Spatial data analysis with R

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Introduction round

- Let us know
  - Who you are?
  - Which institution you’re coming from?
  - Do you have experience with R?
  - Do you have experience with spatial data in R?

Introduction

- Postdoc at Aalto University, School of Engineering
  - Research themes include:
    - Methodological development
    - hydrology, environmental modelling
    - Spatial interpolation
    - Spatio-statistical methods in downscaling
  - MSc and DSc in Geoinformatics
  - Beng in Environmental Engineering (International Water management)
- Working daily with R
  - Small scripts to support fellow researchers
  - Package development: hydrostreamer, (dasymetric), (Smoodjustment)

Contents

- Day 1
  - Vector data in R, vector data manipulation and queries
- Day 2
  - Spatial analysis with vector data – spatial autocorrelation, spatial clustering, and spatial models
- Day 3
  - Raster data in R, raster data manipulation, map algebra and spatial modelling with rasters

Learning outcomes

- You'll have an idea how to get started with spatial data in R
- You'll be able to switch to programmatic workflows from Desktop GIS (at least for some operations)

- Most of all, I hope you'll have learnt something new not only about R, but also from the methods we will be using. Even if you're already experienced.

What this is not include:

- R basics. I assume you already know how R works.
- Comprehensive look at the R spatial ecosystem. There are far too many spatial packages in R to go through. This only skims the surface.
- Visualisation course – we'll not learn how to make publication ready figures. Although we go through some basic visualisation, these are mainly how I personally use them when working interactively with spatial data. For proper maps, I use QGIS + Affinity, but there are many good packages for visualisation of spatial data in R.

Beyond this course

- CRAN Task view of Spatial Analysis
  https://cran.r-project.org/web/views/Spatial.html
- Geocomputation with R
  https://geocompr.robinlovelace.net/index.html
- Spatial Data Science with R
  https://rspatial.org
- And so many more…