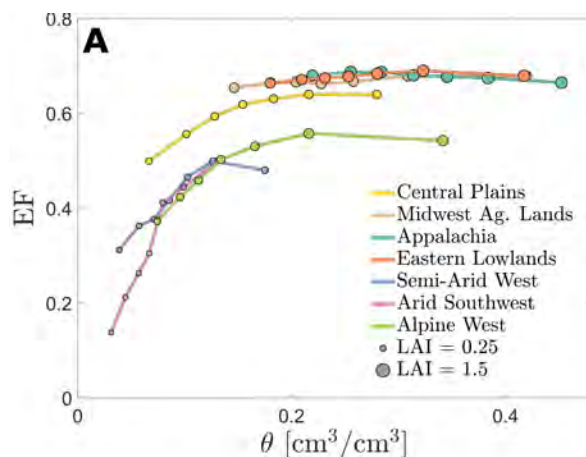


# SMAP Reveals How Soil Moisture Links the Water-Energy-Carbon Cycles

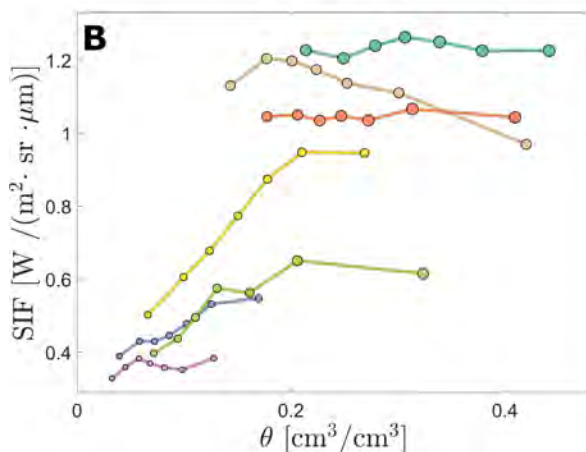


SMAP-Evaporation  
(Evaporative Fraction)



**Problem:** Surface evaporation links the water, energy and carbon cycles over land. Earth System models show wide divergence of how this coupling takes place (a major source of uncertainty)

SMAP-OCO2/GOME  
(Solar-Induced Florescence)



**Finding:** The figures show the first large-scale observational evidence for strong soil moisture control on the link. The shape of the curves determine the strength of the linkages and how anomalies in one cycle propagate to another.

**Impact:** Use of observation-driven SMAP global maps of soil moisture control on evaporation allows more realistic characterization of modeled water, carbon and energy cycles and their covariations.