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## The First year of the French lysimetric network

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The need for continuous local and long-term observations in the vadose zone has been growing for many years, as they are essential for improving our understanding of the processes occurring in the vadose zone of the soil and enhancing seasonal forecasts from numerical models.

Lysimeters and Ecotrons are the main tools to directly access water and nutrient transport over long periods of time. In France, with the impulsion of the ONEWATER project, a French lysimeter network is in development since April 2024, taking benefice of the existing structure.

A workshop was organised to identify all the sites in France and to collect expectations. We considered about the major scientific questions that could be supported by such a network, and identifying the measurement systems and instruments that are compatible with our ambitions, as well as considering the management and diffusion of the data.

In 2024, 32 lysimeter sites have been identified in France, with a total of 650 lysimeters. These sites are very heterogeneous : i) different type and size of devices : (columns, boxes, plates, mini-lysimeters, porous cells, Ecotrons, etc.); ii) different filling methods (undisturbed or reconstituted), iii) different measurements (probes, frequency...), iv) different atmospheric condition (natural or controlled)... Despite each site is unique and has specific scientific objectives, they all measure drainage.

The site managers expect this network will help sharing experience in terms of device management, data valorisation and probe development, and to enable the data collected in the sites to be more used.

A main issue with this heterogeneous network is to be able to compare and interpret each site. To do so several methods will be used, from in situ temporary experiment to numerical simulations. Additional, the individual sites would benefit from some upgrade, with the use of similar low-cost probes and effort will be done to share and valorize the lysimetric data.