

# AwesomeGeodataTable

Towards a community-maintained searchable table for data sets easily usable as predictors for spatial machine learning

1.



## What is **AwesomeGeodataTable**?

- A **WebApp** to help geoscientists **find** available datasets with focus on spatially continuous **predictors** for machine learning
- Interactively **searchable**, **filterable** and **sortable** table
- Compilation** of dataset **meta-data**

AwesomeGeodataTable



## What is the **current state**?

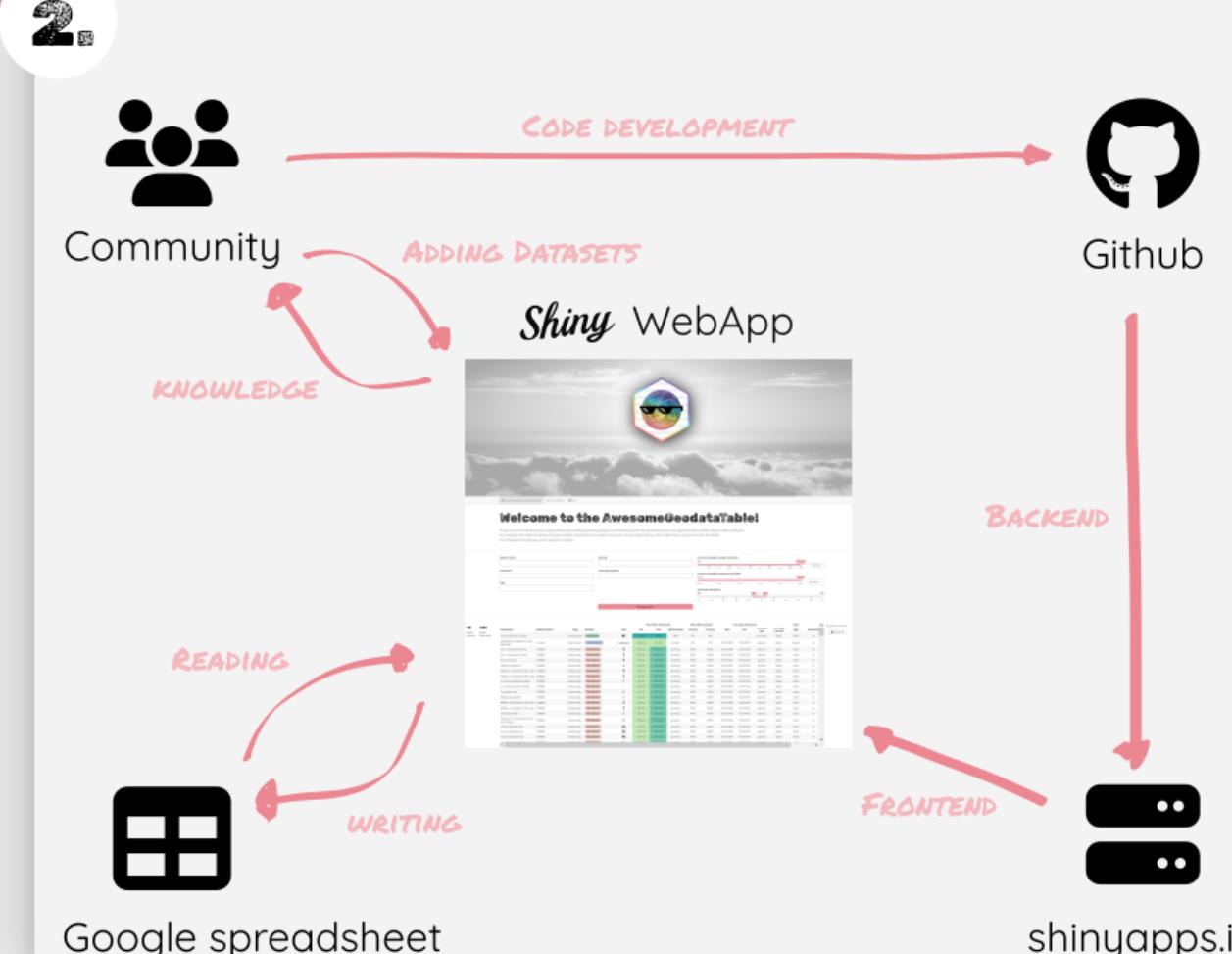
- Find **collaborators** ➜ [AwesomeGeodataTable@gmail.com](mailto:AwesomeGeodataTable@gmail.com)
- Incorporate **more datasets**
- Enhance **usability** and **functionality**
- Fix minor **bugs** and **performance issues**

2.



