



Nonlinear filtering of data by the surface geodetic mean curvature flow

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The contribution deals with data filtering by the geodetic mean curvature flow on closed computational domains such as a sphere, ellipsoid or the Earth's surface. This method represents the curvature-driven nonlinear diffusion filtering method. We define a surface finite volume method to approximate numerically the nonlinear parabolic partial differential equation. The surface is approximated by a polyhedral surface created by planar triangles and we use a piece-wise linear approximation of a solution in space and the backward discretization in time. The aim of the contribution is to create a semi-implicit numerical scheme for the equation and compare this method with nonlinear diffusion filtering methods based on the gradient and the local extrema detection driven by the Laplacian linear diffusion term [1].

[1] R. Čunderlík, M. Kollár, K. Mikula. Filters for geodesy data based on linear and nonlinear diffusion. *International Journal on Geomathematics*, 7(2):239-274, 2016.