

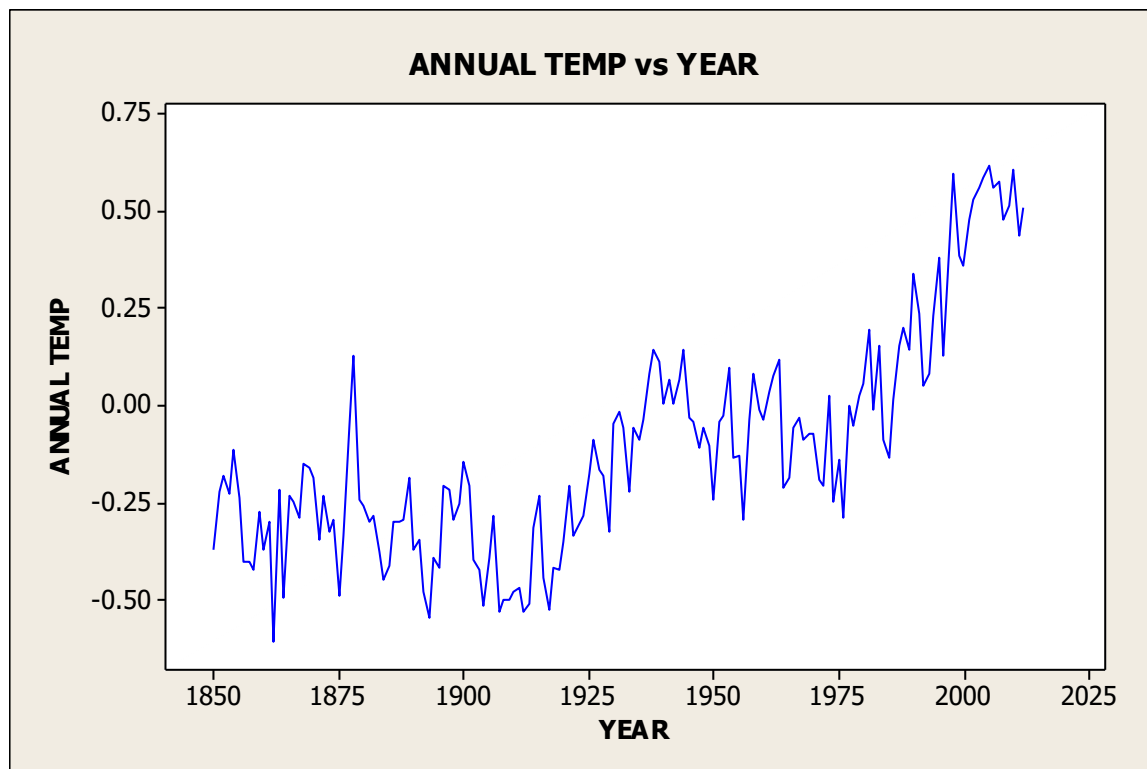
## Handout 1

1. Annual Temperature anomalies (in degree centigrade, base=average of 1961-1990).
2. Water level of Nile river at Aswan 1871-1970.
3. US unemployment rate (in percent).
4. Monthly Electricity Sales to the Residential Sector in the US.
5. EEG data (used in diagnosing patients).
6. (Environmental pollution) NOX and PM 10

