

Global soil information to address global issues



World Soil Information

Rik van den Bosch, Director

1. ISRIC – World Soil Information



World Soil Information

Mission

- **produce**, gather, compile and serve quality-assessed soil information
- stimulate the use of this information through **capacity building, awareness raising**;
- built derived products in direct cooperation with **users and clients**.



World Soil Information



ISRIC – Some features

- Founded in 1966. FAO Soil Map of the World
- Independent foundation based in Wageningen; strategic association with Wageningen University and Research Centre.
- 20 staff, plus guest employees, plus students
- Accredited as the World Data Centre for Soils by the International Council for Science
- Participate in task 'Global Datasets' of GEOSS



World Soil Information

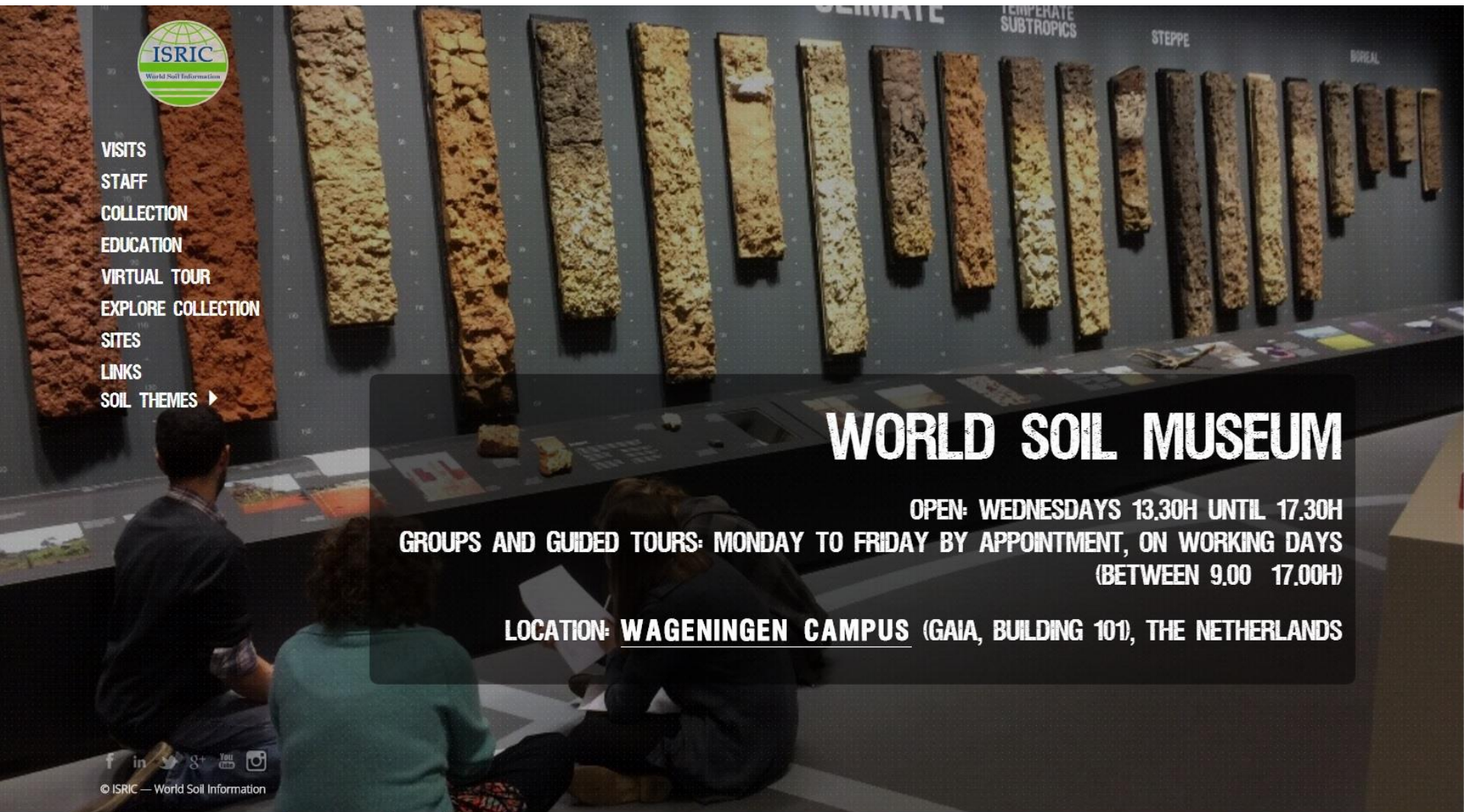


Work streams at ISRIC

- ISRIC plays a significant role in standard setting
- ISRIC is a trusted broker of (global) soil information
- ISRIC assists with capacity building for the design and use of soil information services.
- ISRIC develops derived knowledge products for sustainable soil and land management.



