Package 'antarcticR'

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Title Visualisation tools for Antarctica, including some clustering methods

Version 0.0.0.900

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Description This package mainly contains functions to plot longitude-latitude points onto the Antarctic continent. antarcticR can convert CSV files into data frames for plotting, or into Haversine distance matrices for clustering. The results can be combined and visualised on the bottom of a globe, or using the BEDMAP2 data.
Depends R (>= $3.3.3$)
License None currently
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Honourable mentions John Russell (base list spreadsheet producer)
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clusterResult

A function to use some clustering methods from the dbscan package

Description

A function to use some clustering methods from the dbscan package

Usage

```
clusterResult(haversineMatrix, eps = 2e+05, minPts, eps_cl)
```

csvToDF

Turn a longitude, latitude csv file into a dataframe

Description

Generate a dataframe from a longitude-latitude csv file

Usage

```
csvToDF(csvFile)
```

Arguments

csvFile

Your csv file

Value

A dataframe

```
df <- csvToHaversineMat("myData.csv")</pre>
```

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csvToHaversineMat

A function to generate a Haversine matrix from a csv file

Description

Generate a distance matrix of great-circle distances from a csv file with longitude and latitude distances

Usage

```
csvToHaversineMat(csvFile)
```

Arguments

csvFile

Your csv file

Value

A haversine distance matrix

Examples

```
mat <- csvToHaversineMat("myData.csv")</pre>
```

drawAntarctica

Set up the drawing of a map of Antarctica

Description

Set up the drawing of a map of Antarctica

Usage

```
drawAntarctica()
```

```
world3 <- drawAntarctica()
world3</pre>
```

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drawBedmap

Set up the drawing of a map of Antarctica BEDMAP2

Description

Set up the drawing of a map of Antarctica BEDMAP2

Usage

```
drawBedmap(BEDMAP_GRAD = "thickness", reduceResolutionBy = 5)
```

Examples

```
world3 <- drawAntarctica()
world3</pre>
```

genCartesianMat

A function to generate a Cartesian matrix from a dataframe

Description

Generate a distance matrix of x-y-z distances from a dataframe with longitude and latitude points

Usage

```
genCartesianMat(df)
```

Arguments

df

Your data frame

Value

A Cartesian distance matrix

```
points <- read.csv("dividedEvents1.csv",header=T, sep=",")
df.points <- as.matrix(points)
antFrame = data.frame(df.points)
print("Computing distance matrix...")
d <- genCartesianMatrix(antFrame)</pre>
```

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genHaversineMat

A function to generate a Haversine matrix from a dataframe

Description

Generate a distance matrix of great-circle distances from a dataframe with longitude and latitude distances

Usage

```
genHaversineMat(df)
```

Arguments

df

Your data frame

Value

A haversine distance matrix

Examples

```
points <- read.csv("dividedEvents1.csv",header=T, sep=",")
df.points <- as.matrix(points)
antFrame = data.frame(df.points)
print("Computing distance matrix...")
require(geosphere)
d <- genHaversineMat(antFrame)</pre>
```

longLatToSimpleBEDMAP A function to convert from lon/lat to the BEDMAP grid

Description

A function to convert from lon/lat to the BEDMAP grid

Usage

```
longLatToSimpleBEDMAP(longLatDataFrame)
```

Value

bedmapFrame

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 ${\tt plotAntarctica}$

Plot points on the antarctic map

Description

Plot points on the antarctic map

Usage

```
plotAntarctica(antMap, df, clusterPlot = FALSE, selfClusterPlot = FALSE,
  pointSize = 2, shapes = TRUE, newSetPlot = 0, BEDMAP = FALSE,
  BEDMAP_GRAD = "thickness", reduceResolutionBy = 5)
```

Arguments

antMap your map made from drawAntarctica

df Your lon/lat data frame

```
world4 <- plotAntarctica(map, dataFrame)
world4</pre>
```

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