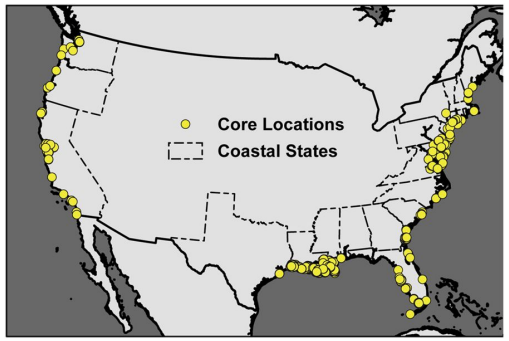
# Accuracy and Precision of Tidal Wetland Soil Carbon Mapping in the Conterminous United States.

*Scientific Reports.* James R Holmquist (HolmquistJ@si.edu), Lisamarie Windham-Myers, Norman Bliss, Stephen Crooks, James T. Morris, J. Patrick Megonigal, Tiffany Troxler, Donald Weller, et al. (26 more authors)

Coastal wetlands store carbon in soils, and mapping that carbon is important for ecosystem service valuation and estimating emissions from erosion. What's the best method though? A single average carbon stock value? Model based on soil and wetland maps, and climate zones? Existing soil carbon maps?




We synthesized data from 1,959 soil cores collected from literature, databases, and the scientific community.

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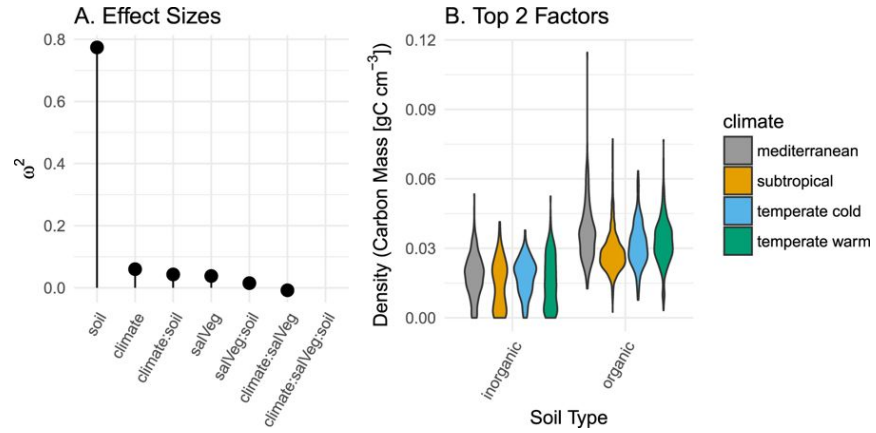
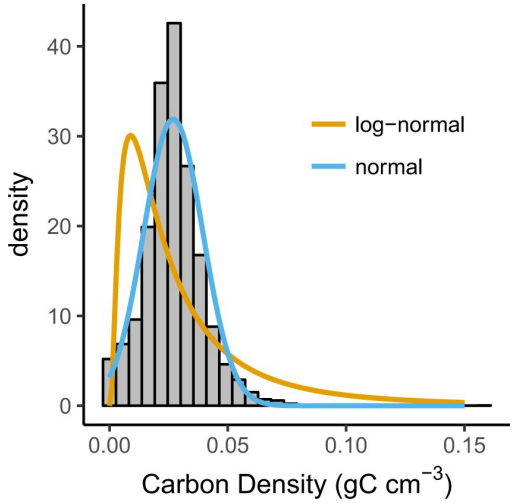
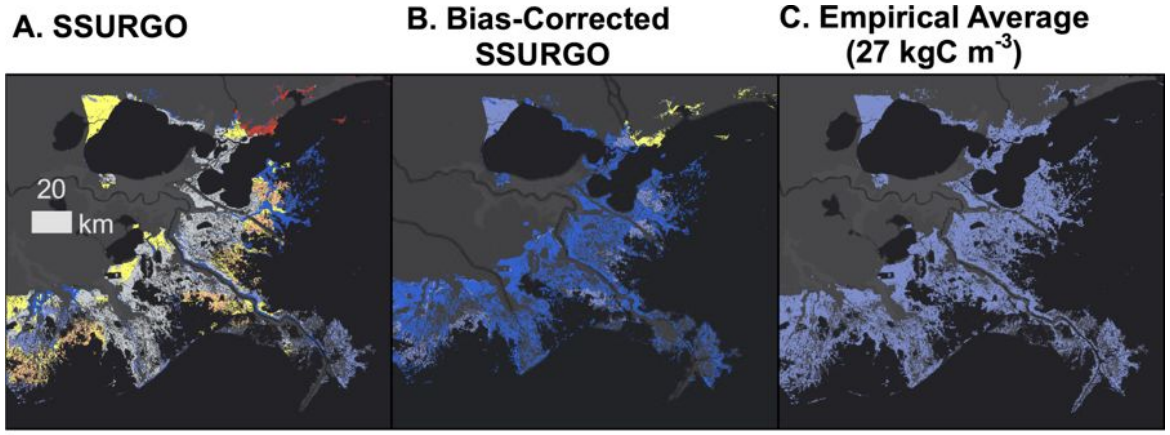
We calibrated more complex models. Model 1 is shown below. Model 2 was similar but did not include soil type.

