

# The impact of the numerical discretization on targeted observations

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## Abstract

The problem of targeted observations in numerical weather prediction is considered in the context of 4D-Var data assimilation. Adjoint sensitivity and singular vectors methods are implemented for the Lin-Rood flux-form semi-Lagrangian shallow-water model on the sphere. Identification of the target area is shown to depend on the specification of the subgrid distribution in the 1D finite-volume transport operators. Results are presented for the piecewise linear and piecewise parabolic schemes.