version 0.1



Africa topsoil clay content map, preliminary result

Dr Markus Walsh, AfSIS Project leader: "The Africa Soil Profiles database is an information treasure, serving as a test-bed for analysis and modelling and as input for soil property mapping. Using this information we come closer to generating high resolution quantitative soil information to accomplish the ultimate aim of the GlobalSoilMap.net project – to help feed nine billion people in 2050".

Further project information

I www.isric.org/data/africa-soil-profiles-database-version-01-0
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