mySoil: Crowd-Sourcing Soil Water Repellency Data to Create a Global Assessment

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Soil water repellency (SWR) alters the way water interacts with soil by impacting hydrological and biogeochemical cycling to an extent which is not yet fully understood. Most studies have focused on SWR in specific environments and habitats, mostly in Mediterranean climates, but SWR has been increasingly observed in a range of habitats from the tropics to the northern latitudes. To better assess the distribution of this phenomenon, we propose using citizen science to create a means of crowd-sourcing SWR data from around the globe using the mySoil app.

The water drop penetration time (WDPT) test, in which the length of time a drop of water remains on the soil surface is measured and a corresponding qualitative water repellency class is assigned to the soil, provides useful data and is easy to use. We propose adding a simple, standardised WDPT protocol to the mySoil app and web portal so both academics and non-scientists can contribute to the collection of SWR data from around the world. The protocol would include guidelines on drop size and the number of drops to apply, and would encourage inclusion of details such as vegetation cover, soil moisture conditions, last rainfall, and broad habitat. By initially engaging with researchers to create a back bone of respondents, we believe we can develop a global assessment that will reveal the distribution of the SWR phenomenon.