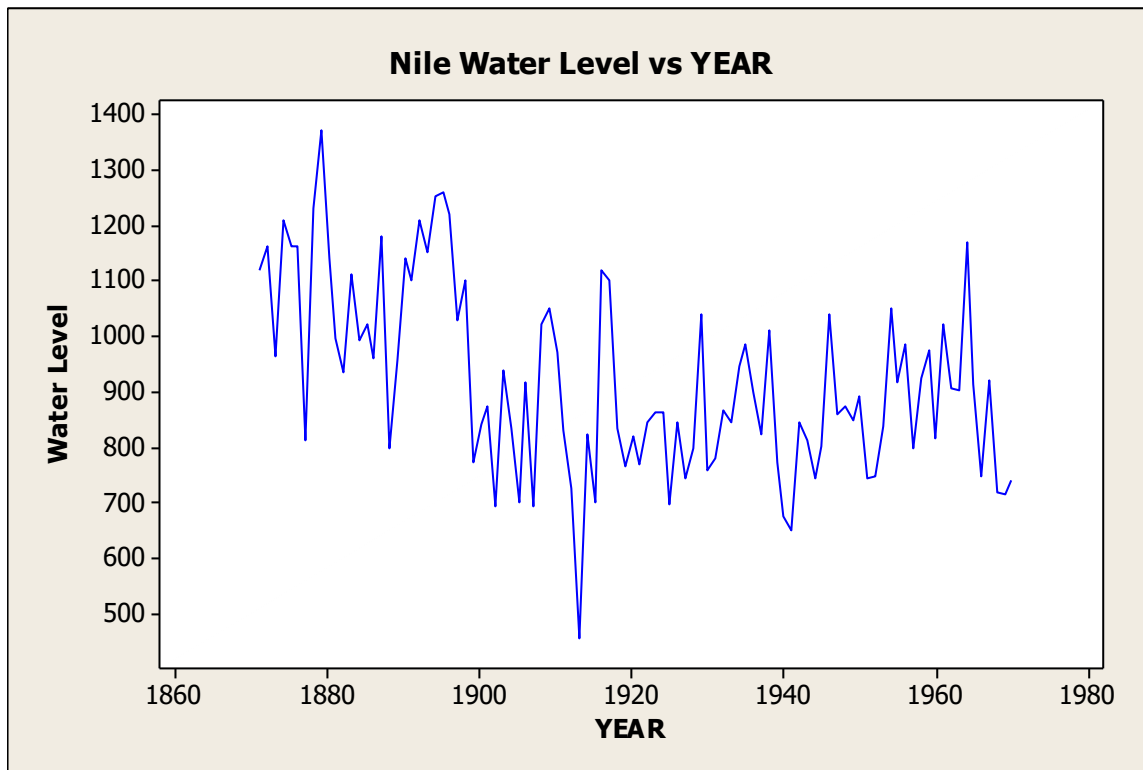
(Data collected at 30 minute interval, 1/21/2011 20:00 to 1/30/2011 3.30)

NOX: mono-nitrogen oxide, PM 10: particulate matter of diameter 10 micrometer or smaller

