

# OBSERVED AND PROJECTED C CHANGE IN THE SOUTHEASTERN US

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**Abstract**—Over the past century forest regrowth in Europe and North America expanded forest carbon (C) sinks and offset C emissions but future C accumulation is uncertain due to the effects of land use changes, management, disturbance, and climate change. Policy makers need insights into forest C dynamics as they anticipate emissions futures and goals. Using a completely remeasured land use and forest inventory we show that forests in the southeastern United States yielded a net sink of C over a 5 year period (2007-2012) because of net land use change (+6.48 TgC yr<sup>-1</sup>) and net forest accumulation (+75.4 TgC yr<sup>-1</sup>). Forests disturbed by weather, insect/disease, and fire show positive forest C changes (+1.56, +1.4, +5.48 TgC yr<sup>-1</sup>, respectively). Forest cutting was the only disturbance causing net decreases in C (-76.7 TgC yr<sup>-1</sup>) but was offset by forest accumulation (+143.77 TgC yr<sup>-1</sup>). Projected C stock changes indicate a gradual slowing of carbon accumulation with forest aging (a reduction of 9.5% over the next five years) but was highly sensitive to land use.

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