PRESS RELEASE

Spectral Evolution Field Spectroradiometer Used in *Climate Change in the High Alpine Course* at Colorado College

Lawrence, MA – May 2, 2019 – Spectral Evolution's PSR+ spectroradiometer was used in an advanced environmental science class at Colorado College in Colorado Springs during January/February 2019. This intensive 3.5-week undergraduate course called "Climate Change in the High Alpine" with Dr. Ulyana Horodyskyj as the instructor, integrated science and technology, providing students the opportunity to get their hands dirty through field experiences in the high alpine regions in Colorado. It was composed of 27 students, mostly junior and senior undergraduates.

"Class assignments included completing a series of "alpine challenges" and writing up the results in technical reports," said Dr. Horodyskyj. "As an example, for one challenge students were members of a US Geological Survey team, tasked with solving a scientific problem while provided with a small budget," she added. Students were taught how to build their "field toolboxes" and how to effectively use tools such as Google Earth, Excel and SNICAR (a numerical modeling program that shows the impacts of pollution on snow), backcountry snow kits, handheld Kestrels (weather stations), aerial and underwater drones, and a full-resolution visible/near-infrared spectroradiometer sponsored by Spectral Evolution. "The course provided multiple opportunities for hands-on experience using scientific instrumentation to answer specific questions, depending on the alpine region we were studying," Dr. Horodyskyj said. "In many cases, the students did not have prior experience with the instrumentation, including the spectroradiometer, and they commented on the ease of use, especially in challenging field conditions."

In order to determine how pollutants such as black carbon and natural contaminants (like dust) impacted the snowpack, the PSR+ was useful in providing snow "spectral fingerprints." The dirtier the snow, the less the reflectance, which is clearly visible in the spectrum. The less reflectance, the more the snow can absorb solar radiation and melt faster. Spectral changes, given amounts of snow contaminants, can be numerically modeled using the online SNICAR tool mentioned above and compared with actual field data collected from the PSR+. In order to determine whether such drops in reflectance were due simply to natural causes (such as snow grain size differences), students also

collected field data with backcountry snow kits. "Given its high resolution, ease of use, and clean data (we collected data with a lens and not a contact probe), the PSR+ was incredibly useful in the field for snow/ice applications," Horodyskyj said.

About SPECTRAL EVOLUTION
Established in 2004, SPECTRAL EVOLUTION is a leading manufacturer of laboratory and handheld portable spectrometers, spectroradiometers and spectrophotometers. SPECTRAL EVOLUTION spectrometers are used worldwide for many mission-critical lab and field applications in mining, remote sensing, vegetative studies, ground truthing, environmental and climate studies, developing satellite calibrations, and more, due to their reliable, robust, rugged design and user-friendly one-touch features.

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