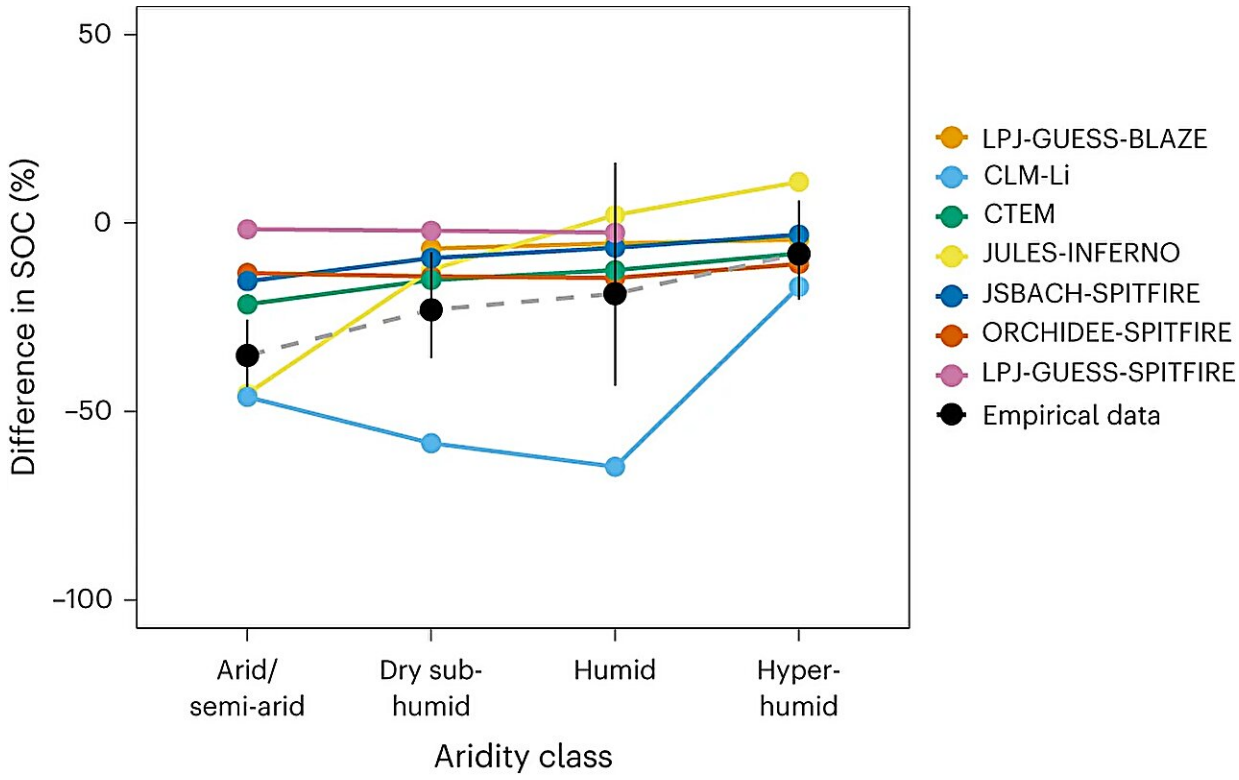
Drier savannas, grasslands store more climate-buffering carbon than previously believed

October 2 2023, by Jim Erickson



Most models underpredict the stronger relative effects of fire on SOC in drier environments. Comparison between model simulations and empirical data of changes in SOC under different fire regimes across aridity classes. Colored symbols and lines represent means from different DGVMs, and the black symbols and gray line represent the empirical data with the error bars illustrating the 95% confidence intervals (sample sizes: arid and semi-arid: $n = 22$; dry sub-humid: $n = 6$, humid: $n = 3$, hyper-humid: $n = 22$). DGVMs calculate the percent

difference by comparing the simulations with fire vs a 'world without fire' (described in the main text and Methods). Aridity index is calculated as the ratio between precipitation and potential evapotranspiration, and these categories are defined as in UNEP World Atlas of Desertification, arid and semi-arid: 0