Reflective Tree Rings

College of Science Student Tests New Tree-Ring Analysis Technique

Tree-ring scientists estimate the amount of lignin — a polymer that makes plant cells rigid and woody — in a tree core by how much the core reflects blue light; at least in conifer trees.

“Currently, there isn’t a good way to look at how much lignin is in a tree core from a deciduous tree without tearing the core apart,” said Jonathan Asker, a University of Idaho junior.

The Grangeville-native partnered with Department of Geography and Geological Sciences’ Grant Harley and doctoral student Ben Spie to test the “blue light intensity” technique on deciduous trees. Spie collected cores from Engelmann spruce and aspen in southern Idaho. They chose to focus on aspen because these trees are in decline in southern Idaho and other parts of the Rocky Mountain states. Asker prepared the more than 380 cores before the team tested the blue light intensity technique, using the spruce cores as a comparison.

“This type of research has never been done on deciduous trees, so this is groundbreaking,” he said.

Additional Resources

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If the technique works on the aspen, the team can determine whether rising temperatures are linked to the tree’s decline. The hotter it is, the more lignin a tree produces, Asker said.

“Aspen are very sensitive to temperature change and can be used to track climate change locally,” the geography major said. “We’ll get a good feel for how climate change is altering the forests of southern Idaho.”

The new technique has the potential to provide more accurate estimates of historic temperatures than classic tree-ring analyses. Such understanding can help policy makers respond to the impacts of present climate change.

Article by Leigh Cooper, University Communications and Marketing.

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Jonathan Asker will test a new tree-ring analysis technique on aspen tree cores.