Package 'aridec'

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Title Arid decomposition database

Version 0.0.0.1

Description This package provides functions to load and analyse the arid decomposition database.

Depends R (>= 3.4.3)

License What license is it under?

Encoding UTF-8

LazyData true

Imports yaml, FME, SoilR

RoxygenNote 7.1.1.9000

NeedsCompilation no

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R topics documented:

`biome` *Creates a data frame with the ecosystem type of the sites*

Description

Creates a data frame with the ecosystem type of the sites

Usage

```
biome(database)
```

Arguments

`database`	A list with the aridec structure

Value

A data frame with the ecosystem types from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
biome=biome(database=aridec)
```

`carbon` *Creates a data frame with the carbon content in litter samples*

Description

Creates a data frame with the carbon content in litter samples

Usage

```
carbon(database)
```

Arguments

`database`	A list with the aridec structure

Value

A data frame with the carbon content (

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
C=carbon(database=aridec)
```

coordinates *Creates a data frame with the coordinates of the sites*

Description

Creates a data frame with the coordinates of the sites

Usage

```
coordinates(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the longitude and latitude of sites from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
coor=coordinates(database=aridec)
```

countries *Creates a data frame with the countries of the sites*

Description

Creates a data frame with the countries of the sites

Usage

```
countries(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the countries from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
countries=countries(database=aridec)
```

elevation *Creates a data frame with elevation values of the sites*

Description

Creates a data frame with elevation values of the sites

Usage

```
elevation(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the elevation values (mm) from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
elevation=elevation(database=aridec)
```

lignin *Creates a data frame with the lignin content in litter samples*

Description

Creates a data frame with the lignin content in litter samples

Usage

```
lignin(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the lignin content (

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
lignin=lignin(database=aridec)
```

loadEntries *Load all entries of the aridec dataset*

Description

Load all entries of the aridec dataset

Usage

```
loadEntries(path = "~/aridec/data/")
```

Arguments

path	character string with the path where aridec data is stored

Value

R list with all entries

Examples

```
aridec=loadEntries()
```

MAP *Creates a data frame with mean annual precipitation values of the sites*

Description

Creates a data frame with mean annual precipitation values of the sites

Usage

```
MAP(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the mean annual precipitation values (mm) from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
MAP=MAP(database=aridec)
```

MAT *Creates a data frame with mean annual temperature values of the sites*

Description

Creates a data frame with mean annual temperature values of the sites

Usage

```
MAT(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the mean annual temperature values (Celsius degrees) from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
MAT=MAT(database=aridec)
```

material *Creates a data frame with the list of litter samples' plant parts*

Description

Creates a data frame with the list of litter samples' plant parts

Usage

```
material(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the list of the litter samples' plant parts from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
material=material(database=aridec)
```

nitrogen *Creates a data frame with the nitrogen content of litter samples*

Description

Creates a data frame with the nitrogen content of litter samples

Usage

```
nitrogen(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the nitrogen content (

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
N=nitrogen(database=aridec)
```

onepFit *Fits a one pool model to a time-series*

Description

Fits a one pool model to a time-series

Usage

```
onepFit(timeSeries, initialCarbon)
```

Arguments

timeSeries	A time series of decomposition values over time
initialCarbon	The initial amount of carbon in units that correspond to the time series data

Value

R list with an FME model object, a aridec model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[[20]]
a=onepFit(timeSeries = entry$timeSeries[,1:2],
initialCarbon=100)
```

plotEntry *Plot individual entries of the aridec dataset*

Description

Plot individual entries of the aridec dataset

Usage

```
plotEntry(entry)
```

Arguments

entry	character string with the name of the entry to be plotted

Value

A plot

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
plotEntry(entry=aridec[["Adair2017"]])
```

readEntry *Read single entry of the aridec database*

Description

Read single entry of the aridec database

Usage

```
readEntry(path, entryName)
```

Arguments

path	character string with the path where aridec is stored
entryName	character string with the name of the entry in the database

