

Package: afrilearndata (via r-universe)

August 28, 2024

Title Small Africa Map Datasets for Learning

Version 0.0.0.9003

Description Small African datasets to help with learning and teaching of spatial techniques and mapping. Part of afrimapr project. To provide analysts based in Africa with more easily relateable example datasets. R objects for points, lines, polygons and raster. Source files including .gpkg, .shp, .kml, .tif, .grd, .csv.

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Encoding UTF-8

LazyData true

Roxygen list(markdown = TRUE)

RoxygenNote 7.1.1

Depends R (>= 2.10)

Imports sf, raster

Suggests testthat (>= 3.0.0), mapview, rgdal

Config/testthat/edition 3

Repository <https://afrimapr.r-universe.dev>

RemoteUrl <https://github.com/afrimapr/afrilearndata>

RemoteRef HEAD

RemoteSha d8510ed4a732418c4cf1a385867604d341528ad0

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| | |
|--------------|-------------------------|
| afriairports | <i>African airports</i> |
|--------------|-------------------------|

Description

a sf object points of African airports. See data-raw/afrilearnndata-creation.R for how the data object is created.

Usage

```
afriairports
```

Format

Formal class 'sf'; 50 rows 5 columns

- id id numeric
- ident ident XXXX
- type large_airport medium_airport small_airport
- name airport name
- elevation_ft elevation in feet
- continent continent code AF
- country_name country name
- iso_country country code two letters capitalised
- region_name name of region
- iso_region iso region code incl country XX-YY
- local_region region code excl country YY
- municipality municipality
- scheduled_service scheduled_service 1=yes, 2=no
- gps_code gps character code
- iata_code iata character code
- local_code local code
- home_link web page url
- wikipedia_link wikipedia url
- keywords keywords
- score score
- last_updated last update
- geometry coordinates of the point sfc_POINT

Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://ourairports.com/continents/AF/airports.csv>

Examples

```
if (requireNamespace("sf", quietly = TRUE)) {
  library(sf)
  data(africapitals)

  # or read from the csv file which is stored in package as example to work with
  # filename <- system.file("extdata", "africapitals.csv", package="africapitals", mustWork=TRUE)
  # dfairports <- readr::read_csv(filename)
  # and convert to sf object
  # africapitals <- sf::st_as_sf(dfairports, coords=c("longitude_deg", "latitude_deg"), crs=4326)

  #plot(sf::st_geometry(africapitals))
}
```

africapitals

African capital city points

Description

a sf object points of African capital cities See data-raw/africapitals-creation.R for how the data object is created.

Usage

```
africapitals
```

Format

Formal class 'sf'; 50 rows 5 columns

- capitalname character vector capital city names
- countryname character vector country names
- pop numeric estimated population 2006
- iso3c character vector ISO 3 letter country code
- geometry sfc_POINT

Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://cran.r-project.org/web/packages/maps/>

Examples

```
if (requireNamespace("sf", quietly = TRUE)) {
  library(sf)
  data(africapitals)
  # or
  filename <- system.file("extdata", "africapitals.gpkg", package="afrilearndata", mustWork=TRUE)
  africapitals <- sf::read_sf(filename)

  #plot(sf::st_geometry(africapitals))
}
```

| | |
|---------------|-----------------------------------|
| africontinent | <i>African country boundaries</i> |
|---------------|-----------------------------------|

Description

a sf object containing low resolution African continent outline See data-raw/afrilearndata-creation.R for how the data object is created.

Usage

```
africontinent
```

Format

Formal class 'sf';

- name character vector continent name
- geometry sfc_MULTIPOLYGON

Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://www.naturalearthdata.com/downloads/110m-cultural-vectors/>

See Also

<https://cran.r-project.org/web/packages/rnaturalearth/>

Examples

```
if (requireNamespace("sf", quietly = TRUE)) {
  library(sf)
  data(africontinent)
  # or
  filename <- system.file("extdata", "africontinent.shp", package="afrilearndata", mustWork=TRUE)
  africontinent <- sf::read_sf(filename)

  plot(sf::st_geometry(africontinent))
}
```

| | |
|---------------|-----------------------------------|
| africountries | <i>African country boundaries</i> |
|---------------|-----------------------------------|

Description

a sf object containing low resolution African country boundaries See data-raw/afrilearndata-creation.R for how the data object is created.

Usage

```
africountries
```

Format

Formal class 'sf'; 51 rows, 8 columns

- name character vector country names
- name_long character vector country names long
- pop_est numeric estimated population
- gdp_md_est numeric estimated gdp
- lastcensus numeric year of last census
- income_grp character vector income group
- iso_a3 character vector ISO 3 letter country code
- geometry sfc_MULTIPOLYGON
- name_fr character vector French country names
- name_pt character vector Portuguese country names
- name_af character vector Afrikaans country names
- name_sw character vector Swahili country names

Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://www.naturalearthdata.com/downloads/110m-cultural-vectors/>

See Also

<https://cran.r-project.org/web/packages/rnaturalearth/>

Examples

```
if (requireNamespace("sf", quietly = TRUE)) {  
  library(sf)  
  data(africountries)  
  # or  
  filename <- system.file("extdata", "africountries.shp", package="afrilearndata", mustWork=TRUE)  
  africountries <- sf::read_sf(filename) #'  
  plot(sf::st_geometry(africountries))  
}
```

afrihighway

African trans-continental highway network lines

Description

a sf object of simplified lines of transcontinental highway network See data-raw/afrilearndata-creation.R for how the data object is created.

