In 2000, the Ministry of the Environment and Climate Change Canada (ECCC) developed a national snow course database (DB) for Canada based on data from provincial and federal observing programs. This included a digitization of the annual “Snow Cover Data” summaries published in hard copy form from 1955 to 1985. The DB has often been used for validating the outputs from hydroclimatic models used, among other things, to carry out climate change impact studies. However, the DB was last updated in 2004 and does not include historical Hydro-Québec and MDDELCC data.

**OBJECTIVES**
- Update the snow course database (snow depth, snow water equivalent (SWE) and density) covering Canada to 2016.
- Collect and include the main datasets that were omitted in previous updates.
- Standardize data file formats.
- Check plausibility and quality of data.
- Document the new database.
- Make the new database available to partners of Ouranos for their research and application needs.

**METHODOLOGY**
- Obtain data and metadata of snow course observations by Canadian agencies.
- Process data/metadata files in standard format (CSV).
- Perform a quality control on the data.
- Group and sort the data.
- Convert the data to standard NetCDF format.
- Document the data and updating procedures.
- Write a scientific article describing the update and an analysis of the database.

**EXPECTED RESULTS**
The aim of the project is to update the Canadian snow course database and standardize the various data sources in CSV and NetCDF format in order to facilitate access and use of the information, which will be made available to partners of Ouranos. The updating procedure, the spatial and temporal coverage of the data, and the results of the quality control will be documented and published in a scientific article that will also include an analysis of SWE variability and change in Québec and Canada.

**CONTEXT**
Considering the importance of snow to hydrology, ecology and a number of other sectors of activity such agriculture and winter tourism, the updating and enrichment of the snow course database for Québec will undoubtedly lead to better quality climate change impact studies.

**BENEFITS FOR ADAPTATION**
In addition, the use of a larger number of stations will ensure a fine-scale characterization of spatial patterns of SWE, offering modellers new data sets to validate climate simulations produced at an increasingly fine resolution.