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Methods for the treatment of indirect noisy data.

This talk presents joint work with S.V.Pereverzyev (Linz/Austria) and analyzes some new aspects for the treatment of indirect measurement problems with applications in geodesy. Such problems are in general ill-posed and regularization approaches are required for the stable approximate solution. Among other aspects we also discuss the case that the information about the noise level of the data is not available and that the information about the forward operator is imprecise. In this context, we outline the chances and limitations of the method of approximate source conditions based on distance functions for estimating linear functionals of the not directly observable physical quantity. (Received September 19, 2011)