

Package ‘cruts’

September 14, 2018

Title Interface to Climatic Research Unit Time-Series Version 3.21
Data

Version 0.5

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Description Functions for reading in and manipulating CRU TS3.21: Climatic
Research Unit (CRU) Time-Series (TS) Version 3.21 data.

Depends R (>= 3.2.1)

License GPL-3

Imports sp, raster, stringr, lubridate, ncd4

RoxygenNote 6.0.1

NeedsCompilation no

Repository CRAN

Date/Publication 2018-09-14 17:00:02 UTC

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 cruts-package

cruts

Description

Read data from CRU TS3.21: Climatic Research Unit (CRU) Time-Series (TS) Version 3.21 of High Resolution Gridded Data of Month-by-month <http://catalogue.ceda.ac.uk/uuid/ac4ecbd554d0dd52a9b575d9666dc4>

Usage

```
cruts
```

Format

An object of class `logical` of length 1.

Details

```
Package:      cruts
Title:        Interface to Climatic Research Unit Time-Series Version 3.21 Data
Version:      0.5
Author:       Benjamin M. Taylor Additional contributions Bikash Parida Jacob Davies
Maintainer:   Benjamin M. Taylor <b.taylor1@lancaster.ac.uk>
Description:  Functions for reading in and manipulating CRU TS3.21: Climatic Research Unit (CRU) Time-Series (TS) V
Depends:      R (>= 3.2.1)
License:      GPL-3
Imports:      sp, raster, stringr, lubridate, ncdf4
RoxygenNote: 6.0.1
```

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```

sectionDependencies The package `cruts` depends upon some other important contributions to CRAN in order to operate; their uses here are indicated:

`sp`, `raster`, `stringr`, `lubridate`, `ncdf`.

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Author(s)

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cruts2poly

cruts2poly function

Description

A function to convert Climatic Research Unit Time-Series in NetCDF format to polygonal format, averaging over each region in question.

Usage

```
cruts2poly(ncfile, poly, timeRange = NULL, offset = "1900-01-01",
           na.rm = FALSE)
```

Arguments

ncfile	character string giving name and location of the CRUTS time series NetCDF file (if the file you downloaded is zipped, then you will need to extract it)
poly	a SpatialPolygonsDataFrame on which to average the variable in question
timeRange	vector of length 2 giving the start and end dates in the first and second place. Dates are converted using the function ymd, please refer to the help for this function for details on appropriate formats.
offset	time offset for CRU TS data
na.rm	logical, whether to ignore NA's in averaging, default is FALSE (to be consistent with other R functions in other packages), but option TRUE should probably be used on most occasions

Details

Data can be obtained from <http://catalogue.ceda.ac.uk/uuid/ac4ecbd554d0dd52a9b575d9666dc42d>

Value

a polygon with the averaged climate variable

Examples

```
## Not run: crutsimport(ncfile="my_cruts_file.nc",timeRange=c("2000-01-01","2001-01-01"))
```

cruts2raster	<i>cruts2raster function</i>
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Description

A function to convert Climatic Research Unit Time-Series in NetCDF format to raster format.

Usage

```
cruts2raster(ncfile, timeRange = NULL, poly = NULL, offset = "1900-01-01",  
            type = "stack")
```

Arguments

ncfile	character string giving name and location of the CRUTS time series NetCDF file (if the file you downloaded is zipped, then you will need to extract it)
timeRange	vector of length 2 giving the start and end dates in the first and second place. Dates are converted using the function <code>ymd</code> , please refer to the help for this function for details on appropriate formats.
poly	an optional <code>SpatialPolygonsDataFrame</code> on which to crop the raster to
offset	time offset for CRU TS data
type	can be either 'brick' or 'stack' (the default), this argument specifies what sort of raster object to return.

Details

Data can be obtained from <http://catalogue.ceda.ac.uk/uuid/ac4ecbd554d0dd52a9b575d9666dc42d>

Value

a raster stack or brick containing the raw data

Examples

```
## Not run: crutsimport(ncfile="my_cruts_file.nc",timeRange=c("2000-01-01","2001-01-01"))
```

extractNetCDF	<i>extractNetCDF function</i>
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Description

A function to extract data from CRU TS NetCDF files. A wrapper function for `get.var.ncdf`.

Usage

```
extractNetCDF(nc, start = NULL, count = NULL)
```

Arguments

<code>nc</code>	an object inheriting class <code>ncdf</code>
<code>start</code>	the start index. A vector of indices indicating where to start reading the passed values (beginning at 1). The length of this vector must equal the number of dimensions the variable has. If not specified, reading starts at the beginning of the file (1,1,1,...).
<code>count</code>	A vector of integers indicating the count of values to read along each dimension. The length of this vector must equal the number of dimensions the variable has. If not specified and the variable does NOT have an unlimited dimension, the entire variable is read. As a special case, the value '-1' indicates that all entries along that dimension should be read. By default this extracts data for the first time point.

Value

an array or matrix with the requested data

Examples

```
## Not run: extractNetCDF(dat=dat)
## Not run: extractNetCDF(dat=dat,start=c(1,1,1,1),count=c(1,2,3,1))
## Not run: extractNetCDF(dat=dat,start=c(1,1,1,1),count=c(-1,1,1,1))
```

getAnomaly	<i>getAnomaly function</i>
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Description

A function to extract anomalies from the Climatic Research Unit Time-Series dataset

Usage

```
getAnomaly(ncfile, poly = NULL, timeRange = NULL, offset = "1900-01-01",
na.rm = FALSE)
```

Arguments

<code>ncfile</code>	character string giving name and location of the CRUTS time series NetCDF file (if the file you downloaded is zipped, then you will need to extract it)
<code>poly</code>	an optional <code>SpatialPolygonsDataFrame</code> on which to compute the average anomalies if NULL (the default) a raster brick will be returned
<code>timeRange</code>	vector of length 2 giving the start and end dates in the first and second place. Dates are converted using the function <code>ymd</code> , please refer to the help for this function for details on appropriate formats.
<code>offset</code>	time offset for CRU TS data
<code>na.rm</code>	logical, whether to ignore NA's in averaging, default is FALSE (to be consistent with other R functions in other packages), but option TRUE should probably be used on most occasions

Details

Data can be obtained from <http://catalogue.ceda.ac.uk/uuid/ac4ecbd554d0dd52a9b575d9666dc42d>

Value

a raster or polygon with the raw or spatially averaged anomalies

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