

# Package ‘geouy’

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**Type** Package

**Title** Geographic Information of Uruguay

**Version** 0.2.7

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**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** 7.2.3

**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, tidyselect

**Suggests** rmarkdown, knitr

**VignetteBuilder** knitr

**NeedsCompilation** no

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**Repository** CRAN

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add_geom	<i>This function allows you to add a geom variable with a code variable of "zona", "barrio", "localidad", "segmentos", "secciones" or "departamentos".</i>
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---

### Description

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

### Usage

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

**Arguments**

data	data.frame
unit	spatial unit of data, may be: "Departamentos", "Secciones", "Secc MVD 2004", "Segmentos", "Segm MVD 2004", "Segm URB INT 2004", "Zonas", "Zonas MVD 2004", "Zonas URB INT 2004", "Localidades pg", "Municipios" o "Barrios".
variable	Variable name of unit code (without duplicates)
crs	Coordinates Refence Sistem, 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**

```
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")
```

---

geocode\_ide\_uy      *A function to geocoding directions using IDE\_uy*

---

**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](https://direcciones.ide.uy/swagger-ui.html#/geocode,_reverse,_inversa)

**Value**

The DafaFrame 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)
```

---

geouy

*geouy package*

---

**Description**

The toolbox have functions to load and process geographic information for Uruguay.

**Details**

See the README on [Github](#)

---

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

**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("Uruguay"))
```

---

is.uy4326

*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"))
```

---

`is.uy5381`*This function test if an 'sf' object match with Uruguay at crs = 5381.*

---

**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"))
```

---

`is.uy5382`*This function test if an 'sf' object match with Uruguay at crs = 5382.*

---

**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

**See Also**

Other crs: [is.uy32721\(\)](#), [is.uy4326\(\)](#), [is.uy5381\(\)](#)

**Examples**

```
is.uy5382(load_geouy("Uruguay"))
```

---

load_geouy	<i>This function allows to take oficial uruguayan geometries, as object "sf", from various servers.</i>
------------	---

---

**Description**

This function allows to take oficial 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	<i>INE "Localidades Agregadas"</i>
-------------	------------------------------------

---

### Description

A dataset containing the cods, 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** Typical categories of "Localidades"

### See Also

Other data: [metadata\\_tables](#), [metadata\\_wms](#), [metadata](#), [mvd\\_barrrios\\_grid](#), [uy\\_deptos\\_grid](#)

---

metadata	<i>Metadata of geoservices for Uruguay</i>
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---

### Description

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

### Usage

metadata



**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\\_barrrios\\_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\\_barrrios\\_grid](#), [uy\\_deptos\\_grid](#)

---

metadata_wms	<i>Metadata of WMS for Uruguay</i>
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---

**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: [locAgrIne](#), [metadataTables](#), [metadata](#), [mvdBarriosGrid](#), [uyDeptosGrid](#)

---

mvd_barrios_grid	<i>Montevideo barrios grid</i>
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---

**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: [locAgrIne](#), [metadataTables](#), [metadataWms](#), [metadata](#), [uyDeptosGrid](#)

---

 plot\_geouy

*plot\_geouy*


---

**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 "%" percentage 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

**Usage**

```
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 DafaFrame 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)
```

---

tiles\_geouy

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

---

**Description**

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)
```

**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 coordinates, 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)
```

---

 uy\_deptos\_grid

*Uruguay Departments grid*


---

**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

**See Also**

Other data: [loc\\_agr\\_ine](#), [metadata\\_tables](#), [metadata\\_wms](#), [metadata](#), [mvd\\_barrios\\_grid](#)

---

where_uy	<i>This function return an 'sf' object with the geometry of the consult id or group of ids, of an administrative units in Uruguay.</i>
----------	--

---

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

---

### 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")
```

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