

SoilInfo App: global soil information on your palm



World Soil Information

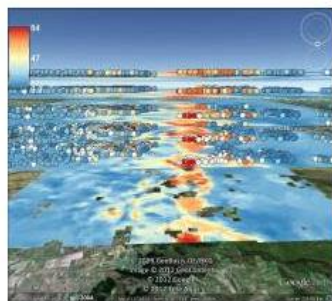
T. (Tom) Hengl <tom.hengl@wur.nl>

J. (Jorge) Mendes de Jesus <jorge.mendesdejesus@wur.nl>

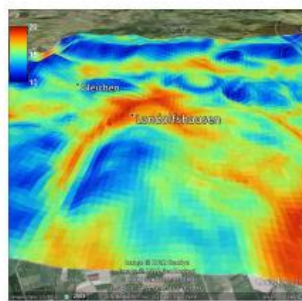


Global Soil Information Facilities

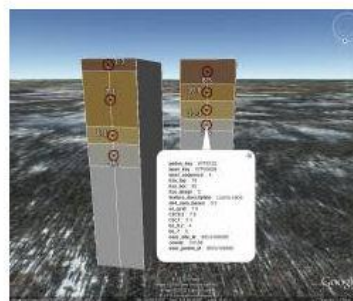
3D soil mapping



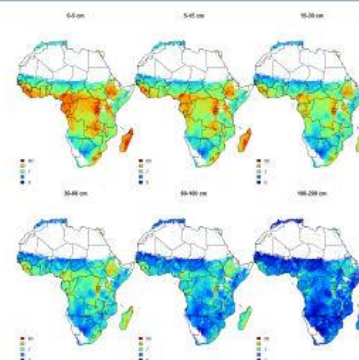
plotKML tutorial



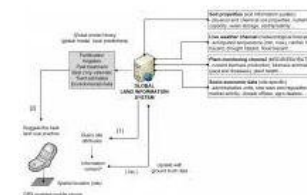
Soil data classes in R



SoilGrids1km tutorial



SoilInfo App



GSIF components

1. **WorldSoilProfiles.org,**
2. **WorldGrids.org,**
3. **R packages,**
4. **WOSIS DB / WebServices,**
5. **SoilGrids,**
6. **SoilInfo App**



GSIF components

1. **WorldSoilProfiles.org,**
2. **WorldGrids.org,**
3. **R packages,**
4. **WOSIS DB / WebServices,**
5. **SoilGrids,**
6. **SoilInfo App**

