Package ‘geouy’

October 13, 2022

Type Package
Title Geographic Information of Uruguay
Version 0.2.6
Maintainer Richard Detomasi <richard.detomasi@gmail.com>
Description The toolbox have functions to load and process geographic information for Uruguay. And extra-function to get address coordinates and orthophotos through the uruguayan 'IDE' API <https://www.gub.uy/infraestructura-datos-espaciales/tramites-y-servicios/servicios/sistema-unico-direcciones-geograficas>.
BugReports https://github.com/RichDeto/geouy/issues
License GPL-3
Depends R (>= 3.4.0)
Language en, es
ByteCompile true
Encoding UTF-8
LazyData TRUE
RoxygenNote 7.2.1
SystemRequirements ‘unrar’ (Linux/macOS) or '7-Zip' (Windows) to work with '.rar' files, C++11, GDAL (>= 2.0.1), GEOS (>= 3.8.0), PROJ (>= 6.2.1)
Imports rlang, curl, dplyr, glue, stringr, ggplot2, ggthemes, ggspatial, methods, magrittr, fs, sf, assertthat, viridis, raster, sp, rjson
Suggests rmarkdown, knitr
VignetteBuilder knitr
NeedsCompilation no
Author Richard Detomasi [aut, cre, cph]
Ministerio de Desarrollo Social, Uruguay (MIDES) [dtc], Infraestrutura de Datos Espaciales, Uruguay (IDE) [dtc],
add_geom

This function allows you to add a geom variable with a code variable of "zona", "barrio", "localidad", "segmentos", "secciones" or "departamentos".

Usage

```r
add_geom(data, unit, variable, crs = 32721)
```
Arguments

- **data**: data.frame
- **variable**: Variable name of unit code (without duplicates)
- **crs**: Coordinates Reference System, usually in region 32721 or 4326 (default 32721)

Details

Disclaimer: This script is not an official INE product. Aviso: El script no es un producto oficial de INE.

Value

data.frame

See Also

Other service: `geocode_ide_uy()`, `load_geouy()`, `reverse_ide_uy()`, `tiles_geouy()`, `where_uy()`, `which_uy()`

Examples

```r
pobre_x_dpto <- as.data.frame(cbind(nomdpto = c("ARTIGAS", "DURAZNO", "FLORIDA", "LAVALLEJA"),
Pobreza = c(0.26, 0.27, 0.07, 0.10)))
pobre_x_dpto_geo <- add_geom(data = pobre_x_dpto, unit = "Deptos", variable = "nomdpto")
```

Description

A function to geocoding directions using IDE_uy

Usage

`geocode_ide_uy(x, details = F)`

Arguments

- **x**: Dataframe with unless 3 variables: dpto = corresponding to the department, loc = city / location, dir = to the address.
- **details**: Logical value, default FALSE for X and Y variables only, if TRUE keep all variables of the service.
Details

https://direcciones.ide.uy/swagger-ui.html#/geocode_reverse_inversa

Value

The DataFrame x with the coordinates variables append (x and y)

See Also

Other service: add_geom(), load_geouy(), reverse_ide_uy(), tiles_geouy(), where_uy(), which_uy()

Examples

# x1 <- cbind(dpto="Montevideo",loc="Montevideo",dir="Av. 18 de julio 1453")
# x2 <- data.frame(x1, stringsAsFactors = F)
# geocode_ide_uy(x2)

is.uy32721

This function test if an 'sf' object match with Uruguay at crs = 32721.

Description

This function test if an 'sf' object match with Uruguay at crs = 32721.

Usage

is.uy32721(x)

Arguments

x An 'sf' object with the same crs as the homonym parameter
is.uy4326

Value
logical value based in crs parameter of the sf object

See Also
Other crs: is.uy4326(), is.uy5381(), is.uy5382()

Examples
is.uy32721(load_geouy("Peajes"))

This function test if an 'sf' object match with Uruguay at crs = 4326.

Description
This function test if an 'sf' object match with Uruguay at crs = 4326.

Usage
is.uy4326(x)

Arguments
x An 'sf' object with the same crs as the homonym parameter

Value
logical value based in crs parameter of the sf object

See Also
Other crs: is.uy32721(), is.uy5381(), is.uy5382()

Examples
is.uy4326(load_geouy("Peajes"))
Description

This function test if an 'sf' object match with Uruguay at crs = 5381.

