Package 'geonetwork'

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Type Package

Title Geographic Networks

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Description Provides classes and methods for handling networks or graphs whose nodes are geographical (i.e. locations in the globe). The functionality includes the creation of objects of class geonetwork as a graph with node coordinates, the computation of network measures, the support of spatial operations (projection to different Coordinate Reference Systems, handling of bounding boxes, etc.) and the plotting of the geonetwork object combined with supplementary cartography for spatial representation.

Depends R (>= 3.2)

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Language en-GB

LazyData true

Imports geosphere, igraph, methods, rgdal, sp, sf

Suggests devtools, knitr, maps, mapview, rmarkdown, roxygen2, spData, testthat, tmaptools

RoxygenNote 7.1.1

URL https://umr-astre.pages.mia.inra.fr/geonetwork/

BugReports https://forgemia.inra.fr/umr-astre/geonetwork/-/issues

NeedsCompilation no

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R topics documented:

`eurodist` *Distances between 21 European cities*

Description

A `geonetwork` object representing a full graph of 21 European cities with edges weighted by distance in km.

Usage

```
eurodist
```

Format

`geonetwork`.

Source

Distances (in km) between 21 European cities are taken from `eurodist`. Coordinates of the cities were obtained with `geocode`.

`geonetwork` *Create geographic networks*

Description

Create an `igraph` object with geospatial attributes for the nodes.

Usage

```
geonetwork(edges, nodes, directed = TRUE, CRS = sp::CRS("+proj=longlat"))
```

Arguments

`edges`	data.frame. Edges list and attributes. See Details.
`nodes`	data.frame. Nodes list and attributes. See Details.
`directed`	logical. Default is to build a directed graph.
`CRS`	CRS object. Coordinate Reference System, as built by function `CRS`.

Details

The first two columns in edges must be character or factor, and match the node names in the first column of the nodes data.frame. The third column, if any, will be used as edge weights. The remaining columns will be used as additional edge attributes.

The first column in nodes must be character or factor and provide node names or labels, not necessarily unique. Columns 2 and 3 must be numeric coordinates in the Coordinate Reference System specified in CRS.

Value

An object of class geonetwork, which also inherits from igraph.

Examples

```
e <- data.frame(from = c("A", "A"), to = c("B", "C"))
n <- data.frame(id = LETTERS[1:3], x = c(0, 0, 1), y = c(0, 1, 0))
geonetwork(e, n)
```

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plot.geonetwork *Plot a geonetwork*

Description

Plot one or more attributes of a geonetwork on a map

Usage

```
## S3 method for class 'geonetwork'
plot(x, y, ...)
```

Arguments

x	Object of class geonetwork.
y	Ignored.
...	Further specifications passed to plot_sf.

Examples

```
plot(eurodist, axes = TRUE, type = "n")
plot(sf::st_geometry(spData::world), col = "lightgray", add = TRUE)
plot(eurodist, axes = TRUE, add = TRUE)
```

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