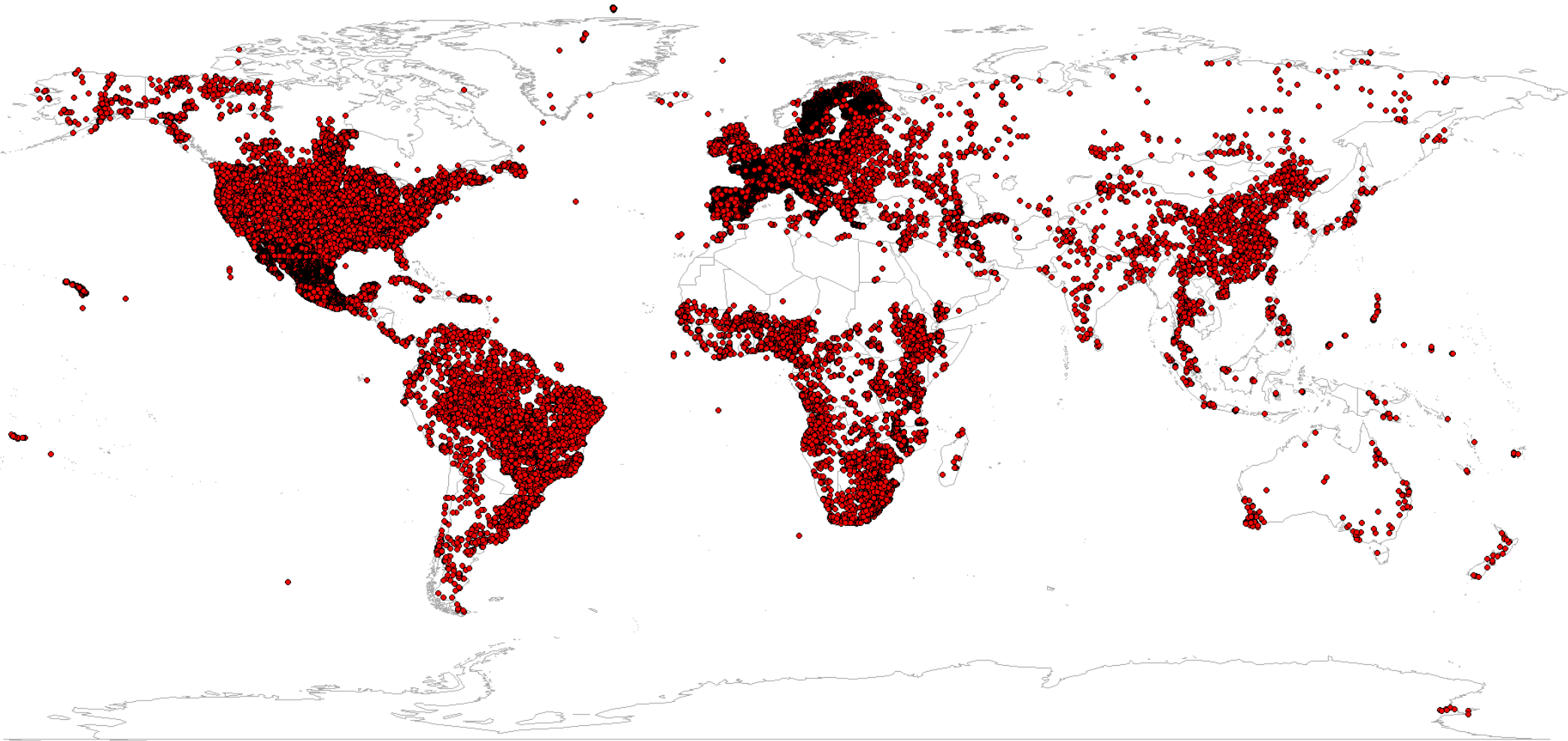


What is SoilGrids1km?

- ★ **SoilGrids1km** = Global 3D Soil Information System at 1 km resolution
- ★ **SoilGrids** = A system for automated soil mapping (SoilGrids1km is output from SoilGrids)
- ★ **SoilGrids.org / SoilInfo App / SoilGrids REST** = services that allow access to SoilGrids1km predictions



Legacy soil data (100,000 profiles)



OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

1,599

VIEWS

46

SHARES

SoilGrids1km — Global Soil Information Based on Automated Mapping

Tomislav Hengl , Jorge Mendes de Jesus, Robert A. MacMillan, Niels H. Batjes, Gerard B. M. Heuvelink, Eloi Ribeiro, Alessandro Samuel-Rosa, Bas Kempen, Johan G. B. Leenaars, Markus G. Walsh, Maria Ruiperez Gonzalez

Published: August 29, 2014 • DOI: 10.1371/journal.pone.0105992

Article

About the Authors

Metrics

Comments

Related Content

Download PDF

Print

Share

CrossMark

Subject Areas

Agricultural soil scie...

Clay mineralogy

Deserts

Forecasting

Remote sensing

Surface temperature

Taxonomy

Urban areas

- ▶ Abstract
- Introduction
- Materials and Methods
- Results
- Discussion
- Acknowledgments
- Author Contributions
- References

Abstract

Background

Soils are widely recognized as a non-renewable natural resource and as biophysical carbon sinks. As such, there is a growing requirement for global soil information. Although several global soil information systems already exist, these tend to suffer from inconsistencies and limited spatial detail.