Usage

is.uy5381(x)

Arguments

x  
An 'sf' object with the same crs as the homonym parameter

Value

logical value based in crs parameter of the sf object

See Also

Other crs: is.uy32721(), is.uy4326(), is.uy5382()

Examples

is.uy5381(load_geouy("CCZ"))

Description

This function test if an 'sf' object match with Uruguay at crs = 5382.

Usage

is.uy5382(x)

Arguments

x  
An 'sf' object with the same crs as the homonym parameter

Value

logical value based in crs parameter of the sf object
load_geouy

See Also

Other crs: is.uy32721(), is.uy4326(), is.uy5381()

Examples

is.uy5382(load_geouy("Uruguay"))

load_geouy

This function allows to take ofical uruguayan geometries, as object "sf", from various servers.

Description

This function allows to take ofical uruguayan geometries, as object "sf", from various servers.

Usage

load_geouy(c, crs = 32721, folder = tempdir())

Arguments

c Define the geometries to download: may be: "Departamentos", "Secciones", "Zonas", etc. View(metadata) for details.
crs Define the Coordinate Reference Systems you want the output, default 32721
folder Folder where are the files download if formato == "zip" in metadata. Default tempdir()

Value

sf object with the requested geometries

See Also

Other service: add_geom(), geocode_ide_uy(), reverse_ide_uy(), tiles_geouy(), where_uy(), which_uy()

Examples

secc <- load_geouy(c = "Secciones")
### loc_agr_ine

**INE "Localidades Agregadas"**

**Description**

A dataset containing the codes, names and others attributes of urban locations for Uruguay.

**Usage**

loc_agr_ine

**Format**

A data frame with 615 rows and 8 variables:

- **depto** name of the "Departamento"
- **nomloc** name of the "Localidad"
- **codloc** code of the "Localidad"
- **pob2011** Population by "Censo 2011"
- **dens2011km** Population density by "Censo 2011" (population/km)
- **Nom_loc_agr_13** name of the "Localidades agrupadas" (2013)
- **Loc_agr_13** code of the "Localidades agrupadas" (2013)
- **cat_loc_agr** Tipical categories of "Localidades"

**See Also**

Other data: metadata_tables, metadata_wms, metadata, mvd_barrios_grid, uy_deptos_grid

### metadata

**Metadata of geoservices for Uruguay**

**Description**

A dataset containing the urls and other attributes of geoservices for Uruguay.

**Usage**

metadata
**metadata_tables**

**Format**

A data frame with 86 rows and 10 variables:

- **capa** name of the geoservice
- **productor** name of the institution produced the data
- **repositor** name of the institution that serves the data
- **crs** Coordinate Reference Systems of data
- **formato** name of the institution producing the data
- **anio** year of data production
- **url** url of the service
- **cod** name of the variable that contains the cod value of the geometries
- **name** name of the variable that contains the name of the geometries
- **enc** name of the encoding of the geoservice table

**See Also**

Other data: `loc_agr_ine, metadata_tables, metadata_wms, mvd_barrios_grid, uy_deptos_grid`

---

### metadata_tables

*Metadata of tables for Uruguay*

**Description**

A dataset containing the urls and other attributes of geoservices for Uruguay.

**Usage**

`metadata_tables`

**Format**

A data frame with 3 rows and 3 variables:

- **tabla** name of the geoservice
- **formato** name of the institution producing the data
- **url** url of the service

**See Also**

Other data: `loc_agr_ine, metadata_wms, metadata, mvd_barrios_grid, uy_deptos_grid`
**metadata_wms**  
*Metadata of WMS for Uruguay*

**Description**
A dataset containing the urls and other attributes of geoservices for Uruguay.

**Usage**
`metadata_wms`

**Format**
A data frame with 7 rows and 3 variables:
- **capa** name of the geoservice
- **formato** name of the institution producing the data
- **url** url of the service

**See Also**
Other data: `loc_agr_ine, metadata_tables, metadata, mvd_barrios_grid, uy_deptos_grid`

---

**mvd_barrios_grid**  
*Montevideo barrios grid*

**Description**
A dataset containing the cods, names and others attributes as a geofacet grid

**Usage**
`mvd_barrios_grid`

**Format**
A data frame with 62 rows and 4 variables:
- **name** name of the "Barrio"
- **code** INE code of the "Barrio"
- **row** row position in the grid
- **col** col position in the grid

**See Also**
Other data: `loc_agr_ine, metadata_tables, metadata_wms, metadata, uy_deptos_grid`
Description

This function allows you to set ggplot2 theme in our suggested format.

