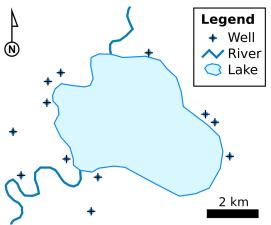
How to make maps in R

Dr Emanuele Giorgi Lancaster University e.giorgi@lancaster.ac.uk

Toowoomba 21-25 October 2019

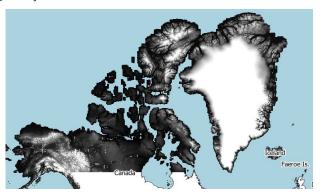
Spatial data

▶ **Vector data:** set of geographical <u>points</u> within a CRS representing stand-alone objects or complex features in forms of lines and polygons.



Spatial data

▶ Raster data: matrix whose entries, called pixels, contain the values of a spatially referenced variable.



rgdal: provides bindings to the GDAL software library for reading and writing vector and raster data.

- rgdal: provides bindings to the GDAL software library for reading and writing vector and raster data.
- sf: alternative to rgdal, with spatial objects stored as data frames.

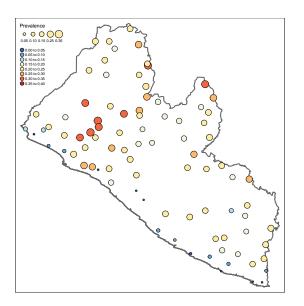
- rgdal: provides bindings to the GDAL software library for reading and writing vector and raster data.
- sf: alternative to rgdal, with spatial objects stored as data frames.
- raster: allows to read, write and manipulate raster data.

- ▶ rgdal: provides bindings to the GDAL software library for reading and writing vector and raster data.
- sf: alternative to rgdal, with spatial objects stored as data frames.
- raster: allows to read, write and manipulate raster data.
- ▶ tmap: generates thematic, both static and interactive, maps using vector and raster data.

- ▶ rgdal: provides bindings to the GDAL software library for reading and writing vector and raster data.
- sf: alternative to rgdal, with spatial objects stored as data frames.
- raster: allows to read, write and manipulate raster data.
- tmap: generates thematic, both static and interactive, maps using vector and raster data.
- splancs: provides function for display and analysis of point pattern data. NOTE: This package provides computationally more efficient algorithms for generating grids (see function gridpts).

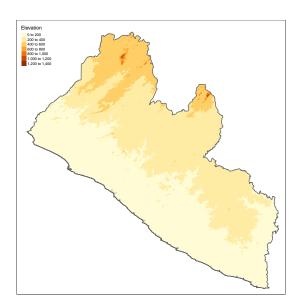
Point maps of geostatistical data 🗬





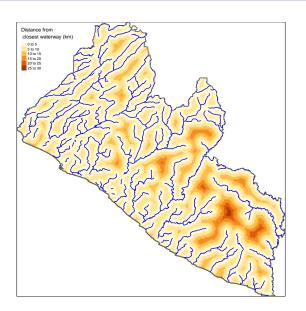
Maps of raster files 🕟





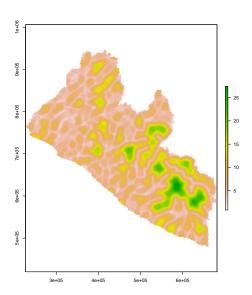
Creating raster files using shape files 😱





Manipulating rasters using buffers 🗬





Aggregating raster files using admin boundaries 😱



