

GlobalSoilMap.net

A Global Project to Develop Soil
Property Information

2007 National Cooperative Soil Survey
Conference, Madison, WI

Background

- The Project has been initiated by the DSM working group of the International Union of Soil Scientists (IUSS)
- DSM working group is under the auspices of the commission on soil geography and pedometrics of the IUSS
- Goal is to provide soil property information for 80% of the globe's surface
- GlobalSoilMap.net project proposal provided to the Bill and Melinda Gates Foundation for funding in April 2007

Vision of Success

- A global digital map of the primary functional properties of soils at a grid resolution of 90 by 90 m of 80 percent of the world within 5 years, freely available and web accessible

Project Management

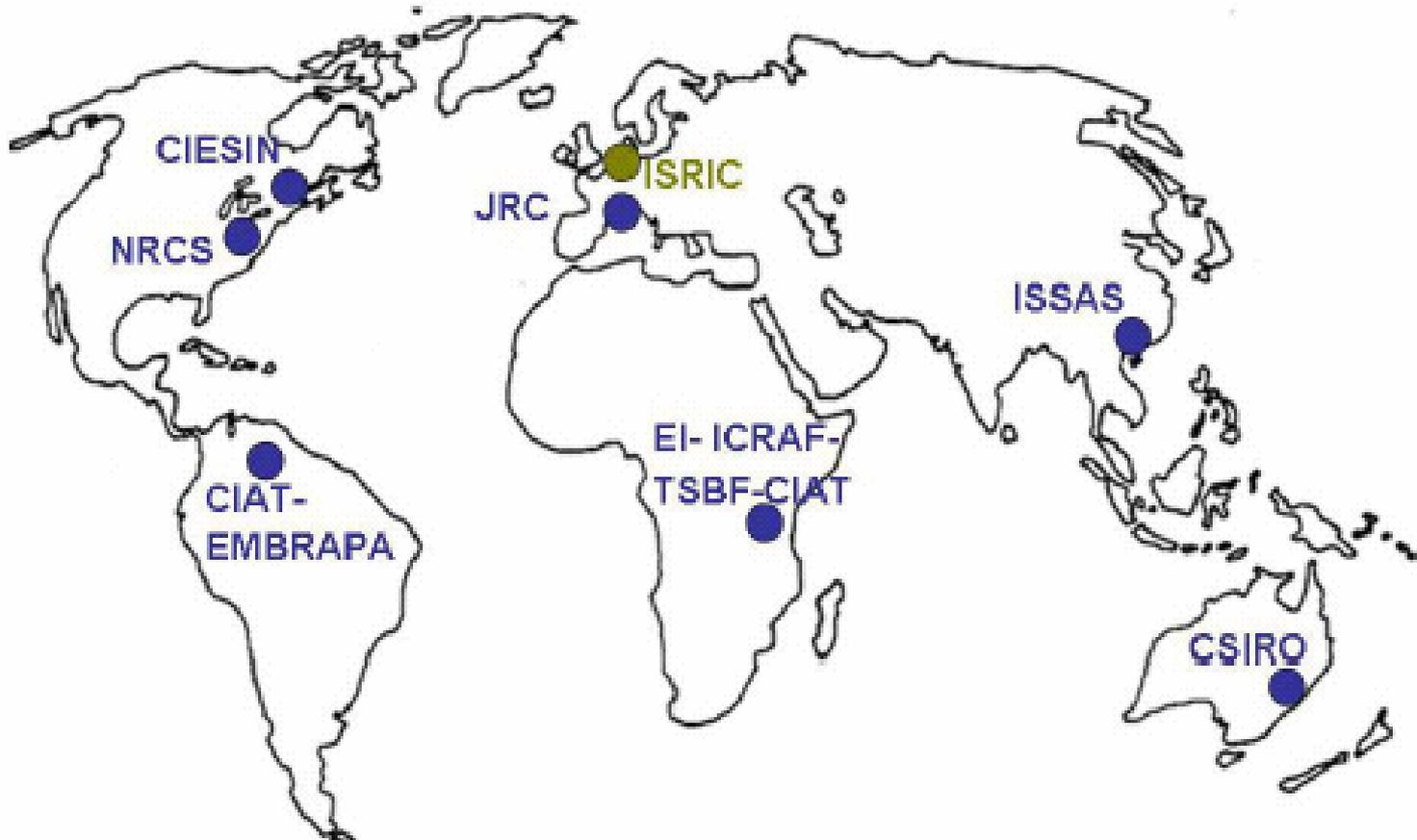
Project Director

- Dr. Alfred Hartemink, ISRIC-International Council of Sciences' World Data Centre of Soils, Wageningen, The Netherlands

Co-Principal Investigators

- Dr. Pedro Sanchez, Center for Earth Science International Network (CIESIN), Columbia University
- Dr. Alex McBratney, University of Sydney, Sydney, Australia

GlobalSoilMap.net Production Sites



Node Sites

- CIAT-International Centre for Tropical Agriculture, Columbia, South America, Nairobi, Kenya
- CIESIN-Center for International Earth Science Information Network, Columbia University, Columbia University, New York
- ICRAF-International Center for Research in Agroforestry, Nairobi, Kenya
- EMBRAPA-Brazilian Agricultural Research. Corp., Rio de Janeiro, Brazil
- JRC-Joint Research Centre, Milan, Italy
- CSIRO-Australia Commonwealth Scientific and Research Organization, Canberra, Australia
- ISRIC- World Soil Resources Wageningen, The Netherlands
- ISSAS-Institute of Soil Science, Chinese Academy of Science, Nanjing, China

