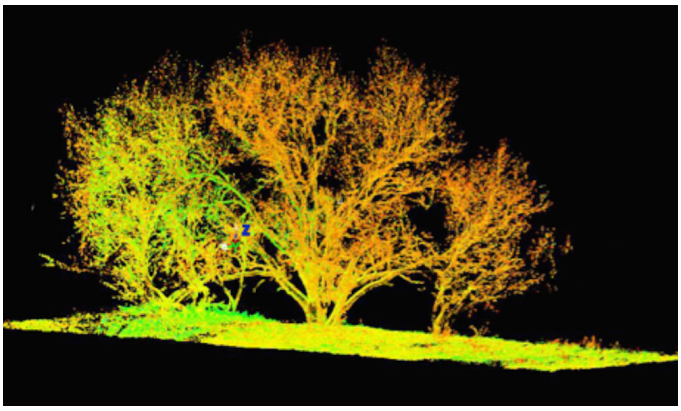
REMOTE SENSING FOR ECOSYSTEM SCIENCE AND MANAGEMENT

A McIntire-Stennis supported project

TEXAS A&M UNIVERSITY

Vegetation ecosystems play a significant role in the terrestrial Carbon (C) cycle as C pools. Events, such as management activities and disturbances can release C stored in forest above ground biomass (AGB into the atmosphere as carbon dioxide (CO_2), a greenhouse gas known to contribute to climate change. Remote sensing data from multiple platforms, including terrestrial, airborne (airplanes and unmanned aerial systems, and spaceborne, provide information about the two- and three-dimensional structure of forests, and have been successfully used with ground inventory data to estimate AGB. Research projects conducted at the LASERS lab in the department of Ecosystems Science and Management (ESSM) use remote sensing data collected on each of the platforms mentioned above to characterize vegetation structure, and assess biophysical parameters, at multiple spatial scales. Terrestrial lidar provides highly detailed scans for small areas, while data collected utilizing airborne and spaceborne lidar (such as ICESat-2) will have progressively lower levels of detail over increasing spatial scales.



COLLABORATION

This program has leveraged several other projects with collaborators from NASA, other universities, multiple TAMU departments, and Texas A&M Forest Service.

Participation

within six U.S. institutions and one international organization

About McIntire-Stennis

The McIntire-Stennis program, a unique federal-state partnership, cultivates and delivers forestry and natural resource innovations for a better future. By advancing research and education that increases the understanding of emerging challenges and fosters the development of relevant solutions, the McIntire-Stennis program has ensured healthy resilient forests and communities and an exceptional natural resources workforce since 1962.

USDA

IMPACT

Improved understanding of vegetation dynamics at multiple scales, from local to continental and even global.

Generated algorithms

for remote sensing data processing used to estimate vegetation biophysical parameters, including AGB, at various scale.

$4.8 million

leveraged in funding from other sources for additional projects

Developed Methods

Develop scaling up and calibration methodologies for plot- to regional- and continental- scale analyses.