Usage

plot_geouy(x, col, viri_opt = "plasma", l = NULL, other_lab = NULL, ...)

Arguments

x                      An sf object like load_geouy() results
col                    Variable of "x" to plot (character)
viri_opt               A character string indicating the colormap option to use. Four options are available: "magma" (or "A"), "inferno" (or "B"), "plasma" (or "C"), "viridis" (or "D", the default option) and "cividis" (or "E")
l                      If NULL none label added, if "%" porcentage with 1 decimal labels, if "n" the value is the label, if "c" put other variable in other_lab. Default NULL
other_lab              If l is "c" put here the variable name for the labels.
...                    All parameters allowed from ggplot2 themes.

Value

ggplot object of a choropleth map with x geometries and col values.

Examples

secc <- load_geouy("Secciones")
plot_geouy(x = secc, col = "AREA")

reverse_ide_uy

A function to reverse geocoding from coordinates (EPSG 4326) using IDE_uy

Description

A function to reverse geocoding from coordinates (EPSG 4326) using IDE_uy.
reverse_ide_uy(x, details = F)

Arguments

x  Dataframe with unless 2 variables: lat = latitud in EPSG:4326 & longitud in
   EPSG:4326.
details Logical value, default FALSE for X and Y variables only, if TRUE keep all
   variables of the service.

Details

https://direcciones.ide.uy/swagger-ui.html#/Geocode

Value

The DataFrame x with the direction variables append (address, nomVia, tip_via, portalNumber,
letra, postalCode, localidad, departamento, manzana, solar and km)

See Also

Other service: add_geom(), geocode_ide_uy(), load_geouy(), tiles_geouy(), where_uy(),
which_uy()

Examples

# x <- data.frame(cbind(lat = -34.77882, lon = -56.06476))
# reverse_ide_uy(x)

This function allows to Download .jpg or .tif files from the IDEuy tiles
repository, according to a `sf` object bbox.

Usage

tiles_geouy(x, d = NA, format = "rgb", folder = tempdir(), urban = FALSE)
uy_deptos_grid

Arguments

- x: An 'sf' object with the same crs as the homonym parameter
d: numeric; buffer distance for all, or for each of the elements in x; in case dist is
  a units object, it should be convertible to arc_degree if x has geographic coordi-
  nates, and to st_crs(x)$units otherwise. Default NA, but if x is a only one point
  buffer default is 100.
format: Format of the archives to download (available: "rgb" and "rgbi") Default "rgb"
folder: Folder where are the files or be download
urban: logical; If FALSE take orthophotos of national flight with 32cm per pixel, if
  TRUE take urban flight with 10cm per pixel (available only Montevideo at the
  moment)

Value

raster::stack object with th cropped tif corresponding to x bbox

See Also

Other service: add_geom(), geocode_ide_uy(), load_geouy(), reverse_ide_uy(), where_uy(),
which_uy()

Examples

x <- data.frame(x = 577968, y = 6147753, id = 1)
x <- sf::st_as_sf(x, coords = c("x", "y"), crs = 32721)
x_tiles <- tiles_geouy(x, urban = TRUE)

Description

A dataset containing the cods, names and others attributes as a geofacet grid

Usage

uy_deptos_grid

Format

A data frame with 19 rows and 4 variables:

- name: name of the "Departamento"
- code: INE code of the "Departamento"
- row: row position in the grid
- col: col position in the grid
where_uy

This function return an 'sf' object with the geometry of the consult id or group of ids, of an administrative units in Uruguay.

Description

This function return an 'sf' object with the geometry of the consult id or group of ids, of an administrative units in Uruguay.

