Comparative analysis of ultrasonic snow depth sensors

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For the purpose of automated measurements of snow height, we have carried out a comparative analysis of five different snow depth sensors. The tests were conducted between January 2006 and March 2006.

The sensors that were tested were borrowed from Campbell Scientific (Great Britain), CIMEL electronique (France), MPS System (Slovakia), Sommer (Austria) and SIAP+MICROS (Italy).

The tests were made at the Agency backyard for easy access. In this way it was possible to observe some of the events that could disturb the measurements.

First part of the measurements was conducted on grass as the natural surface. The second part of the measurements was carried out on sandy surface, which served as a reference flat surface.

The construction on which all the sensors were mounted could be lowered and raised so we could simulate the change in distance between the sensor and the surface during the periods with no snow precipitation.

The highest snow height during the measurements was 30 cm, which is rather small compared to values that can be obtained in some remote mountain stations. Nevertheless the tests gave us some insight into the working principles and applicability of such a device in meteorological monitoring network.