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Hydrology and Earth System Sciences Discussions

Interactive comment on "Modelling acidification, recovery and target loads for headwater catchments in Nova Scotia, Canada" *by* C. J. Whitfield et al.

Anonymous Referee #1

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This is an interesting and well written paper characterizing long-term changes (1850-2100) in surface water and soil chemistry (in terms of acidification) in acid-sensitive headwater catchments in Nova Scotia, Canada, using a MAGIC-model. The model is well described and data are generally sound. The paper does not present novel concepts but certainly adds to our knowledge of the acidification and recovery in North America, Canada, and provides further evidence regarding the emis-sion reduction requirements. The paper address relevant scientific questions within the scope of HESS, and I recommend it for publication after some relatively minor changes.

The specific comments I have are:

Page 3601, line 22->

In the methods section a description for estimation of annual dry deposition is too cursory. Please give more exact information in the paper how it is calculated for studied variables.

Page 3605, lines 2-4

In the model parameters, forests were assumed to be at steady state and there was no harvesting in the catchments. The assumption of undisturbed conditions should be verified. If there has been log-gings or other forestry practices which could affect model calibration, this should be discussed in the text.

Page 3626, Figure 4

pH is important parameter in this paper and it would informative to see how simulated pH fits to the empirical record of pH. I suggest that graph of pH at Little Wiles Lake is added to the Fig. 4.

General comment about measured data.

The trend results (measured data) from the study lakes are shown elsewhere (Whitfield et al., 2006a). It would be informative include short discussion about main findings of chemical recovery trends.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 3, 3595, 2006.