TWO DIRECT APPLICATIONS

Modeling Green and Blue Water Cycles at Global Scale

Modeling the two water cycles (green water and blue water) at global scale by passing from the soil mapping unit to higher levels of hydro-functional organization units (farm, watershed, etc.)

Studying Soil Processes in Laboratory at the Pedostructure Level

Controlling the pedo-climate and the flux of different water quality to study the diverse processes in the soil medium.

The Pedon: Object of Study [System-Thermodynamic Approach]

A pedon is a representative elementary volume of a soil mapping unit.

Many processes happen inside the organized soil medium

- Organic matter mineralization
- Roots dynamic and growing
- Microbiology life
- N and C cycles
- Pesticides transfer, accumulation etc.
- Geo-chemical processes

Soil is a physical organized medium allowing for life. In this organized medium, all processes are conditioned by:

- Pedo-structure: the soil medium organization as an assembly of primary aggregates.
- Pedo-climate: the soil - water - air thermodynamic equilibrium with the pedo-structure.
These two characteristic curves describe the hydrostructural equilibrium state of the soil medium at each value of the water content.

The entire curve is described by a physical parametric equation of 4 parameters. These are characteristics of the pedostructure.

The shrinkage curve equation has 6 to 8 parameters, characteristic of the pedostructure.

Knowing $W_{mi}$ and $W_{ma}$ at each value of the water suction $h$ allows to measure the two parameters of the pedo-structure hydraulic conductivity (figure below).