Package 'RBBGCMuso'

July 24, 2017

Title An R package for BiomeBGC-MuSo ecosystem modelling

Version 0.3.0.0-1

Description What the package does (one paragraph).

License GPL-2

LazyData true

NeedsCompilation no

Author Roland Hollo's [aut, cre]

Imports utils, graphics

Maintainer Roland Hollo's <hollorol@gmail.com>

RoxygenNote 6.0.1

Suggests knitr, rmarkdown

VignetteBuilder knitr

R topics documented:

---

calibMuso   *calibMuso*

Description

This function changes the epc file and after that runs the BBGC-MuSo model and reads in its outputfile in a very structured way.

Usage

```
calibMuso(settings,parameters=NULL, timee="d", debugging=FALSE, logfilename=NULL,
keepEpc=FALSE, export=FALSE, silent=FALSE, aggressive=FALSE, leapYear=FALSE)
```

Arguments

settings
: You have to run the setupMuso function before calibMuso. It is its output which contains all of the necessary system variables. It sets the whole running environment

parameters
: In the settings variable you have set the row indexes of the variables, you wish to change. In this parameter you can give an exact value for them in a vector like: c(1,2,3,4)

timee
: The required timesteps in the modell output. It can be "d", if it is daily, "m", if it's monthly, "y", it it is yearly

debugging
: If it is TRUE, it copies the log file to a Log directory to store it, if it is stamplog it contatenate a number before the logfile, which is one more than the maximum of the represented ones in the LOG directory. If it is true or stamplog it collects the "wrong" logfiles

logfilename
: If you want to set a specific name for your logfiles you can set this via logfile parameter

keepEpc
: If TRUE, it keeps the epc file and stamp it, after these copies it to the EPCS directory. If debugging True or false, it copies the wrong epc files to the wrong epc directory.

export
: if it is yes or you give a filename here, it converts the output to the specific extension. For example, if you set export to "example.csv", it converts the output to "csv", if you set it to "example.xls" it converts to example.xls with the xlsx package. If it is not installed it gives back a warning message and converts it to csv.

silent
: If you set it TRUE all off the modells output to the screen will be suppressed. It can be usefull, because it increases the model-speed.

aggressive
: It deletes every possible modell-outputs from the previous modell runs.

leapYear
: Should the function do a leapyear correction on the outputdata? If TRUE, then the 31.12 day will be doubled.

Value

No return, outputs are written to file

Author(s)

Roland Hollos

corrigMuso *corrigMuso*

Description

This function leapyear-corrigate the output of the modell

Usage

```
corrigMuso(settings, data)
```

Arguments

settings   This is the output of the setupMuso() function. It contains all of the RBBGC-Muso settings

data   the models outputdata

Value

It returns the modells leapyear-corrigated output data.

Author(s)

Roland Hollos

fextension *fextension*

Description

A function for extracting the extension name from the filename string

Usage

```
fextension(filename)
```

Arguments

filename   The string of the filenam

Value

the extension of the given file

Author(s)

Roland Hollos

---

getyearlycum *getyearlycum*

Description

Funtion for getting cumulative yearly data from observations

Usage

```
getyearlycum(daily_observations)
```

Arguments

`daily_observations`
vector of the daily observations.

Value

A vector of yearly data

Author(s)

Roland Hollos

---

getyearlymax *getyearlymax*

Description

Function for getting the maximum values of the years, from daily data

Usage

```
getyearlymax(daily_observations)
```

Arguments

`daily_observations`
vector of the daily observations

Value

A vector of yearly data

Author(s)

Roland Hollos

---

musoDate   *It generates BiomeBGC-MuSo dates*

Description

It generates all of the day-dates which are between the start and endyear of BiomeBGC-MuSo run. How many days are from the given date and given period length(periodlen)?

Usage

```
musoDate(settings, timestep = "d", combined = TRUE, corrigated = TRUE,
  format = "en")
```

Arguments

settings	You have to run the setupMuso function before musoDate. It is its output which contains all of the necessary system variables. It sets the whole environment.
timestep	timestep, which can be daily ("d"), monthly ("m"), yearly("y")
combined	If FALSE the output is a vector of 3 string: day, month year, if true, these strings will be concatenated.
corrigated	If True it counts with leapyears, else dont.
format	This is the format of the date. It can be "en" (dd.mm.yyyy), or "hu" (yyyy.mm.dd)

Value

The exact date-vectors for the BioBGC-MuSo output. You can use this for labelling purpose for example.