Virtual Soil Museum



VISITS
STAFF
COLLECTION
EDUCATION
VIRTUAL TOUR
EXPLORE COLLECTION
SITES
LINKS
SOIL THEMES ▶

WORLD SOIL MUSEUM

OPEN: WEDNESDAYS 13.30H UNTIL 17.30H

GROUPS AND GUIDED TOURS: MONDAY TO FRIDAY BY APPOINTMENT, ON WORKING DAYS
(BETWEEN 9.00 17.00H)

LOCATION: WAGENINGEN CAMPUS (GAIA, BUILDING 101), THE NETHERLANDS



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World Soil Information

Virtual Soil Museum



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World Soil Information



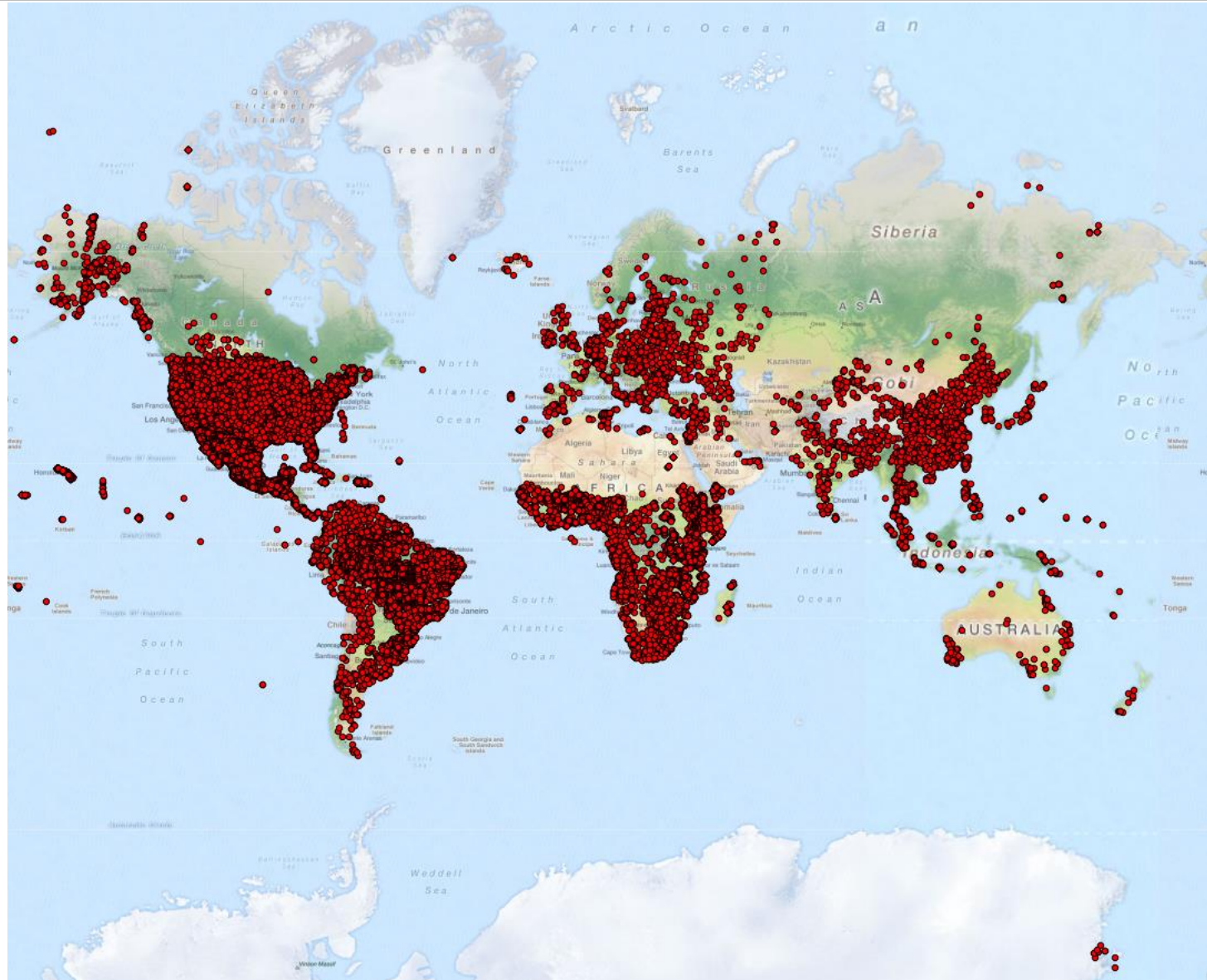
SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD



World Soil Information

WoSIS: institutional soil info data base (ca. 150.000; ongoing)

