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# Influence of norms on calculation of regularized derivatives in geophysics

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A b s t r a c t : Derivatives calculation is an instable problem in the sense of the well-posed problems of mathematical physics. A powerful method for the solution of this problem is the Tikhonov's regularization methodology. Stability of the regularized derivatives is usually expressed by a norm or a seminorm. The optimal regularization parameter is usually taken from the minimum of a particular (semi)norm. Location of the minima of different (semi)norms depends on the (semi)norm used, so the choice of a particular type of (semi)norm is problem dependent. We compare the Euclidean norms, Bombieri norms and newly introduced $F$-norms of different orders, as well as some other characteristic curves, and inspect the influence of the minimum location on the solution of the regularized derivatives. We extend the use of seminorms to seminorms of noninteger order.

**Key words:** regularization, regularized derivative, regularization parameter, norm

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