

## **Should we stay or should we go now: assessing the effectiveness of an interactive avalanche terrain hazard and route-identification learning tool**

Ranae Kowalczyk; Nick Hedley; John J. Clague  
*Simon Fraser University, Vancouver, BC, Canada*

Avalanche educators are increasingly turning to Internet and computer-based interactive exercises to inform the public about avalanche hazards. However, the effectiveness of these exercises remains largely unknown, due in large part to testing practices. There have been few attempts to monitor changes in user-knowledge before and after exposure to exercises, or to examine user-behavior during exercises.

The present study developed an interactive route-finding and terrain hazard identification exercises, which incorporated elements of the AVALUATOR decision-support tool. We then administered tests before and after these exercises to monitor changes in user knowledge. By using mouse-tracking, we also captured users behavior when drawing hazards and routes on 2D terrain photographs, which were then analyzed in a GIS.

Overall, knowledge of avalanche facts improved after the exercises. Participant mean scores (n=172) significantly increased from 4.8 to 5.5 (out of 9) correct after users read an excerpt of the AVALUATOR booklet. However, improvement was restricted to three of nine questions. Performance on route and hazard identification was poor. We examined the ability of a subset of participants (n= 23) to identify hazards. On average, they successfully identified only 25% of loaded areas, 31% of avalanche paths, and 18% of terrain traps. An examination of participants' behavior during the route-finding exercises suggests that interactive pop-up aids may have negatively affected participants' route-finding. We examined another subset of participants' (n=106) estimation of spatial features such as distance, elevation, and slope using single or multiple views of terrain. Findings suggest that multiple views improved slope estimation.