Package 'GlobColouR'

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Title R client for GlobColour products

Version 0.1.0

Description The package provides an FTP client for the ACRI server including the GlobColour data set. Main features are checking the data availability, and the automated download via previously created file directories.
The GlobColour project (globcolour.info) provides an open-source data set of satellite-based ocean color products. It is developed and maintained by ACRI-ST, France. Data output is based on single sensors (e.g. SeaWIFS, MERIS, MODIS, VIIRS, OLCIA) and also available on a merged basis. Time coverage of data is from 1997 onwards, available in daily, eight day and monthly time steps. Spatial resolution is given in 1 km (Europe only), 4 km, 25 km and 100 km. Data is supplied in NetCDF4 or PNG containing a variety of biological, atmospheric optical, ocean surface optical and ocean subsurface optical parameters.

Depends R (>= 3.5.0)

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Encoding UTF-8

LazyData true

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NeedsCompilation no

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gc_get_colour *Fetching GlobColour products*

Description

Function downloads the requested GlobColour product, given as file directories created by gc_get_option.

Usage

```
gc_get_colour(query, openFile = FALSE)
```

Arguments

query	character or vector giving the file directories.
openFile	logical, if TRUE, function opens previously downloaded file (see Details). If FALSE, files are saved to working directory (default).

Details

Required file directories can either be generated by gc_get_colour or, if known, manually created. Note that the quantity of file directories is dramatically correlated with download time.

If openFile is set TRUE the function creates a temporary file (see tempfile), which is immediately opend after download (see Examples). Method requires length(query) < 2. For further details see nc_open and readPNG.

Examples

```
## Not run:

#Provide user information
gc_set_user("ftp_gc_DDummy", "DDummy_1234")

#Create directory for quick-look-file.png
qu <- gc_get_option(zone = "GLOB",
                    sens = "merged",
                    binp = "day",
                    date = "2017/08/19",
                    type = "KD490",
                    fext = "png")

#Download and assign file to object
test <- gc_get_colour(qu, openFile = TRUE)

#Plotting
grid::grid.raster(test)

## End(Not run)
```

gc_get_option *Get vector of available GlobColour products*

Description

Function examines available GlobColour products for a certain query and provides the respective file paths for direct FTP access via gc_get_colour.

Usage

```
gc_get_option(zone, sens, binp, date, type, fext, prle, reso)
```

Arguments

zone	character indicating the requested region (mendatory). Use "GLOB" for global coverage or "EURO" for the european area (see Details).
sens	character indicating a satellite acronym (mendatory). Accepted values are "meris", "viirsn" ,"olcia", "modis", "seawifs", or "merged".
binp	character indicating the binning period (mendatory). Accepted values are "month", "8-day", or "day".
date	character defining the requested date (mendatory). Required format is "yyyy/mm/dd". Use "latest" for most current data (see Details).
type	character or vector of product types (optional). See Details for provided GlobColour products.
fext	character or vector of file extentions (optional). Provided data formats are "nc" (NetCDF4) and "png" (PortableNetworkGraphic).
prle	character or vector indicating the product level (optional). Accepted values are "L3m" (mapped grid) and "L3b" (ISIN grid).
reso	character or vector specifying the resolution (optional) to "1", "4", "25", and/or "100" km (see Details).

Details

The first four arguments (zone, sens, binp, date) are mendatory, without which the function returns a table of accepted values to type in. The other arguments (type, fext, prle, reso) provide further filtering. For additional information see the GlobColour Product User's Guide.

The resolutions provided for the global coverage are 4, 25, and 100 km. The resolution for the europe-specific dataset is 1 km only. Values can optionally be set by reso.

If the requested date is after the most current date availabe the function automatically updates this attribute. The user can also type "latest" for automatically fetching the latest release.

The function shows all available types of data when using the mendatory arguments only. The provided data types (e.g. "KD490", "PAR", "CHL1") can then be used in type to accelerate the search process, and much more importantly, to shorten the list of files for download.

Examples

```
## Not run:

#Provide user information
gc_set_user("ftp_gc_DDummy", "DDummy_1234")

#Accepted values to use for arguments (mendatory vs. optional)
gc_get_option()

#Latest available ocean optics (merged) on global coverage and daily intervals
gc_get_option(zone = "GLOB",
              sens = "merged",
              binp = "day",
              date = "latest")

#Further filtering options
gc_get_option(zone = "GLOB",
              sens = "merged",
              binp = "day",
              date = "latest",
              type = c("KD490", "PAR"),
              fext = c("nc"),
              reso = c(4, 25))

## End(Not run)
```

`gc_set_user` *Set username and password used for authentication by ACRI*

Description

Function to set username and password used for authentication by ACRI.

Usage

```
gc_set_user(username, password)
```

Arguments

`username`	character string, username registered at hermes.acri.fr.
`password`	character string, password provided by ACRI after registration.

Details

Function sets environment variables (ACRI_FTP_USERNAME, ACRI_FTP_PASSWORD) used for FTP connection to the GlobColour database. Previous registration for access on the GlobColour archive is required.

Examples

```
## Not run:

gc_set_user(username = "DDummy",
            password = "abc1234")
Sys.getenv(c("ACRI_FTP_USERNAME", "ACRI_FTP_PASSWORD"))

## End(Not run)
```

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