Methodology/Principal Findings

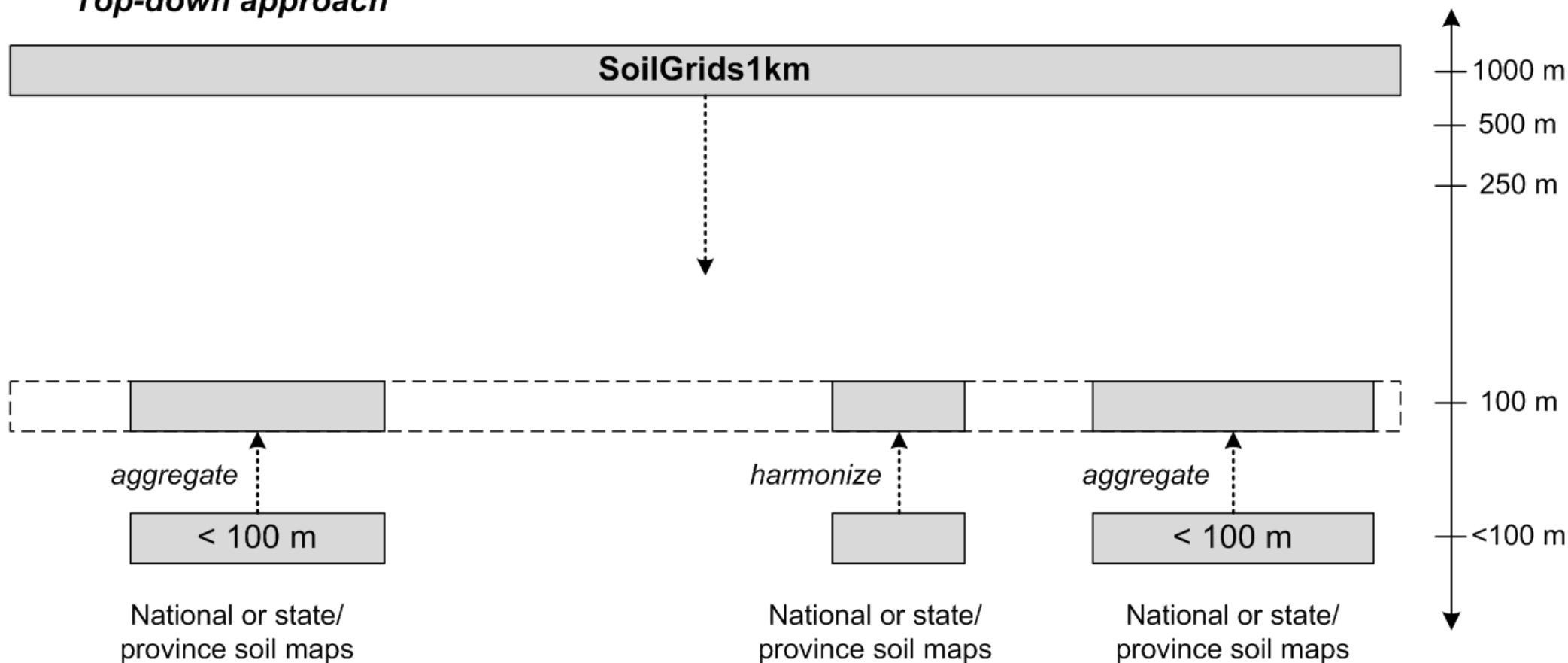
We present SoilGrids1km — a global 3D soil information system at 1 km resolution — containing spatial predictions for a selection of soil properties (at six standard depths): soil organic carbon (g kg⁻¹), soil pH, sand, silt and clay fractions (%), bulk density (kg m⁻³), cation-exchange capacity (cmol+/kg), coarse fragments (%), soil organic carbon stock (t ha⁻¹), depth to bedrock (cm), World Reference Base soil groups, and USDA Soil Taxonomy suborders. Our predictions are based on global spatial prediction models which we fitted, per soil variable,

Reader Comments (0)

