



Harmonization, innovation, and standardization of soil hydro-physics properties through international engagement (SOPHIE)

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SOPHIE supports the realisation of qualified soil hydro-physics data, highly needed in EU policy making, coming from EU-wide agreed, preferred, and innovated cost-effective laboratory- and field methods, accomplished through international collaboration. Soil Hydro-Physics (SHP) properties are the properties that determine the Soil-Water interactions: i. water flow and water retention, and ii. with the water flow the transport of dissolved compounds, like nitrogen, phosphates, pesticides, antibiotics, and carbon. SHP-properties play an important role in a variety of issues that affect society: crop water stress vs. food security, soil salinity and sodicity, susceptibility to forest fires, soil compaction, dike stability, greenhouse gas emissions, and soil health, among others. The need for reliable SHP-properties is thus widely emphasized by researchers and consultants. It is, however, recognized that harmonization of existing protocols, and the development of new techniques is difficult to accomplish. This is due to the missing attention and missing direct visibility of SHP-properties in the societal topics they address. As a result, current methods remain time consuming, and data remains fragmented and incompatible. The methods need to be improved towards cost-effective ones, and should be sufficiently harmonized to be used at EU-scale and preferably world-scale research. There are many opportunities to markedly improve the situation, but these require large scale adaptation, validation and standardization. One example is the adaptation, and innovation towards novel remote and proximal sensing techniques. When they are used in combination with modern field and laboratory techniques, they help to obtain standardized SHP-properties that are directly usable to faster extent current soil data bases like LUCAS, and in large scale trans-boundary studies. The INSPIRATION meeting on Dec, 6th 2017 in Brussels, was used to build upon commitment among policy makers, manufacturers, developers, researchers, and users. The motivation and approach of SOPHIE was underlined almost unanimously during the workshop, and it was concluded that SOPHIE should be extended. The University of Liège (Agro-Bio Tech in Gembloux, Belgium) organized a SOPHIE workshop on January 30th 2019 to exchange knowledge about the use of reference samples for SHP measurements. We will discuss the general SOPHIE draft research agenda during a public splinter meeting at the EGU2019 (Tuesday, April 9th at TB3:14.00-15.45 hours, Room 2.83).