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Developing SoilML as a global standard for the collation and transfer of soil data and information.

Luca Montanarella (1), Peter Wilson (2), Simon Cox (3), Alex McBratney (4), Sonya Ahamed (5), Bob McMillan (6), David Jacquier (7), and Jim Fortner (8)

(1) European Commission - JRC, Land Management & Natural Hazards Unit, Ispra (VA), Italy (luca.montanarella@jrc.it), (2) CSIRO Land and Water, Canberra, Australia (Peter.Wilson@csiro.au), (3) European Commission, Joint Research Centre Institute for Environment and Sustainability Spatial Data Infrastructures Unit, TP 262 Via E. Fermi, 2749, I-21027 Ispra (VA), Italy (simon.cox@jrc.ec.europa.eu), (4) The University of Sydney NSW, Sydney, Australia (alex.mcbratney@sydney.edu.au), (5) CIESIN, Earth Institute at Columbia University, 61 Route 9W, Palisades, NY 10964, USA (sahamed@ciesin.columbia.edu), (6) ISRIC - World Soil Information PO box 353, 6700 AJ, Wageningen, The Netherlands (bob.macmillan@wur.nl), (7) CSIRO Land and Water, Canberra, Australia (David.Jacquier@csiro.au), (8) National Soil Survey Center, Natural Resources Conservation Service, Lincoln, USA (jim.fortner@lin.usda.gov)

There is an increasing need to collect, collate and share soil data and information within countries, across regions and globally. Timely access to consistent and authoritative data and information is critical to issues related to food production, climate change, water management, energy production and biodiversityl. Soil data and information is managed by numerous agencies and organisations using a plethora of processes, scales and standards. A number of national and international activities and projects are currently dealing with the issues associated with collation of disparate data sets. Standards are being developed for data storage, transfer and collation like, for example, in the GobalSoilMap.net project, e-SOTER and the EU Inspire GS-SOIL. Individually these will not provide a single internationally recognised and adopted standard for soil data and information exchange.

A recent GlobalSoilMap.net meeting held in Wageningen, The Netherlands, discussed the needs of a harmonized information model for collation of a global 90 metre grid of key soil attributes (organic carbon, soil texture, pH, depth to bedrock/impeding layer, and predictions of bulk density and available water capacity) at six specified depth increments. The meeting considered a number of existing data base implementations (such as ASRIS, NASIS, WISE, SOTER) as well as emerging abstract information models that are being expressed in UML (such as e-SOTER). It examined related information models, such as GeoSciML and the lessons learnt in developing and implementing such community agreed models, features and vocabularies.

There is a need to develop a global soil information standard, to be called SoilML, that would allow access and use of data across a broad range of international initiatives (such as GEOSS and INSPIRE) as well as supporting national, regional and local data interoperability and integration. The meeting agreed to adopt the interoperability approaches of formalising the information model in UML with XML encoding for data transfer as well as re-using existing features and patterns where appropriate such as those found in GeoSciML and Observations and Measurements. It has been proposed to establish a formal Working Group on Soil Information Standards under the International Union of Soil Science to give the SoilML information model both scientific credibility and international standing. A number of meetings and workshops are being planned to progress the draft SoilML information model