



Meet the Engineer!



An electronics engineer in the Forest Service uses math, physics, and computers to design circuits, write programs, and build instruments to answer questions about how our forests function.

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Important Engineer Characteristics:

I am a problem solver. This ranges from repairing meteorological equipment to writing computer code to repairing a snowcat. An engineering education trains you to develop your critical thinking and problem solving skills. With electronics, this often begins simply with asking, "Is the power on?"

Example of a simple question I have tried to answer:

Does the amount of snow change in the forest after a bark beetle attack? Sublimation (i.e., evaporation of snow into the atmosphere) should increase as more sunlight and wind penetrate into the forest. Yet, dead trees cannot catch much fresh snow, reducing the snow surface area and sublimation.

Technology or equipment used in my work:

I study how forests breathe in and out. Without lungs, the forest relies on circulations of the wind (i.e., eddies) to bring in carbon dioxide and take out water vapor. This correlation (or covariance) between the wind and the carbon/water in the air is called eddy covariance.

Most Exciting Work

Most sites worldwide that use eddy covariance to study how their ecosystem breathes carbon, water, and energy currently underestimate the size of the breath. This is because at most sites, the wind instrument, called a sonic anemometer, often cannot accurately measure the wind moving up and down.

When did you know you wanted to be an engineer?

When my college physics class covered electricity, the textbook chapter began with a photograph of Jimi Hendrix and an essay about how electricity and magnetism enabled the electric guitar to work. I knew immediately that I wanted to be an electrical engineer.

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