

Scientists seek to explain Saskatchewan's rich uranium deposit

By Alex MacPherson,
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Sprawling across northern Saskatchewan and Alberta, the Athabasca Basin is home to some of the world's richest uranium deposits, which were discovered in the 1940s and mined since the late 1960s.

What is less clear, however — and what Geological Survey of Canada geophysicist Vicki Tschirhart hopes to discover this summer — is the western part of the basin's underlying geology, and the source of its high-grade deposits.

“Such little was known about it in comparison to the east,” Tschirhart said Monday from a mining camp near Hook Lake owned by Purepoint Uranium Group Inc., one of many firms assisting the researchers this summer.

All of Saskatchewan's operating uranium mines are concentrated in the eastern Athabasca Basin, near Wollaston Lake. Tschirhart said deposits in the Hook Lake region were not discovered until 2012.

Besides taking over Natural Resources Canada's Instagram account on Wednesday, with the aim of giving people a taste of northern geology, she plans to study previously-extracted core samples and take hundreds of new measurements.

Tschirhart, who studied at McMaster University before joining the Geological Survey of Canada, said the work is non-invasive and involves scientists from many disciplines, including those specializing in minerals and sediments.



Geological Survey of Canada scientist Vicki Tschirhart is one of many researchers studying uranium deposits Saskatchewan's Athabasca Basin this summer.

Her own work involves “magnetic susceptibility” — examining core samples and the results of a recent airborne survey to extrapolate as much as possible about the local geology.

“We're ... trying to find out what's unique about these deposits here compared to those in the east, (and) the factors controlling them — why they are where they are.”

Knowledge of the basin's eastern reaches is extremely limited, but there are two competing theories on the source of uranium in the west: either it leached through the sandstone cover, or climbed up from much deeper in the earth's core.

While the work, which Tschirhart said will likely be presented in a report this fall, will benefit exploration companies looking for uranium, it's also intended to flesh out scientists' understanding of the Athabasca Basin.

It will also benefit some University of Regina students, who are getting their first taste of fieldwork — a job Tschirhart described as comparatively cushy, given that there's a shower and the mosquitoes aren't bad.

“It's stuff you can't learn in a classroom,” she said. ■