

Data assimilation problems: the Morozov principle revisited

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Abstract

In this talk, we propose to regularize some simple data assimilation problems by using a mixed formulation of the Tikhonov regularization associated with a well-chosen operator. The regularization parameter is obtained by using the classical Morozov principle, which requires to extend existing results to operators which do not have a dense range. We also propose a duality approach to compute the Morozov solution. Lastly, we show how this duality approach can be adapted to the case when we enforce some constraints on the solution or on the observation.