

Package: mrwaterplots (via r-universe)

August 17, 2024

Type Package

Title plotting library for mrwater outputs

Version 1.0.18

Description The mrwaterplots package plots outputs from mrwater library.

URL <https://github.com/pik-piam/mrwaterplots>

License LGPL-3 | file LICENSE

Date 2024-05-03

Depends R (>= 2.10.0), madrat (>= 1.72), magclass (>= 6.0.0)

Imports terra, raster, sp, sf, utils, grDevices, tidyr, tidyselect, dplyr, ggplot2

Suggests covr, knitr, rmarkdown, testthat

VignetteBuilder knitr

Encoding UTF-8

LazyData no

RoxygenNote 7.3.1

Repository <https://pik-piam.r-universe.dev>

RemoteUrl <https://github.com/pik-piam/mrwaterplots>

RemoteRef HEAD

RemoteSha d43765cfa0f26d56d753b5107d4ba9adda950cc2

Contents

mrwaterplots-package	2
downloadNaturalEarth	2
plotBivariateMap	3
plotMap	4
plotMapDiscrete	5
toolCellAreaShare	7
toolPrepareLandMask	7
toolRasterTransform	8

Index

9

mrwaterplots-package *mrwaterplots: plotting library for mrwater outputs*

Description

The mrwaterplots package plots outputs from mrwater library.

Author(s)

Maintainer: Felicitas Beier <beier@pik-potsdam.de>

Authors:

- Jens Heinke <heinke@pik-potsdam.de>
- Patrick von Jeetze <vjeetze@pik-potsdam.de>
- Jan Philipp Dietrich <dietrich@pik-potsdam.de>

See Also

Useful links:

- <https://github.com/pik-piam/mrwaterplots>

downloadNaturalEarth *downloadNaturalEarth*

Description

download Natural Earth shape files

Usage

```
downloadNaturalEarth()
```

Author(s)

Felicitas Beier

See Also

[downloadSource\(\)](#)

Examples

```
## Not run:  
a <- downloadSource("NaturalEarth")  
  
## End(Not run)
```

plotBivariateMap *plotBivariateMap*

Description

This function plots a raster object of halfdegree resolution (with 67420 grid cells) and saves it as PDF

Usage

```
plotBivariateMap(
  x,
  y,
  xlab = NULL,
  ylab = NULL,
  breaks = 4,
  projection =
    "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs",
  bivariatelegendstyle = 1,
  colNA = "#d9d9d9",
  outputfolder = ".\\",
  name = "name",
  title = "",
  ylim = c(-6500000, 8300000),
  xlim = c(-12577316, 15581284),
  outputtype = "png"
)
```

Arguments

x	First MAgPIE object in grid-cellular (67420) resolution to be plotted
y	Second MAgPIE object in grid-cellular (67420) resolution to be plotted in same map
xlab	name of first object for legend x label
ylab	name of second object of legend y label
breaks	Breaks in bivariate legend
projection	Choose projection. Currently available options: "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for EqualEarth projection; "+proj=robin +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for RobinsonProj; and "+proj=longlat +datum=WGS84" for LatLon projection
bivariatelegendstyle	number between 1-9 to choose pre-defined bivariate legend colors
colNA	color for NAs (default: "#d9d9d9" (gray))
outputfolder	Path to which plot should be saved

name	Title of plot (default: "name")
title	Plot title displayed in the plot
ylim	y-axis limits of plot (default: c(-6500000, 8300000))
xlim	x-axis limits of plot (default: c(-12577316, 15581284))
outputtype	Output type: pdf or jpeg

Value

map as pdf

Author(s)

Felicitas Beier

plotMap	<i>plotMap</i>
---------	----------------

Description

This function plots a raster object of halfdegree resolution (with 67420 grid cells) and saves it as PDF

Usage

```
plotMap(
  x,
  projection =
    "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs",
  outputfolder = ".\\",
  name = "name",
  title = "",
  ylim = c(-6500000, 8300000),
  xlim = c(-12577316, 15581284),
  legendcolor = c("#7f0000", "#b30000", "#d7301f", "#ef6548", "#fc8d59", "#fdbb84",
    "#fdd49e", "#fee8c8", "#fff7ec", "#045a8d"),
  colNA = "#d9d9d9",
  legendlimit = c(0, 1),
  legendbreaks = seq(0, 1, 0.1),
  legendname = "legendname",
  outputtype = "png",
  minVal = NULL,
  maxVal = NULL
)
```

