

Interactive
Comment

Interactive comment on “Implementation of a 3-D-Var system for atmospheric profiling data assimilation into the RAMS model: initial results” by S. Federico

Anonymous Referee #2

Received and published: 30 May 2013

The paper presents a rather standard 3D-VAR implementation as developed and well documented by the referred authors about 15 years ago. There is nothing new in the data assimilation development, but a documentation of still significant work to implement a basic variational analysis for RAMS. It is not clear to me what DA RAMS had before, but I assume and from what I can find, that it had no standard 3D-VAR on its model grid at all (in stead a lot of ad hoc methods like nudging and dynamical adaptation). Under this assumption, the authot has made significant progress and the paper serves as a documentation to go with the RAMS system.

The results are far to basic to be of scientific interest today, and the experimentation

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



results are extremely basic. It shows nothing of relevance to meso-scale modelling and only that a basic DA gives better fit to observations than no DA.

There are also a few misunderstandings and one mistake I believe, in the implementation of the transform (full T or un-balanced T).

See below:

2013-05-22 - 29

Review AMTD

P 2 r 10: law -> laws

toward - > towards analyses -> analysis

Frequently mixed up singular and plural !

3587 9 : innovations : are observation increments, you probably mean analysis increments here : specify

3588 : correlation between u-v must be respected see e.g. Daley, Hollingsworth, Undén....

3589 15 : T should here be the unbalanced T, since there is a large balanced component related to the geopotential Z. I believe this is a serious omission. It will work anyway but it is not correct.

3590 the background error should not need to be specified as simply as that: It can be derived from the NMC method.

3592 QC check is very ad-hoc and no science behind it (no flow dependency, level, latitude etc., no cross check)

3606 Fig. 4 b. Very strange increments. Looks like only 3 observations used. Not credible.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



3608-10 Fig. 6 - 8. None of the figures are legible. I cannot see any numbers, the font size is 5 times smaller than the text! If published need to be remade.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 3581, 2013.

AMTD

6, C1137–C1139, 2013

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

C1139