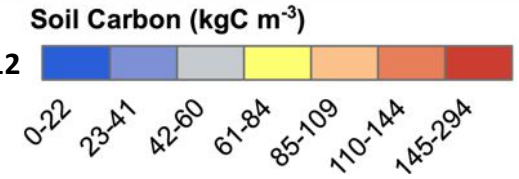



We estimated mean carbon density 0.027 gC cm$^{-3}$ +/- s.d. 0.013

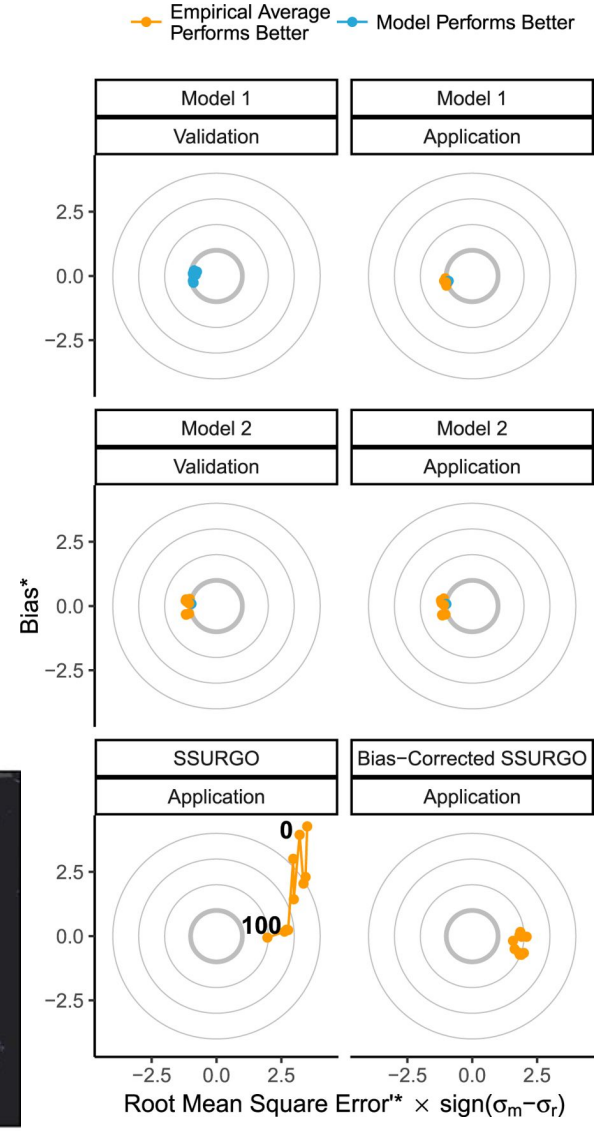



We created maps derived from 2 versions of the soil survey geographic database (SSURGO), as well as the empirical mean, and models 1 and 2 (not shown).




doi.org/10.3334/ORNLDAAC/1612




Independent validation of the models and accuracy assessments of the applied derivative map products show more complex approaches do not improve accuracy or precision. Using a single average carbon stock value is the most powerful and parsimonious strategy for now.