Package: zonal (via r-universe)

December 6, 2024

Title Performant zonal statistics over flexible units

Version 0.1.1

Maintainer Mike Johnson <mike.johnson@noaa.gov>

BugReports https://github.com/mikejohnson51/zonal/issues

Description Given gridded and vector based input, compute summary statistics.

Depends R(>= 3.5.0)

Imports collapse, dplyr, data.table, exactextractr, jsonlite, methods, rlang, terra, tidyr, santoku

License MIT + file LICENSE

Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.3.2

Suggests testthat (>= 3.0.0), AOI, climateR, knitr

Remotes mikejohnson51/climateR, mikejohnson51/AOI

Config/testthat/edition 3

VignetteBuilder knitr

Config/pak/sysreqs libgdal-dev gdal-bin libgeos-dev libicu-dev libssl-dev libproj-dev libsqlite3-dev libudunits2-dev

Repository https://mikejohnson51.r-universe.dev

RemoteUrl https://github.com/mikejohnson51/zonal

RemoteRef HEAD

RemoteSha 8d932f3d419489f90e7ab6c6afa085791324dc46

Contents

`aggregate_zones` *Aggregate data between zones Provides the ability to take attributes from one scale of polygon and split aggregate them to another.*

Description

Aggregate data between zones Provides the ability to take attributes from one scale of polygon and split aggregate them to another.

Usage

```
aggregate_zones(
  data,
  geom,
  crosswalk,
  ID = "divide_id",
  fun = "mean",
  join = TRUE,
  drop = NULL
)
```

Arguments

data	tabular data reference to the smaller unit
geom	sf, sfc, SpatialPolygonsDataFrame, or SpatialPolygons object with polygonal geometries
crosswalk	a crosswalk of smaller unit to major unit relations
ID	the grouping ID
fun	an optional function or character vector, as described below
join	if TRUE the geom will be joined to the results
drop	colnames to drop from table

Details

the cross walk table must have at least 4 columns containing the ID and areas of the small units and and the ID and areas of the large unit. The name of the large unit IDs is provided by the `ID` parameter in the function signature. The smaller unit IDs must have a corresponding attribute in the data input. The area of the larger units must be called `areasqkm`, while the area of the smaller units must be called `s_areasqkm`.

Value

data.frame or sf object

`circular_mean` *Geometric Mean Summary*

Description

Geometric Mean Summary

Usage

```
circular_mean(value, coverage_fraction)
```

Arguments

value	vector of value
coverage_fraction	coverage fraction

Value

data.frame

distribution *Distribution Summary*

Description

Distribution Summary

Usage

```
distribution(value, coverage_fraction, breaks = 10, constrain = FALSE)
```

Arguments

value	vector of value
coverage_fraction	coverage fraction
breaks	either a numeric vector of two or more unique cut points or a single number (greater than or equal to 2) giving the number of intervals into which x is to be cut. (default = 10)
constrain	should breaks (with length > 1) be limited by the max of value?

Value

data.frame

ee_functions *exactextractr Function Lookup*

Description

exactextractr Function Lookup

Usage

```
ee_functions()
```

Value

data.frame

equal_population_distribution *Equal Area Distribution*

Description

Equal Area Distribution

Usage

```
equal_population_distribution(value, coverage_fraction, groups = 4)
```

Arguments

value	vector of value
coverage_fraction	coverage fraction
groups	number of intervals to create

Value

data.frame

execute_zonal *Execute Zonal Stats*

Description

Execute Zonal Stats

Usage

```
execute_zonal(
  data = NULL,
  geom = NULL,
  w = NULL,
  ID = NULL,
  fun = "mean",
  subds = 0,
  progress = FALSE,
  join = TRUE,
  drop = NULL,
  ...
)
```

Arguments

data	SpatRaster or file path
geom	sf, sfc object with polygonal geometries
w	a weight grid (produced with weight_grid)
ID	the grouping ID
fun	an optional function or character vector, as described below
subds	character or boolean to select a sub-dataset. If NULL all are selected
progress	if TRUE, display a progress bar during processing
join	if TRUE the geom will be joined to the results
drop	colnames to drop from table
...	optional arguments to pass fun