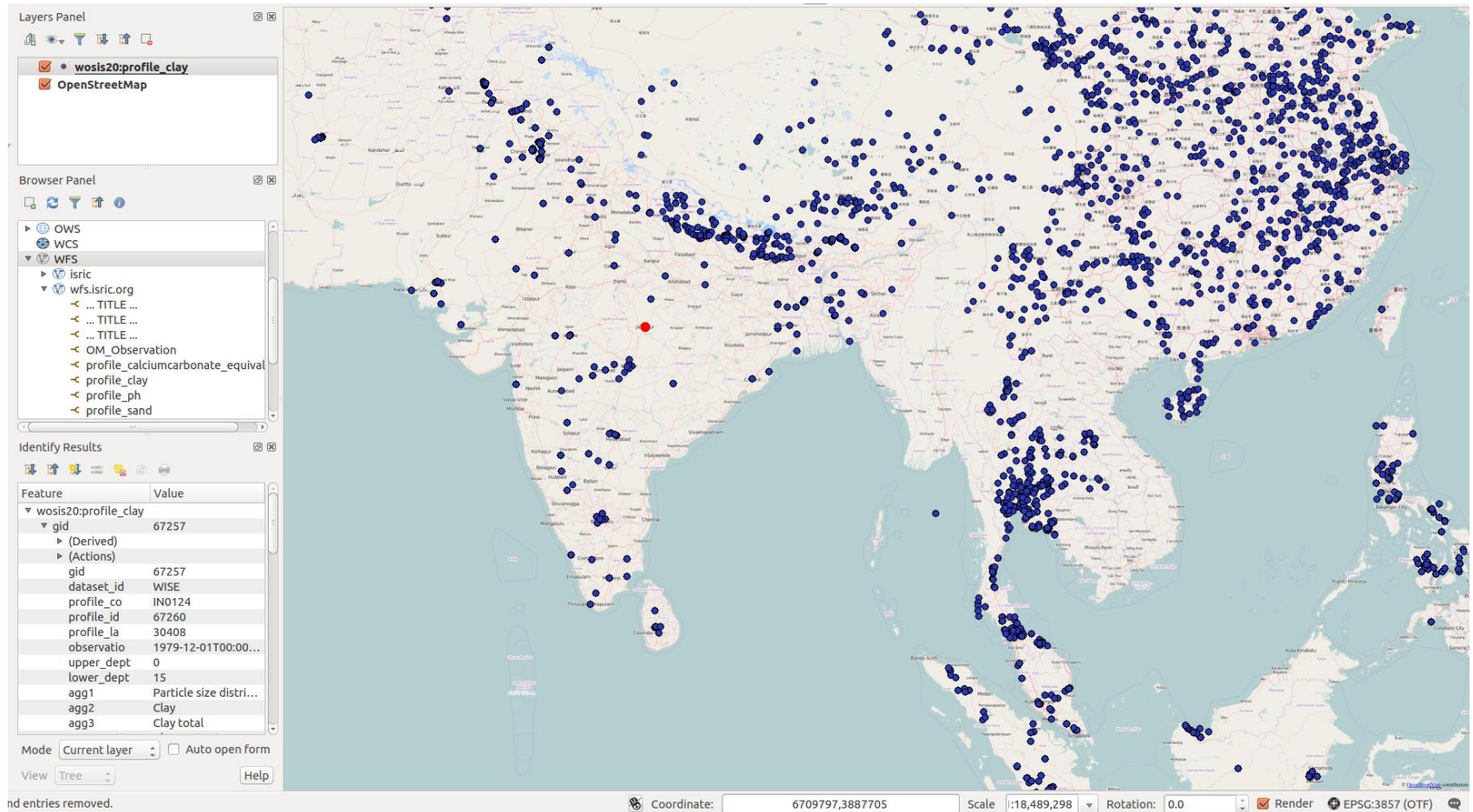


Profile database development

- Import of 'raw' data, i.e. data 'as is' (keeping track of lineage)
- Standardization and harmonization of data (in WoSIS v2 started with analytical methods)
- Consistency checks & quality control scheme
- Managing intellectual property rights: respecting the IP of data owners/contributors



Web-service for access

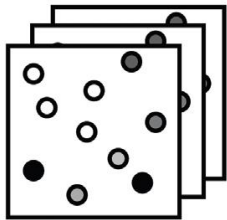


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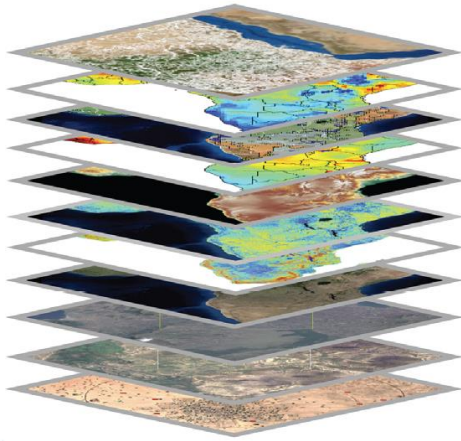
From points to grids

Geo-Data

Soil profile measurements

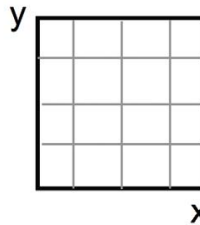
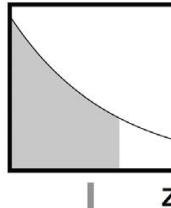


Covariates



Model specifications

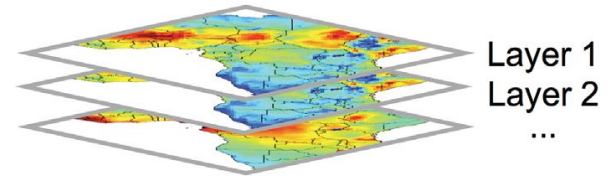
Mass/Depth integrating function(s)



Scaling/Spatial function(s)

3-D predictions

Soil properties



SoilGrids

- Automated soil information system
- Using profile data and spatial information (covariates)
- Machine learning algorithms
- 250m * 250m resolution
- Accessible through web service and mobile phone app
- Updatable
- Open data
- Moving towards crowdsourcing
- [Short demo](#)



Search with SoilGrids.org

8, Pijnenburgweg, Harskamp, Ede, Gelderland, Netherlands, 6732GC, The Netherlands
5.729370, 52.131802

Soil classification

Predicted USDA Soil Taxonomy class (Twelfth Edition; 2014)

Orthods (9%)
(TAXOUSA)
Common Spodosols that don't meet requirements of other suborders.
Aquents (8%) | Sapristis (8%)

