



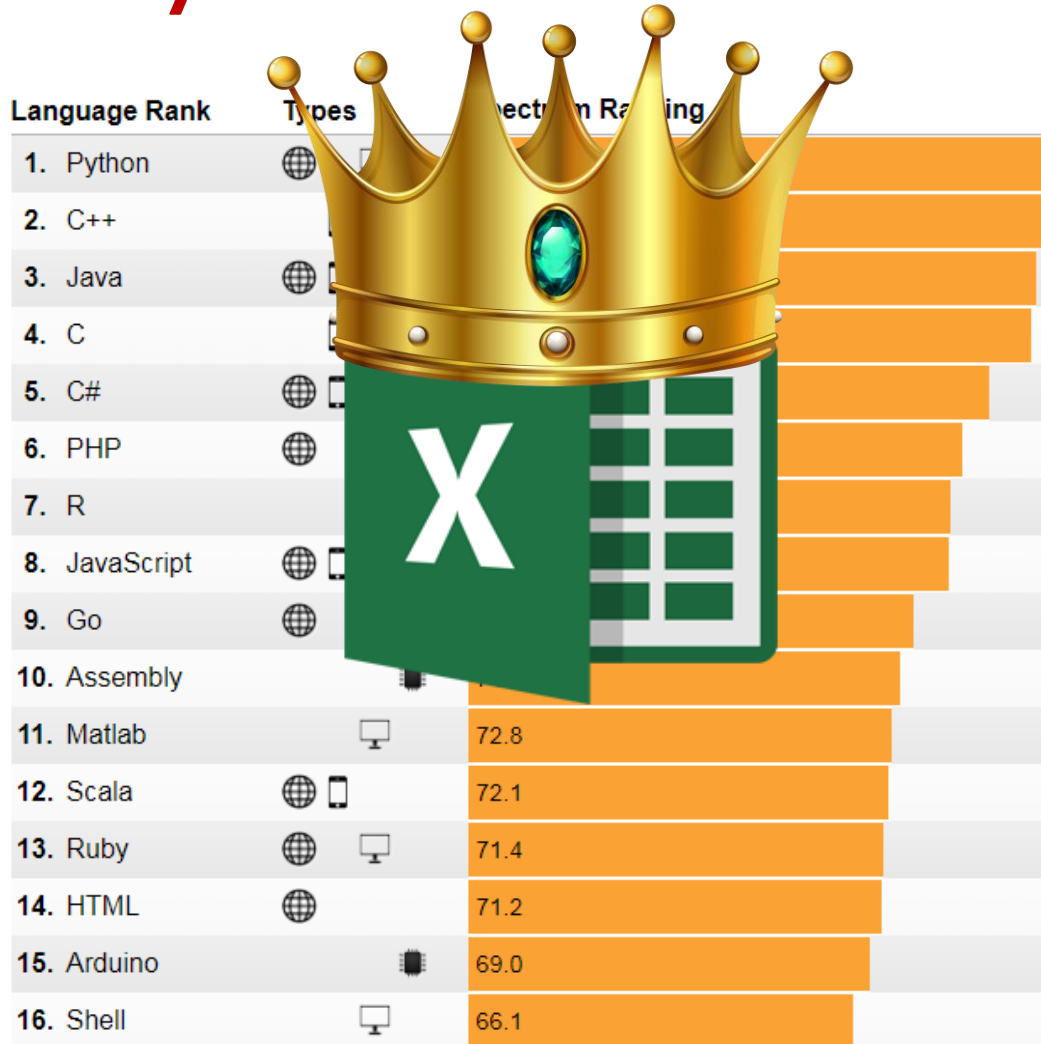
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# Is spatial special?

Democratization of geospatial analytics with R

Dmytro Perepolkin, Data Scientist EXP, Equinor ASA

# Why R?



- Second most-popular «data» language
- Second(?) most-popular tool among non-CS data analysts
- FOSS(!)
- Supported by industry (Microsoft, Oracle, TIBCO)
- Loose, thoughtful... awesome!

Source: [IEEE](https://www.linkedin.com/pulse/what-things-r-programming-language-better-than-python-reyes/)

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# What has been happening with R?

