Package

July 28, 2019

Type Package

Title Loads shapefiles of the Brazilian Institute of Geography and Statistics (IBGE) and other official spatial data sets of Brazil

Version 1.0

Date 2019-07-28

URL https://github.com/ipeaGIT/geobr

BugReports https://github.com/ipeaGIT/geobr/issues

Description geobr provides easy access to shapefiles of the Brazilian
Institute of Geography and Statistics (IBGE) as 'sf' objects in R.
It includes a wide range of geographic datasets availabe at various geographic scales and for various years.

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Encoding UTF-8

LazyData TRUE

Depends R (>= 3.4.0)

Suggests dplyr,
ggplot2,
mapview,
knitr,
rmarkdown

Imports httr,
readr,
sf

RoxygenNote 6.1.1

VignetteBuilder knitr

R topics documented:

`brazil_2010` *Spatial dataset sf with codes for Brazilian municipalities in 2010*

Description

Built-in dataset to speed up access to data of the year 2010. To access the data directly, issue the command `data("brazil_2010")`. Map of Brazil at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674). More info at «ftp://geoftp.ibge.gov.br/organizacao_do_territorio/malhas_territoriais and «https://ww2.ibge.gov.br/english/geociencias/geodesia/pmrg/faq.shtm

- `code_muni`: IBGE code of municipality (7-digit, numeric)
- `name_muni`: Title-case name of municipality (character)
- `code_micro`: IBGE code of micro region (5-digit, numeric)
- `name_micro`: Title-case name of micro region (character)
- `code_meso`: IBGE code of meso region (4-digit, numeric)
- `name_meso`: Title-case name of meso region (character)
- `code_state`: IBGE code of State (2-digit, numeric)
- `name_state`: Title-case name of state (character)
- `abbrev_state`: UPPER CASE abbreviation of state name (2 letters, character)
- `code_region`: IBGE code of region (1-digit, numeric)
- `name_region`: Title-case name of region (character)
- `geometry`: geometry info in "sfc_GEOMETRY" "sfc"

Usage

```
data(brazil_2010)
```

Format

A data frame sf with 5,565 rows and 12 columns

Details

Spatial dataset sf with codes for Brazilian municipalities, states and regions in 2010

Note

Last updated 2019-06-17

`grid_state_correspondence_table` *A correspondance table indicating what quadrants of IBGE's statistical grid intersect with each Brazilian state*

Description

Built-in dataset

- `code_uf`: IBGE code of State (2-digit, numeric)
- `name_state`: Title-case name of state (character)
- `code_grid`: Unique code of each quadrant of IBGE's statistical grid

Usage

```
data(grid_state_correspondence_table)
```

Format

A data frame sf with 139 rows and 3 columns

Details

correspondance table indicating what quadrants of IBGE's statistical grid intersect with each Brazilian state

Note

Last updated 2019-06-17

`read_census_tract` *Download shape files of census tracts of the Brazilian Population Census (Only years 2000 and 2010 are currently available).*

Description

Download shape files of census tracts of the Brazilian Population Census (Only years 2000 and 2010 are currently available).

Usage

```
read_census_tract(code_tract, year = NULL, zone = "urban")
```

Arguments

`code_tract`	The 7-digit code of a Municipality. If the two-digit code or a two-letter uppercase abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all census tracts of that state. If code_tract="all", all census tracts of the country are loaded.
`year`	Year of the data (defaults to 2010)
`zone`	"urban" or "rural" census tracts come in separate files in the year 2000 (defaults to "urban")

See Also

Other general area functions: read_country, read_meso_region, read_micro_region, read_municipality, read_region, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read rural census tracts for years before 2007
  c <- read_census_tract(code_tract=5201108, year=2000, zone="rural")

# Read all census tracts of a state at a given year
  c <- read_census_tract(code_tract=53, year=2010); # or
  c <- read_census_tract(code_tract="DF", year=2010)
  plot(c)

