Observation impact study in global numerical weather prediction

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To improve the accuracy of global numerical weather prediction (NWP), it is necessary to assimilate more observation information with a data assimilation system (DAS). To know impact of each assimilated observation on analyses and forecasts is essential for this. In this study, we estimate observation impacts using the adjoint based impact estimation method, which used an adjoint operators of a DAS and a NWP model. Various properties of observation impact such as nonlinearity, probabilistic nature, system dependency are also considered.

Keywords: data assimilation, observation impact, adjoint operator