

Package ‘japanmesh’

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Type Package

Title Functions for the Japanese Regional Mesh Codes ('JIS X 0410')

Version 0.1.1

Description Functions for the Japanese regional mesh codes defined in 'JIS X 0410'

(<<https://www.jisc.go.jp/app/jis/general/GnrJISNumberNameSearchList?show&jisStdNo=X0410>>).

Conversion between regional mesh codes and longitude/latitude, and between mesh codes of different scales.

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URL <https://github.com/UchidaMizuki/japanmesh>

BugReports <https://github.com/UchidaMizuki/japanmesh/issues>

Depends R (>= 2.10)

Imports dplyr (>= 0.8.0), geosphere, lifecycle (>= 0.1.0), magrittr, purrr (>= 0.3.0), rlang (>= 0.3.0), sf, stringr (>= 1.4.0), tibble, tidyr (>= 1.0.0), units, utils, vctrs

Suggests testthat (>= 3.0.0)

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Author Mizuki Uchida [aut, cre]

Maintainer Mizuki Uchida <uchidamizuki@vivaldi.net>

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R topics documented:

bbox_to_mesh	2
geometry_to_mesh	3
japanmesh	3
mesh_city2015	4
mesh_class	4
mesh_distance	5
mesh_grid	6
mesh_line	6
mesh_move	7
mesh_neighbor	7
mesh_subdivide	8
mesh_to_geometry	8
mesh_zoomin	9
mesh_zoomout	9
point_to_mesh	10
XY	10
Index	11

bbox_to_mesh	<i>Converting bbox to regional meshes</i>
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Description

Converting bbox to regional meshes

Usage

```
bbox_to_mesh(bbox, size)
```

Arguments

bbox	A bbox or a list of bbox.
size	A mesh size.

Value

A mesh vector (when bbox is a bbox) or A list of mesh vectors (when bbox is a list of bbox).

geometry_to_mesh	<i>Converting geometries to regional meshes</i>
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Description

Converting geometries to regional meshes

Usage

```
geometry_to_mesh(geometry, size, .predicate = sf::st_intersects)
```

Arguments

geometry	A sfc vector.
size	A mesh size.
.predicate	A .predicate parameter for sf::st_filter function.

Value

A list of mesh class vectors.

japanmesh	<i>Functions for the Japanese Regional Mesh Codes (JIS X 0410)</i>
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Description

japanmesh is an R package for using the reference regional mesh (the 1st mesh to the 3rd mesh), the split regional mesh as defined by the JIS (Japan Industrial Standard) X 0410 'regional mesh code' and 1/10 subdivision of the 3rd mesh. Regional mesh codes are square-like regional divisions set up for all regions of Japan based on longitude and latitude.

Author(s)

Maintainer: Mizuki Uchida <uchidamizuki@vivaldi.net>

See Also

<https://www.jisc.go.jp/app/jis/general/GnrJISNumberNameSearchList?show&jisStdNo=X0410>

<https://www.stat.go.jp/data/mesh/pdf/gaiyo1.pdf>

mesh_city2015	<i>List of mesh codes by municipality in 2015</i>
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Description

List of mesh codes by municipality in 2015

Usage

```
mesh_city2015
```

Format

An object of class `tbl_df` (inherits from `tbl`, `data.frame`) with 461373 rows and 4 columns.

Source

http://www.stat.go.jp/data/mesh/m_itiran.html

mesh_class	<i>Regional mesh vector</i>
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Description

A series of functions return mesh class for each mesh size. `mesh_auto` returns automatically determine mesh size by the largest mesh size.

Usage

```
mesh_80km(x, strict = TRUE)
```

```
mesh_10km(x, strict = TRUE)
```

```
mesh_1km(x, strict = TRUE)
```

```
mesh_500m(x, strict = TRUE)
```

```
mesh_250m(x, strict = TRUE)
```

```
mesh_125m(x, strict = TRUE)
```

```
mesh_100m(x, strict = TRUE)
```

```
mesh_auto(x, strict = TRUE)
```

```
is_mesh(x)
```

Arguments

x	A list or vector.
strict	A logical scalar. Should the number of digits in the mesh code match a given number of digits?

Value

A mesh class vector.

Examples

```
mesh_80km("53394526313")
mesh_80km("53394526313", strict = FALSE)

mesh_auto(c("53394526313", "5339358633", "533945764"))
mesh_auto(c("53394526313", "5339358633", "533945764"), strict = FALSE)
```

mesh_distance	<i>Distance between regional meshes</i>
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Description

If mesh and mesh_to are both vectors, the distance between mesh and mesh_to is calculated. If mesh is a list, The path distance of each element is calculated.

Usage

```
mesh_distance(mesh, mesh_to, close = FALSE, type = "keep_na")
```

Arguments

mesh	A mesh vector or a list of mesh vector.
mesh_to	A mesh vector.
close	Should the path of each element be closed when mesh is a list?
type	How is the NA mesh treated when mesh is a list? "skip_na" skips the NA mesh and connects the paths. "keep_na" by default.

Value

A double vector.

mesh_grid	<i>Create regional mesh grids</i>
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Description

Create regional mesh grids

Usage

```
mesh_grid(X_min, Y_min, X_max, Y_max, size)
```

Arguments

X_min	A numeric vector.
Y_min	A numeric vector.
X_max	A numeric vector.
Y_max	A numeric vector.
size	A mesh size.