# Read all census tracts of a municipality at a given year
  c <- read_census_tract(code_tract=5201108, year=2010)
  plot(c)

# Read all census tracts of the country at a given year
  c <- read_census_tract(code_tract="all", year=2010)


## End(Not run)
```

---

read_country

Download shape file of Brazil as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Description

Download shape file of Brazil as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_country(year = NULL)
```

Arguments

year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_meso_region, read_micro_region, read_municipality, read_region, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific year
  br <- read_country(year=2018)


## End(Not run)
```

`read_health_facilities` *Download geolocated data of health facilities as an sf object.*

Description

Data comes from the National Registry of Healthcare facilities (Cadastro Nacional de Estabelecimentos de Saúde - CNES), originally collected by the Brazilian Ministry of Health. The date of the last data update is registered in the database in the columns 'date_update' and 'year_update'. These data uses Geodetic reference system "SIRGAS2000" and CRS(4674). The coordinates of each facility was obtained by CNES and validated by means of space operations. These operations verify if the point is in the municipality, considering a radius of 5,000 meters. When the coordinate is not correct, further searches are done in other systems of the Ministry of Health and in web services like Google Maps . Finally, if the coordinates have been correctly obtained in this process, the coordinates of the municipal head office are used. The final source used is registered in the database in a specific column 'data_source'. Periodically the coordinates are revised with the objective of improving the quality of the data. More information available at http://dados.gov.br/dataset/cnes

Usage

```
read_health_facilities(code)
```

Arguments

code	The 7-digit code of a municipality. If the two-digit code or a two-letter abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all healthcare facilities of that state. If code="all", all facilities of the country are loaded.

Examples

```
## Not run:

library(geobr)

# Read the health facilities of state 11
  h <- read_health_facilities(code=11)

# Read the health facilities of state "AM"
  h <- read_health_facilities(code="AM")

# Read all health facilities of the country
```

```
  h <- read_health_facilities(code="all")


## End(Not run)
```

`read_meso_region` *Download shape files of meso region as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape files of meso region as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_meso_region(code_meso, year = NULL)
```

Arguments

code_meso	The 4-digit code of a meso region. If the two-digit code or a two-letter uppercase abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all meso regions of that state. If code_meso="all", all meso regions of the country are loaded.
year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_country, read_micro_region, read_municipality, read_region, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific meso region at a given year
  meso <- read_meso_region(code_meso=3301, year=2018)

# Read all meso regions of a state at a given year
  meso <- read_meso_region(code_meso=12, year=2017)
  meso <- read_meso_region(code_meso="AM", year=2000)

# Read all meso regions of the country at a given year
  meso <- read_meso_region(code_meso="all", year=2010)


## End(Not run)
```

read_micro_region	*Download shape files of micro region as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape files of micro region as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_micro_region(code_micro, year = NULL)
```

Arguments

code_micro	5-digit code of a micro region. If the two-digit code or a two-letter uppercase abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all micro regions of that state. If code_micro="all", all micro regions of the country are loaded.
year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_country, read_meso_region, read_municipality, read_region, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read an specific micro region a given year
  micro <- read_micro_region(code_micro=11008, year=2018)

# Read micro regions of a state at a given year
  micro <- read_micro_region(code_micro=12, year=2017)
  micro <- read_micro_region(code_meso="AM", year=2000)

# Read all micro regions at a given year
  micro <- read_micro_region(code_micro="all", year=2010)

## End(Not run)
```

read_municipality *Download shape files of Brazilian municipalities as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape files of Brazilian municipalities as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_municipality(code_muni, year = NULL)
```

Arguments

code_muni	The 7-digit code of a municipality. If the two-digit code or a two-letter uppercase abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all municipalities of that state. If code_muni="all", all municipalities of the country will be loaded.
year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_country, read_meso_region, read_micro_region, read_region, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific municipality at a given year
  mun <- read_municipality(code_muni=1200179, year=2017)

