

Thompson Pass Weather Station Supports Research and Forecasting

Story by Karl Birkeland & Theo Meiners

A few years ago Theo Meiners was awarded an American Avalanche Association Practitioner Research Grant. This grant was to help with Theo's mission of supporting avalanche research and technology transfer on Alaska's Thompson Pass. Since 2007 Theo has been working with a number of researchers, and their collaborations have led to several ISSW presentations, as well as articles in the ISSW proceedings, *The Avalanche Review*, and scientific journals (*Marshall et al., 2008; Birkeland et al., 2008a; 2008b; 2010; Heierli et al., 2010; 2011*). Highlights of these collaborations include Theo's animated and well-received ISSW presentations on avalanche survival in 2008 in Whistler and 2009 in Davos.

The goal of Theo's AAA research grant was to help set up a weather station near Thompson Pass that could be utilized for ongoing research projects, as well as providing data for operational avalanche forecasting by Alaska Rendezvous Guides (ARG), other Thompson Pass heliski operators, the Valdez Avalanche Center, and the Alaska Department of Transportation. The most pressing need in the area was for ridgetop wind measurements since the only available wind data for the area was from road level. Mount Tiekel was chosen as a good site for wind due to its relative isolation from other large mountains. In addition, its close proximity to the ARG base (at mile 45 on the Richardson Highway) would facilitate access for any maintenance and repairs.

In 2009 Kelly Elder went to ARG intending to install the station, which was the same rugged design that Kelly had used successfully in many areas, including Baffin Island. Kelly constructed the mast and put the station together in Colorado before sending

all the parts (and tools) up to Alaska. Unfortunately, due to a number of factors including difficulties with the satellite modem, he was unable to get it running. However, he did set the station up at the base and he crafted a comprehensive installation guide. Karl Birkeland and Ron Simenhois came up later that season intending to complete the installation, but technical problems again stalled the project.

In 2010 the plan was for Kelly to return with Ethan Greene, but their schedules and commitments wouldn't allow them to escape the lower 48. Luckily for all involved, Ron Simenhois was able to get some time away from his job forecasting avalanches for an Alaskan mining operation so he could work on the site. Crane Johnson (the weather station guru for the Friends of the Chugach National Forest Avalanche Information Center) helped Ron out and did the programming for the satellite data link. With this support from Crane and lots of assistance from the ARG guides and staff, Ron was able to get the site fully functional at the base. Then, with the help of a crew of hardy ARG guides – Nick Houfek, Dan Janjigian, and Mike Trombetta – the station was lifted up to Mount Tiekel and installed in brutally cold subzero temperatures with strong winds (see photo, above right).

Since its installation, the site has churned out wind, temperature, and relative humidity data. In addition to the avalanche operations noted above, the site was also used last spring by the National Weather Service hydrological forecasters since high-elevation sites such as these are rare in Alaska. During a large storm in November 2011 the wind sensor stopped working, but within a week it kicked back to life – we are guessing it must have gotten blown



Alaska Rendezvous Guides installing the station on Mount Tiekel. Skies were clear, but winds were blustery and temperatures were well below zero. Photo by Ron Simenhois

clear of either rime or snow. The site still hasn't made it all the way through a harsh Alaska winter, but so far we are cautiously optimistic!

The data are freely available to the public both through the Friends of the Chugach National Forest Avalanche Information Center (www.cnfaic.org/wx/wx_caic.php) and through the Colorado Avalanche Information Center (avalanche.state.co.us/obs_stns/zones.php?area=Alaska).