Usage

where_uy(c = "Localidades pg", d = "cod", e, crs = 32721)

Arguments

c  Define the geometries to consult: may be: "Departamentos", "Secciones", "Zonas", etc. View(metadata) for details.

d  A vector who determines the variables to be consult, with two options: "cod" or "name". Default "cod".

e  A vector who determines the ids or names to identify.

crs  Define the Coordinate Reference Systems you want the output, default 32721

Value

sf object with the geometries of the d ids

See Also

Other service: add_geom(), geocode_ide_uy(), load_geouy(), reverse_ide_uy(), tiles_geouy(), which_uy()

Examples

x <- where_uy(c = "Localidades pg", d = "cod", e = c(1120, 2220))
which_uy

This function allows to add to an 'sf' object its spatial coincidence with one or more administrative units in Uruguay, generating the corresponding variables.

Description
This function allows to add to an 'sf' object its spatial coincidence with one or more administrative units in Uruguay, generating the corresponding variables.

Usage

which_uy(x, c = c("Localidades pg", "Departamentos"), d = c("cod", "name"))

Arguments

x An 'sf' object with the same crs as the homonym parameter
c Define the geometries to download: may be: "Departamentos", "Secciones", "Zonas", etc. View(metadata) for details.
d A vector who determines the variables to be added, with three options: "cod", "name", or "full". Default c("cod", "name").

Value
sf object with the x geometries, with d variables requested from c added

See Also
Other service: add_geom(), geocode_ide_uy(), load_geouy(), reverse_ide_uy(), tiles_geouy(), where_uy()

Examples

x <- load_geouy("Peajes")
x1 <- which_uy(x, c = "Deptos")
Index

* **CRS**
  - is.uy32721, 4
  - is.uy4326, 5
  - is.uy5381, 6
  - is.uy5382, 6
* **IDE_uy**
  - geocode_ide_uy, 3
  - reverse_ide_uy, 11
* **IDE**
  - load_geouy, 7
  - tiles_geouy, 12
  - where_uy, 14
  - which_uy, 15
* **INE**
  - load_geouy, 7
  - where_uy, 14
  - which_uy, 15
* **MIDES**
  - load_geouy, 7
  - where_uy, 14
  - which_uy, 15
* **Uruguay**
  - is.uy32721, 4
  - is.uy4326, 5
  - is.uy5381, 6
  - is.uy5382, 6
  - tiles_geouy, 12
* **crs**
  - is.uy32721, 4
  - is.uy4326, 5
  - is.uy5381, 6
  - is.uy5382, 6
* **datasets**
  - loc_agr_ine, 8
  - metadata, 8
  - metadata_tables, 9
  - metadata_wms, 10
  - mvd_barrios_grid, 10
  - uy_deptos_grid, 13
* **data**
  - loc_agr_ine, 8
  - metadata, 8
  - metadata_tables, 9
  - metadata_wms, 10
  - mvd_barrios_grid, 10
  - uy_deptos_grid, 13
* **geocoding**
  - geocode_ide_uy, 3
  - reverse_ide_uy, 11
* **ggplot2**
  - plot_geouy, 11
* **maps**
  - plot_geouy, 11
* **orthophotos**
  - tiles_geouy, 12
* **plot**
  - plot_geouy, 11
* **reverse**
  - reverse_ide_uy, 11
* **service**
  - add_geom, 2
  - geocode_ide_uy, 3
  - load_geouy, 7
  - reverse_ide_uy, 11
  - tiles_geouy, 12
  - where_uy, 14
  - which_uy, 15
* **sf**
  - is.uy32721, 4
  - is.uy4326, 5
  - is.uy5381, 6
  - is.uy5382, 6
  - plot_geouy, 11

  add_geom, 2, 4, 7, 12–15
  geocode_ide_uy, 3, 3, 7, 12–15
  geouy, 4
INDEX

is.uy32721, 4, 5–7
is.uy4326, 5, 5, 6, 7
is.uy5381, 5, 6, 7
is.uy5382, 5, 6, 6
load_geouy, 3, 4, 7, 12–15
loc_agr_ine, 8, 9, 10, 14

metadata, 8, 8, 9, 10, 14
metadata_tables, 8, 9, 9, 10, 14
metadata_wms, 8–10, 10, 14
mvd_barrios_grid, 8–10, 10, 14

plot_geouy, 11

reverse_ide_uy, 3, 4, 7, 11, 13–15

tiles_geouy, 3, 4, 7, 12, 12, 14, 15

uy_deptos_grid, 8–10, 13

where_uy, 3, 4, 7, 12, 13, 14, 15
which_uy, 3, 4, 7, 12–14, 15