8B - Advances in Numerical Modelling of Permafrost

Anna Pekinasova[1], Brandon Karchewski[2]

[1]Department of Civil Engineering, University of Calgary, [2]Department of Geoscience, University of Calgary

Accurate forecasting of permafrost behaviour under the influence of climate change requires improvements in numerical modelling for simulation and forecasting, including variety of techniques in physics modelling, statistical modelling, and data science.

Permafrost physics modelling may include advances in finite element / difference / volume techniques for simulating the coupled behaviour under changing thermal, hydraulic, and mechanical conditions to predict aspects of ground behaviour such as thaw settlement, talik genesis, and ice lensing. Statistical modelling may include novel techniques for characterizing historical data and/or generating synthetic forecast data under various climate scenarios that may assist in providing realistic boundary conditions to numerical simulations. Data science may include advances in managing remote field data, data pre- and post-processing, and/or machine learning techniques relevant to permafrost monitoring and simulation.

In this session, we invite submissions from a broad range of science and engineering disciplines that use and apply numerical modelling techniques for understanding permafrost behaviour and soil-structure interaction.

Keywords: Climate Change, Numerical Modelling, Data Science

Contact: Anna Pekinasova: anna.pekinasova@ucalgary.ca