Figures

Two approaches to soil mapping

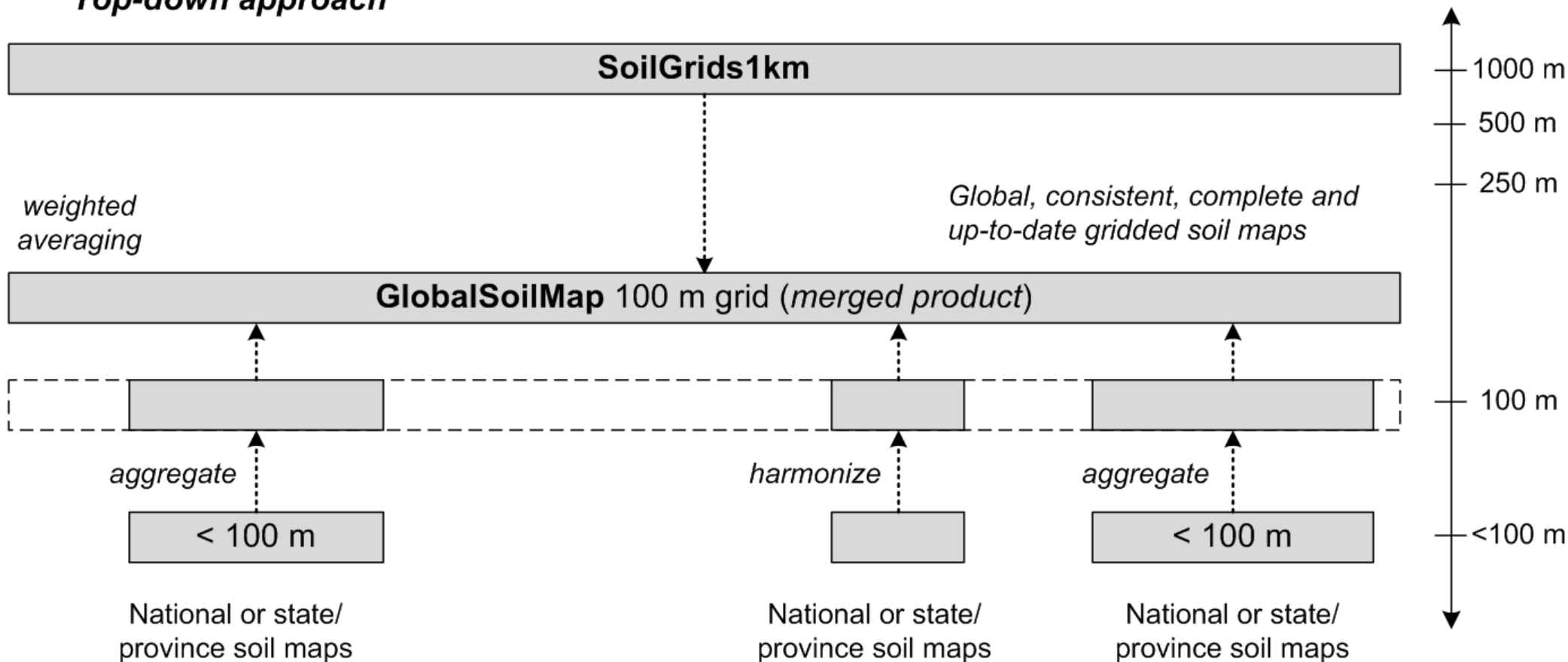
Top-down approach



Bottom-up approach

We need them both!

Top-down approach



Bottom-up approach

SoilGrids1km in numbers

- Global soil mask: 108 million pixels (1 km)
- Number of layers: 258 (version 2 April 2014)
- Size: 30GB (compressed) **350GB uncompressed**
- Takes at least 48 hours to compute
- Takes at least 2-3 days until the data is on servers (pyramids, tiling, upload)



www.SoilGrids.org

SoilGrids 1km How Where These Maps Made? Tools FTP Access Disclaimer Contact Help Download

SOILGRIDS1KM

A system for automated global soil mapping
Version : 5th of April 2014 ([read more](#))
Help us improve these maps ([join the mailing list](#))



Coords S -44.84 : E 72.773 Leaflet | ISRIC World Soil Information



World Soil Information

GSIF components

1. **WorldSoilProfiles.org,**
2. **WorldGrids.org,**
3. **R packages,**
4. **WOSIS DB / WebServices,**
5. **SoilGrids,**
6. **SoilInfo App**



SoilInfo App

- SoilInfo App allows accessing and viewing SoilGrids1km without using any GIS software.
- Basically you only need a browser or the SoilInfo App installed on your mobile device.



SoilInfo App




Google play

Search

Categories ▾ Home Top Charts New Releases

My apps Shop Games Editors' Choice



SoilInfo - soil data app
 ISRIC - World Soil Information - June 5, 2014
 Education

Installed

This app is compatible with some of your devices.

★★★★★ (19)

+1 including You, Tomislav

SoilInfo
 By ISRIC - World Soil Information
 Open iTunes to buy and download apps.

Description
 SoilInfo provides free access to soil data across borders. SoilInfo is also available as a Desktop version (http://soilinfo-app.org).
 Current version of SoilInfo is based on SoilGrids1km data (http://www.soilgrids.org). Available layers: soil organic carbon (g
[ISRIC - World Soil Information Web Site](#) | [SoilInfo Support](#) | [More](#)



View in iTunes
 This app is designed for both iPhone and iPad

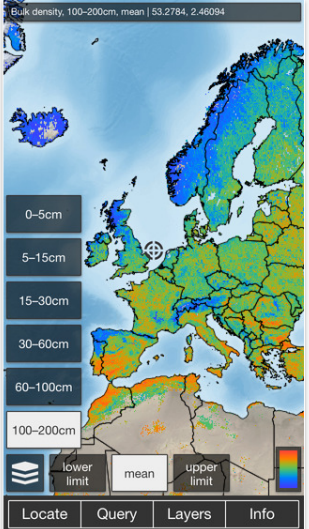
Free
 Category: Education
 Released: Jul 26, 2014
 Version: 0.3.3
 Size: 5.4 MB
 Languages: English, German
 Seller: Stichting International Soil Reference and Information Centre (ISRIC)
 © ISRIC - World Soil Information
 Rated 4+

Compatibility: Requires iOS 6.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5.

