

Appendix 2

Geographically Weighted Regression (GWR) R-code for EKC analysis.

```
1 → require (spgwr)
2 → require (ggplot2)
3 → require (maptools)
4 → Data Table <- read.csv ("data.csv")
5 → attach (Data Table)
6 → View (Data Table)

#Calculate Kernel bandwidth

7 → GWRbandwidth <- gwr.sel (X variable ~ Y variable, data = Data Table, coords =
cbind (X coordinate, Y coordinate), adapt = T)

#Run the GWR model

8 → gwr.model = gwr (X variable ~ Y variable, data = Data Table, coords = cbind (X
coordinate, Y coordinate), adapt = GWRbandwidth, hatmatrix = TRUE, se.fit = TRUE)

#Print the results of the model

9 → gwr.model
10 → Results <- as.data.frame (gwr.model$SDF)
11 → head (Results)

#Save the preliminary results

12 → write.csv (Results, "results.csv", row.names = FALSE)

#Attach coefficients to original dataframe

13 → Data Table$Coef <- Results$coefbeta
14 → Data Table$Coef_se <- Results$coefbeta_se
15 → Data Table$Intercept <- Results$X.Intercept.
16 → Data Table$Intercept_se <- Results$X.Intercept._se
17 → Data Table$residuals <- Results$gwr.e
18 → Data Table$LocalR2 <- Results$localR2

#Save the results

19 → write.csv (Data Table, "resultsGWR.csv", row.names = FALSE)
```