

In this project, you are asked to write functions to evaluate fitted models for the air temperature in the PAWS dataset. Fit the air temperature data by a multivariate normal distribution with a constant mean and some covariogram. You would use (i) at least two covariogram models, and (ii) for each covariogram model, use at least two estimation methods. Each model and an estimation method result in a fitted model, so you would have at least 4 fitted models. For each fitted model, calculate

- Leave-one-out prediction  $\hat{Y}_{-i}(\mathbf{s}_i)$ .
- Leave-one-out prediction variance  $\hat{\sigma}_{-i}(\mathbf{s}_i)^2$ .
- the standardized prediction errors  $Z_i$ .
- The measures of predictive performance:  $(1/n) \sum Z_i$ ,  $(1/n) \sum Z_i^2$ , RMSE, CRPS, LogS
- AIC

In addition, plot and compare the Brier scores for each fitted model. You essentially repeat the evaluation for all fitted models. Therefore, you would want to write a function or functions that can give all the measures of predictive performance, and run it for the fitted models. You need to rank the fitted models based on the measures.

You work in a group of at most 4 people and turn in a group report. Your report should be written in a format of technical report, and include all computer programs in an appendix. Tables and graphs should be included in the body of the report and *not* in the appendix.

Your report is graded based on the content, structure, correctness, completeness and creativity.