Package 'nasadata'

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Type Package

Title Interface to Various NASA API's

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Description Provides functions to access NASA's Earth Imagery and Assets API and the Earth Observatory Natural Event Tracker (EONET) webservice.

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Imports plyr, dplyr, png, jsonlite, RCurl

Suggests testthat, curl

LazyData TRUE

RoxygenNote 5.0.1

R topics documented:

`earth_asset` *Call Asset API*

Description

Calls NASA's Earth Imagery Assets API and returns data.frame with information on time and location of images between two dates.

Usage

```
earth_asset(key, lon, lat, start_date, end_date = Sys.Date())
```

Arguments

key	Key for API authentication.
lon	Longitud of coordinate position.
lat	Latitud of coordinate position.
start_date	Start date to search for image. In YYYY-MM-DD format.
end_date	End date to search for image. In YYYY-MM-DD format. Defaults to current system date.

Value

Returns a `data.frame` containing the following columns:

date	date of the sample
id	identifier of the sample or "NO RESULTS"
type	type of the sample, currenlty always "Point"
coordinates	latitude and longitude as a string delimited by a space

Examples

```
## Not run:
key <- "123key"
img <- earth_asset(key, -100.31008, 25.66779, "2016-01-01")

## End(Not run)
```

---

earth_event *Calls EONET webservice*

Description

Calls NASA's Earth Observatory Natural Event Tracker (EONET) webservice and returns a list containing individual events as `data.frame`.

Usage

```
earth_event(status = c("all", "open", "closed"), sources = "all",
  category_id = "all", limit = 10, days = 20, LimitType = c("limit",
  "days", "all"), TrySimplify = TRUE)
```

Arguments

status	Accepts "open" or "closed". Defaults to "all", which includes both.
sources	Accepts character id strings from EONET sources (see eonet_sources)
category_id	Accepts number id strings from EONET category tree (see eonet_categories)
limit	Limit of events to download. If LimitType = "days" this is not considered. Defaults to 10.
days	Limit of days (less than today) to download events from. If LimitType = "limit" this is not considered. Defaults to 20.
LimitType	Type of limit to consider: "limit" (count of events), "days" (days less than today) or "all" (both limits).
TrySimplify	If TRUE tries to coerce category and event data.frames into one (successful if there is one category per event).

Value

Returns a list with individual events:

Events	data.frame - TODO description
Sources	data.frame - TODO description
Categories	data.frame - TODO description
Geography	list of data.frame - TODO description
Meta	data.frame - TODO description

Examples

```
## Not run:
event <- earth_event(limit = 1)

## End(Not run)
```

---

earth_image *Fetches image from Earth Imagery API*

Description

Calls NASA's Earth Imagery API and returns list with identification information and image.

Usage

```
earth_image(key, lon, lat, date, cloud_score = TRUE, plot = FALSE,
  meta_only = FALSE)
```

Arguments

key	API Key for authentication.
lon	Longitude of coordinate position.
lat	Latitude of coordinate position.
date	In YYYY-MM-DD format. The API wil return the image that is closest to this date.
cloud_score	Gives a score of percentage of cloud cover, via algorithm (see official documentation). Defaults to TRUE.
plot	If TRUE will plot the image via generic plot function.
meta_only	If TRUE will only download the meta data for the image.

Value

Returns a `list` of two elements:

image_metadata	This contains a `data.frame`
image_raster_data	This contains an `array` representing a raster

Examples

```
## Not run:
key <- "123key"
img <- earth_image(key, -100.31008, 25.66779, "2016-01-01")

## End(Not run)
```

---

eonet_categories *Calls EONET category webservice.*

Description

Calls NASA's EONET Webservice and returns all categories available.

Usage

```
eonet_categories()
```

Value

Returns `data.frame` with 5 columns:

id	Unique id (can be used to filter `earth_event`)
title	Title of category
link	Direct json link (the result is equal to filtering all `earth_event` with category)
description	Description of category
layers	Layers of category (see oficial documentation)

Examples

```
## Not run:
categories <- eonet_categories()

## End(Not run)
```

`eonet_sources` *Calls EONET sources webservice*

Description

Calls NASA's EONET Webservice and returns all sources available.

Usage

```
eonet_sources()
```

Value

Returns `data.frame` with 4 columns:

`id`	Unique id (can be used to filter `earth_event`)
`title`	Title of source
`source`	Official source URL
`link`	Direct json link (the result is equal to filtering all `earth_event` with source)

Examples

```
## Not run:
sources <- eonet_sources()

## End(Not run)
```

`plot_earth_image` *Plots the image to device*

Description

To avoid S4 Classes and methods, this small wrapper simply plots an image from NASA. If the purpose is to this interactively on one image, set the parameter `plot = TRUE` in `earth_image`.

Usage

```
plot_earth_image(image_raster_data)
```

Arguments

image_raster_data
: image downloaded using earth_image.

Value

nothing

See Also

earth_image

Examples

```
## Not run:
key <- "123key"
img <- earth_image(key, -100.31008, 25.66779, "2016-01-01")
plot_earth_image(img$image_png)

## End(Not run)
```

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