

# ISRIC - World Soil Information



**World Soil Information**

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World Soil Information

# Wageningen Campus



World Soil Information

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**ISRIC**  
World Soil Information

# FOOD production



# Climate Regulation



# HABITAT







# WATER Management

# FIBRE Fuel



# Building Material





# SUSTAINABLE DEVELOPMENT GOALS

17 GOALS TO TRANSFORM OUR WORLD

<b>1</b> NO POVERTY 	<b>2</b> ZERO HUNGER 	<b>3</b> GOOD HEALTH AND WELL-BEING 	<b>4</b> QUALITY EDUCATION 	<b>5</b> GENDER EQUALITY 	<b>6</b> CLEAN WATER AND SANITATION 
<b>7</b> AFFORDABLE AND CLEAN ENERGY 	<b>8</b> DECENT WORK AND ECONOMIC GROWTH 	<b>9</b> INDUSTRY, INNOVATION AND INFRASTRUCTURE 	<b>10</b> REDUCED INEQUALITIES 	<b>11</b> SUSTAINABLE CITIES AND COMMUNITIES 	<b>12</b> RESPONSIBLE CONSUMPTION AND PRODUCTION 
<b>13</b> CLIMATE ACTION 	<b>14</b> LIFE BELOW WATER 	<b>15</b> LIFE ON LAND 	<b>16</b> PEACE, JUSTICE AND STRONG INSTITUTIONS 	<b>17</b> PARTNERSHIPS FOR THE GOALS 	 <b>SUSTAINABLE DEVELOPMENT GOALS</b>



World Soil Information

# Our role

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- ISRIC is an important reference centre for soils
- ISRIC plays a significant role in standard setting
- ISRIC is the 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.





Soil information to address GLOBAL CLIENTS AND PARTNERS

- Client Oriented
- Innovative
- High Impact
- Rooted in Soil Science

DEMONSTRABLE IMPACT ON SUSTAINABLE SOIL MANAGEMENT

Setting standards & reference

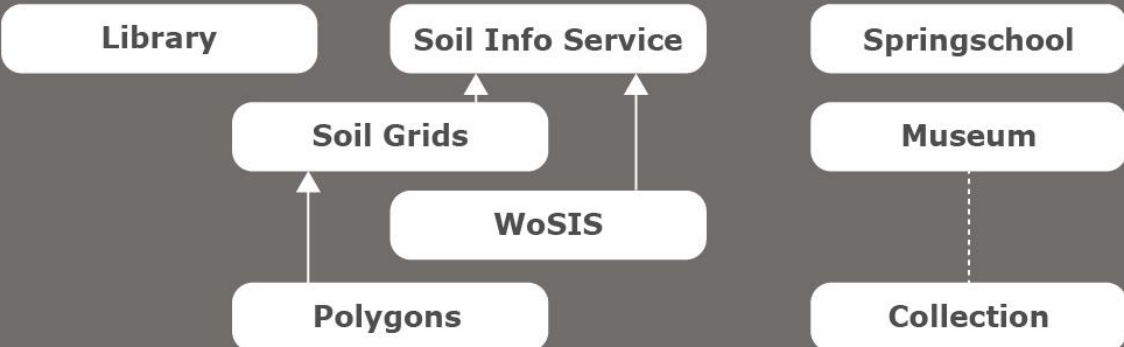
Education and capacity building

Derived products

Information brokering

SOIL SCIENCE COMMUNITY

USERS & PARTNERS



Setting Standards

Information brokering

Capacity Building + Relations

Derived Products

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# Work stream 1: Reference and Standards Setting (‘The Foundation’)



# World Reference Base (WRB)





# OGC Soil Data Interoperability Experiment

The screenshot shows a web browser displaying the 'Soil IE Demonstrator' application. The main area is a world map with numerous numbered points. A legend box on the map identifies the points by color: blue for CSIRO, AU; purple for Landcare Research, NZ; and cyan for ISRIC, NL (WoSIS2). The sidebar on the right, titled 'Soil Specimens', lists several specimen records with details such as 'Sampled feature' and 'Observations'. At the bottom left, a text box states: 'Three organizations providing data using the same standard in an *inter-operable* manner'. The browser address bar shows 'data.cerdi.edu.au/soil\_demo.php'.

