

Applications for laser scanning based methods for seasonal snow cover monitoring

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We review the feasibility of applications for laser scanning methods for seasonal snow cover monitoring developed at the Finnish Geodetic Institute. A laser scanner provides geometric and radiometric information that can be used for example to monitor snow cover depth, to define snow surface structure and as validation method for fractional snow cover mapping [1]. We have made stationary and mobile field measurements during SNORTEX (Snow Reflectance and Transition Experiment) campaign using two different terrestrial laser scanners and digital NIR-camera. The first results point out that a terrestrial laser scanner data provides detailed information on, e.g., the snow cover structure and roughness. Using mobile platform these data could be collected and used in, e.g., validation of satellite based snow cover products in cost-effective manner.

References:

- [1] Kaasalainen, S., Kaartinen, H., and Kukko, A., 2008. Snow cover change detection with laser scanning range and brightness measurements. EARSeL eProceedings 7, 133-141.



Figure 1: Mobile snow cover mapping