

New method for gathering data about trees using a laser beam from a helicopter

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Anahita Khosravipour of the University of Twente Faculty of Geo-Information Science and Earth Observation (ITC) has developed a method for gathering data about trees using a laser beam from a helicopter. She uses the laser to determine, among other things, the height, size, shape, density, structure and position of trees. Her method is free of noise and more accurate, cheaper and more efficient than

existing methods. For forestry and climate research it is of great importance to be able to measure the amount of wood present in a forest.

Khosravipour developed an algorithm which has greatly improved the method of gathering data about trees with lasers. Together with a team of researchers, Khosravipour tested her new approach in a forest in the French Alps. They used a helicopter to fly about 300 metres above the ground to aim a [laser scanner](#) system at the trees. The laser light is reflected by any object it hits. The sensor registers the reflected light and converts all measurements into useful data. Khosravipour: "A big challenge was to eliminate the noise. I solved this by dividing the trees into imaginary 'discs' and measuring these discs with the laser scanner, as that results in better and more constant measurements." Khosravipour's algorithm is freely available and can be used by everyone.

Climate

Making an inventory of data about trees is important for forestry (how much wood can be found in a forest?), but also for drawing conclusions about the environment and climate. "By taking measurements in forests we can, for example, determine the absorption of carbon dioxide by the trees in those forests. This provides us with important information on the climate." Up until now, gathering data about [trees](#) was done by hand or with satellites. Those methods are more expensive, time-consuming (by hand) and less accurate (satellites).

The algorithm is part of Anahita Khosravipour's doctoral research, which she performs under the supervision of Professor Andrew Skidmore of the Natural Resources department of University of Twente's ITC Faculty.

Provided by University of Twente

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