

## Scientific Report for COST Application

COST Action : ES1404  
STSM title : Snow Science Winter School, Sodankylae  
Reference : ECOST-STSM-ES1404-120217-082203  
STSM dates : from 12-02-2017 to 19-02-2017

The 3<sup>rd</sup> Snow Science Winter School took place in Sodankylae, Finland from 12-02-2017 until 19-02-2017. The winter school consisted of nine lectures about different aspects of snow research in order to teach students the cutting-edge snow science conducted by the organizers and lecturers. The lectures are complemented by four days of field work conducted by students supervised by the lecturers. The aim of the field work is to teach students how to use state-of-the-art measurement techniques in order to determine structural, mechanical, thermodynamical, optical, and microwave properties of the snow pack.

The Snow Science Winter School is very popular among young snow scientists with an extremely broad range of scientific backgrounds. Due to the larger number of applications, only 50% of applicants could be accepted. The larger number of applicants shows a clear need for such a winter school. The winter school provides a unique chance to work together in small interdisciplinary groups, to exchange ideas, to learn from each other and to initiate collaborations with different scientists. The broad range of scientific views on snow taught by snow expert of different fields makes the Snow Science Winter School unique in comparison to conferences which focus on only one scientific field.

The main topic of the 3<sup>rd</sup> Snow Science Winter School was optical and microwave remote sensing of snow. Within this framework, I provided a 45 min lecture about state-of-the-art techniques of radar remote sensing of snow to the students. End of 2015 I defended successfully my PhD with the title "Depth, Anisotropy, and Water Equivalent of Snow estimated by Radar Interferometry and Polarimetry" which covered a broad range of different active microwave measurement techniques to determine different properties of the snow pack. It was a great chance for me to share my expertise with an international group of young PhD students and to see that their work is already based on some of my published work. Additionally to theoretical knowledge, I shared my practical experience using a GPS snow depth probe and the students acquired a large set of snow depth data over a test-site near the town of Saariselkä in order to compare the data with radar satellite acquisitions.

Not only for me, it was a great chance to stay at the Arctic Research Center FMI in order to work with the local scientists, to observe the special arctic snow pack and to visit the snow science test site where major parts of the data evaluated in my PhD thesis were acquired. Also for the students it was very impressive and instructive to see what results can be obtained from the test site where they did field measurements during the course.

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