

## Editorial: Variations over time and spatial distribution of snow and river discharge in northern basins

Accelerating social and technological developments take place in the world's northern regions. These developments are challenged by uncertainties in terms of climate and changes in societal needs in the form of water, energy, natural resources development, and recreation development. Other hydrological processes are more important in the north than at lower latitudes. The hydrological processes are dominated by snow, ice, and permafrost. The climatic observational networks are sparse. Since rather little research had been performed and the knowledge about these processes was limited, the Regional Working Group of Northern Research Basins (NRB) was established in 1975 as part of the International Hydrological Program with the objective of gaining a better understanding of the hydrology in a cold climate. The collection of data is an important part of the NRB-program, providing these data for analysis and synthesis. Climate variations and climate change are strongly noticed in the north. The hydrological response to these changes is an important part of the studies.

The official participating countries of NRB are the circumpolar ones: Canada, Denmark, Finland, Iceland, Norway, Russia, Sweden, and the USA. The hydrological processes on high altitudes are similar to those on high latitudes. Therefore, the UK, Japan, Germany, and Switzerland are associated.

The NRB's activities include the organization of NRB symposia every 2nd year. The first NRB workshop was held in 1975 at the village Edefors at the Lule River in Sweden. The 19th NRB Symposium/Workshop was held in south-central Alaska on 11–17 August 2013. The symposium was organized by the Water and Environmental Research Institute, University of Alaska with Dr Sveta Stuefer as leader of the organization committee.

Since 1988, *Hydrology Research* has devoted a special issue to NRB. It is believed that NRB's cooperation with *Hydrology Research* through the publication of fully peer reviewed special issues contributes to a wider dissemination of knowledge about northern hydrology. The theme of the 19th symposium was 'Water Resources. Developments in a changing environment'. The papers selected for this issue of *Hydrology Research* deal with variations of snow and river discharge over time and in different environments, the reliability of climatic measurements and the environmental effects of climate variations.

**Guest Editor**

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