Acknowledgements

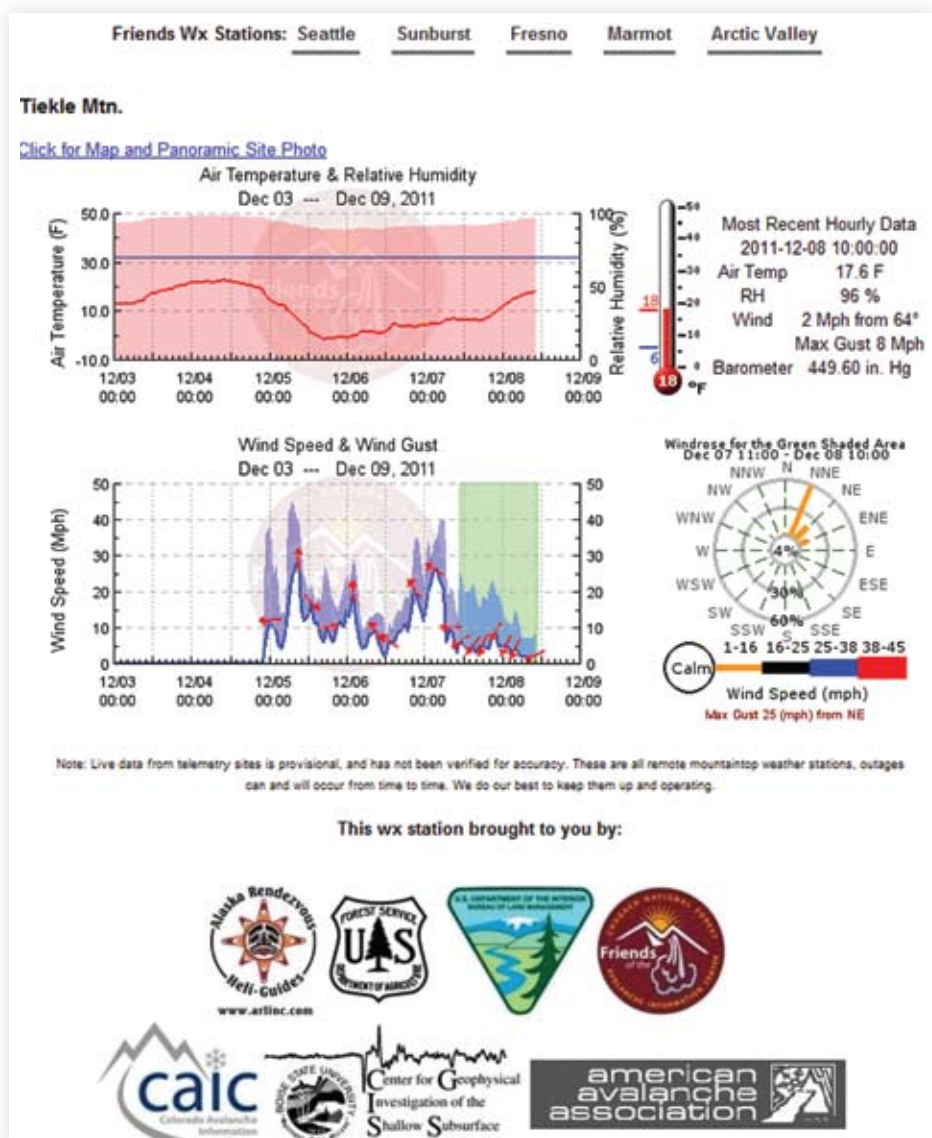
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Center (Ethan Greene), Boise State University (HP Marshall), the Friends of the Chugach National Forest Avalanche Information Center (Crane Johnson), and Ron Simenhois. The Bureau of Land Management graciously allows the use of the site.

REFERENCES

- N. Wade, *Game Creek Bowl Access Gate in Vail, CO*. www.flickr.com/photos/nwade615/5483437901/, 2011. Retrieved 09-08-2011.
- A. O'Bannon and M. Clelland, *Allen and Mike's Really Cool Backcountry Ski Book: Traveling and Camping Skills for a Winter Environment*. Guilford, CT: Globe Pequot, 2007.
- Arduino, Arduino: Homepage. arduino.cc/en/, 2011. Retrieved 09-08-2011.
- SECO-LARM, ENFORCER: *Curtain Sensors for Indoor/Outdoor Access Control*, tech. rep., SECO-LARM USA Inc., 2011.
- Backcountry Access, *Backcountry Access: Beacon Checkers*. backcountryaccess.com/index.php?id=85&page=Beacon_Checkers, 2010. Retrieved 09-08-2011.

The above articles are available on www.fsavalanche.org – click on Tech Transfer, then Tech Papers. ❄️



Screenshot of weather station data from the Friends of the Chugach National Forest Avalanche Information Center Web site. The authors thank Crane Johnson for setting this up.



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