Package 'lpjutil'

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Type Package

Title Data manipulation tools for LPJmL.

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Description input/output data manipulation tools for LPJmL.

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R topics documented:

`deg2area` *convert degree of latitue [deg] to area [Ha]*

Description

convert degree of latitue [deg] to area [Ha]

Usage

```
deg2area(lat, res = 0.5)
```

Arguments

lat	latitue
res	resolution

Value

area in Ha

---

lpjoutput2ncdf *convert any lpjoutput to ncdf*

Description

convert any lpjoutput to ncdf

Usage

```
lpjoutput2ncdf(lpjoutput)
```

Arguments

lpjoutput:	list

---

map.build *Convert vector data to raster*

Description

Convert vector data to raster

Usage

```
map.build(raw_)
```

Arguments

raw_	vector

Value

2-D array [NR, NC]

new.var.ncdf *create an empty ncdf file with single variable.*

Description

create an empty ncdf file with single variable.

Usage

```
new.var.ncdf(ncfile, lpjgrid_path, var_name, units, time_start, time_interval,
  time_dim, longname = var_name, missval = 1e+32)
```

Arguments

lpjgrid:	the path of LPJ grid
var_name:	variable name
time_start:	start year for yearly output, start month for monthly output. e.g. "1900" and "1900-01-01"
time_interval:	"years" or "months" or "days"
time_dim:	length of time dimention, e.g. months * years
lonname:	the description of the variable

Value

list(cout, vardef): cout is the new ncdf file, and vardef \ is the definition of the all variables defined

output.operation *output.operation Do user defined operations on LPJ outputs.*

Description

Convert one LPJ output file by a user defined operation. Write out new data in LPJ output (clm) format.

Usage

```
output.operation(outfile, operation, newfile = paste(outfile[["path"]],
  "_new", sep = ""), VERBOSE = FALSE)
```

Arguments

outfile	the information list of LPJ output, see example.
operation	a user defined function/operation. Note: this function should have only one scalar/vector as an argument and return a scalar/vector value too.

Examples

```
lpjoutfile<-list()
lpjoutfile[["path"]]="../tests/test_data/soilc.bin"
lpjoutfile[["nyears"]]=40
lpjoutfile[["nbands"]]=1
lpjoutfile[["ncells"]]=67420
lpjoutfile[["start_year"]]=1901

fun<-function(old){ # here identify the user operation
    new <- old
    new[old>0] <- old/1000
    return((old/10000))
}
output.operation(lpjoutfile, fun, newfile="soilc_new.bin")
```

`read.input.grid` *Read input grid (clm), return global values lon, lat, EAST, SOUTH, WEST, NORTH, RES, NC, int_lon, ind_lat ...*

Description

Read input grid (clm), return global values lon, lat, EAST, SOUTH, WEST, NORTH, RES, NC, int_lon, ind_lat ...

Usage

```
read.input.grid(path.in)
```

Arguments

`path.in`	file location of grid.bin

Value

lon vector longitiute

lat vector latitide

`read.input.header` *Read header of LPJ inputs in clm. The current header layout is 43 bytes, with name, version, order, firstyear, nyears, firstcell, ncells, scalar. Return data in data.frame.*

Description

Read header of LPJ inputs in clm. The current header layout is 43 bytes, with name, version, order, firstyear, nyears, firstcell, ncells, scalar. Return data in data.frame.

Usage

```
read.input.header(filename)
```

Arguments

filename	this input file name, with full path

Value

data.frame header

Examples

```
header <- read.input.header("cru_temp.clm")
```

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read.input.yearband *Read one year and one band of LPJ clm data, and return a vector of the select year and band.*

Description

Read one year and one band of LPJ clm data, and return a vector of the select year and band.

Usage

```
read.input.yearband(filename, year, band, data.size)
```

Arguments

filename	input file path
year	absolute value of select year, e.g. 1900
band	band
data.size	data size of input data, generally equal to 2.

Value

vector of npix

Examples

```
read.input.yearband("temp.clm", 1983, 1, 2)
```

read.output.yearband *read data of a selected band and year of LPJ binary output.*

Description

read data of a selected band and year of LPJ binary output.

Usage

```
read.output.yearband(filename, year, band, start_year, ncells, nyears, nbands,
  data.size = 4)
```

Arguments

filename	output file name
year	select year
band	select band
start_year	start year of the LPJ output
ncells	ncells of the LPJ output
nyears	nyears of the LPJ output
nbands	nbands of the LPJ output
data.size	data size, which in general equal to 4.

Value

data in vector with ncells elements

Examples

```
data<-read.output.yearband("mnpp.bin", year=1982, band=2,
                           nyears=1900, ncells=67420, nyears=120, nbands=12)
```

write.output.yearband *Write data of a selected band and year of LPJ binary output.*

Description

Write data of a selected band and year of LPJ binary output.

Usage

```
write.output.yearband(filename, data, year, band, start_year, ncells, nyears,
  nbands, data.size = 4)
```

Arguments

filename	output file name
year	select year
band	select band
start_year	start year of the LPJ output
ncells	ncells of the LPJ output
nyears	nyears of the LPJ output
nbands	nbands of the LPJ output
data.size	data size, which in general equal to 4.

Value

data in vector with ncells elements

Examples

```
data<-read.output.yearband("mnpp.bin", year=1982, band=2,
                           nyears=1900, ncells=67420, nyears=120, nbands=12)
```

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