

Towards an ontology-based soil information system

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ABSTRACT ORIGINAL

Environmental information is critical to the sustainable use and management of the world's resources. Soils are a fundamental part of the environmental information requirement, and appropriate soil data and information are crucial to support evidence-based policy, planning and resource management decisions. For data to be useful, one basic requirement is that they be interpretable. Sufficient information should be provided to allow data to be unambiguously interpreted and used. Examples of such information include the location at which the soil was sampled, the property that was measured, the unit of measure, and quality assurance and quality control information. Furthermore, data should be easily integrated with other data sources, which is required in many modelling applications. For example, simulation of crop production may require, besides soil data, also weather, crop and fertilizer data. To meet these requirements, we have developed a soil ontology for modelling soil information. In this paper, we focus on the design of the ontology and its potential applications. We describe the use of the ontology to facilitate data access by mapping data to the ontology and making them available as Linked Data. We also discuss applications of the ontology for data integration, data classification and data validation. © 2020 Proceedings - 21st International Congress on Modelling and Simulation, MODSIM 2015. All rights reserved.