

From the field to the classroom:

A web-based teaching tool on depositional environments and landscapes

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Background

The development of field skills is an important component of many courses related to natural resources and environmental science. However, current academic constraints do not allow students to spend enough time in the field to properly develop their understanding of geomorphology, pedogenesis and landscape interpretation in general. The **objective** of this project was to take advantage of digital technologies to bring the field to the classroom or the study group by means of an interactive, multimedia teaching tool.

This teaching tool is intended both as a complement to field trips or as a teaching aid in courses that do not currently have a field component.



Students often have difficulty reconstructing processes responsible for the formation of complex associations of sediments. Here, glacial meltwater re-works morainal material (right) into a glaciofluvial outwash plain (left).

Creation of the teaching tool

The teaching tool (<http://soilweb.landfood.ubc.ca/landscape/>) is an open-access website built upon video footage obtained in an active glacial environment (the Canadian Rockies) and a previously glaciated, vegetated landscape (British Columbia southern interior). Pedagogical commentary was provided by geomorphologists, soil scientists and survey experts.



Filming in the Canadian Rockies (top) provided an overview of active glacial processes, while footage obtained in a grassland environment that underwent deglaciation about 10,000 years BP (bottom) illustrated landscape evolution processes.



In the teaching tool, videos from both locations were matched according to depositional environment or landform type to form a **virtual chronosequence**.

Teaching value

In addition to the video component, the teaching tool includes text and photographs providing an overview of landscape features, as well as graphics situating each video in its geomorphologic context. It is popular both with students and faculty, and is currently used in formal coursework at several institutions including the University of British Columbia, Thompson Rivers University and the University of the Fraser Valley. **Future improvements** under consideration include the



design and implementation of a method to collect direct student feedback beyond the scope of formal course evaluation.



These two graphics depict landscape evolution from glaciated to vegetated and enable students to reconstruct processes responsible for the formation of landforms and soil associations in previously glaciated landscapes.

Graphic design allows for the representation of broad landscape features often difficult to identify in the field. By linking each graphic component to footage of an actual landform, the teaching tool helps students develop **mental models** necessary to the understanding of geomorphology and pedogenetic processes.