Usage

```
afrihighway
```

Format

Formal class 'sf'; 100 rows, 2 columns

- Name character vector of section names
- geom sfc_LINESTRING

Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://www.google.com/maps/d/u/0/viewer?msa=0&mid=1nEU2oBFzSxabx3Z14nTyZP3KSzY&ll=1.9249940151081273%2C12.874260000000021&z=3>

See Also

https://en.wikipedia.org/wiki/Trans-African_Highway_network

Examples

```
if (requireNamespace("sf", quietly = TRUE)) {  
  library(sf)  
  data(afrihighway)  
  # or  
  filename <- system.file("extdata", "trans-african-highway.kml",  
                           package="afrilearndata", mustWork=TRUE)  
  afrihighway <- sf::read_sf(filename)
```

```
#remove Description column, only has contents in first row
afrihighway <- afrihighway[ , which(names(afrihighway)!='Description')]

plot(sf::st_geometry(afrihighway))
}
```

afrilandcover *landcover raster for Africa, categorical, 20km resolution*

Description

a raster object storing the majority landcover in 2019 for all 20km squares in Africa. Categorical, 20km resolution from **MODIS**. Cell values are numeric, landcover type names are stored in Raster Attribute Table (RAT) that can be accessed via `levels(afrilandcover)` See `data-raw/afrilearndata-creation.R` for how the data object is created.

Usage

```
afrilandcover
```

Format

Formal class 'raster';
Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://lpdaac.usgs.gov/products/mcd12c1v006/>

See Also

Friedl, M., D. Sulla-Menashe. MCD12C1 MODIS/Terra+Aqua Land Cover Type Yearly L3 Global 0.05Deg CMG V006. 2015, distributed by NASA EOSDIS Land Processes DAAC, <https://doi.org/10.5067/MODIS/MCD12C1>
Accessed 2021-06-07.#'

Examples

```
if (requireNamespace("raster", quietly = TRUE)) {
  library(raster)
  data(afrilandcover)
  # or
  filename <- system.file("extdata", "afrilandcover.grd", package="afrilearndata", mustWork=TRUE)
  afrilandcover <- raster::raster(filename)

  plot(afrilandcover)
}

# interactive plotting with mapview
if (requireNamespace("mapview", quietly = TRUE) &
```

```
requireNamespace("rgdal", quietly = TRUE)) {  
  library(mapview)  
  mapview(afrilandcover,  
          att="landcover",  
          col.regions=levels(afrilandcover)[[1]]$colour)  
}
```

afripop2000

modelled population density 2000 per square km from WorldPop aggregated to mean per 20km squares

Description

a raster object modelled population density 2000 per square km from WorldPop aggregated to mean per 20km squares

Usage

```
afripop2000
```

Format

Formal class 'raster';
Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://www.worldpop.org/geodata/summary?id=24757>

See Also

<https://www.worldpop.org> WorldPop datasets are licensed under Creative Commons Attribution 4.0 International (CC BY 4.0) <https://creativecommons.org/licenses/by/4.0/>

Examples

```
if (requireNamespace("raster", quietly = TRUE)) {  
  library(raster)  
  data(afripop2000)  
  # or  
  filename <- system.file("extdata", "afripop2000.tif", package="afrilearndata", mustWork=TRUE)  
  afripop2000 <- raster::raster(filename)  
  
  plot(afripop2000)  
}
```

| | |
|-------------|---|
| afripop2020 | <i>modelled population density 2020 per square km from WorldPop aggregated to mean per 20km squares</i> |
|-------------|---|

Description

a raster object modelled population density 2020 per square km from WorldPop aggregated to mean per 20km squares See `data-raw/afrilearnrdata-creation.R` for how the data object is created.

Usage

```
afripop2020
```

Format

Formal class 'raster';
Geographical coordinates WGS84 datum (CRS EPSG 4326)

Source

<https://www.worldpop.org/geodata/summary?id=24777>

See Also

<https://www.worldpop.org> WorldPop datasets are licensed under Creative Commons Attribution 4.0 International (CC BY 4.0) <https://creativecommons.org/licenses/by/4.0/>

Examples

```
if (requireNamespace("raster", quietly = TRUE)) {  
  library(raster)  
  data(afripop2020)  
  # or  
  filename <- system.file("extdata", "afripop2020.tif", package="afrilearnrdata", mustWork=TRUE)  
  afripop2020 <- raster::raster(filename)  
  
  plot(afripop2020)  
}
```

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