

University of California, Los Angeles
Department of Statistics

Statistics C173/C273

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Lab 5 - Cokriging

Use the Jura data set:

```
a <- read.table("http://www.stat.ucla.edu/~nchristo/statistics_c173_c273/jura.txt",  
header=TRUE)
```

Answer the following questions:

- a. Create a `gstat` object with target variable `log(Pb)`. Append to it the variables `log(Cu)` and `log(Zn)`.
- b. Plot the auto and cross-variograms.
- c. Fit the exponential variogram to the variogram of the target variable.
- d. Fit a model to all the variograms using the `fit.lmc` function. Plot the variograms with the fitted model variograms.
- e. Perform cross validation using cokriging and ordinary kriging. Compare the two PRESS values.
- f. Using the cokriging predictions: Collapse the predicted values into a matrix and use the `image` function to construct a raster map.
- g. Assign "NA" values for the region outside the observed data points. Add the observed data points and contours to the raster map.