Customer Ratings
 We have not received enough ratings to display an average for the current version of this application.

Screenshots iPhone | iPad

Bulk density, 100-200cm, mean | 53.2784, 2.46094




0-5cm
5-15cm
15-30cm
30-60cm
60-100cm
100-200cm

lower limit mean upper limit

Locate Query Layers Info

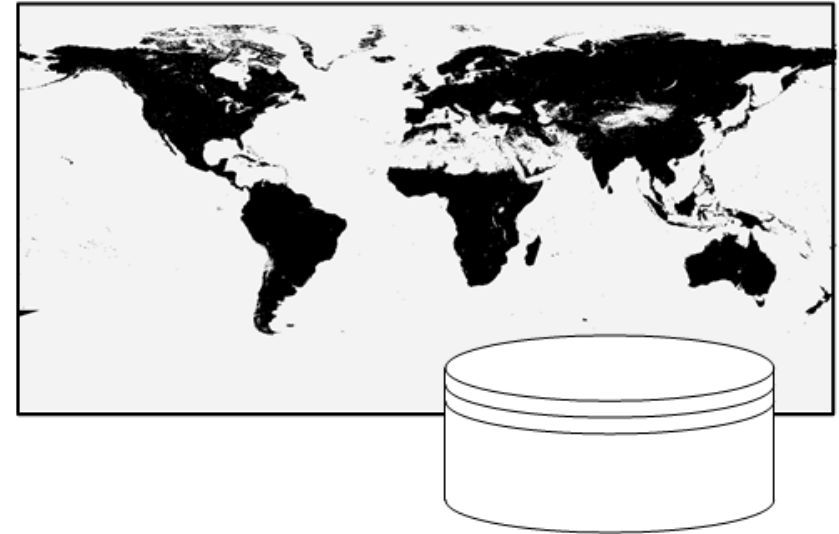
World Reference Base group | 37.3702, 126.738



- ▲ Acrisols
- ▲ Alisols
- ▲ Anthrosols
- ▲ Arenosols
- ▲ Calcisols
- ▲ Cambisols
- ▲ Chernozems
- ▲ Dystrisols
- ▲ Ferralsols
- ▲ Gleysols
- ▲ Gypsisols
- ▲ Histosols
- ▲ Lixisols
- ▲ Luvisols
- ▲ Mollisols
- ▲ Phaeozems
- ▲ Planosols
- ▲ Regosols
- ▲ Solonchaks
- ▲ Solonchaks
- ▲ Solonchaks
- ▲ Vertisols

Locate Query Layers Info

SoilGrids1km



Query soil
properties or
classes

SoilInfo App



Spatial
location (site)

GPS-enabled mobile phone

- (a) soil-depth curves
- (b) confidence intervals
- (c) dominant, 2nd and 3rd soil class
- (d) nutrient stock (e.g. soil organic carbon stock)