Community

KNOWLEDGE



 Search the Awesome Geodata Table

 Add a Dataset

 Info



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# Welcome to the AwesomeGeodataTable!

Search the Awesome Geodata Table

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Diagram illustrating the user interface and functionality of the Awesome Geodata Table application.

The interface includes:

- Search Bar:** Search the Awesome Geodata Table.
- Add a Dataset:** Button to add a new dataset.
- Info:** Information and settings for the current dataset.
- Filtering Section:** Contains:
  - selectizeInput:** Input fields for Dataset name, Parameter, and Tags.
  - Domain:** Input field for Coverage (spatial).
  - Coverage (spatial):** Input field for Coverage (temporal).
  - Buttons:** Button to apply current filter settings and Apply filters button.
- Table Section:** Displays 18 found datasets and 185 parameters.
  - Sortable column headers:** Headers include Parameter ↑, Dataset name ↑, Tags, Domain, Unit, min, max, Upload delay, min [m], max [m], and sto.
  - Live display of found entries:** Shows the count of found datasets and parameters.
  - Filtered interactive table (reactable R package):** A table showing filtered data with columns: Parameter, Dataset name, Tags, Domain, Unit, Resolution (temporal), and Resolution (spatial).
  - Column styling:** Arrows pointing to the Unit, Resolution (temporal), and Resolution (spatial) columns.
- Download Section:** Includes:
  - Slider inputs:** Lowest acceptable spatial resolution (0 m to 100,000 m), Lowest acceptable temporal resolution (0h, 1h to 10a, 10a), and Coverage (temporal) (1931 to 2100).
  - Synced inputs:** sliderTextInput + synced autonumericInput (for spatial resolution) and sliderTextInput + synced numericInput (for temporal resolution).
  - Buttons:** Show all columns and Download button.
  - Toggle visibility of additional columns:** A dropdown menu for managing additional columns.
  - Download filtered table as CSV:** Button to download the filtered table as a CSV file.

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To add a new dataset to the **AwesomeGeodataTable** please fill out the following input fields with the related meta data.

**Hints**

- Required input fields are annotated with the note **Required** when unfilled
- For further information about each input field, please just hover over the input field
- To finally add your dataset, click on the 'Add entry' button at the bottom

**Dataset name**

Please type in the dataset name

Required

**Parameter**

Please choose a parameter or type in a new parameter name

Required

**Tags**

Please choose at least one tag and/or type in a new tag

Required

**Domain**

Please choose a domain

Required

**Unit**

Please choose a unit or type in a new unit in latex equation syntax

Required

**Resolution**

**Minimum (shortest) temporal resolution**

Please choose a temporal resolution

Required

**Maximum (longest) temporal resolution**

Please choose a temporal resolution

Required

Search the Awesome Geodata Table

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Input validation

searchable list of existing choices

Input help

Button to add entry to spreadsheet

Dataset name

Required

Parameter  
 Please choose a parameter or type in a new parameter name

10 metre u wind component  
10 metre v wind component  
10m u-component of wind  
10m v-component of wind  
10m wind speed  
2 metre dewpoint temperature  
2 metre temperature  
2023/07/01

Required

Minimum (smallest) spatial resolution

Required

Maximum (greatest) spatial resolution

Required

Vertical spatial resolution  
 Please choose a vertical spatial resolution

Coverage

Temporal coverage  
 2023/07/01

Temporal type  
 Please choose a temporal type from the list

Spatial coverage  
 Please choose a tag for a spatial coverage or type in a new tag

