

MWP – Young Researcher Abstract 2023

Project title: Unlocking the unique, climatic, and physiological signal from hydrogen isotopes in trees	
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<p>Abstract (approx. 200 words): Climate change threatens boreal forests, for example by increased wildfires and tree deaths. The water cycle in a boreal forest is pivotal for boreal forest response to climate change. We are helping to unlock a poorly understood chemical tracer that tells us about water cycling by trees, which is the hydrogen isotope signal. Just like a person might want an engineer to develop an effective engine for cars, forest stakeholders might want a research project like mine to improve understanding to better predict what might happen to their forests in response to climate change. We trace the hydrogen isotopes in water up taken and transformed by trees, because it leaves chemical fingerprints that tell us about tree response to climate change and past climate. So far, we have improved a model that predicts a chemical fingerprint left by water loss from leaves, for plants worldwide. Now, we are developing the hydrogen isotope signal as an indicator of water loss from boreal forests, and we continue to explore what more the hydrogen isotope signal can tell us about forest response to climate change. With more communication, we can more aptly predict, and increase stakeholder connectivity, to tree response to climate change.</p>	
Key words: Water cycling, chemical fingerprints, water loss, climate change, hydrogen isotopes	