

MATH 545 - ASSIGNMENT 5

Please upload a single pdf with your solutions to myCourses by 11.59pm on Friday 11th April.

The data in the file `USCoal.csv`

`https://www.math.mcgill.ca/dstephens/545/Assignments/A5/Coal.csv`

contains monthly observations from January 2001 to December 2016 (192 observations) of the amount (in tons) of coal consumed in energy production in each of five US states (California, Florida, Illinois, North Carolina and Pennsylvania). The data can be imported using the following commands

```
coal.url<-'https://www.math.mcgill.ca/dstephens/545/Assignments/A5/Coal.csv'
USCoal<-read.csv(coal.url,header=TRUE)
Y.ca<-ts(USCoal[,3],start=c(2001,1),frequency=12)
Y.fl<-ts(USCoal[,4],start=c(2001,1),frequency=12)
Y.il<-ts(USCoal[,5],start=c(2001,1),frequency=12)
Y.nc<-ts(USCoal[,6],start=c(2001,1),frequency=12)
Y.pa<-ts(USCoal[,7],start=c(2001,1),frequency=12)
```

Write a report on the analysis of these data sets, commenting on the following aspects

- | | |
|---|---------|
| (a) the deterministic and stochastic time series components for the states; | 8 Marks |
| (b) similarities and/or differences between the states; | 4 Marks |
| (c) monthly forecasts for each state for year 2017; | 4 Marks |
| (d) any other structure or features you deem relevant, or suggested further analyses. | 4 Marks |

Limit your report to twenty sides of paper including figures and tables. Supply your analysis code as an appendix (of unlimited length).