Predicted World Reference Base (2006) soil class

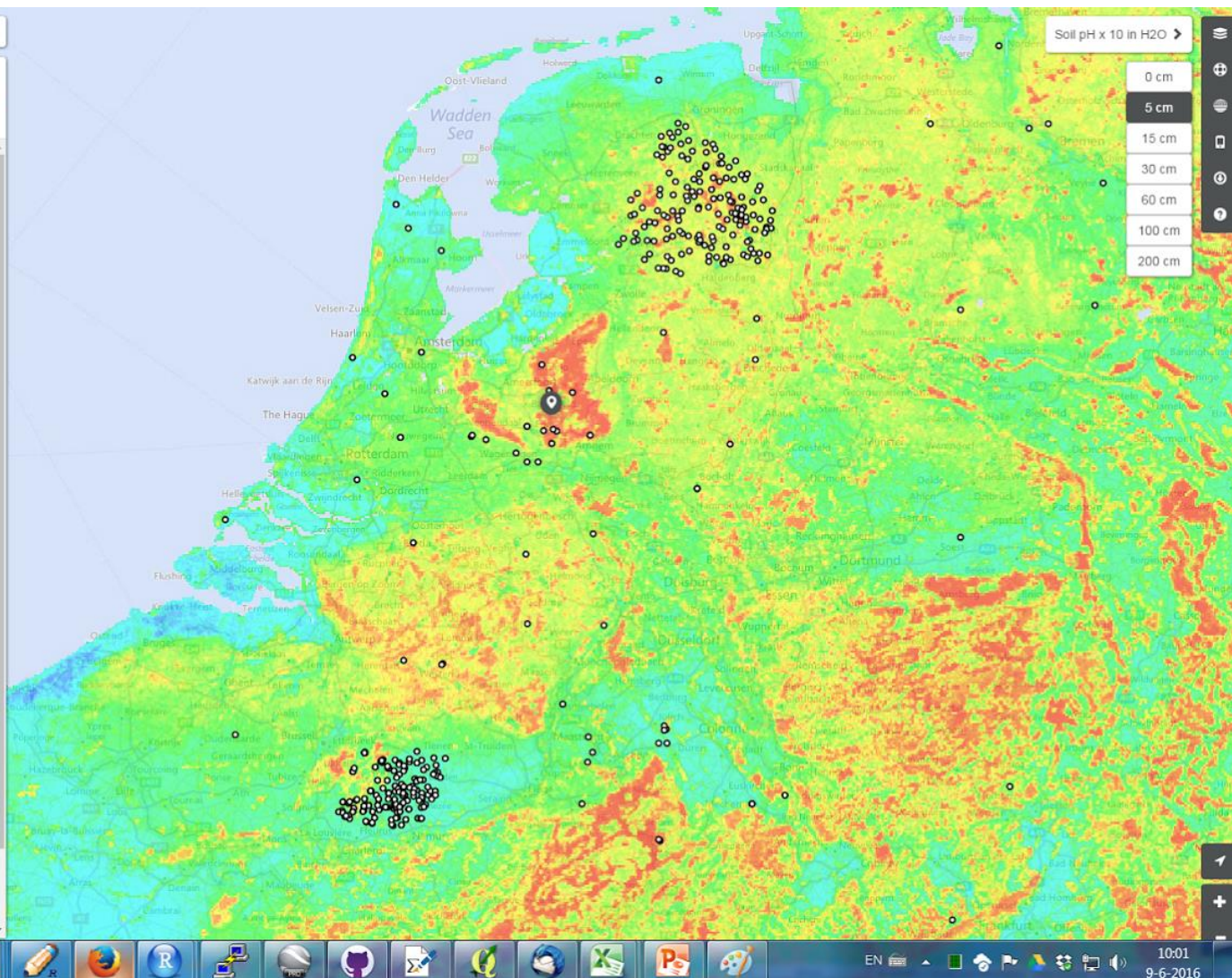
**Bhs1
Bhs2
Gleyic Podzols (14%)**
(TAXNWRB)
Podzols = Soils of humid temperate regions with a bleached eluviation horizon over an accumulation horizon of organic matter with aluminium and/or iron. Having within 100 cm of the mineral soil surface in some parts reducing conditions and in 25 percent or more of the soil volume a gleyic colour pattern.
Haplic Luvisols (11%) | Haplic Cambisols (8%)

