



—SP Photo by Gord Waldner

Centennial Collegiate students examine results of an experiment they conducted on soil from the boreal forest in Quebec using the beamline at Canadian Light Source synchrotron

Science class gets real

□ Students make research breakthrough at CLS synchrotron

By Luke Simcoe
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For many scientists, discovering something worth publishing can take months, or even years, of dedicated research.

Last spring, a group of aspiring scientists from a Saskatoon high school was able to do it in less than eight hours.

On March 19, 2008, students from Centennial Collegiate's science academy spent the day testing the effects of acid rain on soil using the Canadian Light Source (CLS) synchrotron at the University of Saskatchewan.

What they found left the synchrotron's researchers baffled.

"It had never been looked at before, so we didn't know what to expect," said Matthew Dalzell, communications co-ordinator for CLS. "We were really surprised at the results."

By analyzing soil samples from Quebec's boreal forest, the students discovered acid rain was leaching aluminum from the

region's soil. More importantly, they found the acid was only affecting certain types — or what Dalzell calls species or "flavours" — of aluminum.

"That was something the soil science community didn't know was happening," said Tracy Walker, the synchrotron's outreach co-ordinator.

Although the soil samples used were from Quebec, CLS scientist Robert Blyth said the results could just as easily apply to Saskatchewan's northern forests. The soil in both areas is similar in composition, he said, and both regions have seen more acid rain as a result of industrial development in the Alberta oilsands and the Ontario nickel belt.

Since their discovery, the students have presented the findings at a national school board conference and been mentioned at an international synchrotron conference. An article about their work is set to be published in a prominent physics journal.

"The fact that they were able to publish after one, eight-hour shift is phenomenal," said Walker. "It's phenomenal for anyone, let alone high school students."

Not satisfied with their 15 minutes of academic fame, the students returned to CLS on Saturday to verify their initial findings and continue their research.

One day, they hope to show aluminum

leached from soil by acid rain poses a health risk to humans — they say it could find its way into ground water and potentially contaminate plants and fish destined for our dinner tables — but for now they're happy to get out of the classroom and into a real research facility.

"We're not doing science out a textbook; we're really doing the scientific method," said Ryan Peng, who's in Grade 11 at Centennial.

"You realize that what you do in school actually applies to real life," echoed Grade 12 student Maryam Waseem.

Blyth said students who come to the CLS plan their own unique experiments. The work he does with young students is "the best part of (his) job," he said.

Since the CLS opened in 2004, seven high school groups from across Canada have come to conduct experiments at the facility. Recently, students from a school in Quebec came to analyze soil from a meteorite crater, and a group from Lloydminster made a discovery linking certain minerals to different tastes in Canadian honey.

For Walker, CLS's outreach program is a way of investing in the next generation of scientists and researchers.

"What we do here today will be built on tomorrow," she said.

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