**Geoscientific
Model Development
Discussions**

Interactive
Comment

Interactive comment on "A mass conserving and multi-tracer efficient transport scheme in the online integrated Enviro-HIRLAM model" *by* B. Sørensen et al.

B. Sørensen et al.

sorensen@gfy.ku.dk

Received and published: 12 April 2013

General comments:

The 1D test is meant to explain (and show) the effect of global filtering vs. local filtering with multiple sources or areas with different distributions, as well as visually showing the ILMC filter (in 1D) and not so much the LMCSL properties since these are shown in Kaas (2008).

In regard the lack of a clear mathematical statement I am not quite sure what is meant. The LMCSL method as a concept is rather simple (Eq. 1 – 4) and the details are described in Kaas (2008). So I find it difficult to give a clearer mathematical statement

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

than Eq. 3 and 4.

Considering longer simulations to test for convergence we completely agree and it is also planned for the future, however, for this article, it is not realistic to carry out at this point.

Specific comments:

1: Agreed and corrected.

2: Agreed and corrected. The comment relates to the test in question.

3: Agreed, the other experiments will be included in the figure.

4: We are not convinced that the different curves (filters) will converge completely (like the SO2 curves) since ozone is influenced by more chemical reactions, however it is true that it seems the differences are becoming smaller. Again longer simulations will be carried out in the future. The text has been altered to reflect the lack of convergence. If one should speculate it will be more likely that the two global filters will converge but the ILMC filter, which is more closely related to the DEPDEP filter, will probably end up with a smaller difference.

5: It has been expressed more clearly that the ILMC filter is the default filter (in section 4 and subsection 4.1).

6: The paper has been rechecked for errors.

Interactive comment on Geosci. Model Dev. Discuss., 5, 3733, 2012.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper