Université du Québec à Montréal

Earth and Atmospheric Sciences Department

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Dr. Benjamin Kirtman
Executive Editor
Climate Dynamics

Sub: *Submission of revised manuscript CLIDY-D-09-00146*

Dear Dr. Kirtman,

Thank you for your e-mail of July 31 2009 informing us of your decision on our manuscript entitled "*Scale-decomposed atmospheric water budget over North America as simulated by the Canadian Regional Climate Model for current and future climates*". We are pleased to know that the paper has been conditionally accepted, subject to major revisions. The referees have put forth many helpful comments and suggestions, and all were addressed in our replies. We refer you to individual reviewers' reply for our answers to specific comments. Major comments, although discussed in each reply, will be addressed briefly in the following.

This article focuses on the contribution of different scale bands to the atmospheric water budget for both the simulated current and future climates. Two major points were raised by the reviewers.

1. Firstly, the current-climate results had to be summarized since they were very similar to those obtained in a previous study (Bielli and Laprise 2007). Following the suggestions by the reviewers, the current climate section has been substantially shortened (by 4 pages, 1 figure and 9 panels removed) and it is now focused on most important results. However we believe that these results, which have been obtained under a very different experimental configuration from that of Bielli and Laprise (2007), are worth being described again, as they are helpful to analyze the climate-change projections that are discussed in the following sections of the paper.
2. The second point was that our climate-change results would benefit some local statistical significance test. A bootstrapping test has been carried out and only statistically significant changes are now displayed and discussed in this section, which allowed focusing on most important results. Besides, a second statistical test

(t-test) has been performed and it gave very consistent results with the bootstrapping; we are thus very confident in the correctness of our statistical significance results.

Many other suggestions from the referees have been addressed in the revised manuscript. In particular, additional analyses have been performed to support some of our conclusions. The text has also been reworded when necessary to make it more agile to read, and figures have been reworked to make them easier to examine. The paper has been shortened by 5 pages and the number of figures reduced to 15.

We hope that you will find the revised version satisfactory. Thank you and we are looking forward to hearing from you.

Sincerely,

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