Observations of spring snowmelt changes in a tundra environment

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Warming trends have been well documented across Canada's Arctic over the past few decades. In the western Canadian Arctic, average surface temperatures have risen approximately 2.5 degrees Celsius since 1970 and Global Climate Models (GCMs) suggest that the air temperatures in this region will continue to increase over the next few decades. Associated with trends of increasing air temperature in the North are multiple changes in the natural environment and hydrological cycle of these regions. Some of the observed changes are unexpected. For example, although an earlier start to the snowmelt season is expected due to warming air temperature, the response of a delay in snowmelt runoff is unexpected and not well understood. With such complex responses to changes in air temperature, there is a need to better understand the details of these changes. In this study we will use an extensive record of surface air temperature and snow albedo during the melt period, for a remote tundra site located in the western Arctic. We will analyze these data to consider past changes in the start and duration of the snowmelt period.