



# wageningen soil conference

SOIL SCIENCE IN A CHANGING WORLD

## SOPHIE; Integration, Innovation and Standardization of Measuring Soil Hydro-Physics Properties

### Ambition of SOPHIE

*SOPHIE provides EU wide accepted standardization of SPH property determination, by providing means for testing Soil Hydro-Physics (SHP) properties in a standardized way for existing and new techniques, and standardized samples taking for testing. And SOPHIE provides reporting of SHP data based on standardized procedures to be used as a support for the EU Soil Policies.*

### Rationale

Innovation of measurement techniques to determine Soil Hydro-Physics (SHP) properties is a relatively slow process because of scarce funding opportunities and a long time to market. Nevertheless, innovative and affordable techniques are highly essential to determine Soil Health within the territories of the EU and elsewhere.

In recent years, interest by the public and policy makers in soil health and processes has grown and increasingly become the subject of large scale studies such as the LUCAS database. Novel sensing techniques now offer unprecedented opportunities to cover large areas and allow for high-resolution modeling both in space and time. Yet, validation and thus high resolution data are needed to address the wide range of SHP properties that exist in the physical world. The large spatial and temporal variability of soil processes must be addressed together with standard, reliable, and cost-effective measurement techniques to answer key questions. For example, what is the relation of SHP with climate change, sustainable land use, nature conservation, water resources, agricultural development, ecosystem services, food safety, protection against flooding, soil erosion, soil salinization and soil sodification, percolation of nutrients and contaminants towards groundwater and surface water? SHP are crucial in all of these, but are not always considered or even known at relevant scales for policy makers and environmental managers.

As there is little attention being paid toward innovation of SHP measurement techniques, and toward standardized, reliable and cost-effective determination at relevant scales, there are currently only weak links towards policy and valorisation. Such weak links carry the risk of a lack of integration and common approaches (standardization) to quantify SHP properties in European databases like the Lucas-survey (JRC), the INSPIRE database, and in topics upon 'healthy soils', and 'sustainable land use'. At the same time, the recently established International Soil Modelling Consortium aims to integrate and advance soil systems modeling, data gathering, and observational capabilities to address many of the relations listed above. The consortium comprises platforms for data warehousing, integrated modelling and development of cross-disciplinary concepts and outreach strategies.



Photographs: Eric van den Elsen and Guy Ackermans

## Side event at the Wageningen Soil Conference

The Wageningen Soil Conference has become an important meet up during which soil scientists meet with policy makers to discuss how soil sciences can contribute to confront the great challenges of our time - food security, water resources, biodiversity, land functions and climate change. With over 250 participants from approximately 50 different countries the Wageningen Soil conference is the unique gathering of relevant stakeholders during which initiatives to improve our research on soils, their characteristics and their role in society.

The SOPHIE initiative organises a side event at the Wageningen Soil Conference to discuss the way forward between those groups who need reliable SHP data and understanding. We see this as a means to reach commitment upon integration, valorisation, and standardization for SHP properties, and to set up an EU-wide collaborating work force. New, more advanced, faster, and cheaper measurement techniques must be developed and standardized, integrated and valorised to support EU wide management of Healthy Soils.

## Registration

Please register for this side-event via e-mail to [gerben.bakker@wur.nl](mailto:gerben.bakker@wur.nl); with indication of your name, profession and organisation. This side-event is free of charge. In case you intend to participate in other events of the Wageningen Soil Conference; registration for the Wageningen Soil Conference is needed. You can register through: <http://www.wur.nl/en/Research-Results/Projects-and-programmes/Wageningen-Soil-Conference-2017/Registration-WSC-2017.htm>.

## Preliminary program

*Facilitator Saskia Visser; program lead Sustainable Land use, Wageningen UR*

8.45 - 9.00	Walk in & Coffee
9.00 – 9.10	Introducing SOPHIE and its ambitions [ Gerben Bakker & Martine van der Ploeg]
9.10 - 9.45	Keynotes. Rik van den Bosch; need for standardization of data collection for the Soil Data facility of the Soil Partnership and (to be confirmed); need for standardisation of SHP for EU policy development.
9.45 - 10.45	Three parallel World café sessions on; Need for Innovation, Data Integration and Standardization
	<<<BREAK>>>
11.00 - 11.30	Common desires & Possible Actions
11.30 - 11.45	Commitment and planning
11.45 – 12.00	Conclusions and Closure