

**Séminaire 12 octobre 2012 11h / Seminar October 12<sup>th</sup> 2012 11h**

**Conférencier/Lecturer:** Jean-Francois Caron

**Sujet/Subject:** Sur le problème des perturbations discordantes aux frontières latérales dans les prévisions d'ensembles à aire limitée

**Présentation/Presentation:** Français / French

**Lieu/Room:** Salle des vents (Dorval)

**wiki:** [https://wiki.cmc.ec.gc.ca/wiki/RPN\\_Seminars](https://wiki.cmc.ec.gc.ca/wiki/RPN_Seminars)

**iweb:** <http://web-mrb.cmc.ec.gc.ca/mrb/rpn/SEM/>

**web:** <http://collaboration.cmc.ec.gc.ca/science/rpn/SEM/index.php>

### **Résumé/Abstract**

An experimental convection-permitting ensemble prediction system (EPS) has recently been developed at the Met Office where the analysis uncertainty is estimated by means of an ensemble transform Kalman filter (ETKF). I will present a case study where mismatches between the analysis perturbations and the perturbations coming from the lateral boundaries led to the generation of significant spurious perturbations in the ensemble forecasts of the surface pressure. To alleviate ensemble perturbation mismatches originating from the ensemble technique, I tested a so-called scale-selective ETKF where a revised transform matrix is applied only to the small-scale component of the high resolution forecasts while the large-scale component of the analysis perturbations is taken from the driving EPS. Results showed that the new approach successfully removed the spurious perturbations in the surface pressure fields and also provided some benefits in the precipitation forecasts for the case studied. An examination of ensemble-derived forecast error covariances revealed that ensemble perturbation mismatches at the lateral boundaries tend to decrease the degree of balance between the mass field and the rotational wind field and to produce more compact horizontal and vertical correlations. Finally, the limitations of the scale-selective approach and future directions will be discussed.