Points from:

- CSIRO, AU
- Landcare Research, NZ
- ISRIC, NL (WoSIS2)

‘Three organizations providing data using the same standard in an *inter-operable* manner’

Base map: Greyscale | This demonstration portal developed by CeRDI - Federation University Australia | 40,1793, 3,6844



# Reference Collection



# Reference Collection

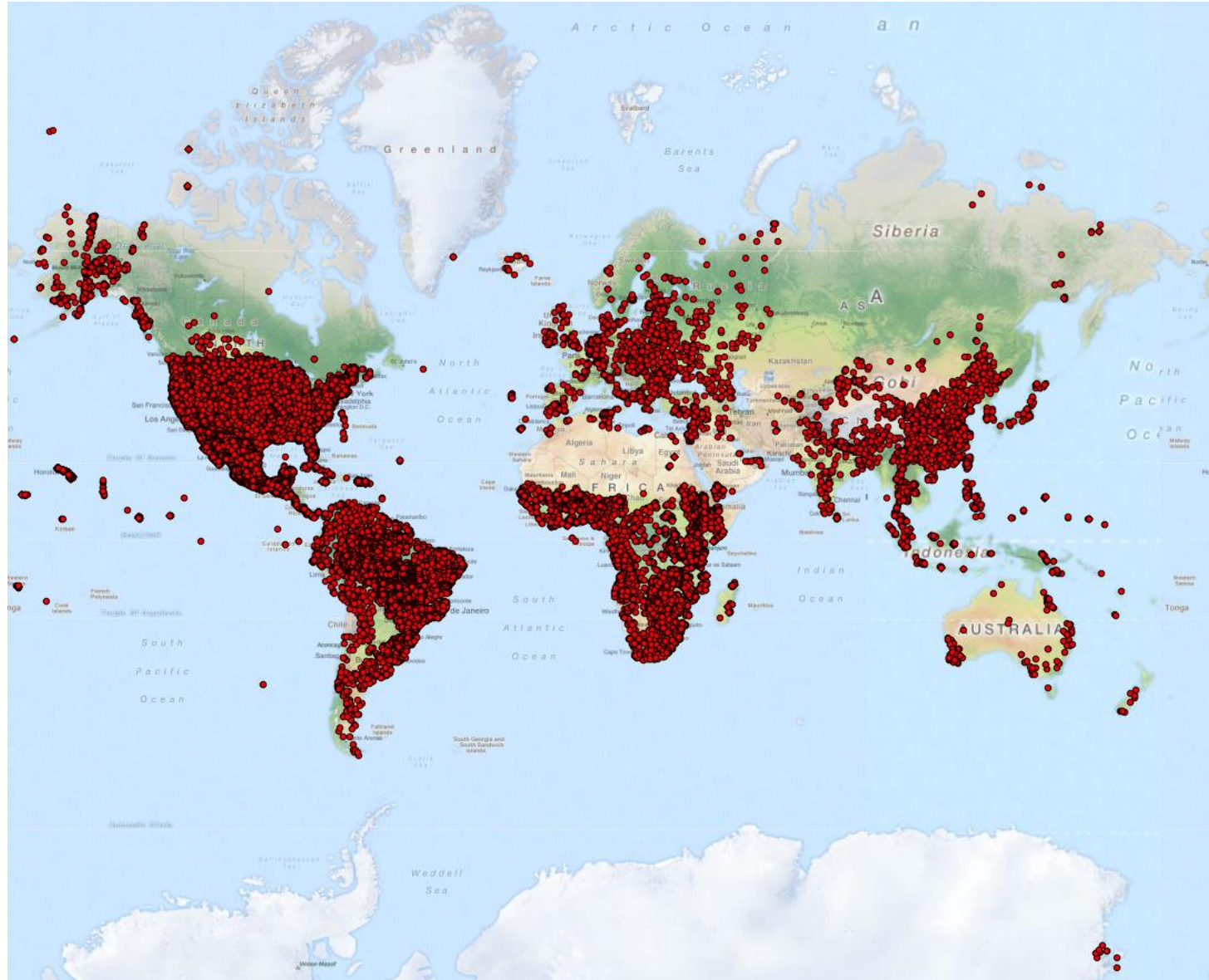


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# Work stream 2: Soil Data Brokering (`Raison d'etre`)



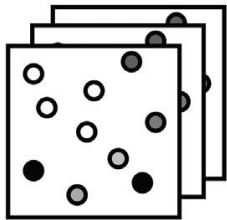
# WoSIS: institutional soil info data base (ca. 150.000; ongoing)