Value

R list with the entry

Examples

```
Adair2017=readEntry(path="~/Documents/GitHub/aridec/data/", entryName="Adair2017")
```

soilorder *Creates a data frame with soil orders of the sites*

Description

Creates a data frame with soil orders of the sites

Usage

```
soilorder(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the soil orders from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
soilorder=soilorder(database=aridec)
```

species *Creates a data frame with the species list of litter samples*

Description

Creates a data frame with the species list of litter samples

Usage

```
species(database)
```

Arguments

database	A list with the aridec structure

Value

A data frame with the list of species of the litter samples from the database

Examples

```
aridec<-loadEntries(path='~/Repos/aridec/data/')
species=species(database=aridec)
```

threeppFit *Fits a three pool model with parallel structure to a time series*

Description

Fits a three pool model with parallel structure to a time series

Usage

```
threeppFit(timeSeries, initialCarbon, inipars = c(1, 0.5, 0.5, 0.5, 0.5))
```

Arguments

timeSeries	A time series of respiration values
initialCarbon	The initial amount of carbon in units that correspond to the time series data
inipars	vector of parameter values for the initial search of the optimization algorithm

Value

R list with an FME model object, a SoilR model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[[20]]
a=threeppFit(timeSeries = entry$timeSeries[,c(1,2)],
initialCarbon=100,
inipars = c(0.05, 0.01, 0.001, 0.1, 0.1))
```

threepsFit *Fits a three pool model with series structure to a time series*

Description

Fits a three pool model with series structure to a time series

Usage

```
threepsFit(
  timeSeries,
  initialCarbon,
  inipars = c(1, 0.5, 0.5, 0.5, 0.5, 0.5, 0.5)
)
```

Arguments

timeSeries	A time series of respiration values
initialCarbon	The initial amount of carbon in units that correspond to the time series data
inipars	vector of parameter values for the initial search of the optimization algorithm

Value

R list with an FME model object, a SoilR model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[["20"]]
a=threepsFit(timeSeries = entry$timeSeries[,c(1,2)],
initialCarbon=100,
inipars=c(0.9,0.01, 0.000001, 0.01, 0.01, 0.01, 0.1))
```

`twopfFit` *Fits a two pool model with feedback structure to a time series*

Description

Fits a two pool model with feedback structure to a time series

Usage

```
twopfFit(timeSeries, initialCarbon, inipars = c(1, 0.5, 0.5, 0.5, 0.3))
```

Arguments

`timeSeries`	A time series of respiration values
`initialCarbon`	The initial amount of carbon in units that correspond to the time series data
`inipars`	vector of parameter values for the initial search of the optimization algorithm

Value

R list with an FME model object, a SoilR model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[["20"]]
b=twopfFit(timeSeries = entry$timeSeries[,c(1,2)],
initialCarbon=100,
inipars=c(0.005, 0.00001, 0.1, 0.01, 0.01))
```

twoppFit — *Fits a two pool model with parallel structure to a time series*

Description

Fits a two pool model with parallel structure to a time series

Usage

```
twoppFit(timeSeries, initialCarbon, inipars = c(1, 0.5, 0.5))
```

Arguments

timeSeries	A time series of decomposition values
initialCarbon	The initial amount of carbon in units that correspond to the time series data
inipars	vector of parameter values for the initial search of the optimization algorithm

Value

R list with an FME model object, a SoilR model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[["20"]]
a=twoppFit(timeSeries = entry$timeSeries[,c(1,2)],
initialCarbon=100,
inipars=c(0.01, 0.001, 0.1))
```

twopsFit — *Fits a two pool model with series structure to a time series*

Description

Fits a two pool model with series structure to a time series

Usage

```
twopsFit(timeSeries, initialCarbon, inipars = c(1, 0.5, 0.5, 0.3))
```

Arguments

timeSeries	A time series of decomposition values
initialCarbon	The initial amount of carbon in units that correspond to the time series data
inipars	vector of parameter values for the initial search of the optimization algorithm

Value

R list with an FME model object, a SoilR model object, and the AIC value

Examples

```
aridec<-loadEntries(path='~/Documents/GitHub/aridec/data/')
entry=aridec[["20"]]
b=twopsFit(timeSeries = entry$timeSeries[,c(1,2)],
initialCarbon=100,
inipars=c(0.005, 0.00001, 0.1, 0.01))
```

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