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A stepwise procedure for science communication in the field

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Communicating and disseminating earth science to laypersons, high-school students and their teachers are becoming increasingly important considering the overwhelming impact human civilization have on the planet. One of the main challenges with this type of dissemination arises from the cross-disciplinary nature of the Earth system as it encompasses anything from cloud physics to the geological evidence of ice ages being played out on millennial time scales. During the last four years we have tested and developed an approach referred to as «Turspor» which can be translated to 'Trail Tracks'.

The ambition with "Turspor" is to inspire participants to seek in-depth knowledge relating to observations of features made in the field (glacial moraines, active permafrost, clouds, winds and so forth) as we have come to learn that observations made in the field enhances students capability to grasp the bare essentials related to the phenomena in question. By engaging master and PhD students in the process we create a platform where students can improve their teaching and communicative skills through a stepwise procedure.

The initial concept was tested on 35 high school students during the summer of 2012 in the mountainous area of Snøheim on Dovre, Southern Norway. Before the arrival of the high school students, the university students prepared one page written summaries describing relevant geological or meteorological features and trained on how to best disseminate a basic scientific understanding of these. Specific examples were patterned ground caused by permafrost, glacier flour, katabatic winds, and equilibrium line altitude of glaciers.

Based on the success of the program over the past 4 years with field trips together with local schools, we are in the process of developing the concept to be offered as a course at the master and PhD level, including a week of training in didactics applied to topics in the geosciences as well as practical training in the field. The university students who complete the course will be in charge of guiding local high school students in the field (mostly at university field stations in the mountains of Norway), as well as follow up on the topics discussed in collaboration with the high-school teachers during a subsequent visit to the classroom. By participating in the program, high-school students will experience inquiry-based learning, adding to their understanding of the scientific process.

Sites developed through this program so far have been documented with a GPS tag, detailed description, background and pictures and hosted by the Norwegian Trekking Association website: ut.no as well as an associated app. The stepwise procedure of this concept has been developed through continous interaction with teachers, students and the general public. As a consequence, our capability to address and explain many earth science features of large societal relevance such as glacier retreat, thawing permafrost, flooding, snow avalanches, vegetation dynamics and climate change in general has been greatly improved.

For examples see https://www.ut.no/gruppe/8.1819/