The provided time series are referring to piezometer measurements in the district of Padua. They are real data made available by ARPA Veneto, the regional agency for environment protection. The whole dataset is composed by measurements taken between 1999 and 2021 (roughly) from several boreholes, each identified by a numeric ID and whose positions are provided in planar cartographic coordinates. Each timeseries coverss a different period and although there are approximately sampled 4 times per year, the dates of acquisition are different.

Different kind of analyses can be performed with such data, depending on how data are processed, manipulated and combined. Data gaps, inconsistencies, periods of acquisition, vicinity, spatial correlation, relative positions are just some examples of the aspects that should be taken into account for analyzing the dataset.

As clearly explained during the classes, the lab assignment consists in developing the processing workflow needed to perform spatial analyses covering some aspects, chosen by the student. The goal of the assignment is to provide a final report with which the student is able to present and discuss what processing has been applied, why, what challenges have been faced, what was the purpose of a choice instead of a different one, what kind of temporal/spatial analyses and considerations can be made on the processed data at different steps of the proposed approach.

The development of the work is individual. The final report must be delivered in pdf/pptx format, as well as the codes developed for producing the report in a programming language that can be chosen by the student. Copies and pastes of common codes are not allowed.

The delivery of the final report will be properly submitted in advance to the exam so to be preliminarily check before the oral discussion. A positive lab assignment is mandatory for the registration of the eventual positive mark based on the written/oral exams. The assignments will be evaluated in a range 0-3.