SMAP Observations of the Surface Reveal Hidden Subsurface Processes Below

**Problem:** While SMAP only “senses” the moisture in the uppermost portion of the soil ($h_1$), that moisture is physically and statistically linked to an evolving profile of deeper moisture ($h_2$). How much of the soil column can the surface reveal?

**Finding:** Surface and subsurface soil moisture are more coupled in regions with highly variable precipitation, but persistent soil moisture states.

**Impact:** Surface soil moisture dynamics from SMAP allow global quantification of the differing physical scales/rates of unseen subsurface hydrology.

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Effective soil water column depth ranging up to 700 mm is evident by tracking surface soil moisture.