Geovisualization
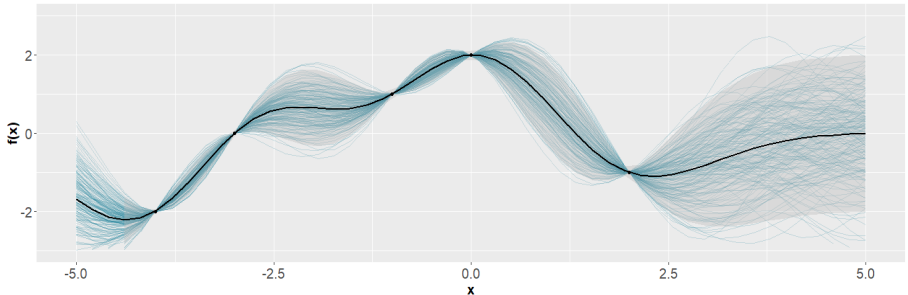
Time series visualization

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Outline

What is a time series data?

Time series data is a collection of observations obtained through repeated measurements over time.

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Since time is a constituent of everything that is observable, we can get time series data from different sources, therefore time series is everywhere!

Some examples of time series data:

- Sales of some product

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- Sales of some product
- Stock prices
- Temperature readings.
- Industry forecasts
- Monthly subscribers
- Historical precipitations
- etc...

What is a time series plot?

Time series plots are a visualization of time series data on one axis (typically "y") against time on the other axis ("x"). Graphs of time series data points can often illustrate trends or patterns in a more accessible and intuitive way.

What are time series analysis?

In a time series plot, the x-axis is labeled as the time-axis. The y-axis represents the variable being observed or measured. Data points are displayed and connected with straight lines in most cases, allowing for interpretation of the resulting graph.

Thus, time series data could be summarised by the definition of W.Z. Hirsch:

"The main objective in analyzing time series is to understand, interpret and evaluate change in economic phenomena in the hope of more correctly anticipating the course of future events".
but, in the word "economic" we could put "random"....

From a time series data, commonly we are interested in make analysis about the phenomena that we care observing/measuring, and for this we can make statistical analysis. That is:

- Description
- Explanation
- Prediction
- Control

Displaying time series data

See the examples in R

📄 Lamigueiro, O. P. (2014). Displaying time series, spatial, and space-time data with R. CRC Press.

📄 Tufte, Edward R. (2001). The Visual Display of Quantitative Information. Second. Cheshire, CT: Graphics Press.