

nightlights

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downloadNightLights	<i>Download Night Lights data from NOAA</i>
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Description

Download night lights data from NOAA for specific years.

Usage

```
downloadNightLights(years, extract = TRUE, directory = NULL,  
                     download.method = NULL, ...)
```

Arguments

years	The years of data to download, e.g. 2000:2002 or c(1992, 2002, 2012). The available years are 1992-2013.
extract	(Logical) Should the downloaded files be extracted from the tarballs? Default is TRUE.
directory	The directory to save the files to. If omitted, it saves to the current directory. If the directory does not yet exist, it will be created.
download.method	Method to use in the download.file button. If not specified it will use internal on Windows and wget otherwise. Extra arguments can also be passed to the download.file function such as extra when needed.

Examples

```
downloadNightLights(years = c(1992, 2002, 2012), directory = "night-lights")
```

extractNightLights	<i>Extract Night Lights data from regions in a shapefile</i>
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Description

Extract NOAA night lights data for regions in a `SpatialPolygons` or `SpatialPolygonsDataFrame`. For years with two different satellite readings, it first takes the average between the two years.

Usage

```
extractNightLights(directory = ".", shp, stats = c("sum"), years = NULL)
```

Arguments

directory	The directory the night lights data is stored in. The files must be extracted to TIFF format and the filenames must not have been changed. Other TIFF files in the same directory will probably cause problems. The default value for <code>nl.dir</code> is the current directory.
shp	The <code>SpatialPolygons</code> or <code>SpatialPolygonsDataFrame</code> to extract data from.
stats	A vector of functions to apply to the data within each region, for example <code>c("sum", "mean", "sd")</code> . The default is "sum".
years	If provided, will only extract night lights data for those years. By default it will extract all years in the directory.

Value

Returns a `data.frame` with `shp@data` combined with the extracted night lights data for each year provided.

Examples

```
q <- readline(prompt="Download shapefile and night lights data for example (about 500MB)? (Y/n)")
if (q != "Y") {
  stop("Aborted.")
}

# Get an example shapefile to work with:
download.file("ftp://ftp2.census.gov/geo/tiger/TIGER2015/COUSUB/tl_2015_25_cousub.zip",
             destfile = "tl_2015_25_cousub.zip")
unzip("tl_2015_25_cousub.zip")
shp <- rgdal::readOGR(".", "tl_2015_25_cousub")

# Download and extract some night lights data to a directory "night-lights":
downloadNightLights(years = 1999:2000, directory = "night-lights")

# By default, the function gets the sum of night lights within the regions:
nl.sums <- extractNightLights(directory = "night-lights", shp)
```


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