

Masters project: Arctic tea bags: snow depth effects on decomposition

Tea bags have been used in a collaborative effort worldwide to investigate the microbial decomposition of plant material (<http://www.teatime4science.org/>), and we will assess those processes in the High Arctic.

Climate change will have large implications on the functioning of High Arctic Ecosystems. One scenario is that snowfall will increase during the wintertime, causing higher insulation of the snow pack and ameliorating living conditions for soil organisms.

To analyse the effects of a deeper snow lay on microbial breakdown of plant material during the winter, we buried tea bags in an experimental setup in Adventdalen, Svalbard, in September 2017. The experiment consists of snow fences, which accumulate snow during the wintertime, leading to three snow regimes: Deep, Medium and Ambient snow depths.

The student project will involve recovery of buried tea bags after winter 2017/18, positioning fresh tea bags in an air and soil warming treatment (open top chambers, OTCs) and further recovery at end of summer 2018 to analyse winter and summer decomposition rates. They will relate decomposition rates to temperature conditions in different snow regimes; expand those analyses to the effects of artificial summer warming.

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