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Snow Reflectance Measurements using terrestrial Laser Scanner

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Airborne laser scanning has become a commonly-used method of topographic mapping, and is also being applied in, e.g. sea ice or glacier altimetry. The commercially available laser scanners (lidars) also record the intensity but this information has not been used and no calibration methods have thus far been available. However, the lidar intensity data can sometimes be the major (or only) source of brightness information from a particular area, which calls for more effective calibration methods. We have developed a calibration scheme for airborne and terrestrial lidars, which is based on calibrated brightness targets for airborne and laboratory use. The first results point out that this type of test targets can be used in both airborne and laboratory laser brightness calibration. We present an application of this method to snow cover measurement and demonstrate that changes in the snow cover (e.g., snowmelt) are clearly observable with laser scanner brightness measurements.