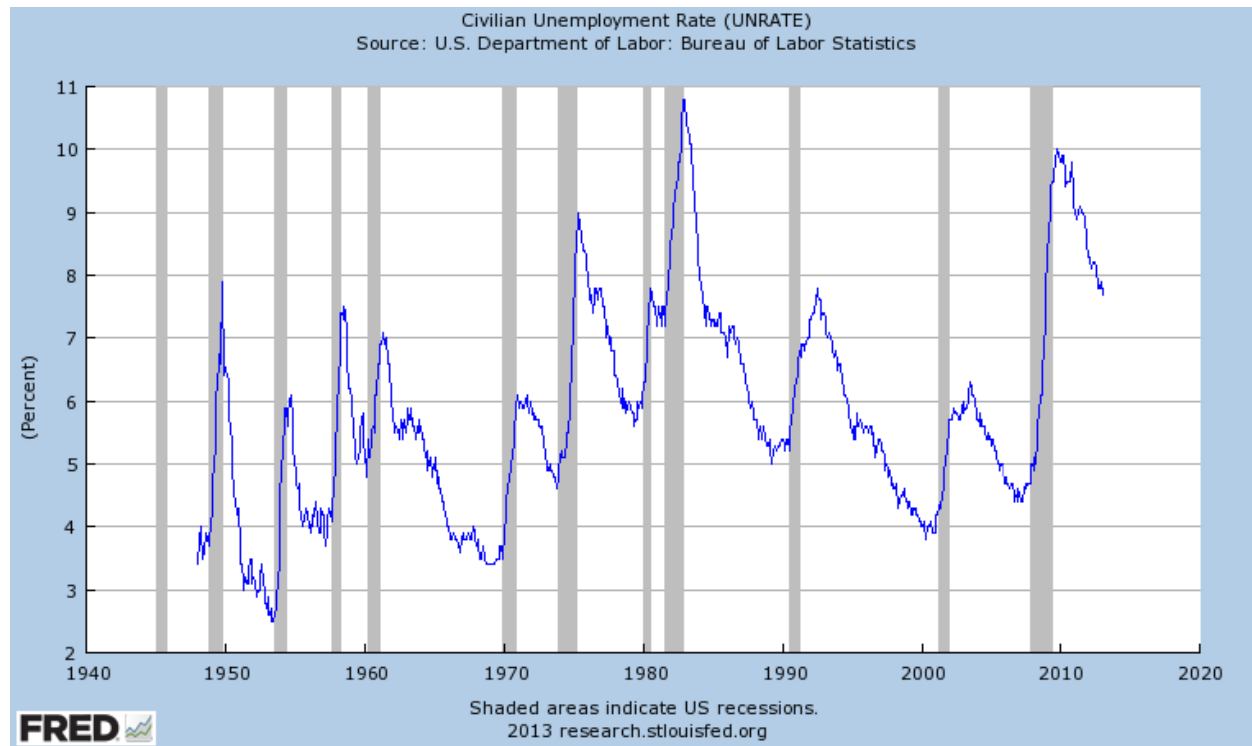
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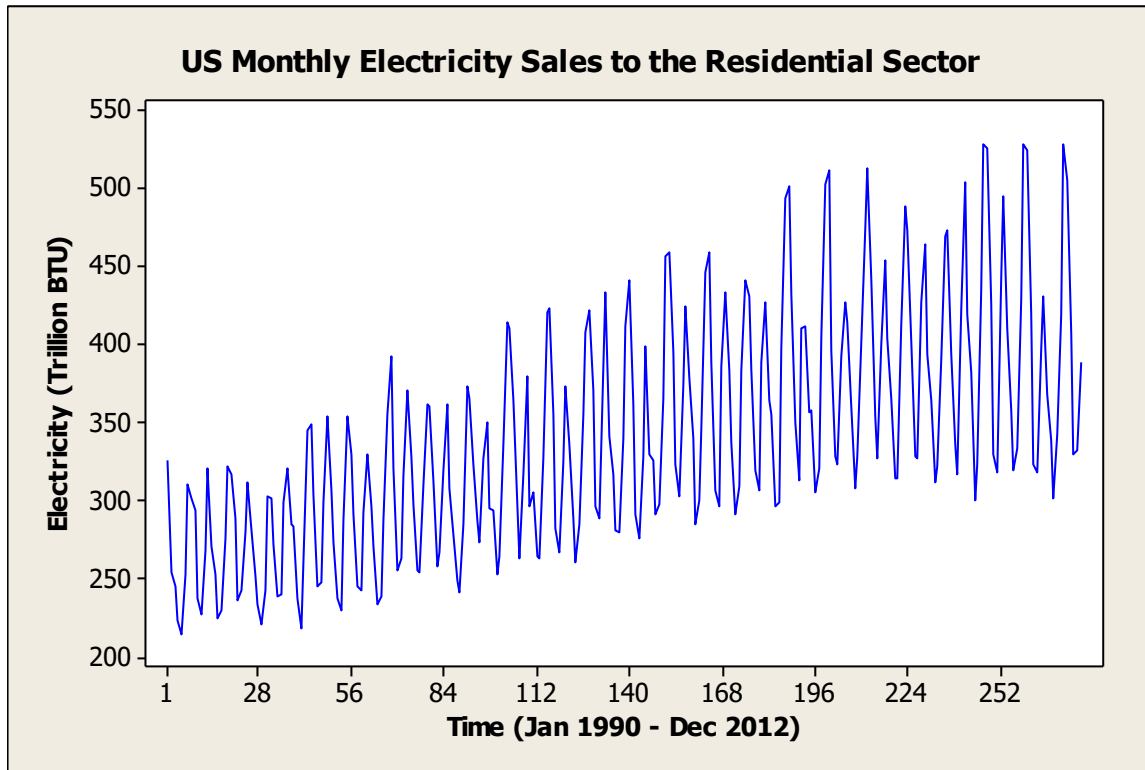
2. Water level of Nile river at Aswan 1871-1970.