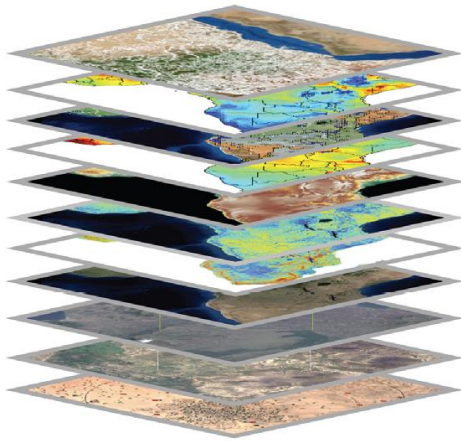
# From points to grids

## Geo-Data

Soil profile measurements

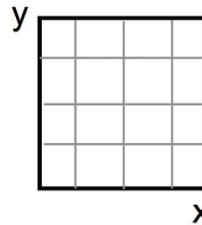
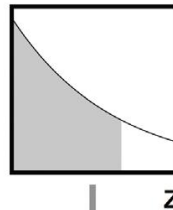


Covariates



## Model specifications

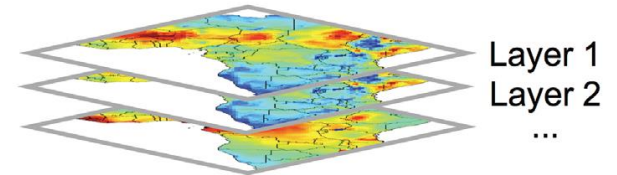
Mass/Depth integrating function(s)



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](#)



# Combining global and local

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





# Some use cases



**Towards a Land Degradation Neutral World**  
A Sustainable Development Priority

**15 LIFE ON LAND** Sustainable Development Goal, Target 15.3:  
By 2030, combat desertification, and restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land-degradation neutral world.

UNEP United Nations Convention to Combat Desertification

**4 POUR 1000**  
LES SOLS POUR LA SÉCURITÉ ALIMENTAIRE ET LE CLIMAT



**GLOBAL SOIL PARTNERSHIP**



**World Soil Information**

# gODAN

Global Open Data  
for Agriculture & Nutrition



WORLD DATA SYSTEM



World Soil Information

# GOSS

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# Work stream 3: Capacity Building and Advocacy (‘Competent user community’)



