Dr. Stéphane Bélair
Atmospheric Scientist, Environment Canada

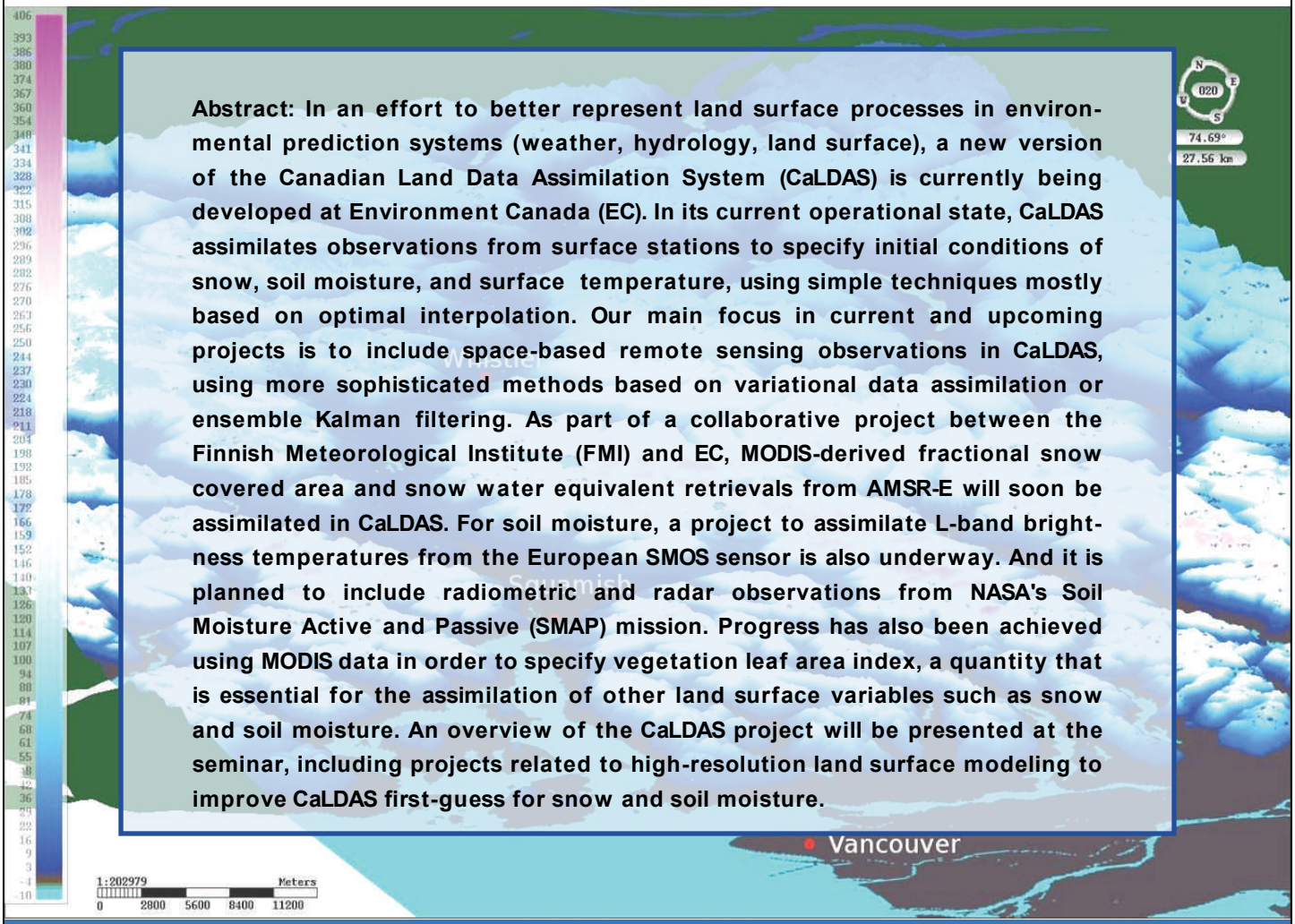
A research scientist in the Meteorological Research Division of Environment Canada since 1997, Dr. Bélair mainly works on improving the representation of physical processes in local, regional, and global numerical prediction weather systems. His work focuses on clouds, precipitation, boundary-layer turbulence, and land surface processes. Dr. Bélair was the scientific leader of several major operational implementations at the Canadian Meteorological Centre (CMC) in the last decade. He was head of the global modeling group of the Numerical Prediction Section from 2001 to 2006, and has since been head of the land surface modeling and assimilation group. He is member of several international committees and initiatives, including the Working Group on Mesoscale Weather Forecasting of the World Weather Research Program.

IC³ Seminar Series 2009

Presented by the Interdisciplinary Centre on Climate Change

Land Surface Modeling and Assimilation at Environment Canada

Abstract: In an effort to better represent land surface processes in environmental prediction systems (weather, hydrology, land surface), a new version of the Canadian Land Data Assimilation System (CaLDAS) is currently being developed at Environment Canada (EC). In its current operational state, CaLDAS assimilates observations from surface stations to specify initial conditions of snow, soil moisture, and surface temperature, using simple techniques mostly based on optimal interpolation. Our main focus in current and upcoming projects is to include space-based remote sensing observations in CaLDAS, using more sophisticated methods based on variational data assimilation or ensemble Kalman filtering. As part of a collaborative project between the Finnish Meteorological Institute (FMI) and EC, MODIS-derived fractional snow covered area and snow water equivalent retrievals from AMSR-E will soon be assimilated in CaLDAS. For soil moisture, a project to assimilate L-band brightness temperatures from the European SMOS sensor is also underway. And it is planned to include radiometric and radar observations from NASA's Soil Moisture Active and Passive (SMAP) mission. Progress has also been achieved using MODIS data in order to specify vegetation leaf area index, a quantity that is essential for the assimilation of other land surface variables such as snow and soil moisture. An overview of the CaLDAS project will be presented at the seminar, including projects related to high-resolution land surface modeling to improve CaLDAS first-guess for snow and soil moisture.



January 28, 2009, 12:00 - 1:15 pm EV1—221

Please note, seating is limited. Refreshments will be provided.

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