Application of a radial basis function artificial neural network to seismic data inversion

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Abstract
We investigate here the performance and the application of a radial basis function artificial neural network (RBF-ANN) type, in the inversion of seismic data. The proposed structure has the advantage of being easily trained by means of a back-propagation algorithm without getting stuck in local minima. The effects of network architectures, i.e. the number of neurons in the hidden layer, the rate of convergence and prediction accuracy of ANN models are examined. The optimum network parameters and performance were decided as a function of testing error convergence with respect to the network training error. An adequate cross-validation test is run to ensure the performance of the network on new data sets. The application of such a network to synthetic and real data shows that the inverted acoustic impedance section was efficient. © 2009 Elsevier Ltd. All rights reserved.

Author keywords
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