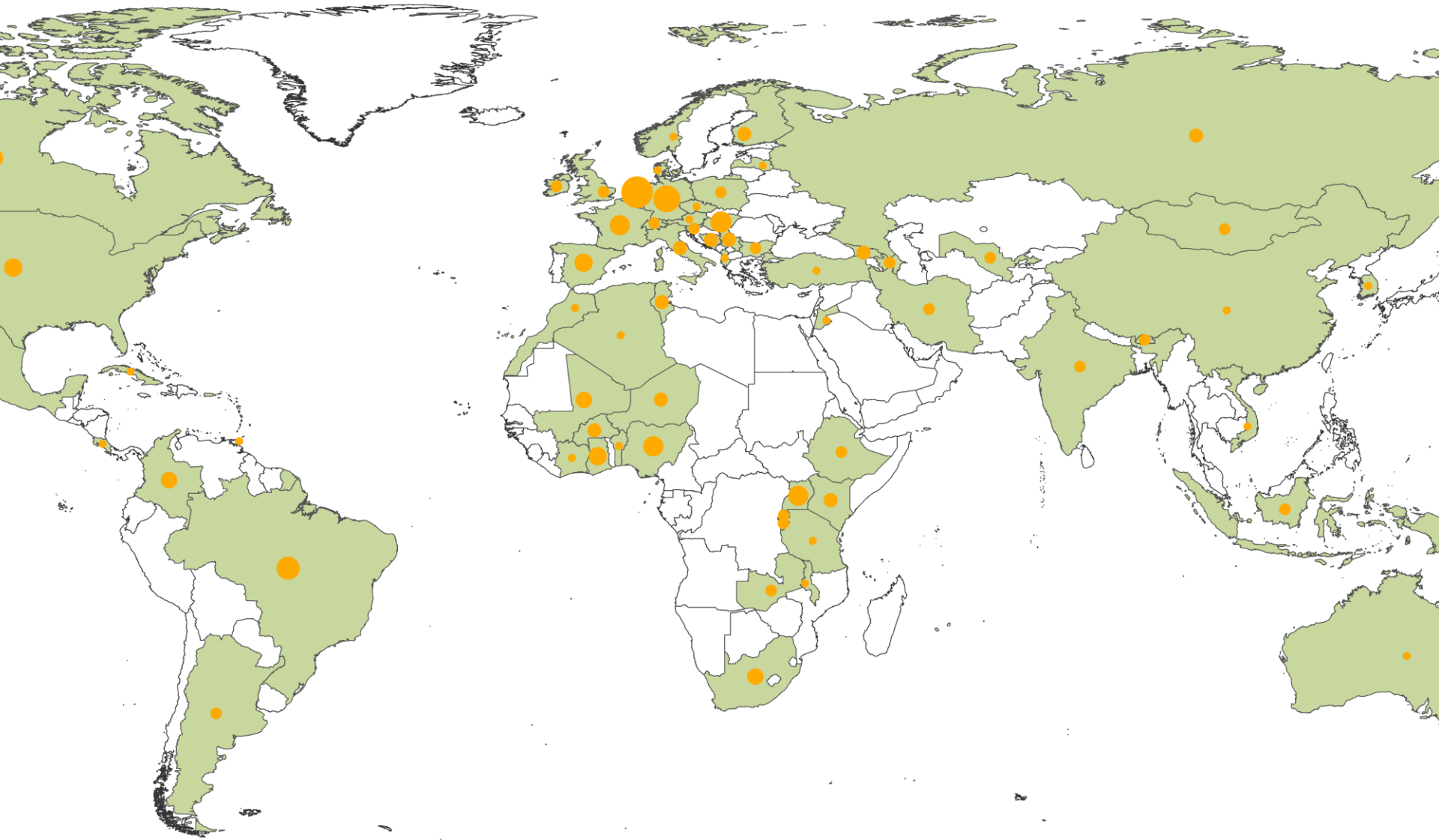
# Spring School



# Spring School



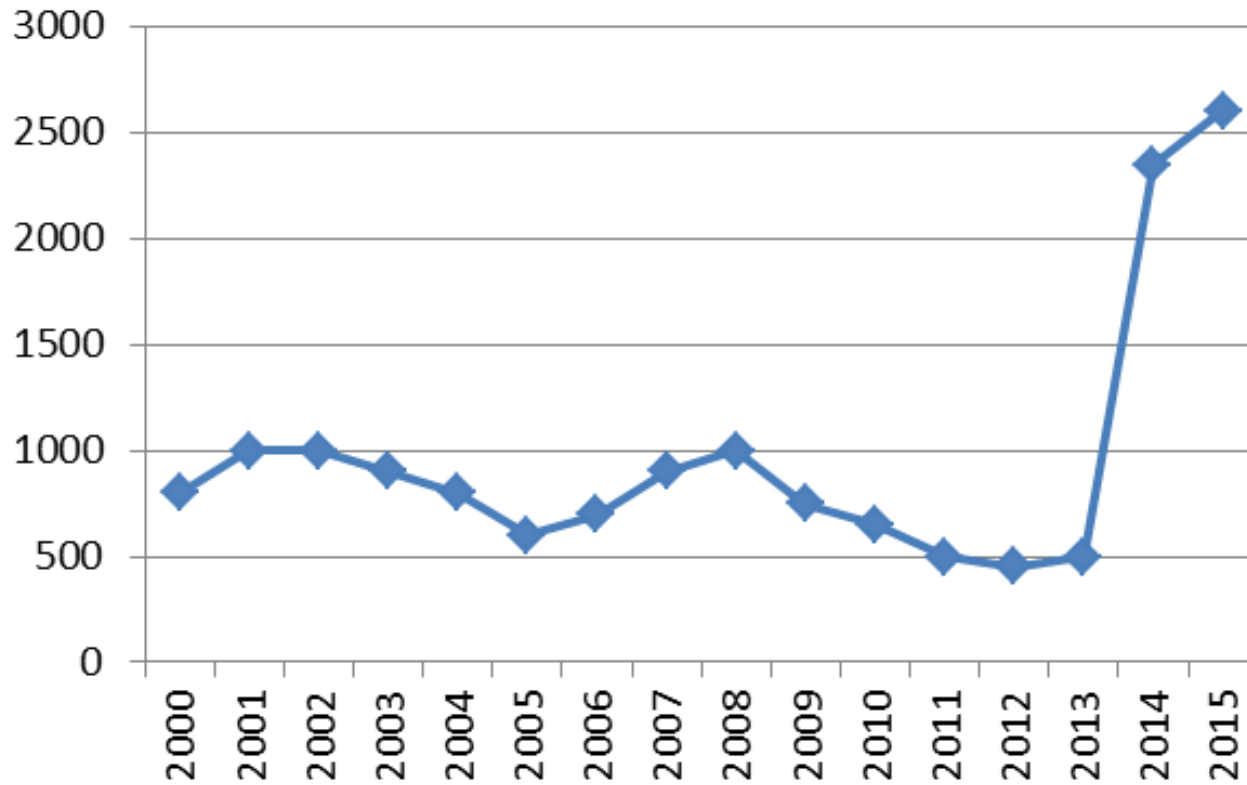
# Spring School



# World Soil Museum



# Number of visitors per year



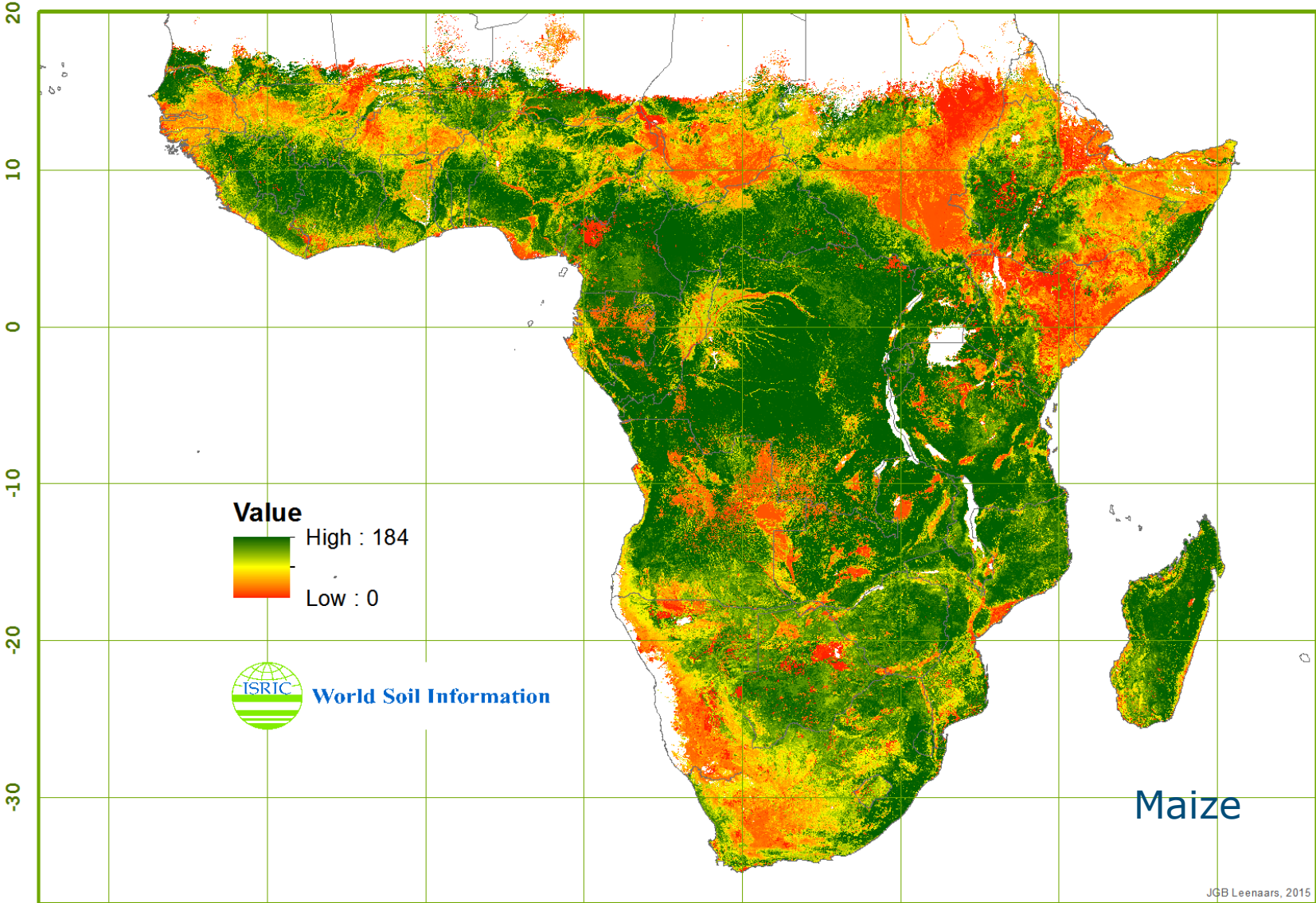


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# Work stream 4: Derived Products (`Boosting Impact')



# Plant-available water holding capacity (mm)



# Information platform for site specific blending of fertilisers



# Enjoy!



**World Soil Information**

[www.isric.org](http://www.isric.org)

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