

Method	Cost function
Least-squares regression	$(\mathbf{y} - \mathbf{H}\mathbf{x})^T \mathbf{R}^{-1} (\mathbf{y} - \mathbf{H}\mathbf{x})$
LASSO regression	$(\mathbf{y} - \mathbf{H}\mathbf{x})^T \mathbf{R}^{-1} (\mathbf{y} - \mathbf{H}\mathbf{x}) + \gamma \sum_i x_i $
Tikhonov regularization	$(\mathbf{y} - \mathbf{H}\mathbf{x})^T \mathbf{R}^{-1} (\mathbf{y} - \mathbf{H}\mathbf{x}) + \gamma \mathbf{x}^T \mathbf{x}$
Bayesian inference, Gaussian	$(\mathbf{y} - \mathbf{H}\mathbf{x})^T \mathbf{R}^{-1} (\mathbf{y} - \mathbf{H}\mathbf{x}) + (\mathbf{x} - \mathbf{x}_a)^T \mathbf{B}^{-1} (\mathbf{x} - \mathbf{x}_a)$
Geostatistical inverse model	$(\mathbf{y} - \mathbf{H}\mathbf{x})^T \mathbf{R}^{-1} (\mathbf{y} - \mathbf{H}\mathbf{x}) + (\mathbf{x} - \mathbf{G}\boldsymbol{\beta})^T \mathbf{B}^{-1} (\mathbf{x} - \mathbf{G}\boldsymbol{\beta})$