Modelling and Predicting the Heat Consumption

Assignment 4 – 02417 Time Series Analysis – Anders Hørsted (s082382)

In this report models describing the heat consumption in the VEKS system are build. As data for the models, a year of hourly measurements of the heat consumption along with various climate variables are given. First a simple model, based only on the heat consumption measurements, is build. Then a more complex model that incorporates information from the climate data is build. For both models 1- and 6-hour predictions of the heat consumption are made and the performance is checked by comparing the predictions with the actual values.

Building the simple model

In the simple model only the data of past heat consumption is used. First the data is plotted and shown in figure 1.

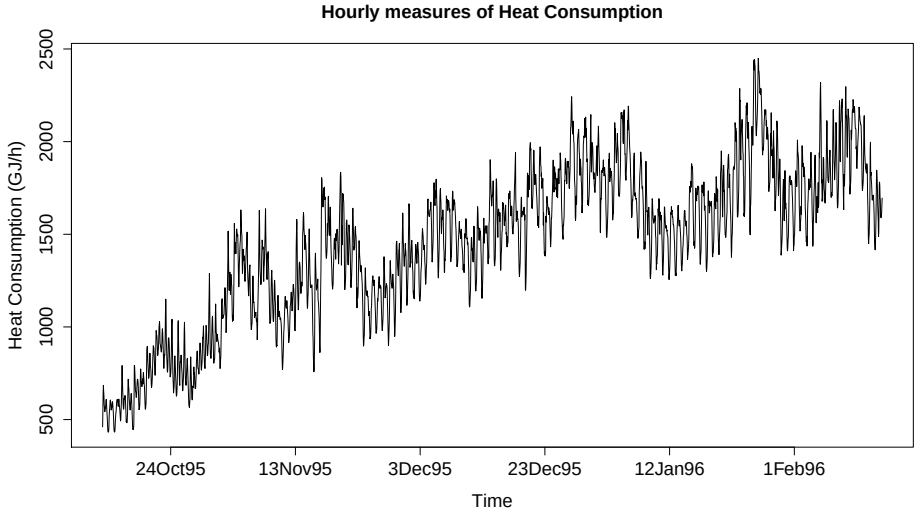

Figure 1: CAPTION!!!

From the plot an upward trend is seen and high frequency oscillations are also noticed. To further investigate the data the ACF and the PACF for the heat consumption series are plotted and shown in figure 2

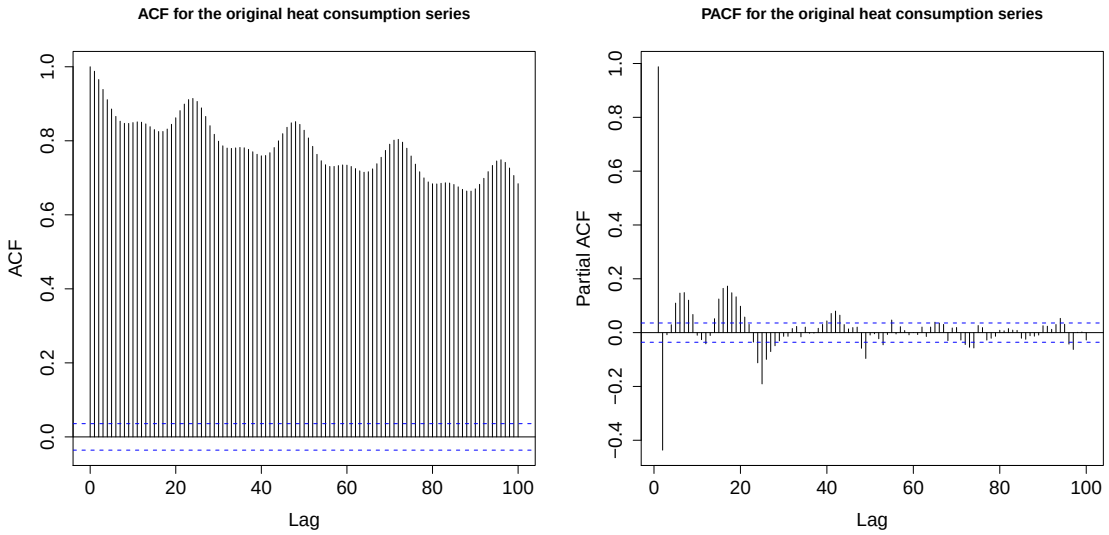

Figure 2: CAPTION!!!

A Appendices

All R code used for this assignment is included here. All source code incl. latex code for this report can be found at `https://github.com/alphabits/dtu-fall-2011/tree/master/02417/assignment-4`

References

[1] Henrik Madsen, *Time Series Analysis*. Chapman & Hall/CRC, 1st Edition, 2008.