

Two referees have now sent their reports on the paper. Referee 1, who is a specialist of assimilation of observations, makes comments on the methodological aspects of the paper. His main concern is about what he considers to be a contradiction between the mathematical presentation of the ice flow model given in subsection 2.2 of the paper and what is apparently done in the actual numerical implementation of the model.

Referee 2, who is a specialist of ice flow modelling (and has let his name known) is more critical in that he considers the experimental conditions of the work presented in the paper are too simple to be really instructive, and that it is not clear whether the method used by the authors would work satisfactorily in more realistic conditions. The authors have already responded the referee's comments, by saying that they plan to perform additional experiments using sparser data and fewer ensemble members for the ETKF algorithm. The referee has immediately responded that this would be sufficient to address his concerns.

My suggestion as Editor is therefore that the authors do what I presume they have already started doing, namely prepare a new version of the paper including the results of the additional experiments they have announced. The new version must be prepared according to the instructions the authors have received from the Editorial Office of *Nonlinear Processes in Geophysics*. In particular, the authors must give a point-by-point response to all of both referees' comments and requests. Should they disagree with one particular comment, or decide not to follow one particular request, they must state precisely their reasons for that.

If, as I hope, the authors submit a new version of their paper, that version will be submitted to further review by (normally) two referees who may, or may not, be the same as those of the first version.