



# Geodata and algorithms in R

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Intro

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DAAD summer school



# Contents of the tutorial

## 1. Spatial vector data





# Contents of the tutorial

1. Spatial vector data
2. Spatial raster data





# Contents of the tutorial

1. Spatial vector data
2. Spatial raster data
3. Bridges to GIS (tomorrow)





# Some definitions



# What is a GIS?

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- Six components of a GIS: software, data, procedures, hardware, people, network
- Typical GIS software packages: QGIS, SAGA-GIS, GRASS-GIS, ArcMap (commercial)







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- GIScience
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## Graphical User Interface (GUI) GIS vs Geocomputation with R

<b>Attribute</b>	<b>Desktop GIS (GUI)</b>	<b>R</b>
Home disciplines	Geography	Computing, Statistics
Software focus	Graphical User Interface	Command line
Reproducibility	Minimal	Maximal

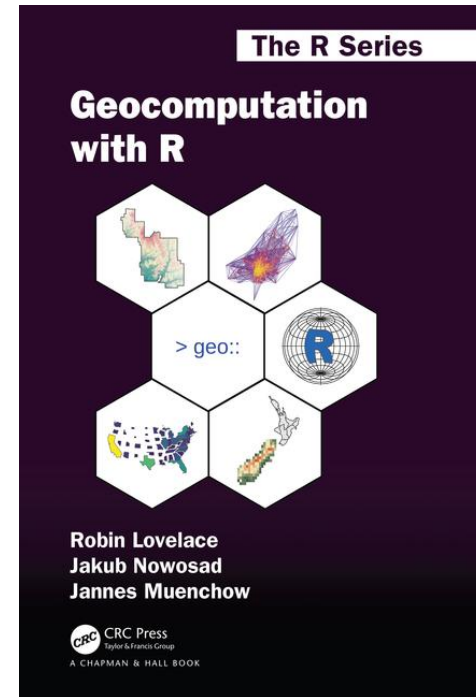


# Wanna learn more?

We are the authors of **Geocomputation with R** (Lovelace, Nowosad, and Muenchow, 2019).

Find [here](#) the online home of our book.

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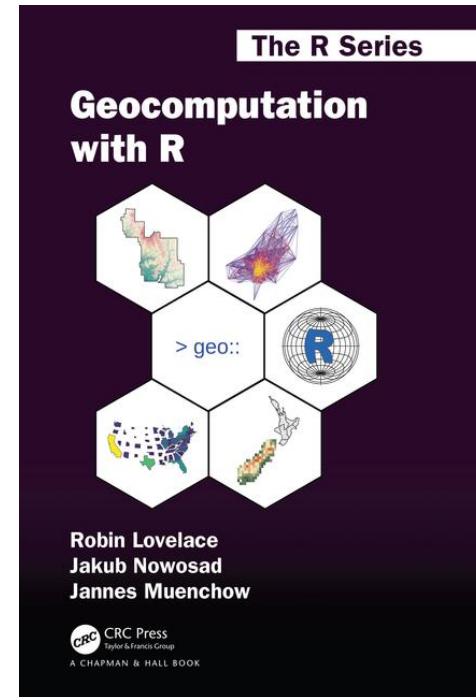


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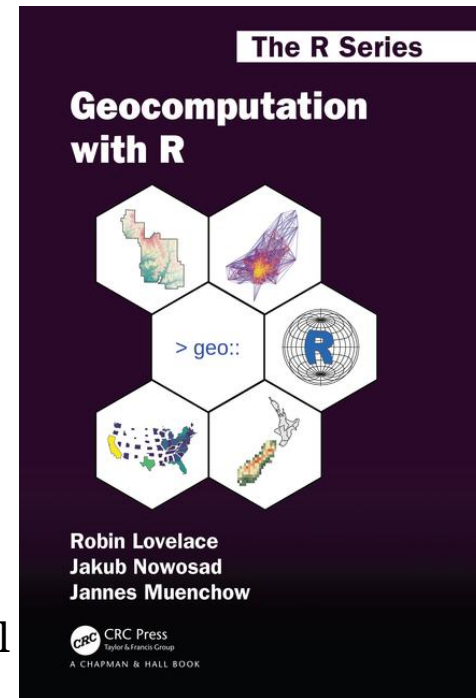


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- **Jannes Muenchow** - GIScientist with a special focus on ecology, landsliding and geomarketing; creator of the **RQGIS(3)** package (Muenchow, Schratz, and Brenning, 2017).



Further reading: <https://geocompr.robinlovelace.net/intro.html#what-is-geocomputation>



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- Geographic data can quickly become big.
- Two data models for representing digitally geographic data: **the vector** (Pebesma, 2018c) and **the raster** (Hijmans, 2019) data model.

# References



- Hijmans, Robert J. (2019). *Raster: Geographic Data Analysis and Modeling*. R package version 2.8-19. URL: <https://CRAN.R-project.org/package=raster>.
- Longley, Paul, Michael Goodchild, David Maguire, et al. (2015). *Geographic Information Science & Systems*. Fourth edition. Hoboken, NJ: Wiley. 477 pp. ISBN: 978-1-118-67695-0.
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- Muenchow, Jannes, Patrick Schratz, and Alexander Brenning (2017). "RQGIS: Integrating R with QGIS for Statistical Geocomputing". In: *The R Journal* 9.2, pp. 409-428.
- Pebesma, Edzer (2018). "Simple Features for R: Standardized Support for Spatial Vector Data". In: *The R Journal* 10.1, pp. 439-446. URL: <https://journal.r-project.org/archive/2018/RJ-2018-009/index.html>.