Site characteristics

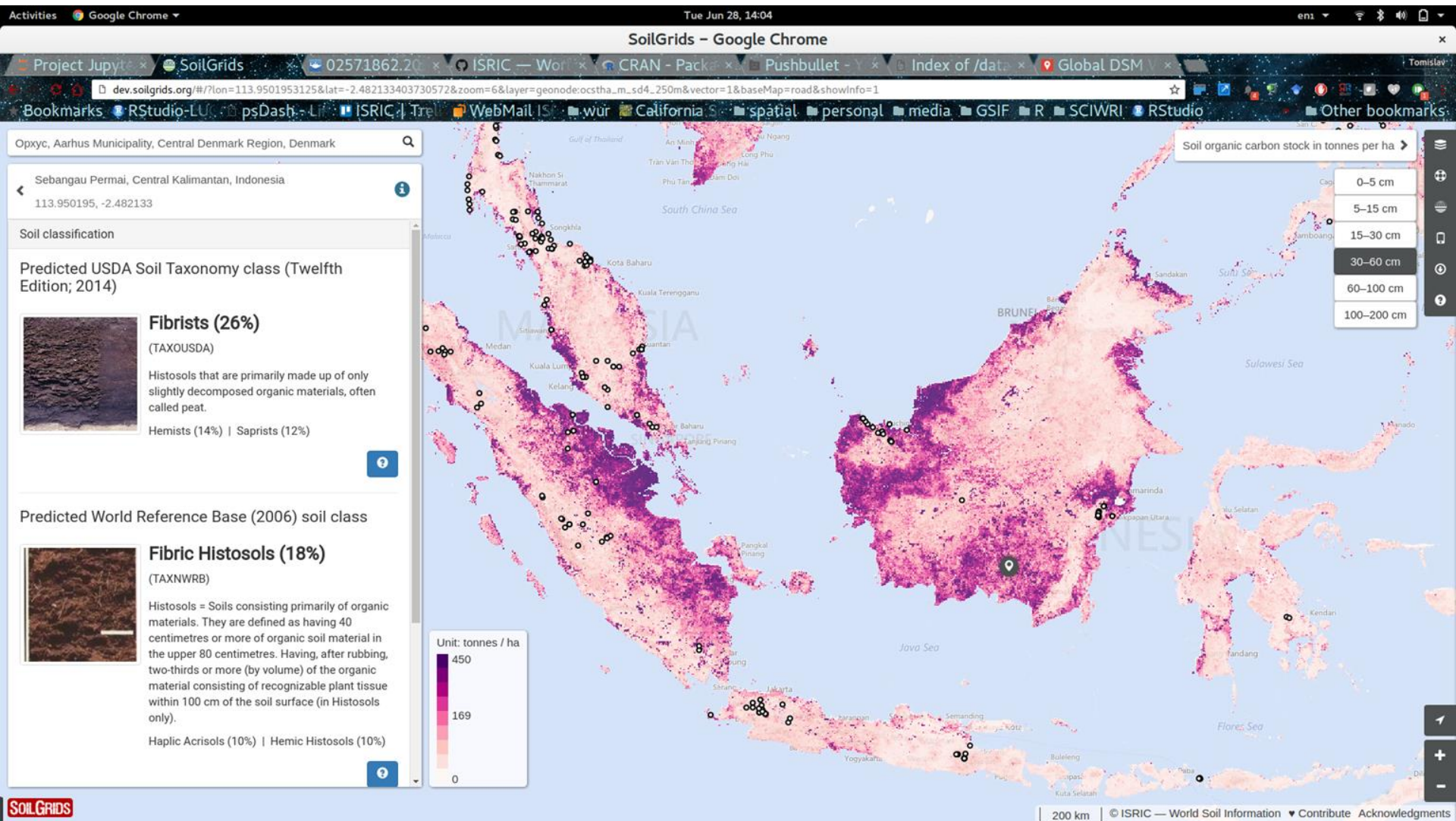
Physical soil properties

Chemical soil properties

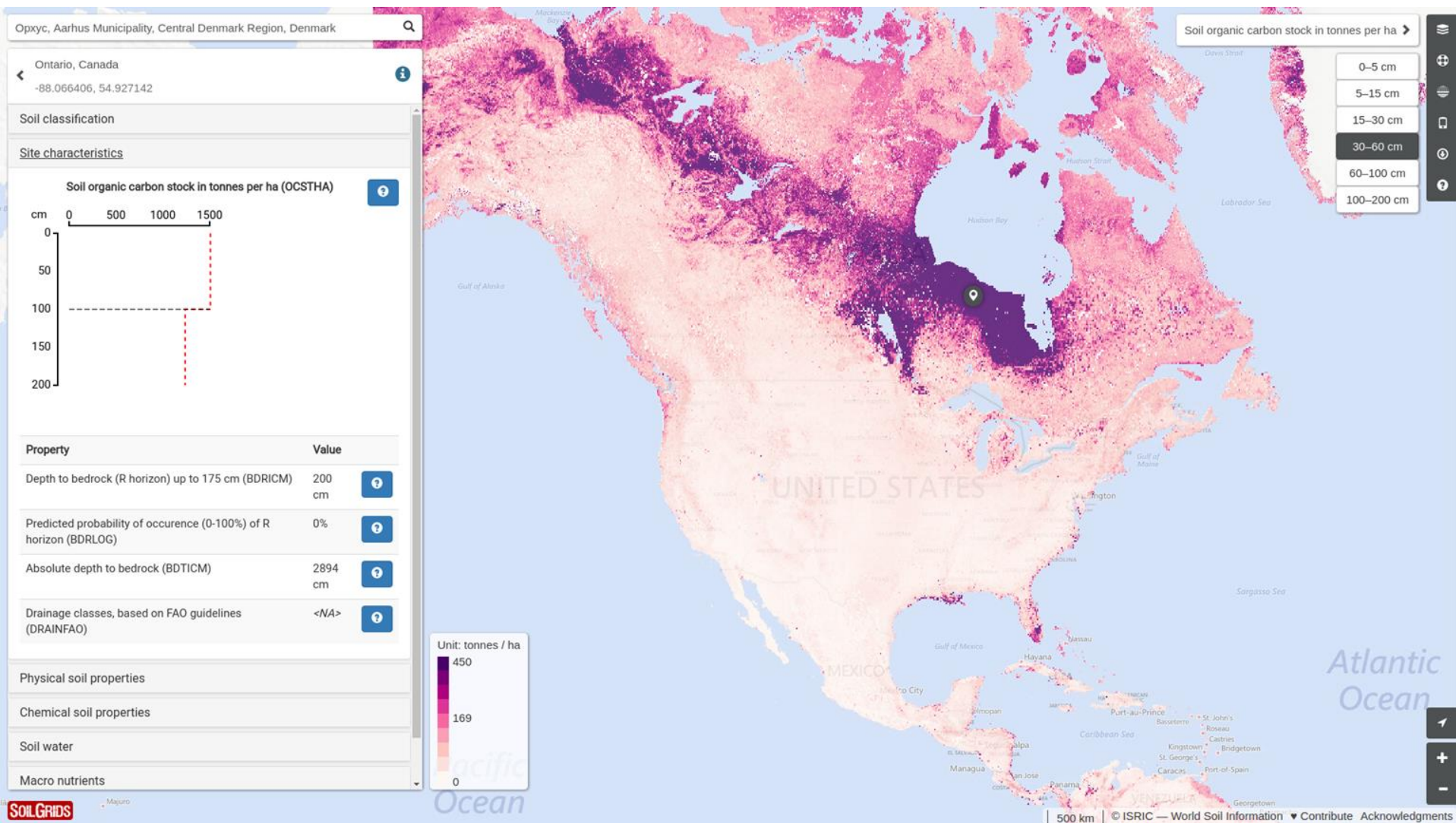
Soil water



World Soil Information



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SoilGrids+

