

SnowPilot: By professionals, for professionals

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The Avalanche Review, October 2016

In 2002 Karl Birkeland was researching a new stability test, the Stuffblock, and needed willing participants to try it and record their data. Since Karl sits in the cubicle next to me, I was an easy recruit. All that season I filled a stuff sack with ten pounds of snow and dropped it from ever increasing heights, dutifully recording the results in my yellow Rite-in-the-Rain book along with other pit information. It was a relatively easy task. The real work came at the end of season when Karl sent me a spreadsheet to fill in every detail of the pit and test: score, quality, hardness and grain type of the weak layer and adjacent ones, signs of instability and stability rating. Filling in every column and row of the Excel file opened my eyes to a significant hurdle in advancing snow science amongst practitioners: the valuable data in all our pit books was lost to researchers. Instead of being shared, pencil drawn pits throughout the world were sitting in drawers and on shelves collecting dust, likely never to be looked at again. Scientists ask a question and then collect data to get an answer. What if we collected the data first--all the data in our collective pit books? This would amount to thousands of pits from different snow climates all over the globe populating a database ready for a question. Out of this idea, *SnowPilot* was born. Software developer Mark Kahrl wrote the program and Conrad Anker found a donor so it could be free for anyone to use.

SnowPilot (www.snowpilot.org) is open-source, free software that allows users to graph, record, share and database snowpit information. Initially developed during the winter of 2003-2004, *SnowPilot* was originally created as a way to enter snowpit data into a handheld Personal Digital Assistant (aka. PDA, Palm Pilot), a precursor to the iPhone, that would be stored and graphically viewed on a PC. As technology changed, *SnowPilot* left the PDA platform and became a standalone program for PC and Mac, while still populating the central database with snowpit data for use by avalanche researchers. Currently the database holds over 7200 snowpits from fifteen countries.

At the 2002 ISSW in Penticton, BC, I sat in the audience and listened to some researchers explain the importance of their study relying on a woefully small number of snowpits. It was not compelling. Contrast this to 2016 when Colorado avalanche forecaster Ian Hoyer had a simple question: Are ECTs effective only in the narrow slab depth band of 30-70 cm as taught in his Level 3? He found his answer in the *SnowPilot* database which revealed 5013 ECTs submitted over nine years by 386, primarily professional, users worldwide. *ISSW 2016 Spoiler Alert: Ian's analysis of the SnowPilot data shows that the ECT is effective over a wide range of weak layer depths. If you have a question, SnowPilot may have the answer.*

This winter we are excited to unveil an online version of *SnowPilot* in addition to the software version. It follows the US Snow, Weather and Avalanche Guidelines (SWAG) and the Canadian Observational Guidelines and Recording Standards for Snow (OGRS). After data is entered an image is created that can be downloaded, shared and printed. All data entered is controlled by the user and error-checked to ensure a clean, robust database. As a user you get to decide who can view your snowpits: everyone, just people in your work group or no one. Regardless of your viewing choices, pits automatically populate the database for future research.

SnowPilot does not charge a fee or collect any personal data other than what gets entered, nor do we advertise or sell anything. We respect privacy. In exchange for providing a free platform to enter snowpit data, *SnowPilot* gets an expanding database that is readily shared with researchers to advance the field of snow science. *SnowPilot* snowpits have been in presentations at every ISSW since 2004. To ensure *your* pits are helping to expand our knowledge about snow and avalanches, join the data collection effort by checking out www.snowpilot.org.