Value

sf object or data.table

---

geometric_mean *Geometric Mean Summary*

Description

Geometric Mean Summary

Usage

```
geometric_mean(x, coverage_fraction)
```

Arguments

x	vector of value
coverage_fraction	coverage fraction

Value

data.frame

mode *Mode Summary*

Description

Mode Summary

Usage

```
mode(x, coverage_fraction)
```

Arguments

x	vector of value
coverage_fraction	coverage fraction

Value

data.frame

prep_geom *Prep Incoming Data*

Description

Prep Incoming Data

Usage

```
prep_geom(geom, crs = NULL)
```

Arguments

geom	sf or SpatVector object
crs	coordinate reference system

Value

SpatVector

prep_input *Prep Incoming Data*

Description

Prep Incoming Data

Usage

```
prep_input(data, subds = 0, lyrs = NULL, win = NULL)
```

Arguments

data	SpatRaster, file path, raster
subds	positive integer or character to select a sub-dataset. If zero or "", all sub-datasets are returned (if possible)
lyrs	positive integer or character to select a subset of layers (a.k.a. "bands")
win	SpatExtent to set a window (area of interest)

Value

SpatRaster

sanitize *Sanitize Column Inclusions*

Description

Sanitize Column Inclusions

Usage

```
sanitize(exe, drop = NULL)
```

Arguments

exe	executed zonal product
drop	colnames to drop from table

Value

data.table

ts_extract *Extract and Transform Time Series Data*

Description

This function processes an input dataset by reshaping it from wide to long format, separating columns into descriptions and dates, and renaming the resulting dataset for further analysis.

Usage

```
ts_extract(output, ID)
```

Arguments

output	A data frame containing the time series data in wide format. It must have a column with the name matching ID and other columns with names in the format "description_Date" (e.g., "temp_2024-01-01").
ID	A character string specifying the column name that uniquely identifies rows in the dataset.

Value

A transformed data frame with the following changes:

description The variable names extracted from the original column names.

Date A Date column converted from the original column names.

value The associated values for each combination of ID, description, and Date.

weight_functions *Weight Function Lookup*

Description

Weight Function Lookup

Usage

```
weight_functions()
```

Value

data.frame

weight_grid *Build Weighting Grid*

Description

Returns a data.table with columns for ID, grid_id, X, Y and weight. By default this object is sorted on the grid_id

Usage

```
weight_grid(data, geom, ID, progress = TRUE)
```

Arguments

data	file path or
geom	sf, sfc, SpatialPolygonsDataFrame, or SpatialPolygons object with polygonal geometries
ID	the name of the column providing the unique identified of each geom
progress	if TRUE, display a progress bar during processing

Value

a list(data.table, vector)

weight_grid_to_data *Use Weight Grid to extract SpatRast Data*

Description

Returns a data.table with raster data attached to weight grid

Usage

```
weight_grid_to_data(data, w, subds = 0)
```

Arguments

data	SpatRaster or file path
w	weight grid
subds	subdatasets to extract

Value

data.table

zone_by_ee *Execute Zonal Stats by ExactExtract*

Description

execute exactextract more flexiably

Usage

```
zone_by_ee(
  data,
  geom,
  ID,
  fun = "mean",
  subds = 0,
  progress = FALSE,
  join = TRUE,
  ...
)
```

Arguments

data	SpatRaster or file path
geom	summary units
ID	the grouping ID
fun	summarization function
subds	subdatasets to extract
progress	if TRUE, display a progress bar during processing
join	should data be joined to geom?
...	additional arguments passed on to exact_extract

Value

data.table

`zone_by_weights` *Execute Zonal Stats by Weight Grid*

Description

execute

Usage

```
zone_by_weights(data, w, ID, fun = "mean", subds = 0, ...)
```

Arguments

`data`	SpatRaster or file path
`w`	weight grid
`ID`	the grouping ID
`fun`	summarization function
`subds`	subdatasets to extract
`...`	additional arguments passed on to the lapply summary in DT summary

Value

data.table

Index