

Package: lpjclass (via r-universe)

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Type Package

Title LPJ Class Functions

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Description Package containing the LPJ-Object-Class together with relevant functions and methods.

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Suggests covr

License LGPL-3 | file LICENSE

LazyData no

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lpjclass-package *LPJ Class Functions*

Description

Package containing the LPJ-Object-Class together with relevant functions and methods.

Details

Package: lpjclass
 Type: Package
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Author(s)

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area.weighted.yield *area.weighted.yield*

Description

Function calculates cell-and crop-specific area-weighted mean yield from rainfed and irrigated yield from a lpj object.

Usage

```
area.weighted.yield(data, nbands=32, year=2000, landusefile,
gridfile)
```

Arguments

data	lpj object
nbands	integer. Number of bands in yield and landuse input file from LPJmL run.
year	integer. Landuse input file will be read only for this year and used as weight.
landusefile	character. Name of landuse input file used in LPJmL run incl. name of folder
gridfile	character. Name of grid output file from LPJmL run incl. name of folder

Details

Default for nbands is 32 for LPJmL runs with 16 crops (incl. sugarcane and bioenergy), default for year is 2000

Value

The function returns a list, with 2 lpj objects: "data" containing the yield and "croparea" containing the crop area in ha

Author(s)

Katharina Waha

See Also

[readLPJ](#), [new.lpj](#)

Examples

```
## Not run: mean.yield<-area.weighted.yield(yield,landusefile="D:/LPJ/input/cft1700_2005_16cfts_SR.bin",
      gridfile="D:/LPJ/run1/grid.bin")
## End(Not run)
```

lpj-class

Class "lpj" ~~~

Description

The LPJ class is a data format for cellular LPJ data with a close relationship to the array data format. `is.lpj` tests if x is an LPJ-object, `as.lpj` transforms x to an LPJ-object (if possible).

Arguments

x An object that should be either tested or transformed as/to an LPJ-object.

Author(s)

Jan Philipp Dietrich, Susanne Rolinski, Katharina Waha, Benjamin Bodirsky

See Also

[readLPJ](#), [read.LPJ_input](#)

Examples

```
showClass("lpj")
```

lpjclassdata	<i>lpjclassdata</i>
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Description

General LPJ-class-dataset

Details

Please do not directly access that data. It should be only used by library functions.

Author(s)

Jan Philipp Dietrich

new.lpj	<i>new.lpj</i>
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Description

Creates a new LPJ object

Usage

```
new.lpj(cells_and_regions,years,names,irrigation)
```

Arguments

cells_and_regions	dimnames for cells in the format "country.cellnumber"
years	dimnames for years in the format "yXXXX"
names	dimnames for names
irrigation	dimnames for irrigation

Value

an empty lpj object filled with NAs, with the given dimnames

Author(s)

Benjamin Bodirsky, Katharina Waha

See Also

[lpj,readLPJ](#)

Examples

```

cells <- c("Russia.1","Russia.2")
years <- "y1995"
categories <- c("TeCe","TrRi")
irrigation <- c("rainfed","irrigated")
a <- new.lpj(cells_and_regions=cells,years=years,names=categories,irrigation=irrigation)
a

```

read.LPJ_input	<i>read.LPJ_input</i>
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Description

Reads a LPJmL input file and converts it to a LPJ-object

Usage

```

read.LPJ_input(
  file_name,
  out_years = c("y1995", "y2005"),
  namesum = FALSE,
  four_d = FALSE,
  ncells = 59199,
  swap = "little",
  rule4binary = NULL
)

```

Arguments

file_name	Filename with extension and folder
out_years	years to be read out in the form of a vector of year strings, e.g. c(y1995,y2005)
namesum	if true, all bands/columns of the dataset are added. Sometimes useful to handle large datasets. Overwrites four_d
four_d	if true, it is assumed that data exists for both rainfed and irrigated crops.
ncells	number of cells
swap	Depends on the binary format of the data
rule4binary	Rule based transformation of the outputs into binary values

Details

This function reads in LPJ-input files, using its header information. So far, tested for landuse input. ‘rule4binary’ combined with ‘namesum = T’ allow for the rule based counting of events.

Value

x	LPJ-object
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Author(s)

Benjamin Bodirsky, Susanne Roliniski, Marcos Alves

See Also

[readLPJ](#)

readLPJ

readLPJ

Description

Reads a file which contains LPJ/LPJmL output and converts to a LPJ-object

Usage

```
readLPJ(
  file_name,
  wyears,
  syear = 1901,
  averaging_range = NULL,
  file_folder = "",
  file_type = NULL,
  bands = 41,
  monthly = FALSE,
  bytes = 4,
  years = NULL,
  ncells = 59199,
  soilcells = FALSE,
  headlines = 0,
  datatype = numeric(),
  gridfile = "",
  cellyear = FALSE,
  flexbands = FALSE
)
```

Arguments

<code>file_name</code>	a character string naming a file with extension but without folder
<code>wyears</code>	integer. a vector containing the years of interest
<code>syear</code>	integer. The first year
<code>averaging_range</code>	integer.
<code>file_folder</code>	a character string naming the folder where the file is stored
<code>file_type</code>	a character string, usually "bin" for binary files

bands	integer. The number of bands (e.g. crops, months). Will be 12 if monthly==TRUE
monthly	logical.
bytes	integer. The size of data type
years	integer. The number of years in file
ncells	integer.
soilcells	Bool. If 67420 cells are present in the file, should only the 59199 for MAgPIE be returned?
headlines	integer. The size of header, for output files = 0
datatype	a R data type
gridfile	a character string, currently not used
cellyear	Switch for input data format. Cellyear is the new lpjml input format. When reading in lpjml outputs set to false.
flexbands	reads in cfts for any number of bands, assumes only cfts, must be named later

Details

This function reads in LPJ/LPJmL output files. So far, tested for yield, monthly runoff, monthly temperature, monthly precipitation. Note, that number of years in file will be calculated automatically if years=NULL

Value

x LPJ-object

Author(s)

Susanne Rolinski, Benjamin Bodirsky

See Also

[read.LPJ_input](#)

Examples

```
## Example for the LPJmL output file pft_harvest.pft.bin containing crop yields in gC/m2
## Not run:
yield <- readLPJ(file_name = "pft_harvest.pft.bin", wyears = c(1998:2002),
  file_folder = "D:/LPJ/Trunk_2010_03_25/output/simulated_sdate/",
  bands = 26, gridfile = "D:/LPJ/Trunk_2010_03_25/output/simulated_sdate/grid.bin")
## End(Not run)
```

round-methods	<i>Round-method for LPJ objects</i>
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Description

Round-method for LPJ-objects respectively. Works exactly as for arrays.

Methods

`x = "lpj"` works as `round(x)` for arrays.

whatis	<i>whatis</i>
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Description

Helps to understand croppnames and abbreviation used in LPJmL and MAgPIE

Usage

`whatis(x)`

Arguments

`x` a character with quotes.

Value

a list with four list elements on: LPJmLName - the LPJmL name, CropAreaLPJmL - the crops whose cultivated areas are contained in the LPJmL landuse input file, CropGroupMAgPIE - the FAO crops whose areas and yields are compared to MAgPIE areas and yield, RepresentativeCropLPJmL - the parameters from this crop are used for the whole group in LPJmL.

Author(s)

Katharina Waha

See Also

[readLPJ,read.LPJ_input](#)

Examples

```
whatis("tece")
```

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