Arguments

x	MAGPIE object in grid-cellular (67420) resolution to be plotted
projection	Choose projection. Currently available options: "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for EqualEarth projection; "+proj=robin +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for RobinsonProj; and "+proj=longlat +datum=WGS84" for LatLon projection
outputfolder	Path to which plot should be saved
name	Title of plot (default: "name")
title	Plot title displayed in the plot
ylim	y-axis limits of plot (default: c(-6500000, 8300000))
xlim	x-axis limits of plot (default: c(-12577316, 15581284))
legendcolor	vector of colors
colNA	color for NAs (default: "#d9d9d9" (gray))
legendlimit	vector with min and max of legend (default: c(0, 1))
legendbreaks	vector of legend breaks (default: seq(0, 1, 0.1))
legendname	legend name as character (default: "legendname")
outputtype	Output type: pdf or jpeg
minVal	minimum value at which x should be chopped
maxVal	maximum value at which x should be chopped

Value

map as pdf, jpg or png

Author(s)

Felicitas Beier, Jens Heinke

plotMapDiscrete

plotMapDiscrete

Description

This function plots a raster object of halfdegree resolution (with 67420 grid cells) and saves it as PDF

Usage

```

plotMapDiscrete(
  x,
  projection =
    "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs",
  outputfolder = ".\\",
  name = "name",
  title = "",
  ylim = c(-6500000, 8300000),
  xlim = c(-12577316, 15581284),
  legendcolor = c("#7f0000", "#b30000", "#d7301f", "#ef6548", "#fc8d59", "#fdbb84",
    "#fdd49e", "#fee8c8", "#fff7ec", "#045a8d"),
  colNA = "#d9d9d9",
  legendbreaks = seq(0, 1, 0.1),
  legend = NULL,
  legendname = "legendname",
  outputtype = "png",
  minVal = NULL,
  maxVal = NULL
)

```

Arguments

x	MAGPIE object in grid-cellular (67420) resolution to be plotted
projection	Choose projection. Currently available options: "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for EqualEarth projection; "+proj=robin +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for RobinsonProj; and "+proj=longlat +datum=WGS84" for LatLon projection
outputfolder	Path to which plot should be saved
name	Title of plot (default: "name")
title	Plot title displayed in the plot
ylim	y-axis limits of plot (default: c(-6500000, 8300000))
xlim	x-axis limits of plot (default: c(-12577316, 15581284))
legendcolor	vector of colors
colNA	color for NAs (default: "#d9d9d9" (gray))
legendbreaks	vector of legend breaks (default: seq(0, 1, 0.1))
legend	legend element names (if non-numeric characters shall be returned). (default: NULL, then legendbreaks defines displayed legend elements)
legendname	legend name as character (default: "legendname")
outputtype	Output type: pdf or jpeg
minVal	minimum value at which x should be chopped
maxVal	maximum value at which x should be chopped

Value

map as pdf, jpg or png

Author(s)

Felicitas Beier, Jens Heinke

toolCellAreaShare	<i>toolCellAreaShare</i>
-------------------	--------------------------

Description

This function transforms a cellular magpie object with 67420 grid cells to a raster object that can be plotted in the chosen projection

Usage

```
toolCellAreaShare(x)
```

Arguments

x	MAGPIE object in grid-cellular (67420) resolution containing area in Mha for which cell area share is to be calculated
---	--

Value

magpie object in cellular resolution

Author(s)

Felicitas Beier

toolPrepareLandMask	<i>toolPrepareLandMask</i>
---------------------	----------------------------

Description

This function sets up the land mask and country polygons to plot magpie objects using raster/terra with an Equal Earth Projection

Usage

```
toolPrepareLandMask(  
  projection =  
    "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs"  
)
```

Arguments

projection Choose projection. Currently available options: "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for EqualEarth projection; "+proj=robin +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for RobinsonProj; and "+proj=longlat +datum=WGS84" for LatLon projection

Value

list of raster files

Author(s)

Felicitas Beier, Jens Heinke, Patrick v. Jeetze, Jan P. Dietrich

toolRasterTransform *toolRasterTransform*

Description

This function transforms a cellular magpie object with 67420 grid cells to a raster object that can be plotted in the chosen projection

Usage

```
toolRasterTransform(
  x,
  projection =
    "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs"
)
```

Arguments

x MAgPIE object in grid-cellular (67420) resolution to be transformed to raster

projection Choose projection. Currently available options: "+proj=eqearth +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for EqualEarth projection; "+proj=robin +lon_0=0 +x_0=0 +y_0=0 +ellps=WGS84 +datum=WGS84 +units=m +no_defs" for RobinsonProj; "+proj=moll" for Mollweide; and "+proj=longlat +datum=WGS84" for LatLon projection

Value

magpie object in cellular resolution

Author(s)

Felicitas Beier

Index

`downloadNaturalEarth`, [2](#)
`downloadSource()`, [2](#)

`mrwaterplots` (`mrwaterplots-package`), [2](#)
`mrwaterplots-package`, [2](#)

`plotBivariateMap`, [3](#)
`plotMap`, [4](#)
`plotMapDiscrete`, [5](#)

`toolCellAreaShare`, [7](#)
`toolPrepareLandMask`, [7](#)
`toolRasterTransform`, [8](#)