Required

Add entry

|     | A   | B                               | C                                     | D                | E                             | F                     | G                     | H            |
|-----|---|---------------------------------|---------------------------------------|------------------|-------------------------------|-----------------------|-----------------------|--------------|
| 1   | c   | c                               | c                                     | c                | c                             | f                     | f                     | c            |
| 2   | Parameter                                       | Dataset name                    | Tags                                  | Domain           | Unit                          | Resolution (temporal) | Resolution (temporal) | Resolution ( |
| 3   | Parameter                                       | Dataset name                    | Tags                                  | Domain           | Unit                          | min                   | max                   | Upload dela  |
| 184 | Eastness  | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | unknown                       | static                | static                | static       |
| 185 | Northness                                       | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | unknown                       | static                | static                | static       |
| 186 | Profile curvature                               | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 187 | Tangential curvature                            | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 188 | First order partial derivative (E-W slope)      | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 189 | First order partial derivative (N-S slope)      | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 190 | Second order partial derivative (E-W curvature) | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 191 | Second order partial derivative (N-S curvature) | Global 1,5,10,100-km Topography | topography, landforms, remote sensing | Land surface     | $\frac{\text{rad}}{\text{m}}$ | static                | static                | static       |
| 192 | railway density                                 | OSM Railways                    | human-impact, land-use, pollution     | Human Dimensions | (0-100)                       | static                | static                | unknown      |
| 193 | hydrologic soil group                           | HYSGOGs250m                     | soil-properties, soil                 | Land surface     | -                             | static                | static                | static       |
| 194 | geomorphometric feature                         | Geomorpho90m                    | topography, geomorphology             | Land surface     | -                             | static                | static                | static       |
| 195 | minimum temperature                             | WorldClim v2.1                  | meteorology, temperature              | Atmosphere       | $^{\circ}\text{C}$            | (1m, 1a]              | (1m, 1a]              | -            |
| 196 | maximum temperature                             | WorldClim v2.1                  | meteorology, temperature              | Atmosphere       | $^{\circ}\text{C}$            | (1m, 1a]              | (1m, 1a]              | -            |
| 197 | average temperature                             | WorldClim v2.1                  | meteorology, temperature              | Atmosphere       | $^{\circ}\text{C}$            | (1m, 1a]              | (1m, 1a]              | -            |
| 198 | precipitation                                   | WorldClim v2.1                  | meteorology, precipitation            | Atmosphere       | mm                            | (1m, 1a]              | (1m, 1a]              | -            |



- Risk of clashing inserts
- Lack of constraints on data types and cell values
- No server or administration required
- No „costs“

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## Get Engaged

You found a typo or wrong content in one or multiple cells of the table?  
Please open an  issue with the tag 'content correction'

You want to improve the code or the functionality of **AwesomeGeodataTable**?  
Please open an  issue with the relevant tag

You have another question?  
 awesomegeodata[at]gmail[dot]com

# Outlook

- Find collaborators
- Incorporate more datasets
- Extend functionality
  - Add Tab for Statistics and Charts for Overview
- Improve usability
  - Filters
  - Column definitions
- Fix bugs and performance issues
  - Faster table rendering with enabled column styling
- Spread the word

# R Packages

## Data wrangling

readr,  
googlesheets4,  
dplyr,  
purrr,  
here,  
stringr,  
tidyR, lubridate,  
here

## ShinyApp

shiny,  
shinythemes,  
shinyjs,  
shinyWidgets,  
shinyBS,  
shinydashboard,  
shinycssloaders,  
shinyalert,  
shinyvalidate,  
shinyFeedback,  
htmltools, tippy,  
assertr

## table

reactable,  
reactablefmtr,  
viridis,  
kateXR,  
hues

## others

allcontributors,  
v8

# Thanks for your interest

If you

- think that this is helpful and want to contribute
- want to get started with developing ShinyApps
- want to try it out and provide feed back

please just write me an email:



max-n@posteo.de



AwesomeGeodataTable@gmail.com