Value

A list of mesh vectors.

mesh_line	<i>Draw line segments between regional meshes</i>
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Description

If mesh and mesh_to are both vectors, the line between mesh and mesh_to is drawn (using Bresenham's line algorithm). If mesh is a list, The path lines for each element in the mesh will be drawn.

Usage

```
mesh_line(mesh, mesh_to, close = FALSE, skip_na = FALSE)
```

Arguments

mesh	A mesh vector or a list of mesh vector.
mesh_to	A mesh vector.
close	Should the path of each element be closed when mesh is a list?
skip_na	Should skip the NA mesh and connects the paths? FALSE by default.

Value

A list of mesh class vectors.

mesh_move	<i>Moving on regional meshes</i>
-----------	----------------------------------

Description

Moving on regional meshes

Usage

```
mesh_move(mesh, n_X, n_Y)
```

Arguments

mesh	A mesh vector.
n_X	Number of moving cells in the longitude direction.
n_Y	Number of moving cells in the latitude direction.

Value

A mesh class vector.

mesh_neighbor	<i>Neighborhood regional mesh</i>
---------------	-----------------------------------

Description

Neighborhood regional mesh

Usage

```
mesh_neighbor(mesh, n = 1L, moore = TRUE, simplify = TRUE)
```

Arguments

mesh	A mesh vector.
n	A numeric vector of degrees.
moore	Moore neighborhood (TRUE) or Von Neumann neighborhood (FALSE).
simplify	Should simplify the format of the return?

Value

A list of mesh class vectors.

mesh_subdivide	<i>Subdivide regional meshes</i>
----------------	----------------------------------

Description

mesh_subdivide makes the regional meshes finer.

Usage

```
mesh_subdivide(mesh, size)
```

Arguments

mesh	A mesh vector.
size	A mesh size.

Value

A list of mesh class vector.

mesh_to_geometry	<i>Converting regional meshes to sfc geometries</i>
------------------	-----------------------------------------------------

Description

Converting regional meshes to sfc geometries

Usage

```
mesh_to_polygon(mesh, crs = sf::NA_crs_)
```

```
mesh_to_point(mesh, crs = sf::NA_crs_)
```

Arguments

mesh	A mesh vector.
crs	Coordinate reference system.

Value

mesh_to_polygon returns a sfc_POLYGON vector. mesh_to_point returns a sfc_POINT vector.

mesh_zoomin	<i>Zoom-in regional meshes</i>
-------------	--------------------------------

Description

[Deprecated] mesh_zoomin makes the regional meshes finer.

Usage

```
mesh_zoomin(mesh, size)
```

Arguments

mesh	A mesh vector.
size	A mesh size.

Value

A list of mesh class vector.

mesh_zoomout	<i>Zoom-out regional meshes</i>
--------------	---------------------------------

Description

[Deprecated] mesh_zoomout makes the regional meshes coarser.

Usage

```
mesh_zoomout(mesh, size)
```

Arguments

mesh	A mesh vector.
size	A mesh size.

Value

A mesh class vector.

point_to_mesh	<i>Converting sfc points to regional meshes</i>
---------------	-------------------------------------------------

Description

Converting sfc points to regional meshes

Usage

```
point_to_mesh(point, size)
```

Arguments

point	A sfc_POINT vector.
size	A mesh size.

Value

A mesh class vector.

XY	<i>Conversion between mesh and coordinates (longitude and latitude)</i>
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Description

Conversion between mesh and coordinates (longitude and latitude)

Usage

```
XY_to_mesh(X, Y, size)
```

```
mesh_to_XY(mesh, center = TRUE)
```

Arguments

X	A numeric vector of longitude.
Y	A numeric vector of latitude.
size	A mesh size.
mesh	A mesh class vector.
center	Should the center point of the mesh be returned? Otherwise the end points will be returned. TRUE by default.

Value

XY_to_mesh returns a mesh class vector.

mesh_to_XY returns a tbl_df.

Index

* datasets

- mesh_city2015, 4

- bbox_to_mesh, 2

- geometry_to_mesh, 3

- is_mesh (mesh_class), 4

- japanmesh, 3
- japanmesh-package (japanmesh), 3

- mesh_100m (mesh_class), 4
- mesh_10km (mesh_class), 4
- mesh_125m (mesh_class), 4
- mesh_1km (mesh_class), 4
- mesh_250m (mesh_class), 4
- mesh_500m (mesh_class), 4
- mesh_80km (mesh_class), 4
- mesh_auto (mesh_class), 4
- mesh_city2015, 4
- mesh_class, 4
- mesh_distance, 5
- mesh_grid, 6
- mesh_line, 6
- mesh_move, 7
- mesh_neighbor, 7
- mesh_subdivide, 8
- mesh_to_geometry, 8
- mesh_to_point (mesh_to_geometry), 8
- mesh_to_polygon (mesh_to_geometry), 8
- mesh_to_XY (XY), 10
- mesh_zoomin, 9
- mesh_zoomout, 9

- point_to_mesh, 10

- XY, 10
- XY_to_mesh (XY), 10