Project Leadership

- Project Director
 - Dr. Alfred Hartemink-ISRIC
- Africa Node
 - To be determined
- Australian/Oceania Node
 - Dr. Neil Mackenzie-CSIRO
- Europe Node
 - Dr. Luca Montaneralla-JRC
 - Dr. Florence Carre-JRC
- Asian Node
 - Dr. Ganlin Zhang-ISSAC
- North American Node
 - Jon Hempel-NRCS
- Latin American Node
 - Dr. Lou Mendonca-EMBRAPRA
 - Dr. Thomas Oberthur-CIAT

Properties to be mapped

- Texture, Carbon Density, Drainage class, Depth Classes

Properties to be inferred (pedo-transfer functions)

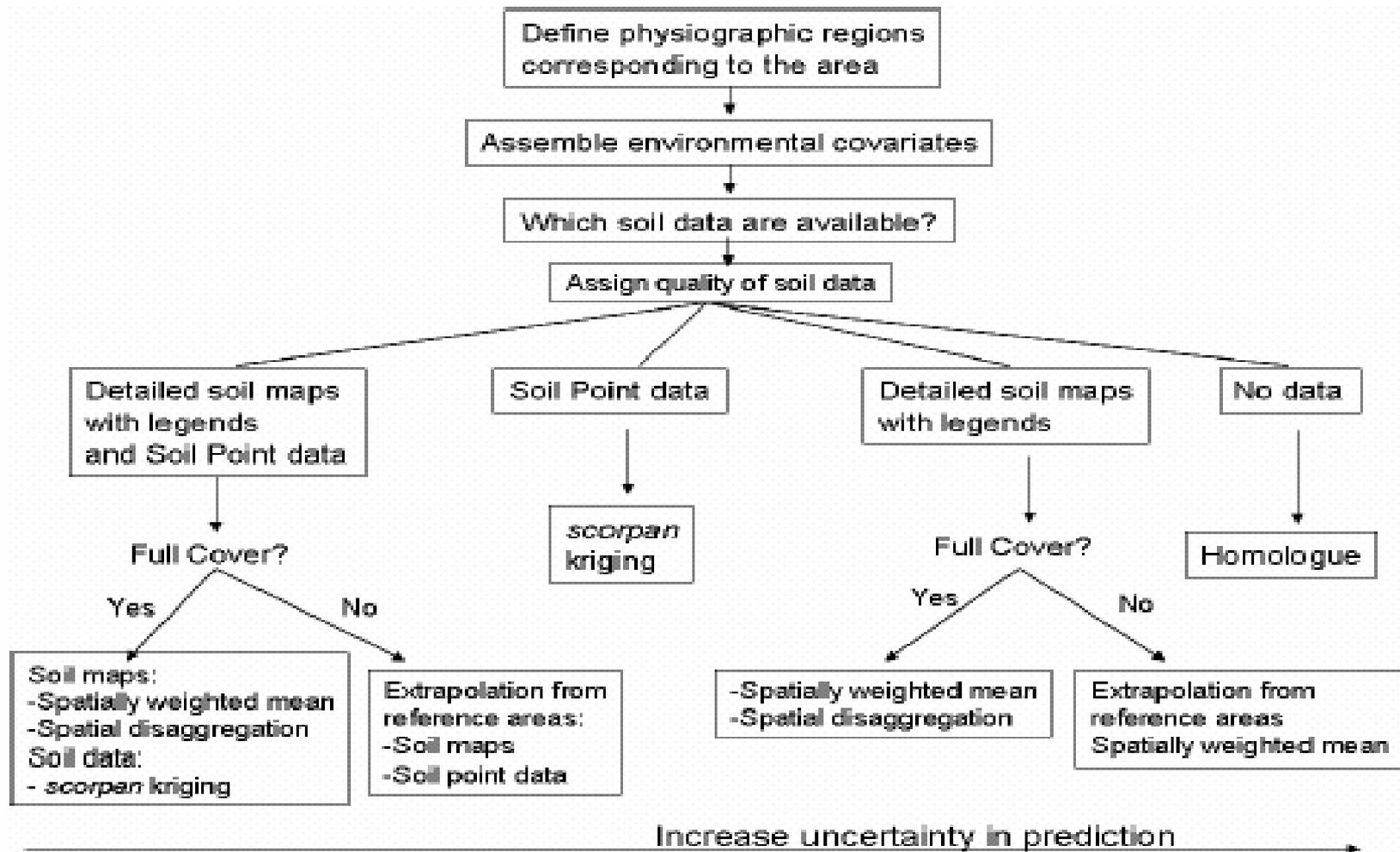
- Plant available water capacity, Nutrient supply capacity (CEC, exchangeable bases, available P), infiltration, permeability

Model for Digital Soil Mapping

$$S=f(c,o,r,p,t)$$

- $S=f(s,c,o,r,p,a,n)$
- *S-soil properties of interest*
- *s-soil and other properties of soil at a point*
- *c-climatic properties of the environment at a point*
- *o-organisms*
- *r-relief or topography*
- *p-parent material*
- *a-age or time factor*
- *n-space, spatial position*

Proposed Digital Soil Mapping Workflow for GlobalSoilMap.net



What will the project mean to the NCSS

- Data in unmapped areas
- Data base of continuous raster soil information based on geographic subdivisions
- Produce and use raster soil information
- Soil property information with uncertainties related to the predictions
- Build capacity in this technology
- International network of soil scientists
- Increase the visibility of soil survey information