Global, consistent, complete and up-to-date gridded soil information

SoilGrids

250 m

SoilGrids+

weighted averaging

aggregate / harmonize

Local predictions at finer
resolutions

50 – 250 m

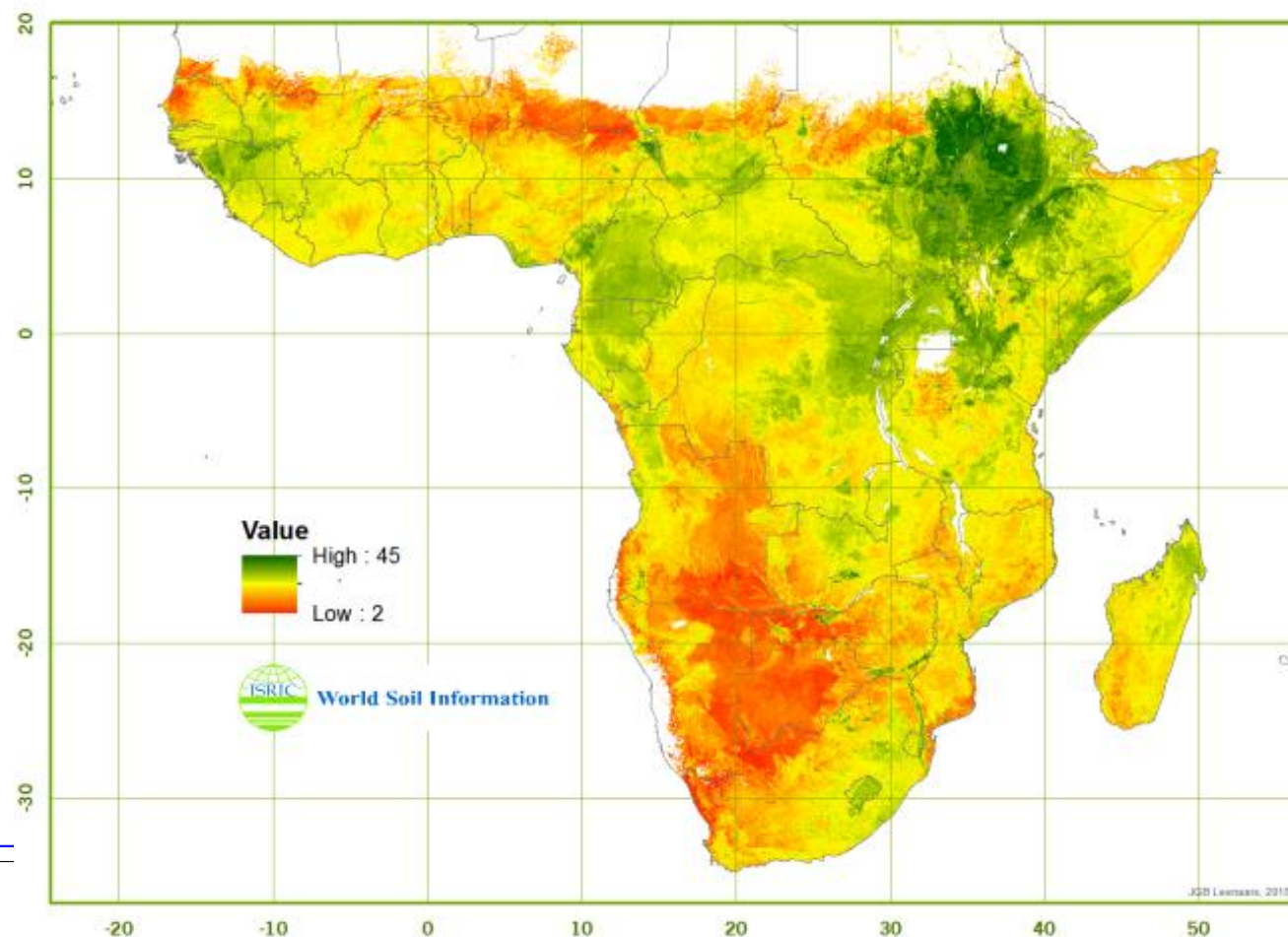
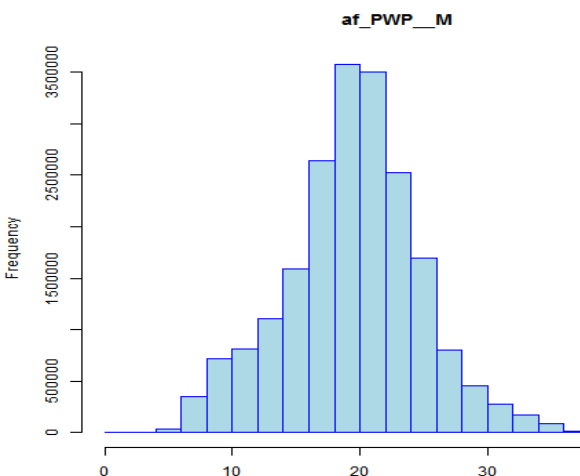