Back Organic carbon

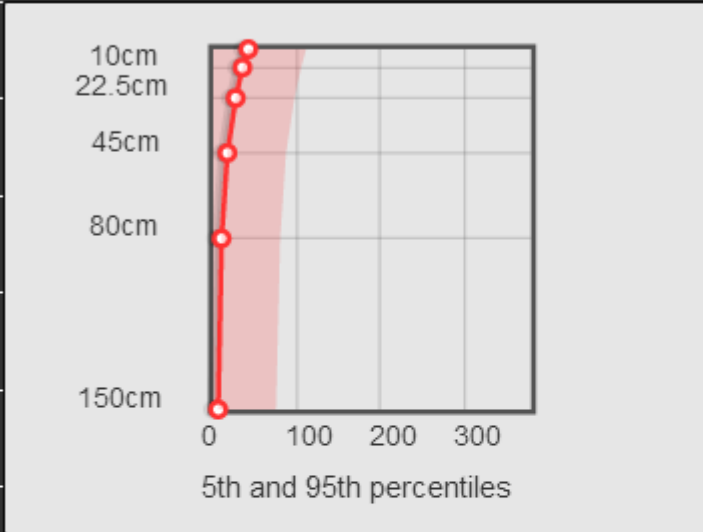
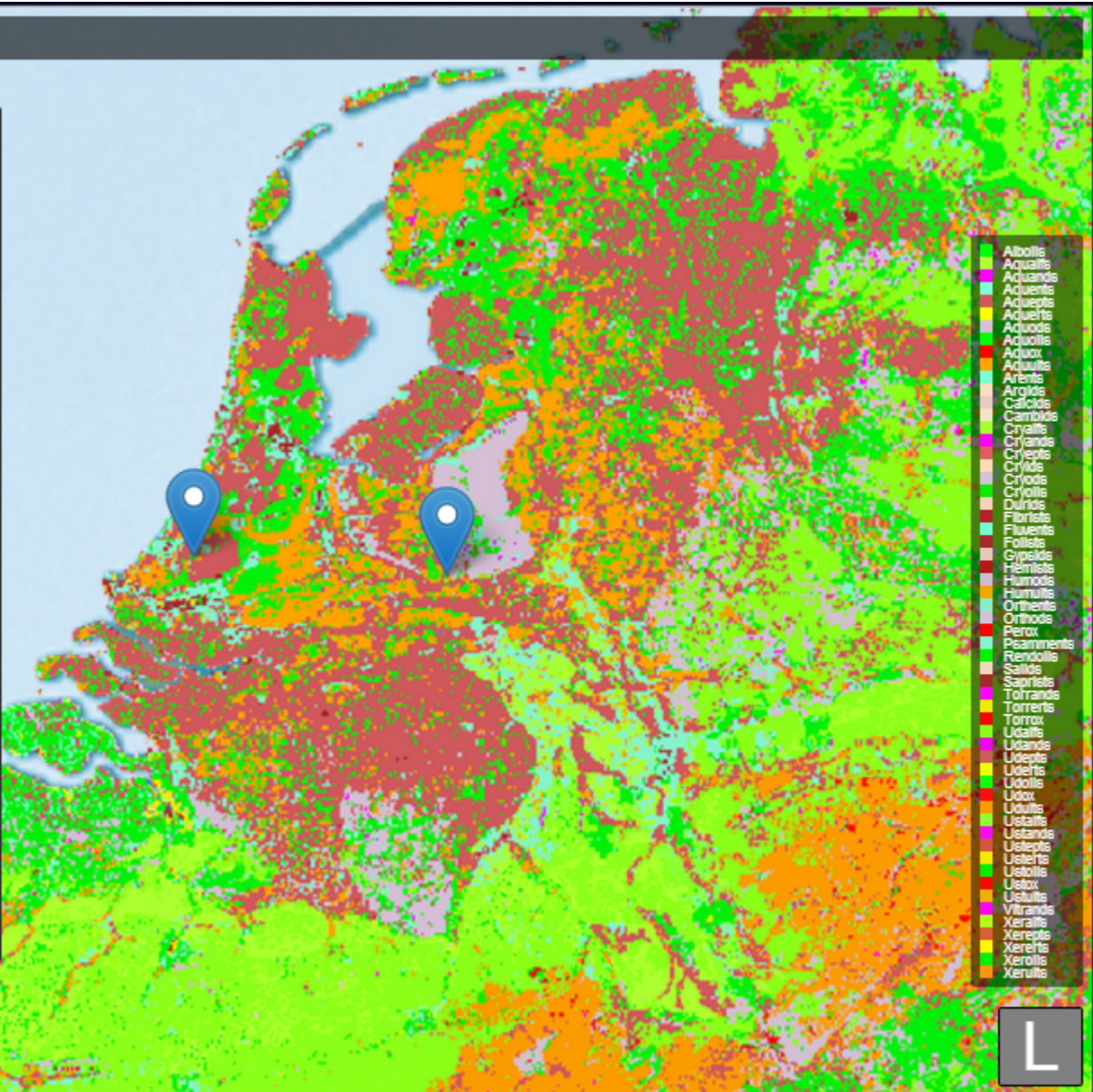


table layer



layers locate query info





**ISRIC Spring School
17--22 May 2015**



**Free access to soil data for everyone?
... we are almost there**



World Soil Information