Package 'adw'

March 1, 2022

Title Angular Distance Weighting Interpolation

Version 0.1.0

Description The irregularly-spaced data are interpolated onto regular latitude-longitude grids by weighting each station according to its distance and angle from the center of a search radius.

License GPL-3

Encoding UTF-8

RoxygenNote 7.1.2

Depends R (>= 4.1)

Imports sf, geosphere, magrittr, rnaturalearth

NeedsCompilation no

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R topics documented:

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adw *Angular Distance Weighting*

Description

The irregularly-spaced data are interpolated onto regular latitude-longitude grids by weighting each station according to its distance and angle from the center of a search radius.

Usage

```
adw(
  dd,
  xmin = NULL,
  xmax = NULL,
  ymin = NULL,
  ymax = NULL,
  gridSize = 1,
  cdd = 1e+06,
  m = 4
)
```

Arguments

dd	a input dataframe which contains column names of lon, lat, value
xmin	the minimum longitude of the rectangular mesh
xmax	the maximum longitude of the rectangular mesh
ymin	the minimum latitude of the rectangular mesh
ymax	the maximum latitude of the rectangular mesh
gridSize	the grid resolution
cdd	the correlation decay distance, unit: meter
m	is used to adjust the weighting function further

Value

a regular latitude-longitude grid dataframe

Examples

```
set.seed(2)
dd <- data.frame(lon = runif(100, min = 110, max = 117),
                 lat = runif(100, min = 31, max = 37),
                 value = runif(100, min = -10, max = 10))
head(dd)
dg <- adw(dd, gridSize = 1, cdd = 1e5)
# dg is the dataframe of grid (mesh)
head(dg)
```

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adw_land *Angular Distance Weighting for land*

Description

The irregularly-spaced data are interpolated onto regular latitude-longitude grids by weighting each station according to its distance and angle from the center of a search radius.

Usage

```
adw_land(
  dd,
  xmin = NULL,
  xmax = NULL,
  ymin = NULL,
  ymax = NULL,
  gridSize = 1,
  cdd = 1e+06,
  m = 4
)
```

Arguments

dd	a input dataframe which contains column names of lon, lat, value
xmin	the minimum longitude of the rectangular mesh
xmax	the maximum longitude of the rectangular mesh
ymin	the minimum latitude of the rectangular mesh
ymax	the maximum latitude of the rectangular mesh
gridSize	the grid resolution
cdd	the correlation decay distance, unit: meter
m	is used to adjust the weighting function further

Value

a regular latitude-longitude grid dataframe

Examples

```
set.seed(123)
dd <- data.frame(lon = runif(100, min = 110, max = 117),
                 lat = runif(100, min = 31, max = 37),
                 value = runif(100, min = -10, max = 10))
head(dd)
dg <- adw(dd, gridSize = 1, cdd = 1e5)
# dg is the dataframe of grid (mesh)
head(dg)
```

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