World Soil Information

Africa Soil Grids

Soil water content (v%) at PWP (pF4.2)

fine earth
at 30-60 cm



Africa Soil Grids

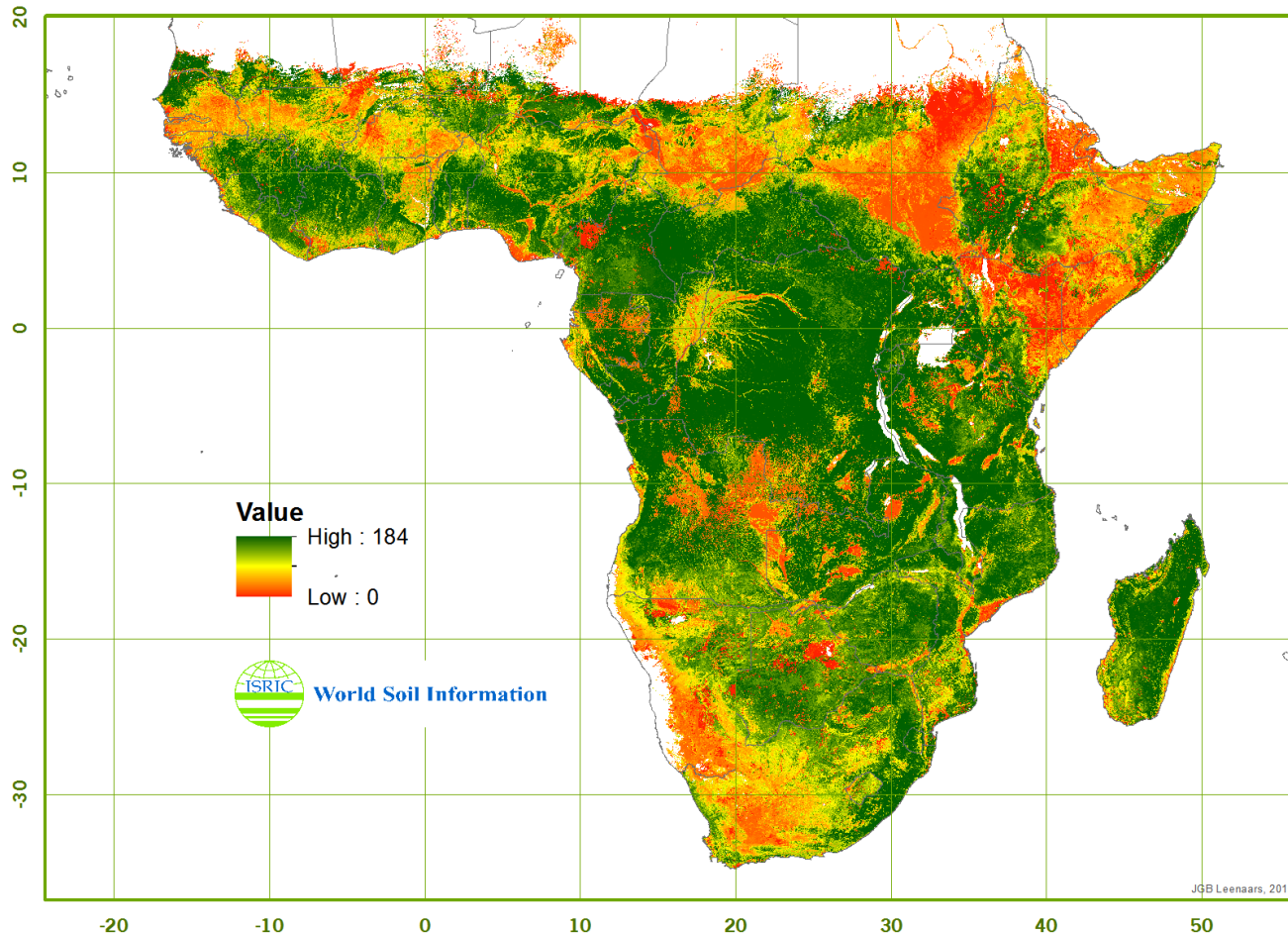
Root zone plant-available water holding capacity (mm)