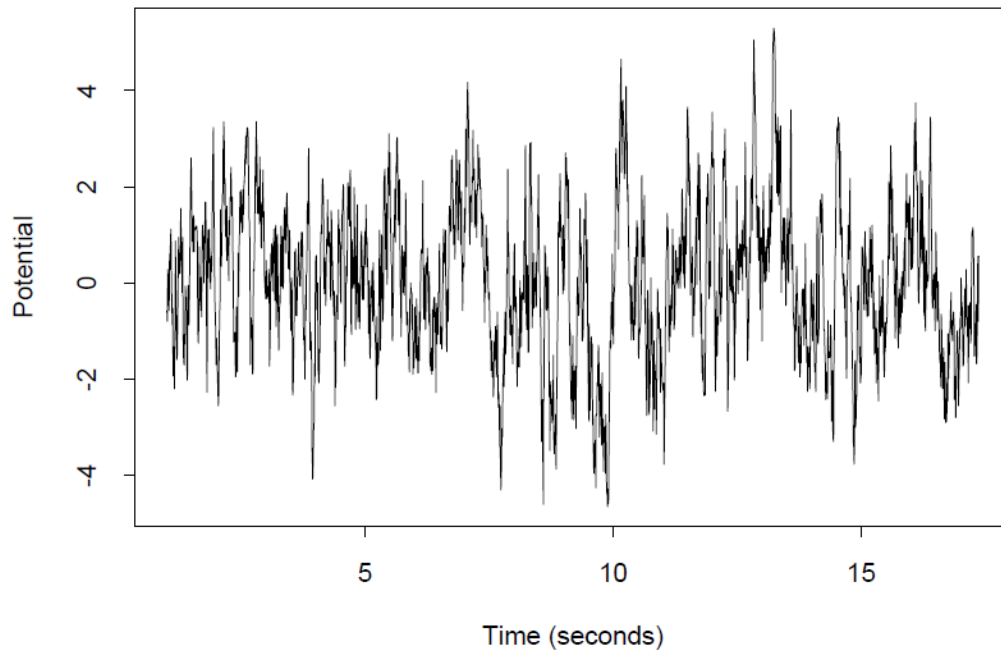
3. US unemployment rate (in percent).



4. Monthly Electricity Sales to the Residential Sector in the US.



5. EEG data (used in diagnosing patients).



**alpha** waves have frequencies ranging from 8 to 13Hz. They are usually present in a normal human at rest with closed eyes and not subjected to any external stimulus. They can be blocked by stimulation or external activity.

**beta** waves have frequencies ranging from 14 to 30Hz and mainly occur when the subject is exposed to an external stimulus; they are not as strongly periodic as the alpha waves.

**theta** waves have frequencies ranging from 3 to 8Hz. They are present in the EEG of newborns or adults who have disease or injury.

**delta** waves are as theta waves except their frequency range is 0.5-3.5Hz.

The aim of this case study is to examine some real EEG data to see what we can find. Real EEG analysers will also be interested in seeing what happens when the subject is stimulated or subjected to various drugs.

## 6. (Environmental pollution) NOX and PM 10

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