

## Poster #99

### Measurements and Modeling of Carbon Turnover Rates in Tropical Forest Soils TES Early Career Award

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Tropical forests account for over half of the global terrestrial carbon sink and 29% of global soil carbon. An understanding of how carbon dynamics in this system will respond to climate change is uncertain, and the lack of large data sets to extrapolate from field experiments to land surface models is limiting. We intensively sampled three forest and two soil types in the Luquillo Experimental Forest, Puerto Rico to quantify the age and carbon content in eleven pits across the forest. This dataset is compared to soils from AmeriFlux tropical forest sites in Brazil and Costa Rica to determine if carbon storage patterns are consistent across the broader Neotropical region.

We found that the Delta <sup>14</sup>C values measured in Puerto Rico at depths below 1 meter are widely distributed, ranging from -100 to -800 per mil. This is unlike the other four tropical forest soils currently available (from Brazil and Costa Rica), which in comparison, only range from -200 to -500 per mil at similar depths. Radiocarbon ages and carbon stocks are being used to generate robust estimates of carbon turnover times using SoilR, a model for carbon transit times. Our measured data is compared to model generated data from the Community Land Model (CLM) and Accelerated Climate Model for Energy's land surface model (ALM).