World Data Centre for Soils

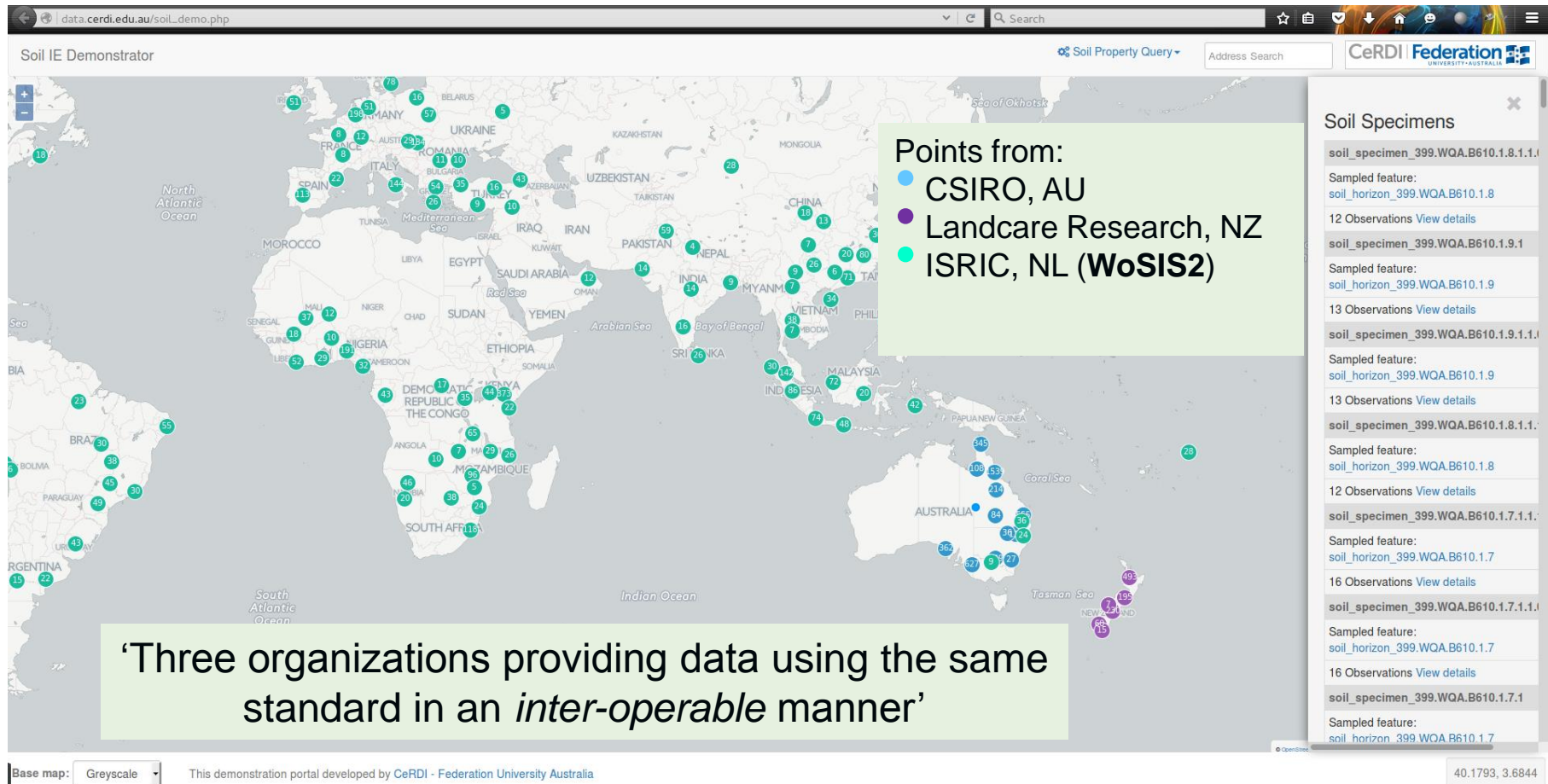
Maize

RZ-PAWHC

73 mm \pm 39



OGC Soil Data Interoperability Experiment



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Demo for soil IE experiment (*not a data download facility*)

Global Soil Partnership



Food and Agriculture
Organization of the
United Nations



World Soil Information

Recent collaboration with CGIAR

Africa Soil Information Service
AfricaSoils.net



Bill & Melinda Gates Foundation

Business Operation

Bill & Melinda Gates Foundation is one of the largest private foundations in the world, founded by Bill and Melinda Gates. It was launched in 2000 and is said to be the largest transparently operated private foundation in the world.
[Wikipedia](#)

Nonprofit category: Private Grantmaking Foundations

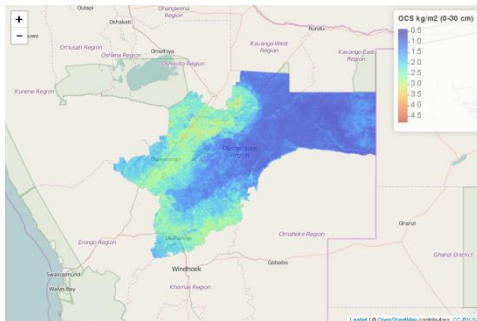
Founded: 2000

Assets: 36.79 billion USD (2010)

Income: 53 billion USD (2010)

Founders: [Melinda Gates](#), [Bill Gates](#)

BILL & MELINDA
GATES foundation



giz Deutsche Gesellschaft
für Internationale
Zusammenarbeit (GIZ) GmbH



International Center for Tropical Agriculture
Since 1967 *Science to cultivate change*



World Soil Information

Thank you



World Soil Information

www.isric.org

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