

SFU Avalanche Research Program

School for Resource and Environmental Management

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Seeking PhD Student for Applied Avalanche Research Project (Fall 2018)

Large-scale avalanche hazard assessment modelling

Background on research program

SFU's Avalanche Research Program (SARP) is led by Dr. Pascal Haegeli, NSERC Industrial Research Chair in Avalanche Risk Management, and is housed in the School for Resource and Environmental Management (www.sfu.ca/rem) at Simon Fraser University in Burnaby BC, Canada. SARP's objective is to conduct applied interdisciplinary research at the interface between the natural and social sciences to advance knowledge and develop evidence-based tools that help backcountry recreationists and avalanche professionals to make informed decisions when preparing for and travelling in avalanche terrain. SARP is supported by and works in close collaboration with stakeholders of the professional and recreational avalanche safety communities in Western Canada. For detailed information on SARP, please visit our website at <http://www.avalancheresearch.ca>.

Project overview

The proposed project is part of a bigger research effort to improve the operational use and value of numerical snowpack models among avalanche safety operations in Canada. Snowpack models simulate the seasonal evolution of the seasonal snow stratigraphy based on weather information. Recent research has shown that coupling numerical weather prediction models with snowpack models can predict the main features of the snow stratigraphy. This opens new opportunities for getting insight into avalanche conditions in areas where direct human observations are sparse. The **goal of this PhD research project** is to combine the existing research with our understanding of the human avalanche hazard assessment expertise described in a conceptual model of avalanche hazard (Statham et al., 2017) to develop a complete model chain that not only produces weather and snowpack data summaries, but also interprets this information in a meaningful way. This research will be conducted in close collaboration with avalanche forecasters to ensure the model chain provides value-added information and smooth integration into the operational avalanche forecasting process.

More information about our current research in this area is available at <http://www.avalancheresearch.ca/researchareas/hazard-assessment/>

Requirements

Required qualifications for this position include:

- Graduate degree in physical geography, earth sciences, atmospheric sciences, meteorology, engineering, statistics or computer science.
- Experience in R or Python, and Unix-like computing environments
- Background in advanced statistics or machine learning
- Background or keen interest in mountain meteorology
- Background or keen interest in snow science and avalanche safety
- Ability to work collaboratively within a research team
- Excellent writing and communication skills

Additional, **desirable qualifications** include:

- Winter backcountry experience (e.g., backcountry skiing, mountain snowmobile riding)
- Introductory recreational avalanche safety certification (e.g., Canadian AST1)

Position details and funding

The starting date for this position is **September 1, 2018**.

The successful candidate for this position will work toward his/her Doctoral degree in either Resource and Environmental Management (<http://www.sfu.ca/rem/prospective-students.html>) or Geography (<http://www.sfu.ca/geography/graduate-studies/information-for-applicants.html>) at SFU. Please visit the respective websites for program details and admission requirements.

This project is supported with **three and a half years of full-time funding (CND\$24,000/yr)**. SARP students are expected to work on site during the entire year including the summer months. SARP students have four weeks of annual holidays.

SFU is situated in Burnaby, a community within the greater Vancouver area in the southwest of British Columbia, Canada. Vancouver is a great place to live and work that is well known for its natural beauty, multi-culturalism and high quality of life.

Application details and deadlines

The SFU deadline for fall 2018 graduate program applications is **February 1, 2018**.

See the websites of Resource and Environmental Management (<http://www.sfu.ca/rem/prospective-students.html>) or Geography (<http://www.sfu.ca/geography/graduate-studies/information-for-applicants.html>) for details on the application process.

Students interested in this project are strongly encouraged to contact Dr. Pascal Haegeli (email: pascal_haegeli@sfu.ca or phone: +1 778 872 3579) prior to preparing their formal application package to discuss the nature of his program and details of the research project.

Both Canadian and international students are encouraged to apply.

Simon Fraser University is committed to the principle of equity in employment and offers equal employment opportunities to qualified applicants. To increase the number of women in academic positions, applications from women are particularly encouraged.