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Seasonal variations of snow storage derived from GRACE and other sources

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The delivery of monthly maps of gravity field by the GRACE project allows the determination of tiny time-variations of gravity of the Earth and as a consequence the redistribution of fluid mass at the Earth surface and particularly the snow pack contribution. This new information source is complementary to existing sources such as model outputs (for instance snow cover predictions from LaD or WGHM) or remotely sensed data such as SSMI derived snow products. We present snow storage variations, estimates of trend and seasonal cycle for the different sources over a two years period (April 2002 - May 2004) for the boreal regions. We examine the complementarity between GRACE and SSMI derived products to characterize snow cover over boreal regions. EOF analysis of the computed time serie of maps is performed to characterize the evolution of snow storage both in space and time.