# Read all municipalities of a state at a given year
  mun <- read_municipality(code_muni=33, year=2010)
  mun <- read_municipality(code_muni="RJ", year=2010)

# Read all municipalities of the country at a given year
  mun <- read_municipality(code_muni="all", year=2018)


## End(Not run)
```

read_region *Download shape file of Brazil Regions as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape file of Brazil Regions as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_region(year = NULL)
```

Arguments

year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_country, read_meso_region, read_micro_region, read_municipality, read_state, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific year
  reg <- read_region(year=2018)


## End(Not run)
```

read_state *Download shape files of Brazilian states as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape files of Brazilian states as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_state(code_state, year = NULL)
```

Arguments

code_state	The two-digit code of a state or a two-letter uppercase abbreviation (e.g. 33 or "RJ"). If code_state="all", all states will be loaded.
year	Year of the data (defaults to 2010)

See Also

Other general area functions: read_census_tract, read_country, read_meso_region, read_micro_region, read_municipality, read_region, read_statistical_grid, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific state at a given year
  uf <- read_state(code_state=12, year=2017)

# Read specific state at a given year
  uf <- read_state(code_state="SC", year=2000)

# Read all states at a given year
  ufs <- read_state(code_state="all", year=2010)


## End(Not run)
```

---

read_statistical_grid *Download shape files of IBGE's statistical grid (200 x 200 meters) as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)*

Description

Download shape files of IBGE's statistical grid (200 x 200 meters) as sf objects. Data at scale 1:250,000, using Geodetic reference system "SIRGAS2000" and CRS(4674)

Usage

```
read_statistical_grid(code_grid, year = NULL)
```

Arguments

code_grid	The 7-digit code of a grid quadrant If the two-letter abbreviation of a state is used, the function will load all grid quadrants that intersect with that state. If code_grid="all", the grid of the whole country will be loaded.
year	Year of the data (defaults to 2010). The only year available thus far is 2010.

See Also

Other general area functions: read_census_tract, read_country, read_meso_region, read_micro_region, read_municipality, read_region, read_state, read_weighting_area

Examples

```
## Not run:

library(geobr)

# Read specific municipality at a given year
  grid <- read_statistical_grid(code_grid = 45, year=2010)

# Read all municipalities of a state at a given year
  state_grid <- read_statistical_grid(code_grid = "RJ")


## End(Not run)
```

`read_weighting_area` *Download shape files of Census Weighting Areas (area de ponderação) of the Brazilian Population Census. Only 2010 data is currently available.*

Description

Download shape files of Census Weighting Areas (area de ponderação) of the Brazilian Population Census. Only 2010 data is currently available.

Usage

```
read_weighting_area(code_weighting, year = NULL)
```

Arguments

`code_weighting`	The 7-digit code of a Municipality. If the two-digit code or a two-letter uppercase abbreviation of a state is passed, (e.g. 33 or "RJ") the function will load all weighting areas of that state. If code_weighting="all", all weighting areas of the country are loaded.
`year`	Year of the data (defaults to 2010)

See Also

Other general area functions: `read_census_tract`, `read_country`, `read_meso_region`, `read_micro_region`, `read_municipality`, `read_region`, `read_state`, `read_statistical_grid`

Examples

```
## Not run:

library(geobr)

# Read specific weighting area at a given year
  w <- read_weighting_area(code_weighting=5201108005004, year=2010)

# Read all weighting areas of a state at a given year
  w <- read_weighting_area(code_weighting=53, year=2010); # or
  w <- read_weighting_area(code_weighting="DF", year=2010)
```

```
  plot(w)

# Read all weighting areas of a municipality at a given year
  w <- read_weighting_area(code_weighting=5201108, year=2010)
  plot(w)

# Read all weighting areas of the country at a given year
  w <- read_weighting_area(code_weighting="all", year=2010)


## End(Not run)
```

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