13000<sup>+</sup> packages  
on CRAN

Tidyverse



*sf*

References: <https://www.tidyverse.org>  
<https://geocompr.robinlovelace.net>

# Simple features in R

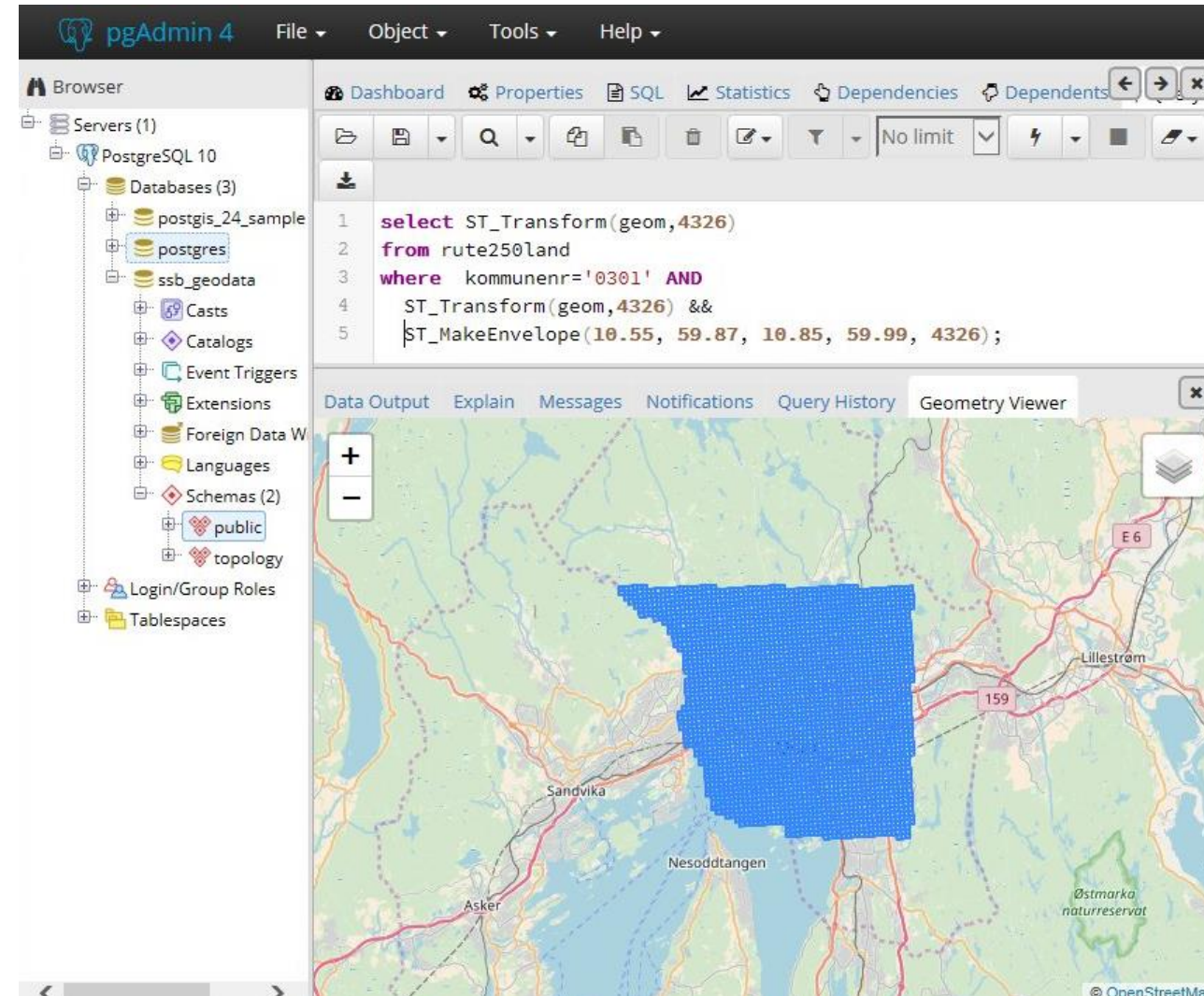
- Successor to {sp, rgeos, rgdal} by Bivand, Pebesma et al.
- Implementation of Simple Features
- Inspired and closely following PostGIS
  - WKT/WKB based
  - «Rectangular data structures» with geometry column
- Well-integrated with other packages

References: <https://github.com/r-spatial/sf>  
<https://www.r-spatial.org>



# Separation of data and desktop

- Data (databases, data lake, «Azure stuff»)
  - Multi-user, multi-purpose, common dictionary
  - Data engineering, ETL, data quality, backup, optimization
- Analysis (BI, Desktop GIS, data languages)
  - Custom, agile, short-lived
  - User-experience is important
  - Reproducible, targeted



# «Tidy data» as API

- «Each variable is a column, each observation is a row»
- Intuitive, consistent interface
  - Shallow learning curve
  - Extensible
  - **No boundary between analysis domains**
- + Publication-quality visuals (ggplot, leaflet, plotly, etc)
- + Interactive documents (Rmarkdown, Shiny)

1. Reuse existing data structures
2. Compose simple functions with the pipe
3. Embrace functional programming
4. Design for humans

References: <https://cran.r-project.org/web/packages/tidyverse/vignettes/manifesto.html>



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# DEMOcratization of geospatial analytics with R

<https://github.com/dmi3kno/ECIM18-geoWithR>



# Equinor presentations at ECIM 2018



## What digitalization means for the subsurface domain

*Tina Todnem, Project Manager Digital Subsurface Program, Equinor + Duncan Irving, Principal Consultant, Oil & Gas, Teradata*

**- Plenary Tuesday 11.September 08.35-09.10**



## Business Information Inventory

*Hege Renee Hansen Åsand, Principal Analyst IT Governance, Equinor ASA*

**- Enterprise DM workstream Tuesday 11.September 14.30-15.00**



## Case study: A G&G user centric approach to deal with data in Exploration Brazil

*Sophus Aarnes, Principal Principal Geologist Exploration, Equinor ASA*

**- Geo Information workstream Tuesday 11.September 14.30-15.00**



## Expectations of ECIM as a newly graduated student within data management from IFP School

*Ivar Sørheim, Graduate Analyst Technology Management, Equinor ASA*

**- Enterprise DM workstream Tuesday 11.September 16.30-17.00**



## Democratization of geospatial analytics with R

*Dmytro Perepolkin, Data Scientist, Equinor ASA*

**- Geo Information workstream Tuesday 11.September 15.30-16.00**



## Improved safety in operational planning using cognitive technology

*Gry Kristin Slettemark, Senior Information Management Analyst, Equinor ASA*

**- Machine Learning & analytics workstream Tuesday 11.September 15.30-16.00**



## Collection of outcrop analogue data, Book Cliffs, Utah-Colorado, using GIS Apps

*Sofia Campo, GIS Analyst, Equinor ASA*

**- Geo Information workstream Wednesday 12.September 10.55-11.25**



## Non-technical aspects on Data Driven workflows in sub-surface

*Tore Hoff, Specialist Information Management, Equinor ASA*

**- Subsurface DM workstream Wednesday 12.September 10.30-11.00**





# Democratization of geospatial analytics with R

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