

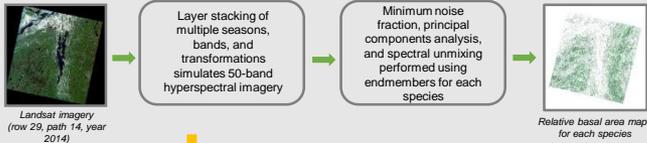
# Calculating carbon storage in the Northern Forest using novel remotely-sensed inputs: a methods comparison

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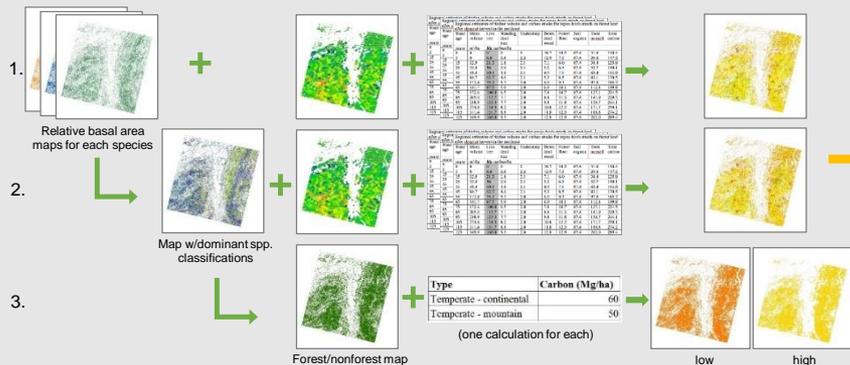
## Calculating Stored Carbon

Accurate measurement of carbon storage (CS) in forests is crucial to determine the impact of changes in forest cover on carbon cycles. CS estimates interpolated from forest inventory data are widely-used, but are resource-intensive and inaccurate in heterogeneous landscapes. Novel remotely-sensed data products, combined with spatial modeling software (Dinamica-EGO), provide an opportunity to improve carbon assessments in such landscapes. This study compares the impact of using remote sensing inputs with different degrees of forest type specificity when assessing carbon in Vermont forests. Specifically, we compared: 1) calculations based on species relative basal area maps, 2) calculations based on common forest species assemblages (e.g. spruce/fir, maple/beech/birch), and 3) calculations based on coarse land cover type classifications (e.g. forest/nonforest). Validation using VMC forest inventory plots will allow us to determine the most accurate landscape scale CS model, and to analyze how that differs from traditional approaches. This information is critical to understanding the role of the Northern Forest in carbon storage and sequestration.

## Novel Remotely-Sensed Inputs

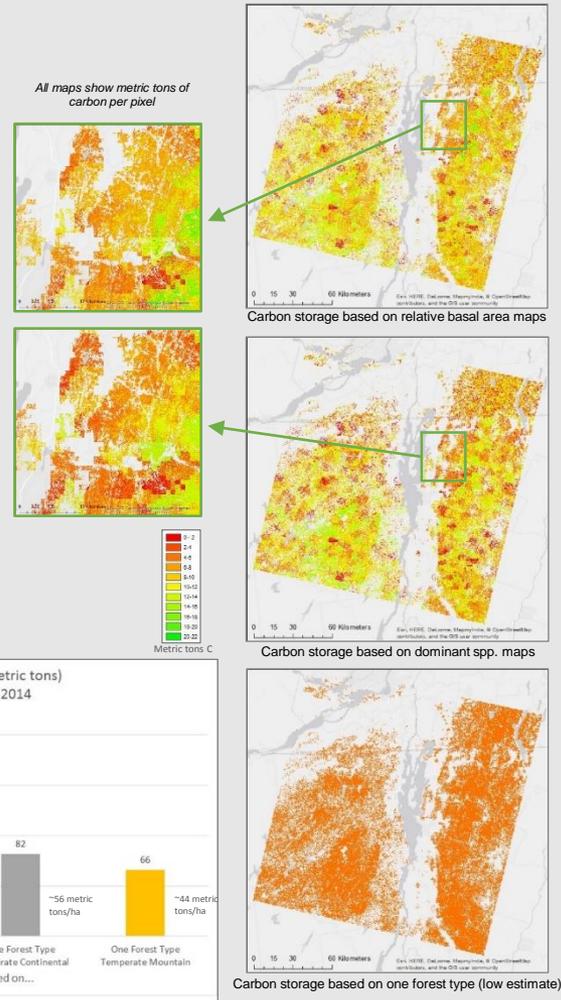


## Overview of Models



## Results

Examined for 2014, the carbon storage map based on relative basal area indicated that the study area stores approximately 156 million metric tons of carbon in aboveground biomass in forests. The map based on dominant species categories indicated a slightly lower number at 142 million metric tons of carbon. Maps based on a single forest type classification showed the lowest carbon storage values, between 66 and 82 million metric tons. While these results are preliminary and still must be validated against carbon storage values from the Vermont Monitoring Cooperative's long-term forest monitoring data, they suggest that coarse forest classifications may dramatically underestimate the amount of carbon stored at a landscape scale.



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