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HIGH ARCTIC PLANT RESPONSES TO CHANGES IN SNOW COVER

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Snow cover, depth and duration of lie are important determiners for the length and conditions of the growing season in snow covered environments. In the Arctic, winters are expected to become warmer and wetter, which could alter the amount and type of precipitation (rain or snow) and the length of snow lie, and these factors will have important ecosystem effects.

We have been carrying out a snow manipulation experiment in Adventdalen, Svalbard, Norway, 78N, since 2006. The responses to delayed and advanced snowmelt have been recorded for 8 common high arctic vascular plant species in mesic and heath vegetation. Soil and plant nutrient contents, plant phenological development, growth, flower abundance and timing of senescence responses will be presented. Ecosystem respiration responds to temperature, and deep snow in winter insulates the soil beneath it, leading to increased winter time respiration. Annual ecosystem respiration data from this experiment will also be presented and discussed.