

Empirical Bayes Prediction for Space-Time Data Under Separable Model

Rivaz, F., Mohammadzadeh, M., Khaledi, M.

Departement of Statistics, Tarbiat Modarres University, Tehran, Iran.

Abstract: In Bayesian prediction of a Gaussian space-time model, unknown parameters are considered as random variables with known prior distributions and, then the posterior and Bayesian predictive distributions are approximated with discrization method. Since prior distributions are often unknown, Bayesian predictive distribution would not be known. As an altenative an empirical Bayes approach is used to estimate the prior distributions. Replacing these estimates in the Bayesian predictive distribution, an empirical Bayes space-time predictor and prediction variance are determined. Then an environmental example is used to illustrate the application of the proposed method. Finally the accuracy of the empirical Bayes space-time predictor is considered with cross validation criterion.

Keywords: Space-Time Data, Prediction, Empirical Bayes Method.