Always quote citation when using data!

ReadmeFirst – WoSIS_2016_July

Citation: Batjes, N.H., Ribeiro, E., van Oostrum, A., Leenaars, J., and Jesus de Mendes, J. (2016). Standardised soil profile data for the world (WoSIS, July 2016 snapshot), http://dx.doi.org/10.17027/isric-wdcsoils.20160003.
Supplement to:
Batjes, N.H., Ribeiro, E., van Oostrum, A., Leenaars, J., Hengl, T. and Jesus de Mendes, J. (2017). WoSIS: Providing standardised soil profile data for the world, *Earth System Science Data* **9**, 1-14, doi:10.5194/essd-9-1-2017, http://dx.doi.org/10.5194/essd-9-1-2017.

Summary: Soil is an important provider of ecosystem services. Yet, this natural resource is being threatened. Professionals, scientists and decision makers require quality-assessed soil data to address issues such as food security, land degradation, and climate change.

Procedures for safeguarding, standardising and subsequently serving of consistent soil data from WoSIS (World Soil Information Service) to underpin broad scale mapping and modelling are described in the above mentioned *ESSD* paper.

Download data: Download ZIP file containing all data in TXT format (32 Mb zipped, 688 Mb decompressed).

File structure: In order to facilitate users, the data are presented in three files:

- *wosis_201607_attributes.txt*
- *wosis_201607_profiles.txt*
- *wosis_201607_layers.txt*

The first file lists the four letter code for each attribute followed by a short explanation and the units of measurement. The file also lists the number of profiles and layers in the present snapshot.

The second file lists the unique profile ID (i.e. primary key), country name and ISO country code, geometric accuracy, latitude and longitude (WGS 1984) as well as information on the soil classification system and edition (e.g. 2015). Depending on the soil classification system used, the number of fields will vary

(e.g., for US Soil Taxonomy, coded as 'cstx', these are order, suborder, great group and subgroup as indicated in the column headings).

The third, largest file, lists all the soil properties by layer and profile. It starts with the unique identifiers:

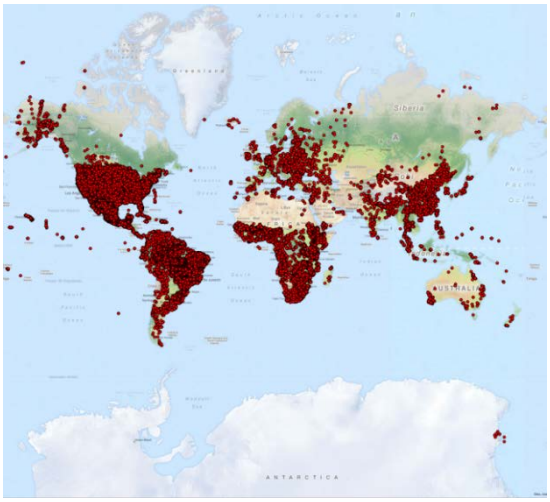
profile_id	identifier for profile, links to file *wosis_201607_profiles.txt*
profile_layer_id	identifier for layer for given profile (primary key)
top	upper depth of layer (or horizon)
bottom	lower depth of layer

Subsequently, the following items are listed sequentially per attribute as defined in file *wosis_201607_attributes.txt*:

xxxx_value	array listing all values for soil property 'xxxx' for the given layer; thus, more than one observation can be reported when available, for example 3 values for ORGC: {1:0.55, 2:1.01, 3:0.85}
xxxx_value_avg	average, for above (use this value for 'routine' modelling)
xxxx_method	array listing the method descriptions for each value
xxxx_date	array listing the date of observation for each value
xxxx_dataset_id	abbreviation for dataset (e.g. WD-ISIS)
xxxx_profile_code	code for given profile in the given dataset
xxxx_license	licence for given data
(...)	as above, but for the next attribute(s)

All fields in the above TXT-files are tab-delimited; double quotation marks serve as text delimiters; file coding is according to the UTF-8 unicode transformation format. As such, the files can be easily imported into an SQL database or statistical software such as R that can deal with large datasets[i]. The tables can be joined using the unique profile_id.

Licence: The licence for each specific property is given in the dataset (see: name_license, above). This may either be a CC BY or CC BY-NC Creative Commons licence, in compliance with the terms specified by each data provider. These terms should be respected when using the standardised data. Additional information may be found in the ISRIC Data Policy.



Location of soil profiles considered in WoSIS (July 2016)

Procedures Manual: Full details about the methodology, database structure and coding conventions as used in the central WoSIS server database are provided in a Procedures Manual:

Ribeiro E., Batjes N.H., Leenaars, J.G.B., Van Oostrum, A.J.M. and Mendes de Jesus, J., 2015. *Towards the standardization and harmonization of world soil data: Procedures Manual ISRIC World Soil Information Service (WoSIS version 2.0).* ISRIC - World Soil Information, Wageningen, 110 p. http://www.isric.org/sites/default/files/isric_report_2015_03.pdf

Mailing list: Please post your questions related to this product to our public mailing list: isric-world-soil-information@googlegroups.com.

[i] Although not recommended by ISRIC, should users desire to import these large text files into e.g. MS-Access®, extra care should be taken during the import process. Note that the text fields for 'xxxx_method' can be 'huge' hence the field type should be changed to either 'Memo' (pre-2013 versions) or 'Long Text' (post-2013 versions) prior to the actual import. Further, the field delimiter should be set to 'tab', the text delimiter to double quotation marks, and the code system to UTF8. Being rather large, in the case of file *wosis_201607_layers.txt,* once the actual importing starts you will get the heading 'not responding'. Please be patient at this stage; after some 40-60 minutes the import process will complete successfully. Do not forget to compact your database.