Package 'spEDM'

Title Spatial Empirical Dynamic Modeling

Version 1.1

Description Integrates empirical dynamic modeling (EDM) with geospatial cross-sectional data to analyze causality via geographical convergent cross mapping (GCCM) described in Gao et al. (2023) <doi:10.1038/s41467-023-41619-6>.

License GPL-3

Encoding UTF-8

RoxygenNote 7.3.2

URL https://stscl.github.io/spEDM/, https://github.com/stscl/spEDM

BugReports https://github.com/stscl/spEDM/issues

Depends R (>= 4.1.0)

LinkingTo Rcpp, RcppThread

Imports dplyr, sdsfun (>= 0.6.0), terra

Suggests ggplot2, knitr, Rcpp, RcppThread, rmarkdown, sf, spdep

VignetteBuilder knitr

NeedsCompilation yes

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Repository CRAN

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gccm   *geographical convergent cross mapping*

Description

geographical convergent cross mapping

Usage

```
gccm(
  cause,
  effect,
  data,
  libsizes,
  E = 3,
  nb = NULL,
  RowCol = NULL,
  trendRM = TRUE
)
```

Arguments

cause	Name of causal variable.
effect	Name of effect variable.
data	The observation data, must be `sf` or `SpatRaster` object.
libsizes	A vector of library sizes to use.
E	(optional) The dimensions of the embedding.
nb	(optional) The neighbours list.
RowCol	(optional) Matrix of selected row and cols numbers.
trendRM	(optional) Whether to remove the linear trend.

Value

A `data.frame`.

Examples

```
columbus = sf::read_sf(system.file("shapes/columbus.gpkg", package="spData")[1],
                       quiet=TRUE)

gccm("HOVAL", "CRIME", data = columbus, libsizes = seq(5,45,5))
```

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