



For immediate release — Tuesday, July 17, 2018

U of L geography team takes to the skies for LiDAR mission

Aerial and ground crews from the University of Lethbridge have launched a large campaign that will conduct multiple surveys in Alberta and the Northwest Territories to measure ecosystem changes associated with climate change and permafrost loss and to build understanding of the role of wildfire.

Dr. Chris Hopkinson, a geography professor with expertise in LiDAR (light detection and ranging), will lead the aerial portion of the campaign while Dr. Laura Chasmer, also a U of L geography professor, leads the ground campaign.

The campaign began at Springbank Airport near Calgary on Saturday, July 14 with the installation of a state-of-the-art Teledyne Optech Titan multi-spectral LiDAR sensor in the survey plane. LiDAR is a remote sensing technology that uses the pulse from a laser to collect various measurements which can be used to create three-dimensional models and maps of the environment. The first areas to be surveyed include the Wapta Icefields, located on the Continental Divide north of Lake Louise, the Castle area and Waterton Lakes National Park from July 14 to 16. These are repeat aerial data collections that date back to 2000.

“These surveys will help us track landscape changes due to climate change, wildfires and trail disturbances,” says Hopkinson.

Chasmer and a crew of students will head to Fort McMurray on July 16 to conduct ground sampling of burned and unburned forest and wetland transition areas surrounding the oilsands.

“This sampling allows us to better monitor the health of these landscapes and build our understanding of the forest and peatland carbon losses associated with wildfire, as well as developing a new wetland monitoring framework for the province of Alberta,” says Chasmer.

At the end of July, crews will move into the Northwest Territories, with the ground crew operating between Fort Simpson and Yellowknife and the aerial crew surveying areas as far west as Nahanni and as far north as the outer Mackenzie Delta on the Arctic coastline.

“This LiDAR work will focus on flying over ground-sampling plots and conducting repeat surveys over areas we have monitored over the last 18 years,” says Hopkinson. “We hope to resolve whether or not the northern boreal or taiga is, on balance, dominated by forest decline or new emerging vegetation cover.”

The work is being supported by Natural Sciences and Engineering Research Council (NSERC) grants and research agreements between the U of L and Alberta Environment and Parks, Government of Northwest Territories, Parks Canada, Alberta Innovates and Natural Resources Canada. Industry partners include Teledyne Optech, Airborne Imaging and Aries Aviation.

Media who are interested in interviewing Chasmer and Hopkinson can reach them via email or telephone:

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This news release can be found online at [LiDAR mission](#).

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