Author(s)

Roland Hollos

---

plotMuso   *plot the BBGCMuso output*

Description

This function runs the BBGC-MuSo model and reads in its outputfile in a very structured way, and after that plot the results automaticly

Usage

```
plotMuso(settings, variable,
timee="d", silent=TRUE,
debugging=FALSE, keepEpc=FALSE,
logfilename=NULL, aggressive=FALSE,
leapYear=FALSE, export=FALSE)
```

Arguments

settings	You have to run the setupMuso function before rungetMuso. It is its output which contains all of the necessary system variables. It sets the whole environment
variable	column number of the variable which should be plottedor "all" if you have less than 10 variables. In this case it will plot everything in a matrix layout
timee	The required timesteps in the modell output. It can be "d", if it is daily, "m", if it's monthly, "y", it it is yearly
silent	If you set it TRUE all off the modells output to the screen will be suppressed. It can be usefull, because it increases the model-speed.
debugging	If it is TRUE, it copies the log file to a Log directory to store it, if it is stamplog it contatenate a number before the logfile, which is one more than the maximum of the represented ones in the LOG directory. If it is true or stamplog it collects the "wrong" logfiles
keepEpc	If TRUE, it keeps the epc file and stamp it, after these copies it to the EPCS directory. If debugging True or false, it copies the wrong epc files to the wrong epc directory.
logfilename	If you want to set a specific name for your logfiles you can set this via logfile parameter
aggressive	It deletes every possible modell-outputs from the previous modell runs.
leapYear	Should the function do a leapyear correction on the outputdata? If TRUE, then the 31.12 day will be doubled.
export	if it is yes or you give a filename here, it converts the output to the specific extension. For example, if you set export to "example.csv", it converts the output to "csv", if you set it to "example.xls" it converts to example.xls with the xlsx package. If it is not installed it gives back a warning message and converts it to csv.

Value

It depends on the export parameter. The function returns with a matrix with the modell output, or writes this in a file, which is given previously

Author(s)

Roland Hollos

---

rungetMuso	*rungetMuso*

Description

This function runs the BBGC-MuSo model and reads in its outputfile in a very structured way.

Usage

```
rungetMuso(settings, timee="d", debugging=FALSE, logfilename=NULL,
keepEpc=FALSE, export=FALSE, silent=FALSE, aggressive=FALSE, leapYear=FALSE)
```

Arguments

settings	You have to run the setupMuso function before rungetMuso. It is its output which contains all of the necessary system variables. It sets the whole environment
timee	The required timesteps in the modell output. It can be "d", if it is daily, "m", if it's monthly, "y", it it is yearly
debugging	If it is TRUE, it copies the log file to a Log directory to store it, if it is stamplog it contatenate a number before the logfile, which is one more than the maximum of the represented ones in the LOG directory. If it is true or stamplog it collects the "wrong" logfiles
logfilename	If you want to set a specific name for your logfiles you can set this via logfile parameter
keepEpc	If TRUE, it keeps the epc file and stamp it, after these copies it to the EPCS directory. If debugging True or false, it copies the wrong epc files to the wrong epc directory.
export	if it is yes or you give a filename here, it converts the output to the specific extension. For example, if you set export to "example.csv", it converts the output to "csv", if you set it to "example.xls" it converts to example.xls with the xlsx package. If it is not installed it gives back a warning message and converts it to csv.
silent	If you set it TRUE all off the modells output to the screen will be suppressed. It can be usefull, because it increases the model-speed.
aggressive	It deletes every possible modell-outputs from the previous modell runs.
leapYear	Should the function do a leapyear correction on the outputdata? If TRUE, then the 31.12 day will be doubled.

Value

It depends on the export parameter. The function returns with a matrix with the modell output, or writes this in a file, which is given previously

Author(s)

Roland Hollos

---

setupMuso	*setupMuso*

Description

This funcion is fundamental for the BiomBGC-MuSo modell related functions like spinupMuso, normalMuso, rungetMuso, because it sets the modells environment.

