Snow Science in a Secondary School Physics Curriculum
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As high school physics teachers, we want students to experience a strong applied curriculum, and snow science/avalanche education provides a unique opportunity to meet that goal. We included snow science as a unit in 12th-grade Physics at Nathan Hale High School in Seattle, Washington, combining classroom preparation with expert lectures on snowpack mechanics and snowpack analysis. Students assembled field kits that included tools, student-written instructions, and data tables. Two faculty took 60 students on an overnight field trip to Snoqualmie Pass, Washington, where we met with Washington State Department of Transportation avalanche controllers and analyzed snowpack at two very different sites. Students related classroom learning to field-based problems, increased their awareness and respect toward mountain environments, and learned some basics of snow avalanche forecasting and snowpack mechanics. Some students found connections to their participation in winter recreation, whereas others were in the mountains for the first time even though their homes are only 80 km away. Incorporating snow science/avalanche education in a standard secondary school curriculum prepares students to further their learning about snow science, causes them to connect classroom learning to real-life situations, and exposes students to careers and learning opportunities they may not have previously considered.