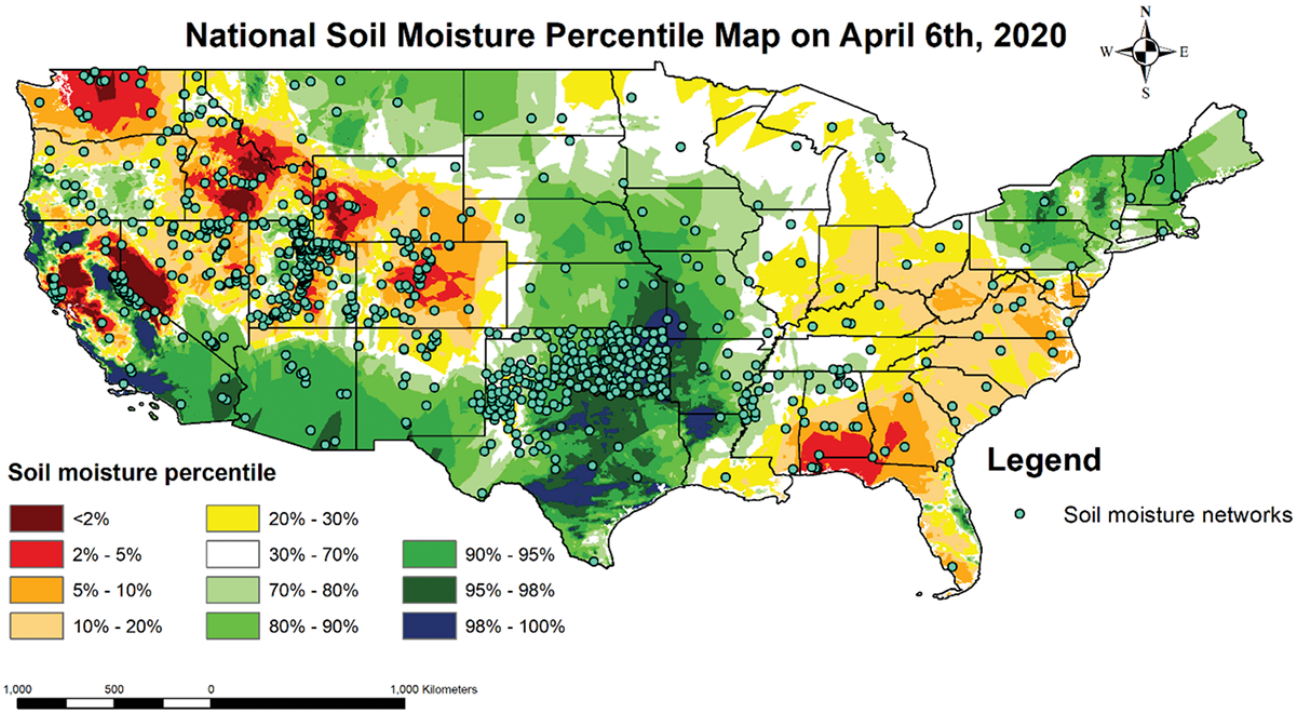
Science Societies

Creating national soil moisture percentile maps

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Example of a national soil moisture percentage map at 5 cm on 6 Apr. 2020. Image courtesy of Chen Zhao.

In situ measurements can provide accurate estimates of soil water content and have been widely used to evaluate or calibrate soil moisture from satellites and models. There are currently numerous monitoring networks providing real-time soil moisture measurements in the U.S. There is value in developing a spatially continuous (gridded) soil moisture dataset based on in situ measurements, but little work has been done in this area.

An article recently published in the *Soil Science Society of America Journal* highlights the development of an operational system that generates national soil moisture percentile maps. These maps include data collection, quality control, and calculation of the soil moisture percentile at 4-km grids in the contiguous U.S.

National soil percentile maps were found to be useful in revealing the regional moisture conditions over the contiguous U.S. with moderate accuracy. Cross-validation was employed to evaluate the accuracy of soil moisture percentile estimations at 5- and 20- m soil layers. Two case studies (a drought and a flood) from Oklahoma and Texas were used to demonstrate the utility of these soil moisture percentile maps.

The methods that have been described and evaluated in the article have been implemented operationally with daily national soil moisture percentile maps available at **http://nationalsoilmoisture.com**.

Dig deeper

Zhao, C., Quiring, S.M., Yuan, S., McRoberts, D.B., Zhang, N., & Leasor, Z. (2020). Developing and evaluating national soil moisture percentile maps. *Soil Science Society of America Journal*,*84*, 443-460. **https://doi.org/10.1002/saj2.20045**

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