

SOPHIE

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Hydro-physics properties are THE properties that determine the soil-water interactions

And with water flow the transport of dissolved compounds (Nitrogen, Phosphates, Pesticides, Antibiotics, Organics, etc)

Nile region Achmim, Egypt (mid east)

SHP-Properties – some examples

- soil water retention & (un)saturated conductivity
- shrinkage and swelling
- organic matter
- texture (particle distribution)
- structure (soil aggregation/pore structure)
- density
- capillary rise
- and alike



SHP properties in societal issues

Outcomes strongly depend on Soil-Water-condition

- Food security & Agricultural development (drought, water damage, precision drainage, irrigation, water logging, compaction, erosion)
- Salinity and Sodicity (leaching, evaporation, capillary rise)
- Soil greenhouse gas emissions (N_2O/CO_2)
- Water quality (percolation of nutrients, contaminants, antibiotics)
- Nature conservation (wet and dry lands: climate change)
- Sustainable land use (Healthy Soils, Function location)
- Flooding (dike stability, infiltration, soil water repellency)
- Damage to buildings & roads (soil shrinkage)

Objective of SOPHIE

SOPHIE supports the

Realisation of qualified soil hydro-physics data

- **highly needed for EU policy making**
- **determined with EU-wide agreed methods:**
 - **Harmonised (preferred methods)**
 - **Innovated (cost-effective)**
 - **Standardised (procedures)**
- **for laboratory- and field methods**

through international collaboration.

To give direction: OGSM

Objectives, Goals, Strategies, Measures

To mention a few:

- Jointly design of Basic Research Agenda,
- Active international contributors: meeting circulation
- Involve policy,
- Generate financial means, e.g. place SOPHIE on the EJP-agenda.
- Equality & involvement
- Workshop Gembloux, EGU2019, others
- Reference samples for Sandbox & Pressure plate tested in 2020: reported/paper: many authors

SOPHIE Ambition (HIS)

“Without data,
you're just another
person with an
opinion.”
~W. Edwards Deming



Internationally collaborate on modernising SHP-properties use, determination, and distribution

by

- **Harmonisation** (method and threshold comparison)

International agreed use of golden, silver and bronze standards; inter-comparison via reference samples; use of comparable threshold values

- **Innovation** (efficient equipment, models, dBases)

Stimulate modernisation into efficient field-, and laboratory equipment and model development, e.g. combine proximal sensing (PS), remote sensing (RS), field and lab techniques to increase output and reduce costs.

- **Standardisation** (used methods: golden, silver, bronze)

How should the parameters be determined (e.g. ISO); How to store them in dBase; standardise to general acceptable level

Thank you

