Avalanche danger is often estimated based on snow cover stratigraphy and snow stability data. In Canada, forecasting regions are very large (>100000 km²) and snow cover data are often not available. To provide additional information on the snow cover and its seasonal evolution the Swiss snow cover model SNOWPACK was therefore coupled with a regional weather forecasting model GEM15. We first assessed the capability of this model chain to forecast three key factors of snow cover instability at a single point: new snow amounts, surface hoar formation and crust formation. The output of GEM15 was compared to meteorological data from Mt. Fidelity, British Columbia, Canada, for five winters between 2005 and 2010. Forecasted precipitation amounts were generally overestimated, while air temperature as well as incoming short and long wave radiation correlated well with measured values. The forecasted data were therefore filtered and used as input for the snow cover model. Comparison between the model output and manual observed snow profiles showed that after pre-processing the input data new snow events and amounts as well as the formation of relevant crusts and surface hoar were modelled correctly. Overall, the model chain pSNOWPACK shows promising potential as a forecasting tool for avalanche warning services in Canadian data sparse areas and could thus well be applied to similarly large regions elsewhere. Future work will include the validation of pSNOWPACK on basin and mountain range scale. This validation will include the capability to estimate snow cover stability for different aspects and elevations bands.