

Citizen science in collecting snow observations – high schoolers as field researchers

Atte Harjanne(1,2), Achim Drebs(1) & Niilo Siljamo(1)
 (1) Finnish Meteorological Institute
 (2) Aalto University School of Business

Background

Citizen science offers chances to gather observations and ideas and process data cost-efficiently while simultaneously increasing the outreach of the research through science education. Finnish Meteorological Institute (FMI) has carried out a project combining citizen science with science education in co-operation with volunteering secondary schools in 2014-2015.

The diversity and details of snow conditions are often easier to observe by humans than by automated equipment. Observations are also typically necessary from large geographic areas and remote locations. Snow research is thus an ideal topic for citizen science, especially since simple layman measurements can be used to gather the data.

5T Science education project in a nutshell

2014-2015 / 14 schools across Finland / Over 200 students

Researcher:

Defines research tasks and guides the work
 → More data, new research

Teacher:

Combines research tasks into course work, supervises the work.
 → New content and methods to teaching

Student:

Conducts the research task as part of a compulsory or voluntary course
 → Meaningful learning, support to future study and career choices

Structure of work



Implementation

High school students were instructed to measure snow depth and snow cover. Snow depth measurements were conducted with a self-made measurement stick through a five step measurement process to address the variations in the local environment. Snow cover observations were done visually on a ten point scale complemented with a photo from the observation spot. FMI researchers advised in the choice of observation locations, but the measurements were done independently by the students or together with their teachers.

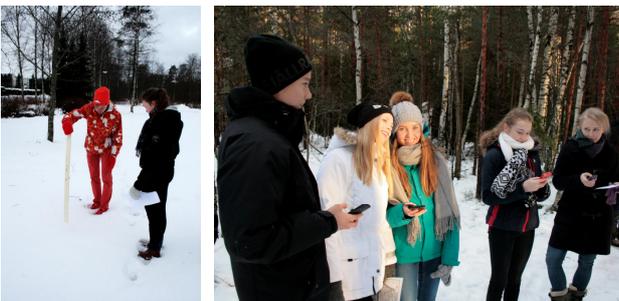


Fig 1. High schoolers in field work (photos by Tiia Åkerman and Monica Granholm)

Results

The project showed that the high schoolers were able to produce quality measurements and support the collection of snow observation archives and the development of satellite-based snow observations. The usefulness was however limited because of the relatively small number of participating students. There is however clear potential for a more large scale data collection and online instructions were produced to help in future undertakings. Development of a citizen science snow observation mobile application was also started.



Fig 2. Filming the video instructions