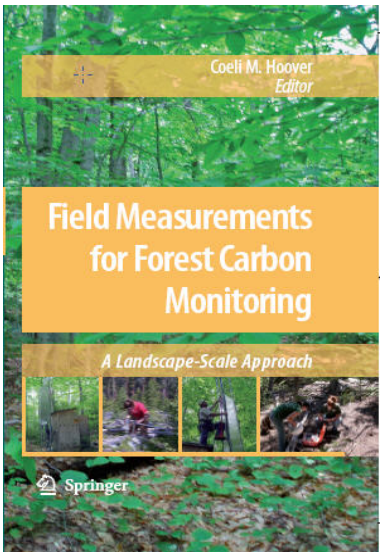
Field Measurements for Forest Carbon Monitoring: A Landscape-scale Approach



Edited by Coeli M. Hoover, US Forest Service, Northern Research Station

This volume is a comprehensive guide to the methods and techniques employed in forest carbon inventory and monitoring. Since forest carbon research is interdisciplinary, it is unlikely that any one investigator will possess expertise in all of the types of measurements needed to conduct forest carbon research at scales larger than a forest stand. Techniques used to characterize standing stocks of carbon in a forest, measure key carbon fluxes, and collect related data (such as forest canopy nitrogen concentrations and meteorological measurements) that are required to drive process models, develop predictive relationships, and link to remote sensing data are described in detail. In addition to the measurement methods, the chapters include background information, necessary calculations, and equipment requirements.

Why use this and who is interested: The field of forest carbon research is growing rapidly, and *Field Measurements for Forest Carbon Monitoring* provides a reference for the many and varied techniques necessary to characterize the forest carbon cycle. While the book outlines an entire forest carbon monitoring program, each chapter stands alone as a reference for measuring the variable described, and sufficient background discussion is included to allow investigators to determine if a particular measurement is warranted in their research program. The volume is of interest to ecologists, foresters, and other environmental scientists, as well as investigators participating in interdisciplinary terrestrial carbon cycle research programs.

Authors: Each chapter is written by a team of authors who have extensive experience implementing the measurement techniques in a variety of forest types. Authors represent academic institutions as well as the US Forest Service and Canadian Forest Service.

Overview of Contents:

Section I: Establishing a Landscape-scale Forest Carbon Monitoring Site

- Chapter 1: Defining a Landscape-scale Monitoring Tier for the North American Carbon Program.
- Chapter 2: Study Site Characterization
- Chapter 3: Meteorological Measurements

Section II: Measuring Aboveground Carbon Pools

- Chapter 4: Estimating Aboveground Carbon in Live and Standing Dead Trees
- Chapter 5: Measuring Carbon in Shrubs
- Chapter 6: Estimating the Carbon in Coarse Woody Debris with Perpendicular Distance Sampling

Section III: Measuring Aboveground Carbon Fluxes

- Chapter 7: Measuring Litterfall and Branchfall
- Chapter 8: Methods for Estimating Litter Decomposition
- Chapter 8: Methods for Estimating Litter Decomposition
- Chapter 9: Measuring Decay of Down Dead Wood

Section IV: Measuring Belowground Carbon Pools and Fluxes

- Chapter 10: Measuring Forest Floor, Mineral Soil, and Coarse Root Carbon Stocks
- Chapter 11: Quantifying Soil Respiration at Landscape Scales
- Chapter 12: Measurement of Methane Fluxes from Terrestrial Landscapes Using Stating, Non-steady State Enclosures
- Chapter 13: Measurement and Importance of Dissolved Organic Carbon

Section V: Supplemental Variables for Carbon Cycle Modeling

- Chapter 14: Forest Canopy Structural Properties
- Chapter 15: Estimation of Forest Canopy Nitrogen Concentration

Section VI: Lessons from the Past and Opportunities in the Future.

- Chapter 16: Integrating Field.- Measurements with Flux Tower and Remote Sensing Data
- Chapter 17: Landscape-scale Carbon Sampling Strategy – Lessons Learned

How to get it:

Visit Springer at: http://springer.com/978-1-4020-8505-5

Hoover, Coeli M (Ed.) 2008. Field Measurements for Forest Carbon Monitoring A Landscape-Scale Approach. XVIII, 242 p. 20 illus., Hardcover. ISBN 978-1-4020-8505-5

Note: be sure that you are on Springer's North America website. If the price is in Euros, check the map at the top of the page to switch to the North American site.

Questions? Contact Coeli M. Hoover, choover@fs.fed.us