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Data assimilation by variational method in partial diferential equations

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Description of a physical phenomenon through differential equations has errors involved, since the mathematical model is always an approximation of reality. For an operational prediction system, one strategy to improve the prediction is to add some information from the real dynamics into mathematical model. This aditional information consists of observations on the phenomenon.
However, the observational data insertion should be done carefully, for avoiding a worse performance of the prediction. Technical data assimilation are tools to combine data from physical-mathematics model with observational data to obtain a better forecast. This work present the representer method (a variational tecnique). The performance of the method is evaluated under application to a linear wave propagation equation and shalow water model.