Usage

```
setupMuso(executable=NULL, parallel = F, calibrationpar =c(1),
outputloc=NULL, inputloc=NULL,
metinput=NULL, CO2input=NULL,
plantinput=NULL, thininput=NULL,
mowinput=NULL, grazinput=NULL,
harvinput=NULL, plouginput=NULL,
fertinput=NULL, irrinput=NULL,
nitinput=NULL, ininput=NULL, epcinput=NULL)
```

Arguments

executable   This parameter stores the place of the modell-executable file. In normal usage,
                you don't have to be set this, because a RBBgcmuso package contains allways
                the latest modell executable. In spite of this, if you would like to use this package
                for modell development or just want to use different models (for example for
                comparison), you will find it useful

parallel   Do you want to run multiple modell paralelly, if yes, set this variable to TRUE

calibrationpar You may want to change some parameters in your epc file, before you run the
                modell. You have to select the appropirate modell parameters. You can refence
                to these with the number of the line in the epc file where the variables are. It
                indexes from one. You should use a vector for this, like: c(1,5,8)

outputloc   Where should the modell puts its outputs. You should give a location for it via
                this variable, for example: outputloc="/place/of/the/outputs/"

inputloc   Usually it is the root directory, where you put the inifiles for the modell

metinput   Via metinput parameter, you can tell the modell where are the meteorological
                files. As default it reads this from the inifiles.

CO2input   Via CO2 parameter, you can tell the modell where are the CO2 data files. As
                default it reads this from the inifiles.

plantinput   Via planting parameter, you can tell the modell where are the data files, which
                contains the planting informations. As default it reads this from the inifiles.

thininput   Via thining parameter, you can tell the modell where are the data files, which
                contains the thining informations. As default it reads this from the inifiles.

mowinput   Via mowing parameter, you can tell the modell where are the data files, which
                contains the mowing informations. As default it reads this from the inifiles.

grazinput   Via grazing parameter, you can tell the modell where are the data files, which
                contains the grazing informations. As default it reads this from the inifiles.

harvinput   Via harvesting parameter, you can tell the modell where are the data files, which
                contains the harvesting informations. As default it reads this from the inifiles.

plouginput   Via ploughing parameter, you can tell the modell where are the data files, which
                contains the ploughing informations. As default it reads this from the inifiles.

fertinput   Via fertilizing parameter, you can tell the modell where are the fertilizing data
                files, which contains the fertilizing informations. As default it reads this from
                the inifiles.

irrinput   Via irrigation parameter, you can tell the modell where are the data files, which
                contains the irrigation informations. As default it reads this from the inifiles.

nitinput   Via this parameter, you can tell the modell where are the NO2 data files. As
                default it reads this from the inifiles.

ininput	Via this parameter, you can tell the modell where are the ini files. As default it reads this from the inifiles.
epcinput	Via this parameter, you can tell the modell where are the epc data files. As default it reads this from the inifiles.

Value

The output is a the modell setting list wich contains the following elements: executable, calibrationpar, outputloc, outputname, inputloc, ininput, metinput, epcinput,thininput,CO2input, mowinput, grazinput, harvinput, plouginput, fertinput, irrinput, nitinput, inputfiles, numdata, startyear, numyears, outputvars

Author(s)

Roland Hollos

---

spinupMuso	*Run the BBGCMuso modell only in spinup phase, and debugging.*

Description

This function runs the BBGC-MuSo model's in the spinup phase.

Usage

```
spinupMuso(settings, parameters=NULL, debugging=FALSE,
logfilename=NULL, keepEpc=FALSE, silent=FALSE, aggressive=FALSE)
```

Arguments

settings	You have to run the setupMuso function before spinupMuso. It is its output which contains all of the necessary system variables. It sets the whole running environment.
parameters	In the settings variable you have set the row indexes of the variables, you wish to change. In this parameter you can give an exact value for them in a vector like: c(1,2,3,4)
debugging	If it is TRUE, it copies the log file to a Log directory to store it, if it is stamplog it contatenate a number before the logfile, which is one more than the maximum of the represented ones in the LOG directory. If it is true or stamplog it collects the "wrong" logfiles
logfilename	If you want to set a specific name for your logfiles you can set this via logfile parameter
keepEpc	If TRUE, it keeps the epc file and stamp it, after these copies it to the EPCS directory. If debugging True or false, it copies the wrong epc files to the wrong epc directory.
silent	If you set it TRUE all off the modells output to the screen will be suppressed. It can be usefull, because it increases the model-speed.
aggressive	It deletes every possible modell-outputs from the previous modell runs.

Value

No return, outputs are written to file

Author(s)

Roland Hollos

---

supportedMuso   *supportedMuso*

Description

A function for getting the list of the output formats which is supported by RBBGCMuso

Usage

```
supportedMuso(type="outputs")
```

Arguments

type   "outputs" or "message", if you choose "outputs", it gives you a simple vector of
                    the formats, if you choose "message", it gives you a full sentence which contains
                    the same information.

Value

if you choose "outputs", it gives you a simple vector of the formats, if you choose "message", it
gives you a full sentence which contains the same information.

Author(s)

Roland Hollos

Index